

A Nearly 50% Decrease in New HIV Diagnoses in Rhode Island from 2006–2016: Implications for Policy Development and Prevention

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ABSTRACT

In the last decade, reductions in HIV incidence have been observed across the United States. However, HIV continues to disproportionately impact gay, bisexual, and other men who have sex with men (MSM). In Rhode Island, rates of HIV diagnoses have decreased by 44% across all groups over the last decade. This success has been the result of close collaboration across multiple sectors. Different prevention approaches, including syringe exchange programs, community-based HIV testing, condom distribution, HIV care and treatment, and pre-exposure prophylaxis (PrEP) have all contributed to the decline in HIV diagnoses across the state. In 2015, Rhode Island became one of the first states to sign on to the Joint United Nations Programme on HIV/AIDS “90-90-90” campaign to end the HIV epidemic by 2030. Intensified and innovative initiatives are needed to improve progress in HIV prevention and treatment, especially in populations who are most at risk.

KEYWORDS: MSM, PWID, PREP, HIV, AIDS

INTRODUCTION

Approximately 40,000 new HIV infections are diagnosed in the United States (US) each year, with a disproportionate number diagnosed among gay, bisexual, and other men who have sex with men (MSM), people who inject drugs (PWID), and communities of color [1]. The lifetime risk of HIV diagnosis among MSM in the US is approximately 88 times greater than among heterosexual men; further, Hispanic/Latino and Black/African American MSM have two and five times greater lifetime risk, respectively, compared to white MSM [2]. The United Nations Programme on HIV/AIDS (UNAIDS) established clear goals for ending the HIV epidemic through its 90-90-90 campaign: 90% of persons living with HIV (PLWH) are diagnosed, 90% of those diagnosed are engaged in care, and 90% of those engaged in care achieve viral suppression by 2020 [3]. The success of treatment as prevention (TasP) in significantly reducing HIV transmission risk through viral suppression [4] has led to development of key policy goals such as the “90-90-90” campaign. These efforts, in combination with primary prevention

interventions such as routine HIV testing and pre-exposure prophylaxis (PrEP), form a multi-faceted approach that is necessary to effectively address the HIV epidemic.

The Centers for Disease Control and Prevention (CDC) recently announced an 18% decrease in the overall annual incidence of new HIV infections in the US from 2008 to 2014 [5], including rate decreases of 56% among PWID and 36% among heterosexuals. MSM were the only group that did not experience an overall decline. An 18% decrease in HIV incidence among young (13–24 years old) and white MSM was offset by increasing incidence in other MSM subpopulations including MSM ages 25–34 years (35% increase) and Hispanic/Latino MSM (20% increase). Disparate trends in incidence across subpopulations and regions indicate a need for continued development and improvement of approaches for HIV prevention.

DISCUSSION

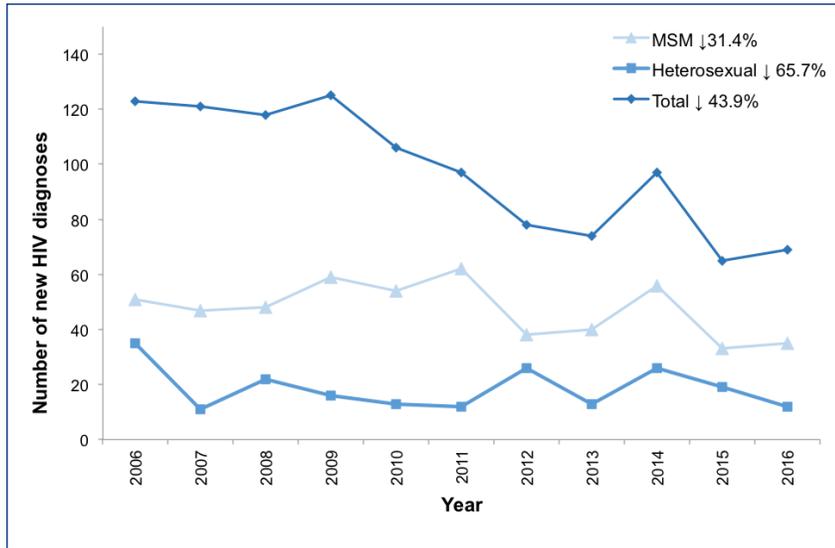
Addressing the HIV Epidemic in Rhode Island

The state of Rhode Island (RI) experienced a 44% reduction in the number new HIV diagnoses from 2006–2016 (Figure 1) [6], well beyond the 18% decrease in national incidence seen during a similar period [5]. This was driven by significant decreases in the number of diagnoses across all reported risk groups, including MSM (33% decrease), heterosexuals (66% decrease), and PWID (approaching zero) [6]. These data highlight efforts across the state to promote engagement at every level of the HIV care cascade, a term encompassing the patient trajectory through diagnosis, engagement in care, and viral suppression. The RI HIV care cascade is presented in comparison with the national cascade and UNAIDS 90-90-90 targets in Figure 2.

Preventing HIV Transmission

Addressing the HIV epidemic requires tailored approaches for each risk group. Syringe exchange programs have been instrumental in reducing the number of new HIV diagnoses among PWID. The RI ENCORE program (Education, Needle Exchange, Counseling, Outreach, and Referrals), started in 1998, provides clean needles, HIV testing, education, and other support services to PWID. Syringes are also available without a prescription at local pharmacies and community locations through the state [7]. Community-based needle

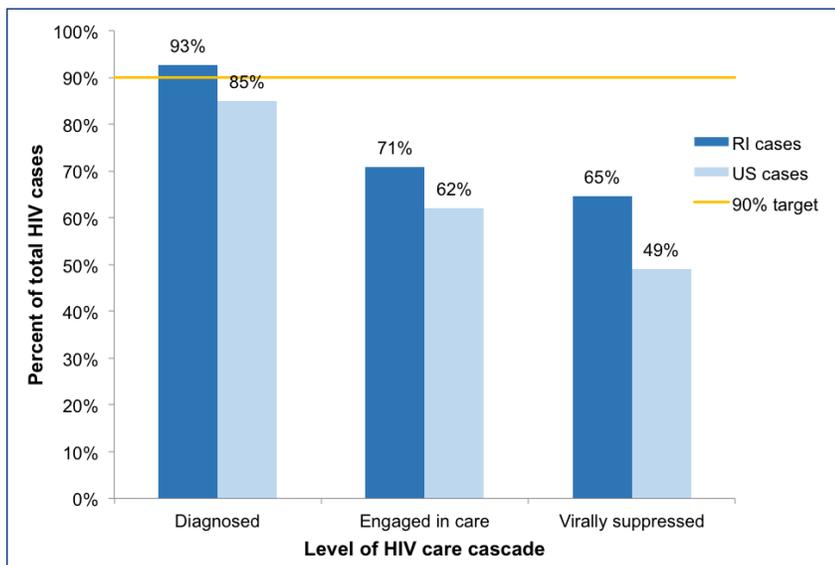
Figure 1. Annual number of new HIV diagnoses among MSM, heterosexual, and total populations, Rhode Island 2006–2016.



Note: Data in figure legend indicate difference in annual number of new HIV diagnoses from 2006 to 2016.

Sources: 1) Rhode Island Department of Health. 2016 Rhode Island HIV/AIDS epidemiologic profile with surrogate data. Providence, RI; 2017 Dec. 2) Rhode Island Department of Health. Unpublished surveillance data. 2017 Jun.

Figure 2. Estimated number of HIV cases at each level of the HIV care cascade, as percentage of total HIV cases, Rhode Island (2016) and United States (2014). Horizontal line represents target of 90% of HIV cases engaged at each level of care, in accordance with UNAIDS 90-90-90 campaign.



Note: In an effort to present the most recently published HIV care cascade data, this figure depicts data from two different years: Rhode Island HIV care cascade data included here describe 2016 while national data describe 2014.

Sources: 1) Rhode Island Department of Health. 2016 Rhode Island HIV epidemiologic profile with surrogate data. Providence, RI; 2017 Dec. 2) National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Selected national HIV prevention and care outcomes. Atlanta, GA: Centers for Disease Control and Prevention; 2017.

exchange programs in RI distributed 60,000 syringes in 2015, with an additional indeterminate number dispensed through retail pharmacies [8]. These programs are critical to prevent HIV transmission given the ongoing opioid epidemic in the state [9]. Further, admissions to substance use treatment facilities increased 54% among patients reporting injection drug use from 2011 to 2014 [9]. Despite the ongoing regional opioid epidemic with historically high numbers of overdose deaths, the number of new HIV cases among PWID in RI has remained low. This is in contrast to other regions in the US, where opioid use has led to significant increases in HIV transmission [10].

MSM constitute the population at highest risk for HIV in RI. Consequently, RI public health organizations have launched several statewide initiatives to promote HIV prevention among MSM. These include community-based HIV testing with a focus on MSM and sex workers conducted by HIV/AIDS service organizations. The publicly funded RI Sexually Transmitted Disease (STD) Clinic at The Miriam Hospital Immunology Center opened in early 2012 with a focus on MSM. The STD Clinic offers a wide range of clinical services, including testing for HIV and other STDs, extragenital testing for gonorrhea and chlamydia, PrEP prescriptions, home-based HIV testing, and clinic- and community-based initiatives to promote education and routine testing among MSM and others at high risk for HIV acquisition.

Successful PrEP implementation is a public health priority in RI. The PrEP program operating on-site at The Miriam Hospital Immunology Center has prescribed PrEP to approximately 400 high-risk MSM since its inception in 2013 [11] with the number of new patients increasing steadily during that time. The RI Department of Health (RIDOH) also operates a robust condom distribution program focusing on sites serving MSM and young people. Other ongoing and planned efforts include engaging MSM who meet sexual partners on websites and smartphone applications (“hookup sites”) through advertising and outreach at these venues.

Promoting HIV Testing and Early Diagnosis

HIV testing has been incorporated across many different clinical and community settings in RI. The RI STD Clinic provides safety net HIV/STD testing services and reports the largest number of new HIV diagnoses in the state annually. From January 2012 through June 2017, the STD Clinic saw 9,078 patient visits and conducted 7,886 HIV tests (unpublished clinic data). Routine HIV testing has also been successfully incorporated into many other clinical settings, including the emergency departments at many RI hospitals [12]. Education of healthcare providers, including primary care physicians, to promote HIV testing has likely also improved testing rates. Such initiatives focusing on providers at federally qualified health centers in particular have resulted in increased HIV testing in primary care settings. In the RI correctional setting, focused efforts have promoted HIV testing, comprehensive HIV care, and linkage to community care after release for over 20 years [13]. Other related efforts include partner notification services, which are coordinated by the RIDOH, to promote referral for testing and care among sexual and needle-sharing partners of individuals newly diagnosed with HIV. Despite improved accessibility of HIV testing, the number of new diagnoses has continued to decrease, suggesting that the decrease reflects true incidence and is not a result of changes in testing practices.

HIV Care and Treatment

For many PLWH, the majority of medical care is provided through The Miriam Hospital Immunology Center, a Ryan White-funded clinic and major Brown University teaching affiliate which cares for approximately 80% of the state's HIV positive population. As RI is a small state, and over 80% of new HIV diagnoses occur in Providence County [6], the centralized nature of HIV treatment facilitates aggressive and early treatment for those who are newly diagnosed. The Immunology Center also co-locates supportive services, including behavioral health, psychiatry, addiction services, pharmacy, medical case management, outreach, women's health, hepatitis C treatment, and peer navigation. The Center works closely with the local AIDS service organizations. The Ryan White CARE Program and the AIDS Drug Assistance Program (ADAP), available to all patients irrespective of ability to pay and with no waiting lists, have allowed vulnerable and uninsured or under-insured populations access to medications as well as important wrap-around services (e.g., mental health and substance use treatment) to overcome barriers to retention in care and medication adherence, and has resulted in high rates of viral suppression. The successes in RI have been the result of close collaboration and partnership across clinical, academic, community, and public health agencies.

Rhode Island Public Health Initiatives

RI passed unique state legislation in 1989 that requires all

confirmatory HIV testing to be performed at the RIDOH state laboratory. The RIDOH conducts statewide HIV surveillance. Partnerships between RIDOH and community groups facilitate HIV prevention and care services for high-risk and underserved groups such as sex workers, victims of domestic violence, and LGBTQ youth. Communities of color are a prioritized group for community-based HIV testing and other outreach efforts. The RIDOH also maintains a Gay Men's Sexual Health webpage which helps MSM identify gay-friendly doctors. The RIDOH Return-To-Care Program for PLWH who have fallen out of care works to re-engage them. This program actively solicits referrals from medical providers whose HIV-positive patients have missed medical appointments. RIDOH staff conduct field investigations and provide support for these individuals to re-engage in care. Other public health efforts include a robust partner notification program which works to engage partners of people newly diagnosed with HIV to facilitate early diagnosis.

Limitations

Although there has been a decline in new HIV diagnoses, this may not exactly represent true incidence given the delay between infection and diagnosis. Two other limitations may affect the generalizability of these findings. First, these analyses are unable to demonstrate a causal relationship between implementation of specific programs described above and the decreasing trend in new HIV diagnoses. Second, detailed data describing patient engagement, service delivery, and related metrics were not available for many of the programs described, which precluded further analysis of their impact. Other unidentified factors which were not discussed may have also contributed to reductions in the number of new HIV diagnoses. Despite these limitations, few prior studies have provided a large-scale overview of a statewide approach to end the HIV epidemic and demonstrated such a level of success.

PUBLIC HEALTH IMPLICATIONS

Next Steps and Future Direction

RI was among the first states in the US to sign on to the UNAIDS 90-90-90 initiatives, and cross-sector initiatives statewide have demonstrated success in improving HIV prevention and diagnosis efforts. However, further advances in these efforts are necessary to eliminate HIV in the state. HIV prevention goals in RI include improving routine, opt-out HIV testing across clinical settings, such as through structural efforts to integrate HIV testing models into routine care (e.g., prompts within the electronic medical record). Medicaid expansion through the Affordable Care Act has also likely had significant impact. The number of new HIV diagnoses increased by 17% in 2014, the year after ACA implementation, likely reflecting higher case finding through improved access to care and HIV testing. [6]

The number of new HIV cases has decreased significantly in subsequent years (**Figure 1**). [6]

Maintaining access to currently available services is critically important in ensuring their ongoing success, especially given concerns related to the proposed budget cuts to federal and state funding related to HIV and other STDs. In 2016, the state government cut funds to the syringe exchange program in RI [8]. The RIDOH subsequently prioritized and re-established funding for this program. Continuing to provide accessible HIV/STD testing for vulnerable populations is also critical. The decrease in HIV diagnoses coincides with increasing diagnoses of other STDs (syphilis, gonorrhea, and chlamydia), which are at their highest levels in over ten years. Given the association between STDs and HIV acquisition [14], these conflicting trends suggest that HIV treatment and prevention approaches are nonetheless effective. Increasing numbers of other STD diagnoses may have resulted in part from increased testing and improved case finding. Regardless, addressing the HIV epidemic will require addressing the concurrent STD epidemic, as well.

Finally, we anticipate that ongoing efforts to improve access to care and prevention services will lead to further reductions in HIV incidence. New initiatives to promote online outreach and prevention are critically needed. Continued PrEP scale-up will likely continue to decrease HIV transmission among MSM. Emerging disparities in PrEP uptake suggest that public health interventions should focus on African American and Hispanic/Latino MSM, and current failures to retain patients in PrEP care indicate the need for improvements across the PrEP care continuum.

CONCLUSIONS

RI has experienced a 44% reduction in the number of new HIV diagnoses over the past ten years. While it is not possible to ascribe the decrease in HIV cases to one particular intervention or initiative, the statewide partnerships and approaches described here have likely yielded these successes. Intensified and innovative efforts are needed to further decrease the number of new HIV infections, particularly among MSM and communities of color. The remarkable reduction in new diagnoses seen in RI should provide a model for accelerating progress in HIV prevention and treatment in other settings.

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