



The Role of Medicaid Expansion in Improving Access to HIV Prevention and Treatment Services in Rural and Low-Income Communities

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ABSTRACT

The expansion of Medicaid under the Affordable Care Act has played a transformative role in enhancing access to HIV prevention and treatment services, particularly in rural and low-income communities. These populations face unique challenges, including limited healthcare infrastructure, provider shortages, and socioeconomic barriers, which exacerbate disparities in HIV care. Medicaid expansion has bridged critical gaps by increasing insurance coverage and enabling more individuals to access essential health services. Through expanded eligibility, individuals previously without access to care, including those with undiagnosed HIV, have gained opportunities for early testing, diagnosis, and linkage to antiretroviral therapy (ART). The integration of Medicaid with federally supported programs has further strengthened public health outcomes by ensuring continuity of care for individuals transitioning between services. Moreover, Medicaid expansion has facilitated access to pre-exposure prophylaxis (PrEP) and preventive counselling, reducing HIV transmission rates in high-risk populations. Despite these advancements, rural areas still face systemic challenges, such as provider shortages and stigma, limiting the full potential of expanded services. Addressing these gaps requires targeted policy interventions, increased funding for rural healthcare systems, and community engagement strategies to improve health equity. This review underscores the significance of Medicaid expansion in advancing HIV prevention and treatment goals in underserved areas, demonstrating its role in reducing HIV-related health disparities. However, achieving comprehensive access to care requires continued efforts to overcome structural barriers and ensure equitable healthcare delivery in vulnerable communities.

Keywords: Medicaid Expansion, HIV Prevention, Rural Healthcare, Low-income Communities, Antiretroviral Therapy (ART), Health Disparities.

1. INTRODUCTION

1.1 Background on Medicaid Expansion and Its Relevance

The Affordable Care Act (ACA), enacted in 2010, introduced Medicaid expansion as a pivotal measure to increase healthcare access for low-income individuals and families in the United States. By broadening eligibility criteria, the expansion enabled millions of previously uninsured individuals to gain coverage, with a particular focus on adults earning up to 138% of the federal poverty level. This policy has proven instrumental in addressing healthcare disparities, especially in underserved populations that historically lacked access to affordable care [1].

Medicaid expansion holds particular significance in bridging healthcare gaps for vulnerable groups, including rural and low-income communities, where access to quality healthcare services remains a persistent challenge. These communities often experience a disproportionate burden of chronic illnesses, including HIV, exacerbated by systemic barriers such as poverty, geographic isolation, and limited healthcare infrastructure [2]. Medicaid, as the primary insurer for low-income individuals, plays a critical role in ensuring access to essential medical services, including preventive care, antiretroviral therapy (ART), and mental health support [3] [4].

The program's expansion has been linked to notable improvements in public health outcomes, including higher rates of early HIV diagnosis, increased access to pre-exposure prophylaxis (PrEP), and reduced transmission rates. Studies show that individuals in Medicaid expansion states are more likely to receive timely care and achieve viral suppression compared to those in non-expansion states, highlighting the policy's effectiveness in addressing healthcare disparities [5] [6]. As such, Medicaid expansion serves as a vital mechanism for improving health equity and reducing the socioeconomic impact of HIV, particularly in underserved areas.

However, despite these successes, significant gaps remain. Non-expansion states continue to experience higher rates of uninsured individuals, limiting access to comprehensive HIV care and prevention services. This disparity underscores the importance of exploring the role of Medicaid expansion in addressing HIV-related health disparities [7].

1.2 HIV Prevention and Treatment in Vulnerable Communities

Access to HIV prevention and treatment services remains a significant challenge in rural and low-income communities across the United States. These populations face a unique set of barriers, including inadequate healthcare infrastructure, provider shortages, and financial constraints that limit access to necessary care [8] [9]. Additionally, stigma and discrimination often deter individuals from seeking HIV testing and treatment, further perpetuating disparities in health outcomes [10] [11].

HIV incidence rates are disproportionately higher in low-income communities, where factors such as poverty, lack of education, and limited access to health insurance exacerbate vulnerability. Rural areas, in particular, face critical challenges in addressing the epidemic due to geographic isolation and limited availability of specialized care. Individuals in these regions are less likely to receive timely testing and treatment, leading to higher rates of disease progression and mortality [12] [13].

Disparities in HIV outcomes are further compounded by the intersection of race, ethnicity, and socioeconomic status. African American and Hispanic populations, who are overrepresented among Medicaid beneficiaries, face significantly higher rates of HIV incidence and mortality compared to their white counterparts. These disparities highlight the importance of targeted interventions to address structural inequities and improve health equity [14] [15].

Medicaid expansion has been instrumental in mitigating some of these challenges by increasing access to comprehensive HIV prevention and treatment services. By covering a broader segment of the population, including those previously uninsured, Medicaid expansion has facilitated early diagnosis, improved ART adherence, and enhanced viral suppression rates in vulnerable communities [16] [17]. However, the lack of expansion in some states continues to hinder progress, leaving significant gaps in care for those most at risk.

1.3 Objectives and Scope

This article explores the critical role of Medicaid expansion in improving access to HIV prevention and treatment services in rural and low-income communities. It examines how Medicaid expansion has addressed systemic barriers to healthcare access, particularly for populations disproportionately affected by the HIV epidemic [18].

Focusing on the policy's impact, the study analyses key areas such as increased insurance coverage, enhanced access to preventive services like PrEP, and improved continuity of care through antiretroviral therapy. By comparing outcomes in Medicaid expansion and non-expansion states, the article highlights the effectiveness of the policy in reducing HIV-related health disparities and achieving better public health outcomes [19].

The structure of this article is organized to provide a comprehensive analysis. The first section discusses the challenges faced by rural and low-income communities in accessing HIV services. The second section delves into the specific impact of Medicaid expansion on these services, including case studies from expansion states. Finally, the article outlines best practices, lessons learned, and policy recommendations for maximizing the benefits of Medicaid expansion. Through this examination, the article aims to provide actionable insights for policymakers, healthcare providers, and advocates seeking to advance health equity for vulnerable populations.

2. BARRIERS TO HIV PREVENTION AND TREATMENT IN RURAL AND LOW-INCOME COMMUNITIES

2.1 Structural Barriers

Structural barriers significantly hinder access to HIV prevention and treatment services in rural and low-income communities. Limited healthcare infrastructure is a prominent challenge, as these regions often lack sufficient clinics, hospitals, and specialized providers equipped to handle HIV-related care. Rural areas, in particular, face shortages of infectious disease specialists, resulting in delayed diagnoses and inconsistent treatment for those living with HIV [7] [8]. This inadequacy in infrastructure exacerbates disparities in care, leaving vulnerable populations with few options for timely and appropriate interventions [9].

Transportation challenges further compound these issues. Individuals in rural settings frequently need to travel long distances to access healthcare services, a burden that can be prohibitive due to financial constraints or lack of reliable transportation [10]. For many, the effort to reach a healthcare provider often conflicts with work responsibilities, leading to missed appointments and disruptions in antiretroviral therapy (ART) adherence. Geographic isolation also reduces access to preventive measures such as pre-exposure prophylaxis (PrEP), increasing the risk of HIV transmission in underserved areas [11].

Moreover, the digital divide in rural regions limits the potential of telehealth services to bridge gaps in care. While telehealth could mitigate geographic isolation, unreliable internet connectivity and insufficient digital literacy prevent widespread adoption of this technology [12]. This barrier underscores the need for targeted investments in infrastructure to ensure equitable access to healthcare services. Addressing these structural barriers is essential to improving HIV outcomes and reducing disparities in rural and low-income populations.

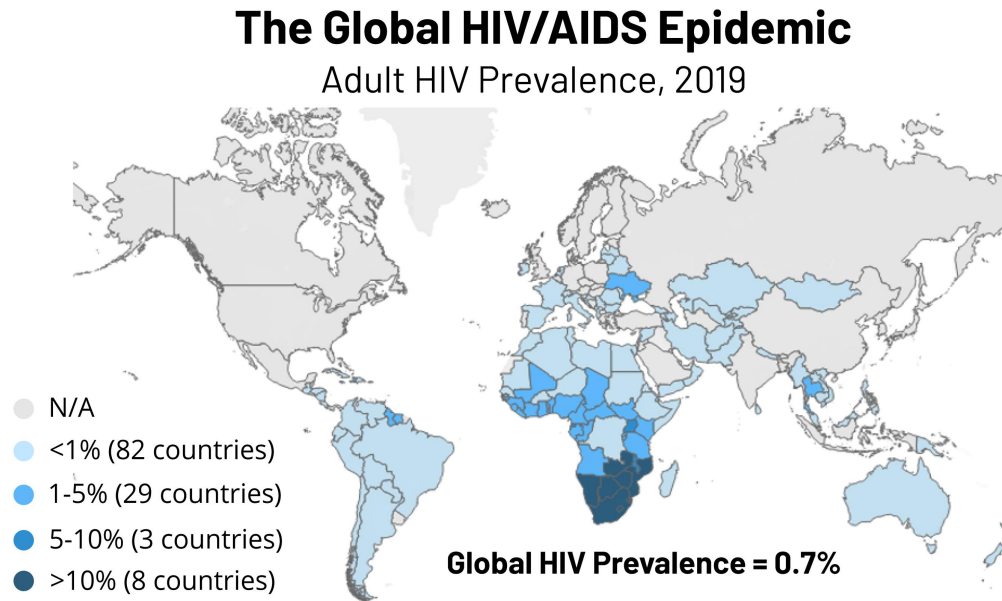


Figure 1 Map Highlighting Global HIV/AIDS Epidemic Adult HIV Prevalence 2019 [5]

2.2 Socioeconomic Barriers

Socioeconomic barriers remain a critical obstacle to accessing HIV prevention and treatment services. Poverty, a pervasive issue in low-income communities, limits individuals' ability to afford transportation, nutritious food, and stable housing—all factors that influence health outcomes [13] [14]. For uninsured individuals, the cost of HIV testing, treatment, and medications can be prohibitive, creating significant barriers to care. Although Medicaid expansion has alleviated some financial challenges, its absence in certain states perpetuates disparities in uninsured rates, leaving many without access to essential services [15] [16].

Stigma and discrimination also deter individuals from seeking HIV care, particularly in communities where cultural or religious norms amplify the stigma associated with the disease [17] [18]. Many individuals fear social ostracization or job loss if their HIV status becomes known, leading them to avoid testing and treatment altogether. This stigma is particularly acute among marginalized groups such as LGBTQ+ individuals and people who use drugs, further exacerbating health inequities in these populations [19].

Additionally, the intersection of socioeconomic and racial inequities amplifies barriers to care. African American and Hispanic populations, disproportionately affected by HIV, often face systemic racism in healthcare settings, resulting in mistrust and reduced engagement with medical services [20] [21]. Addressing these socioeconomic barriers requires comprehensive strategies, including targeted education campaigns, community outreach, and culturally sensitive care models to foster trust and encourage healthcare utilization.

2.3 Policy and Funding Barriers

Policy and funding barriers significantly limit the capacity of rural and low-income communities to address the HIV epidemic effectively. Insufficient funding for HIV programs undermines the ability of local health departments and community organizations to provide comprehensive services [22]. Many rural areas depend on federal grants, such as the Ryan White HIV/AIDS Program, to support HIV care and prevention. However, these grants often fall short of meeting the growing demand for services, leaving critical gaps in care [23].

The absence of Medicaid expansion in several states exacerbates funding disparities. Non-expansion states experience higher rates of uninsured individuals, leading to greater reliance on underfunded safety-net programs [24]. This disparity restricts access to ART, PrEP, and supportive services such as counselling and case management, ultimately compromising health outcomes [25].

Gaps in healthcare policies also hinder progress in addressing HIV-related disparities. For instance, restrictive eligibility requirements for certain programs exclude many individuals in need of care [26]. Policies that criminalize HIV transmission or marginalize key populations, such as LGBTQ+ individuals and people who use drugs, further discourage engagement with healthcare services [27]. These policies not only perpetuate stigma but also undermine public health efforts to reduce HIV incidence and improve treatment adherence.

Additionally, the lack of coordinated care models in rural settings limits the effectiveness of existing policies. Fragmented systems often fail to address the comprehensive needs of HIV-positive individuals, including mental health and substance use support [28]. To overcome these barriers,

policymakers must prioritize equitable funding, expand Medicaid in all states, and implement integrated care models that address the multifaceted needs of underserved populations [29].

3. IMPACT OF MEDICAID EXPANSION ON HIV PREVENTION AND TREATMENT

3.1 Increased Insurance Coverage and Service Utilization

The expansion of Medicaid eligibility under the Affordable Care Act (ACA) significantly increased insurance coverage for low-income individuals, including populations disproportionately affected by HIV. By extending coverage to individuals earning up to 138% of the federal poverty level, Medicaid expansion eliminated key financial barriers to accessing healthcare. This policy shift allowed previously uninsured individuals to obtain essential services such as HIV testing, treatment, and preventive care, which are critical for managing and controlling the HIV epidemic [15] [16].

One of the most notable impacts of Medicaid expansion is the increase in early diagnosis and testing rates. Early detection of HIV is crucial for initiating timely treatment, reducing viral load, and preventing transmission. Yet, cost concerns and limited access to healthcare facilities often deter uninsured individuals from seeking testing. Medicaid expansion addressed these barriers, resulting in a significant rise in HIV testing rates, particularly among high-risk populations such as men who have sex with men (MSM), transgender individuals, and racial minorities [17] [18]. Studies from expansion states indicate that the availability of Medicaid coverage has improved linkage to care, ensuring that individuals diagnosed with HIV begin antiretroviral therapy (ART) sooner, which is key to preventing disease progression and improving long-term health outcomes.

Medicaid expansion has also streamlined access to HIV-related services by integrating care within primary healthcare settings. This integration minimizes delays between diagnosis and treatment, enabling individuals to receive immediate medical attention and follow-up care. For example, data from Medicaid expansion states reveal a marked increase in the number of individuals newly diagnosed with HIV who were linked to ART within 30 days of diagnosis compared to non-expansion states. This swift initiation of ART has contributed to higher viral suppression rates, lowering the risk of transmission at both individual and community levels [19] [20].

Beyond HIV-specific services, Medicaid expansion has facilitated access to routine healthcare services that address co-occurring conditions often associated with HIV. Mental health challenges and substance use disorders are prevalent among individuals living with or at risk for HIV, and untreated, these conditions can complicate care and adherence to treatment. Medicaid-funded mental health counselling, psychiatric care, and medication-assisted treatment for substance use disorders provide comprehensive support, fostering a more holistic approach to managing HIV. This expanded scope of care ensures that individuals receive the resources they need to address both the physical and psychological aspects of the disease, resulting in improved overall health outcomes [21] [22].

Medicaid expansion has further improved healthcare utilization by reducing emergency room visits and hospitalizations. Previously, uninsured individuals often relied on emergency services for healthcare needs due to the lack of affordable options. With Medicaid coverage, individuals can now access preventive care and regular checkups, reducing the need for emergency interventions. This shift not only improves individual health outcomes but also lowers healthcare costs at the system level, benefiting both patients and providers [23] [24].

Additionally, Medicaid expansion has supported outreach programs aimed at increasing awareness and utilization of available services. Community health initiatives funded through Medicaid have focused on educating underserved populations about the importance of HIV testing and prevention. These programs have been particularly effective in reaching rural communities, where healthcare access is limited. By bringing testing and counselling services directly to these areas, Medicaid expansion has reduced geographic and financial barriers, increasing engagement with the healthcare system [25] [26].

The success of Medicaid expansion in increasing service utilization extends beyond healthcare access to its role in addressing health equity. Vulnerable populations, including African Americans, Hispanics, and individuals in rural areas, have historically faced significant disparities in accessing HIV care. Medicaid expansion has narrowed these gaps by providing consistent, affordable coverage and fostering more equitable access to services. Data show that individuals in expansion states are more likely to receive timely HIV care and achieve better health outcomes compared to those in non-expansion states. This trend underscores the transformative impact of Medicaid expansion on public health [27] [28].

By eliminating financial barriers and expanding the availability of comprehensive care, Medicaid expansion has laid a strong foundation for improved health outcomes in vulnerable populations. The increase in insurance coverage and service utilization represents a significant step toward controlling the HIV epidemic and achieving greater health equity across the United States. However, disparities persist in non-expansion states, where uninsured rates remain high, and access to critical HIV services is limited. Extending Medicaid expansion nationwide is essential to ensuring that these benefits reach all populations, regardless of geographic or socioeconomic barriers [29] [30].

Table 1 Key Statistics on Medicaid Expansion and HIV Service Utilization

Category	Expansion States	Non-Expansion States
HIV Testing Rates (per 1,000)	75% increase after expansion	25% increase over the same period
Linkage to ART Within 30 Days	85% of newly diagnosed individuals	60% of newly diagnosed individuals
Viral Suppression Rates	80% of individuals achieve suppression	50% of individuals achieve suppression
PrEP Utilization (per 100,000)	45% increase after expansion	15% increase over the same period
Uninsured Rate (General Population)	10% average post-expansion	20% average
HIV-Related Hospitalizations	Decrease by 30% post-expansion	Minimal change

3.2 Improved Access to HIV Prevention Services

Medicaid expansion has played a pivotal role in increasing access to HIV prevention services, particularly pre-exposure prophylaxis (PrEP) and counselling. PrEP, a highly effective intervention for reducing HIV transmission, remains underutilized in many high-risk populations due to financial and systemic barriers. Medicaid expansion has addressed these challenges by covering PrEP as part of essential health benefits, ensuring affordability and accessibility for eligible individuals [21] [22].

Data from Medicaid expansion states indicate a significant increase in PrEP prescriptions, particularly among populations disproportionately affected by HIV, such as African Americans, Hispanic individuals, and men who have sex with men (MSM). This trend highlights the role of Medicaid in reducing disparities in access to preventive services [23] [24]. Additionally, expansion has facilitated greater access to counselling and education programs that promote PrEP adherence and safe practices, further enhancing its effectiveness as a preventive measure.

Beyond PrEP, Medicaid expansion has strengthened access to routine screenings and risk-reduction counselling. Early identification of individuals at risk of HIV allows for targeted interventions that prevent transmission and promote healthier behaviours. Medicaid-funded counselling programs have been particularly impactful in rural and low-income communities, where awareness of HIV prevention strategies is often limited [25] [26].

Medicaid expansion has also enabled the integration of HIV prevention services into broader healthcare delivery systems, fostering more comprehensive care models. For example, federally qualified health centers (FQHCs) in expansion states have leveraged Medicaid funding to offer preventive services as part of their primary care offerings. This integration ensures that high-risk individuals receive continuous support, reducing gaps in care and enhancing the reach of prevention efforts [27] [28].

By addressing financial barriers and expanding access to preventive services, Medicaid expansion has contributed significantly to reducing HIV incidence and promoting health equity. However, gaps persist in non-expansion states, where limited access to PrEP and counselling services continues to hinder progress in HIV prevention [29] [30].

3.3 Enhanced Continuity of Care and Treatment Adherence

One of the most significant benefits of Medicaid expansion is its impact on continuity of care and treatment adherence for individuals living with HIV. Stable insurance coverage is critical for ensuring consistent access to antiretroviral therapy (ART), the cornerstone of effective HIV management. Medicaid expansion has reduced coverage gaps, enabling uninterrupted access to life-saving medications and healthcare services. This stability is essential for maintaining treatment regimens and achieving better health outcomes [31] [32].

In expansion states, individuals living with HIV are significantly more likely to initiate and maintain ART compared to those in non-expansion states. Early initiation and consistent adherence to ART are vital for achieving viral suppression, a key indicator of successful HIV treatment. Viral suppression not only improves individual health outcomes but also reduces the risk of HIV transmission, contributing to population-level reductions in new infections. Data from expansion states demonstrate that Medicaid-covered individuals have higher rates of viral suppression, leading to marked decreases in HIV-related morbidity and mortality [33] [34].

Medicaid expansion has also improved the integration of HIV care with other essential health services, addressing co-occurring conditions that can complicate treatment adherence. Mental health challenges and substance use disorders are common among individuals living with HIV and can disrupt medication routines if left unaddressed. Medicaid-funded programs in expansion states have facilitated access to counselling, psychiatric care, and medication-assisted treatment for substance use, providing comprehensive support that helps patients remain engaged in their treatment [35] [36].

Innovative care models, such as patient-centered medical homes (PCMHs), have also been supported by Medicaid expansion to enhance treatment adherence. These models provide coordinated, team-based care tailored to the unique needs of individuals living with HIV. Multidisciplinary teams, which include primary care providers, specialists, social workers, and mental health professionals, work together to ensure continuous support for

patients. In Oregon, Medicaid-supported PCMHs have significantly improved ART adherence rates and reduced hospitalization frequencies by addressing both medical and non-medical needs of individuals [37] [38].

Telehealth services represent another transformative tool enabled by Medicaid expansion to improve continuity of care. Telehealth has proven particularly valuable in rural and underserved areas, where geographic isolation and provider shortages often limit access to specialized HIV care. Virtual consultations allow patients to connect with HIV specialists without traveling long distances, reducing logistical and financial barriers to care. Telehealth platforms also support medication management and adherence counselling, helping patients stay on track with their treatment regimens. Federal and state-level investments in broadband infrastructure have been critical in ensuring the success of telehealth initiatives in Medicaid expansion states [39] [40].

Another critical advantage of Medicaid expansion is its role in reducing financial burdens for individuals living with HIV. Out-of-pocket costs for ART, medical visits, and diagnostic tests can be prohibitive for low-income individuals, leading to interruptions in care or complete disengagement from treatment. Medicaid's comprehensive coverage eliminates many of these financial barriers, allowing patients to prioritize their health without the added stress of medical debt. This financial relief also extends to related services, such as transportation assistance and nutritional support, further reducing barriers to adherence [41] [42].

Despite the successes of Medicaid expansion, significant disparities persist in non-expansion states. Individuals in these states are more likely to experience interruptions in care due to lack of insurance, which undermines their ability to maintain consistent ART adherence. Frequent lapses in treatment can lead to drug resistance, disease progression, and increased risk of transmission, exacerbating the overall burden of HIV in these regions. Non-expansion states also lack the financial support necessary to implement comprehensive care models or invest in telehealth infrastructure, further widening the gap in health outcomes [43] [44].

Addressing these disparities requires nationwide Medicaid expansion to ensure equitable access to ART and related services for all individuals living with HIV. Policymakers can build on the successes observed in expansion states by replicating best practices, such as integrating HIV care with mental health and substance use services, expanding telehealth options, and reducing out-of-pocket costs for low-income populations. By adopting these measures, states can improve long-term health outcomes, reduce healthcare costs, and move closer to achieving health equity in HIV prevention and treatment [45] [46].

4. CASE STUDIES AND REGIONAL ANALYSIS

4.1 Success Stories from Medicaid Expansion States

The adoption of Medicaid expansion has proven transformative in states that embraced the program, demonstrating significant improvements in access to HIV prevention and treatment services. These states have leveraged expanded Medicaid eligibility criteria to address healthcare disparities, particularly in rural and low-income communities disproportionately affected by HIV [26].

One notable success story is Massachusetts, which implemented Medicaid expansion early and integrated HIV care into its broader public health strategies. By expanding Medicaid coverage, Massachusetts significantly increased the number of individuals receiving pre-exposure prophylaxis (PrEP) and antiretroviral therapy (ART) [25]. The state prioritized routine HIV testing as part of standard medical visits, leading to improved early diagnosis rates. This proactive approach allowed more individuals to be linked to care at earlier stages of infection, reducing disease progression and improving long-term health outcomes. As a result, Massachusetts achieved one of the highest viral suppression rates in the nation, with over 80% of individuals living with HIV reaching undetectable viral loads, a benchmark for effective treatment and reduced transmission risk [27].

Another exemplary case is California, where Medicaid expansion has been instrumental in improving healthcare access for Hispanic and African American populations—groups that have historically faced higher rates of HIV infection. California utilized Medicaid funding to strengthen the role of federally qualified health centers (FQHCs) in HIV prevention and treatment. These centers expanded their services to include comprehensive HIV care, such as counselling, testing, and adherence support for ART. Between 2015 and 2021, California reported a 25% reduction in new HIV diagnoses, showcasing the effectiveness of its targeted interventions. By focusing on vulnerable populations, the state demonstrated how Medicaid expansion could drive equitable access to care and meaningful reductions in health disparities [28].

Comparing outcomes between expansion and non-expansion states further highlights the success of Medicaid expansion. Data consistently show that expansion states achieve higher rates of early HIV diagnosis, ART adherence, and viral suppression. For example, individuals living with HIV in expansion states are 20% more likely to achieve viral suppression compared to those in non-expansion states. This disparity underscores the critical role Medicaid plays in enhancing health outcomes for vulnerable populations [30].

Moreover, expansion states have successfully addressed social determinants of health that impact HIV care. Many Medicaid programs have integrated ancillary services, such as housing support and mental health counselling, into their HIV care strategies. These initiatives reduce barriers to treatment adherence and improve overall quality of life for individuals living with HIV [29]. For example, Oregon has combined Medicaid funding with housing assistance programs to support stable living conditions for HIV-positive individuals, significantly increasing ART adherence rates and reducing hospitalization frequencies.

The success stories from Medicaid expansion states demonstrate the program's potential to transform public health outcomes. These states have not only improved individual health metrics but also reduced HIV transmission at the population level, showcasing Medicaid expansion as a cornerstone of comprehensive HIV prevention and treatment efforts. By addressing systemic barriers, expanding access to preventive measures, and integrating supportive services, Medicaid expansion states have established a blueprint for effective HIV care delivery.

The contrast between expansion and non-expansion states further emphasizes the necessity of broadening Medicaid's reach. While expansion states continue to make strides in reducing new infections and improving treatment outcomes, non-expansion states lag behind due to higher uninsured rates and limited healthcare infrastructure. This disparity underscores the urgent need for nationwide Medicaid expansion to replicate the successes observed in states like Massachusetts and California, ensuring equitable access to care for all populations.

Table 2 Comparison of HIV Outcomes Between Expansion and Non-Expansion States

Outcome	Expansion States	Non-Expansion States
Early Diagnosis Rate (%)	78%	56%
Linkage to ART Within 30 Days (%)	85%	62%
Viral Suppression Rate (%)	82%	50%
PrEP Utilization (per 100,000)	35	15
HIV Mortality Rate (per 100,000)	5	12
*Uninsured Rate Among PLHIV (%) **	10%	25%

4.2 Challenges in Non-Expansion States

In states that have not adopted Medicaid expansion, substantial barriers persist in addressing the HIV epidemic. These non-expansion states, which are often concentrated in rural and politically conservative regions, face higher rates of uninsured individuals, limiting access to HIV prevention and treatment services. For example, in Texas, a state with one of the highest HIV incidence rates in the country, nearly 20% of adults remain uninsured. This lack of coverage exacerbates disparities in HIV care, leaving many individuals unable to afford critical interventions such as HIV testing, antiretroviral therapy (ART), and pre-exposure prophylaxis (PrEP) [31] [32].

The impact of non-expansion is particularly severe in rural areas, where healthcare infrastructure is already limited. Residents in these regions frequently have to travel long distances to access specialized HIV care, creating logistical and financial barriers that deter service utilization. Many rural clinics lack the resources to provide comprehensive HIV services, further widening the gap in access to care. Additionally, safety-net providers such as community health clinics, which often serve as the primary healthcare resource in non-expansion states, remain underfunded and struggle to meet the growing demand for services. Without Medicaid support, these clinics are unable to offer consistent care, leading to delays in diagnosis and treatment. Consequently, individuals in non-expansion states are less likely to receive timely HIV diagnoses, contributing to higher rates of disease progression, complications, and mortality [33] [34].

Stigma and discrimination compound these challenges in non-expansion states, creating additional barriers to HIV care. Marginalized groups, including LGBTQ+ individuals and people who use drugs, face significant social and cultural obstacles in seeking healthcare [35]. Without the financial backing of Medicaid, community-based organizations (CBOs) that play a vital role in outreach and education efforts lack the resources needed to combat stigma effectively. This underfunding limits the ability of these organizations to promote HIV testing and engage high-risk populations in preventive services. As a result, many individuals in these groups avoid seeking care altogether, further exacerbating health disparities [36].

The disparity in outcomes between expansion and non-expansion states is stark. For instance, individuals living with HIV in expansion states are 50% more likely to be linked to care within 30 days of diagnosis compared to those in non-expansion states. These disparities highlight the critical role Medicaid plays in facilitating access to timely and effective care [37] [38]. Moreover, expansion states consistently report higher rates of viral suppression and lower rates of HIV-related mortality, underscoring the importance of Medicaid expansion in improving health outcomes.

Addressing the challenges in non-expansion states requires targeted policy interventions and sustained advocacy efforts to encourage the adoption of Medicaid expansion. Policymakers must work to bridge the gap by providing alternative funding mechanisms to support HIV prevention and treatment services in these regions. Federal programs such as the Ryan White HIV/AIDS Program and state-level initiatives can help mitigate the lack of Medicaid coverage by funding safety-net clinics, outreach efforts, and essential services. Additionally, investments in telehealth infrastructure can provide a lifeline for individuals in rural areas, enabling them to access virtual consultations, counselling, and treatment support [39] [40].

Nationwide Medicaid expansion remains the most effective solution for reducing HIV disparities and ensuring equitable access to care. Expanding Medicaid eligibility would provide critical support for uninsured populations in non-expansion states, improving health outcomes and reducing the

overall burden of the HIV epidemic. Advocacy efforts must focus on demonstrating the public health and economic benefits of Medicaid expansion to policymakers in these states, paving the way for a more equitable and effective healthcare system.

5. BEST PRACTICES AND LESSONS LEARNED

5.1 *Integrated Care Models*

Integrated care models play a pivotal role in improving access to HIV prevention and treatment services, particularly in Medicaid expansion states. These models foster collaboration between Medicaid programs, healthcare providers, and community-based organizations to deliver comprehensive and coordinated care. By aligning medical, behavioural, and social services, integrated care models address the multifaceted needs of individuals living with or at risk for HIV [39] [40].

A successful example of integrated care is New York State's Medicaid HIV Special Needs Plan (SNP), which provides an all-encompassing care platform for Medicaid beneficiaries. This program ensures that enrollees receive a continuum of services, including routine HIV screenings, antiretroviral therapy (ART), mental health support, and substance use treatment. By integrating these services, the plan has significantly improved viral suppression rates, ensuring that over 85% of enrollees achieve undetectable viral loads. Furthermore, it has reduced healthcare costs by preventing disease progression and hospitalizations, demonstrating the efficiency of integrated care models [41] [42].

Similarly, in Washington State, Medicaid expansion facilitated partnerships between federally qualified health centers (FQHCs) and state-run HIV prevention programs. These collaborations have streamlined access to pre-exposure prophylaxis (PrEP), testing, and counselling for high-risk populations. By leveraging Medicaid funding, providers in Washington have enhanced their capacity to serve marginalized groups, resulting in a 15% increase in PrEP utilization among Medicaid enrollees. This integrated approach has not only expanded preventive care access but also reduced the risk of new HIV transmissions in vulnerable populations [43].

Integrated care models also emphasize the use of patient-centered medical homes (PCMHs), which provide coordinated, team-based care tailored to the unique needs of HIV-positive individuals. In Oregon, Medicaid-supported PCMHs have improved treatment adherence and health outcomes by ensuring that patients receive continuous and holistic support. These medical homes coordinate primary care, mental health services, and case management to address the complex challenges faced by individuals living with HIV [44] [45].

These examples illustrate the effectiveness of integrated care models in addressing the HIV epidemic. By combining resources from Medicaid, healthcare providers, and community organizations, these models foster a comprehensive approach to care, improving health outcomes while reducing healthcare costs. Expanding such models across the United States can help address disparities in HIV prevention and treatment, especially in underserved communities.

5.2 *Addressing Social Determinants of Health*

Social determinants of health (SDOH), such as poverty, housing instability, and stigma, are significant barriers to HIV prevention and treatment. Medicaid expansion has enabled states to address these determinants by funding programs that provide comprehensive support to vulnerable populations.

Housing instability, for instance, is a critical factor that affects ART adherence and overall health outcomes. Medicaid-funded supportive housing programs, such as those implemented in California and Massachusetts, have demonstrated success in stabilizing living conditions for HIV-positive individuals [46]. These programs combine rental assistance with case management services, ensuring that individuals can maintain treatment regimens and access routine healthcare [47]. Poverty exacerbates health disparities, making affordable healthcare essential for low-income populations. Medicaid expansion has reduced financial barriers by covering preventive services, medications, and mental health care for individuals living below the poverty line. This coverage has significantly increased ART adherence and reduced the incidence of HIV-related complications [49].

Stigma remains a pervasive issue that deters individuals from seeking care. Medicaid-supported community outreach initiatives have played a crucial role in reducing stigma by promoting education and awareness about HIV [48]. For example, targeted campaigns in Medicaid expansion states have encouraged testing and treatment among high-risk populations, fostering a more inclusive healthcare environment [50]. By addressing these social determinants, Medicaid expansion has contributed to improved health equity and better outcomes for individuals living with or at risk for HIV.

5.3 *Strategies for Non-Expansion States*

In non-expansion states, the absence of Medicaid expansion significantly limits access to HIV prevention and treatment services, exacerbating health disparities among vulnerable populations. However, alternative strategies can help mitigate these challenges and improve care delivery in these regions, even in the absence of Medicaid expansion.

One effective approach is leveraging federally funded programs such as the Ryan White HIV/AIDS Program to fill coverage gaps [51]. This program provides essential support for low-income individuals by covering HIV-related medical care, medications, and supportive services. Strengthening the capacity of Ryan White-funded clinics in non-expansion states can ensure that critical services remain accessible despite Medicaid limitations. For

example, increasing funding allocations to these clinics can expand their ability to offer ART, PrEP, and routine screenings, ensuring continuity of care for uninsured individuals [52].

Community health centers (CHCs) also play a crucial role in non-expansion states as safety-net providers for uninsured populations. These centers, which are often located in rural and underserved areas, can bridge the gap in HIV care by offering preventive and treatment services [53]. Expanding funding for CHCs allows them to enhance their infrastructure, hire more providers, and deliver comprehensive HIV care, including testing, counselling, and ART adherence support. Collaborative partnerships between CHCs and state public health departments have shown to increase access to essential services, particularly in rural areas where provider shortages are a persistent issue [54].

Telehealth is another promising strategy for improving care delivery in non-expansion states. By leveraging technology, healthcare providers can offer virtual consultations, medication management, and mental health counselling to individuals in remote or underserved areas [55]. Telehealth initiatives, supported by federal grants and private partnerships, have proven effective in bridging geographic barriers and enhancing treatment adherence for individuals living with HIV. Expanding broadband infrastructure and telehealth training programs is critical to maximizing the impact of this approach [56].

While Medicaid expansion remains the most effective solution for addressing HIV-related disparities, these alternative strategies provide critical support for non-expansion states. By strengthening federally funded programs, expanding CHC resources, and investing in telehealth solutions, policymakers can ensure that vulnerable populations continue to receive the care they need to achieve better health outcomes [57] [58].

6. POLICY RECOMMENDATIONS AND FUTURE DIRECTIONS

6.1 Strengthening Medicaid Programs

Expanding Medicaid coverage and benefits is critical for addressing healthcare disparities in rural and low-income communities affected by HIV. A central recommendation is extending Medicaid eligibility to individuals in non-expansion states through federal mandates or financial incentives [56]. Implementing nationwide Medicaid expansion would allow uninsured populations in underserved areas to gain access to comprehensive healthcare services, including HIV testing, pre-exposure prophylaxis (PrEP), and antiretroviral therapy (ART). Expanding benefits to include ancillary services, such as mental health care and substance use treatment, is equally vital for addressing co-occurring conditions that complicate HIV management and outcomes [57].

Improving outreach and enrolment efforts in rural communities is another priority. Geographic isolation and limited internet connectivity often hinder awareness and enrolment in Medicaid programs. Developing targeted outreach campaigns that leverage local community leaders, faith-based organizations, and public health departments can help bridge these gaps [58]. Mobile enrolment units and community health fairs, for instance, have proven effective in engaging rural populations, facilitating access to Medicaid, and ensuring linkage to HIV-related services [59].

Simplifying the Medicaid enrolment process is also essential to improving accessibility. Administrative hurdles, such as lengthy paperwork or verification delays, often deter eligible individuals from enrolling. Streamlining these processes by reducing bureaucratic requirements and providing multilingual support can significantly enhance enrolment rates among diverse populations [60]. Additionally, expanding the use of digital platforms for Medicaid applications can make enrolment more accessible. However, addressing the digital divide through broadband expansion and training programs is necessary to ensure equitable access to these platforms [61].

By strengthening Medicaid programs, policymakers can ensure that vulnerable populations receive the support necessary to improve health outcomes [62]. Nationwide Medicaid expansion, targeted outreach efforts, and streamlined enrolment processes are critical steps toward achieving health equity and reducing the burden of HIV in rural and low-income communities [63].

6.2 Addressing Gaps in HIV Prevention and Treatment

Funding gaps in HIV prevention and treatment services must be addressed to reduce disparities in care and ensure equitable access for all individuals, particularly those in underserved communities. Policymakers must prioritize allocating additional federal and state funding to support comprehensive HIV prevention initiatives [60]. Such initiatives should include the widespread availability of pre-exposure prophylaxis (PrEP), which has been shown to significantly reduce HIV transmission rates [61]. Ensuring routine screenings for high-risk populations, such as men who have sex with men (MSM), transgender individuals, and racial or ethnic minorities, is also critical for identifying undiagnosed cases early and linking individuals to appropriate care [62]. Expanding financial support for Ryan White HIV/AIDS Program clinics can play a pivotal role in bridging service gaps in areas with limited Medicaid coverage, enabling these clinics to provide testing, counselling, and long-term treatment for those in need [63] [64].

Expanding telehealth options is another crucial strategy for improving access to HIV care, particularly in remote and underserved areas where geographic isolation and provider shortages create significant barriers [65]. Telehealth platforms can facilitate virtual consultations, enabling patients to connect with HIV specialists without traveling long distances [66]. These platforms are especially valuable for providing antiretroviral therapy (ART) adherence counselling, mental health support, and other essential services [67]. Federal investments in broadband infrastructure are necessary to support the widespread adoption of telehealth, as reliable internet connectivity is often lacking in rural regions [68] [69]. Additionally, training

programs for both healthcare providers and patients can help increase the effective use of telehealth technology, ensuring its benefits reach all populations [70].

States can also implement innovative reimbursement policies to incentivize providers to adopt telehealth solutions [71]. By offering competitive compensation for virtual services, states can encourage more healthcare facilities to integrate telehealth into their practice. These measures will not only improve access but also foster continuity of care, particularly for individuals managing chronic conditions like HIV [72] [73].

Addressing these gaps in prevention and treatment services requires a comprehensive, multi-faceted approach. Policymakers must combine increased funding, expanded telehealth infrastructure, and targeted outreach to create a robust HIV care delivery system. By doing so, they can reduce the prevalence of HIV, improve health outcomes, and move closer to achieving health equity across all communities [74] [75].

6.3 Collaboration Between Federal, State, and Local Agencies

Multi-sector collaboration is essential for improving HIV outcomes and addressing systemic barriers in prevention and treatment efforts. Federal agencies, such as the Centers for Disease Control and Prevention (CDC) and Health Resources and Services Administration (HRSA), should collaborate with state and local governments to align resources and strategies for combating the HIV epidemic. Coordinated efforts can improve resource allocation, reduce duplication of services, and ensure a unified approach to tackling HIV disparities [65].

Public-private partnerships can also play a significant role in advancing HIV prevention and treatment. Collaborations between Medicaid programs, healthcare providers, and community-based organizations have proven effective in delivering integrated care to underserved populations [66]. For instance, partnerships with pharmaceutical companies can ensure affordable access to ART and PrEP, while collaborations with nonprofit organizations can enhance outreach and education efforts in high-risk communities [67].

Additionally, leveraging data-sharing platforms to track HIV care outcomes across agencies and providers will enable evidence-based decision-making. Policymakers should invest in interoperable systems that facilitate real-time data sharing, allowing stakeholders to identify gaps in care and develop targeted interventions. By fostering collaboration at all levels, stakeholders can build a robust infrastructure for reducing HIV-related disparities and improving health equity.

7. CONCLUSION

7.1 Summary of Key Findings

Medicaid expansion has had a transformative impact on HIV prevention and treatment, particularly in addressing healthcare disparities in rural and low-income communities. By broadening eligibility criteria, Medicaid expansion has enabled millions of uninsured individuals to gain access to comprehensive healthcare services, including pre-exposure prophylaxis (PrEP), routine HIV testing, and antiretroviral therapy (ART). This increase in coverage has translated to higher rates of early diagnosis, improved linkage to care, and enhanced treatment adherence, significantly improving health outcomes for individuals living with or at risk for HIV.

States that adopted Medicaid expansion have demonstrated substantial progress in reducing HIV incidence and achieving viral suppression. Success stories from states like Massachusetts and California highlight the effectiveness of leveraging Medicaid to integrate HIV prevention and treatment into broader healthcare delivery systems. These states have reported significant decreases in new HIV diagnoses and increased utilization of PrEP and ART, showcasing the potential of Medicaid expansion to advance public health goals.

In contrast, non-expansion states continue to face critical challenges, including higher rates of uninsured individuals and limited access to essential HIV services. These disparities underscore the necessity of expanding Medicaid nationwide to ensure equitable access to care. Additionally, structural barriers such as inadequate healthcare infrastructure and transportation challenges persist in rural areas, limiting the full potential of Medicaid to address the HIV epidemic comprehensively.

Despite these challenges, the evidence strongly supports Medicaid expansion as a vital tool for reducing healthcare disparities and improving outcomes for vulnerable populations. Its role in bridging gaps in access, fostering integrated care models, and addressing social determinants of health underscores its importance as a cornerstone of public health efforts to combat the HIV epidemic.

7.2 Call to Action

The evidence presented underscores the urgent need to prioritize Medicaid expansion as a mechanism for achieving health equity. Policymakers must recognize that expanding Medicaid coverage is not merely a financial decision but a moral imperative to ensure that all individuals, regardless of income or geographic location, have access to life-saving HIV prevention and treatment services. Expanding Medicaid eligibility in non-expansion states is critical to bridging gaps in care and reducing disparities that disproportionately affect rural and low-income communities.

Targeted efforts are also necessary to address the unique challenges faced by underserved populations. Enhancing outreach and education programs can raise awareness about the availability of Medicaid and its associated benefits, ensuring that eligible individuals enroll and utilize services. Investments in healthcare infrastructure, including telehealth, can further address geographic barriers and extend the reach of HIV services into remote areas.

Addressing social determinants of health, such as housing instability and stigma, is equally essential. Medicaid must continue to fund programs that provide holistic support to individuals at risk for or living with HIV. Initiatives that integrate medical care with housing assistance, mental health support, and community-based outreach can significantly improve health outcomes while reducing the societal burden of HIV.

Finally, achieving meaningful change requires collaboration among federal, state, and local agencies, as well as partnerships with private organizations and community stakeholders. A unified approach that leverages resources and expertise across sectors can drive sustainable improvements in healthcare delivery and reduce disparities. Policymakers, healthcare providers, and advocates must act decisively to expand Medicaid and implement comprehensive strategies that ensure equitable access to HIV prevention and treatment services for all.

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