

Addressing the Increasing Burden of Sexually Transmitted Infections in Rhode Island

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ABSTRACT

The rates of sexually transmitted infections (STI) including chlamydia, gonorrhea, and syphilis, are increasing across the United States, including in Rhode Island (RI). These STIs affect many otherwise healthy adolescents and young adults, and represent a significant source of morbidity. The Centers for Disease Control and Prevention encourages states to develop strategies for addressing increasing STI rates in the setting of diminishing public health resources. The RI Department of Health (DOH) works with providers and funded community-based organizations to promote STI screening, expedited partner therapy, and partner services to reduce STI rates. The Miriam Hospital Immunology Center opened a public HIV/STI Clinic, which offers free and confidential testing for HIV, viral hepatitis, chlamydia, gonorrhea, and syphilis, as well as post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) services to prevent HIV. In collaboration with the RI DOH, the Clinic serves as a referral source across the state for complicated STI cases.

KEYWORDS: HIV, PREP, PEP, STI

BACKGROUND

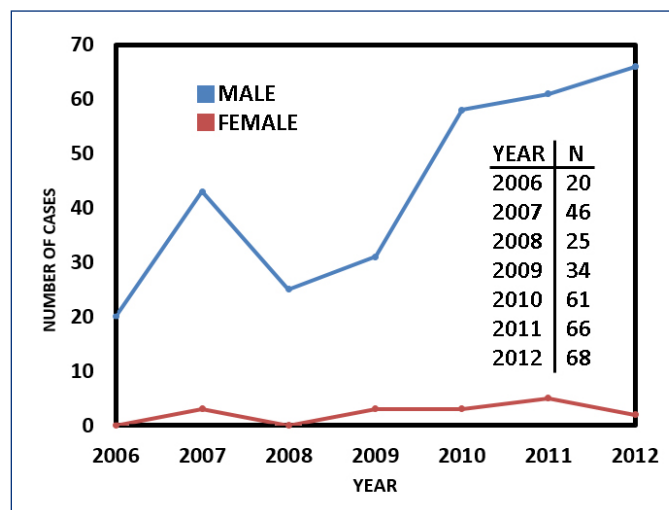
Sexually transmitted infections (STIs) are caused by a variety of pathogens that are acquired through sexual activity. Despite numerous public health interventions, the rates of STIs such as chlamydia, gonorrhea, and syphilis continue to increase across the United States (US). The most commonly reported STI is chlamydia. In 2012, there were 1.4 million cases reported to the Centers for Disease Control (CDC) which is the largest number of cases reported for any disease.¹ During the time period 2008-2012, there was a 25% and 11% increase in the chlamydia rate among men and women, respectively. Similarly, rates of gonorrhea have increased 9.6% since 2009. Gonorrhea and chlamydia are highest among individuals 15-24 years old. A resurgence in syphilis has also occurred in the last decade with an 11.1% increased rate from 2011 to 2012. These STIs account for \$16 billion in medical costs in the US population.²

Chlamydia, gonorrhea, and syphilis infections have increased significantly in Rhode Island (RI) the past few years.³ The majority of individuals who test positive for

STIs reside in Providence County (78% of chlamydia, 87% of gonorrhea, 81% of syphilis). These STIs affect individuals across all age groups, genders, sexual orientations, and socioeconomic levels. However, certain groups of people are disproportionately affected by STIs. The two most common reportable STIs in RI are chlamydia and gonorrhea, caused by *Chlamydia trachomatis* and *Neisseria gonorrhoea*, respectively. Both are transmitted through oral, vaginal, and anal sex with symptoms ranging from none to urethritis characterized by dysuria and penile/vaginal discharge. Serious complications include infertility, pelvic inflammatory disease, and ectopic pregnancy. Chlamydia is by far the most common STI in RI. In 2010, 3,840 cases of chlamydia were reported in RI. In 2012, there was a 12% increase with 4,313 new cases statewide. Just under three-fourths of new chlamydia cases were reported in females, likely due to higher STI screening rates in this group. Additionally, the majority of new chlamydia cases occur in younger individuals, aged 15-24 years old, highlighting the importance of early education and intervention during these years. The CDC recommends annual chlamydia screening for all females under the age of 26 years old. Similar to chlamydia, rates of gonorrhea have increased in RI over the last few years. In 2010 and 2012, 291 and 507 cases of gonorrhea were reported, respectively, representing a 57% increase. The majority of gonorrhea cases were in males (54%) and younger age groups 15-29 years old. In contrast to chlamydia, gonorrhea is more common among males and disproportionately impacts gay, bisexual, and men who have sex with men (MSM). In 2012, 32% of gonorrhea cases were diagnosed in MSM. In 2012, due to increasing resistance observed in *Neisseria gonorrhoeae* isolates,⁴ the CDC recommended injectable ceftriaxone in combination with either azithromycin or doxycycline⁵ to treat uncomplicated gonorrhea. Oral Cefixime or other single combination regimens are no longer recommended due to increasing resistance.

Syphilis is caused by the spirochete *Treponema Pallidum* and can lead to a diverse spectrum of symptoms including progressive neurological and cardiovascular disease. *Treponema Pallidum* remains highly sensitive to penicillin, the treatment of choice. In 2006, the CDC launched a highly ambitious national campaign to eliminate syphilis from the US. Unfortunately, rates of syphilis have risen drastically since that time. In 2012, the Rhode Island Department of Health (RIDOH) reported 68 cases of infectious syphilis, a

Figure 1. The number of infectious syphilis cases in Rhode Island, 2006–2012. The number of cases increased 300% over the time period. The majority of cases were among males.
(Source: Rhode Island Department of Health Surveillance)



300% increase from 2006 (20 cases, **Figure 1**).³ This trend is observed across the country. In contrast to chlamydia and gonorrhea that affect both heterosexuals and MSM, syphilis tends to affect mainly MSM. Syphilis infection is classically divided into disease stages, including primary and secondary stages, considered “infectious,” and the latent and tertiary stages. In 2012, the majority of infectious syphilis cases in RI were among males (97%), of which 94% were MSM. Of MSM with infectious syphilis, 52% were also HIV-positive. The high rate of syphilis and HIV coinfection likely results from behavioral practices including unprotected oral sex and “serosorting,” or limiting sex to partners with the same HIV status. Due to the low risk of HIV transmission through oral sex, condoms are often not used for oral sex. Although the risk of HIV transmission from oral sex is low, transmission rates for syphilis may approach 30% per episode of oral sex.⁶ Furthermore, serosorting to have unprotected sex in the MSM population likely leads to increased syphilis and other STIs. Although the total number of new HIV diagnoses has slightly decreased over the past five years, MSM populations continue to experience a disproportionately high burden of new HIV infections.³

For all STIs including HIV, gonorrhea, chlamydia, and syphilis, race and ethnicity is a key demographic factor in determining risk. Across the board, racial and ethnic minorities present with a higher incidence of STIs than their white counterparts. Complex social and structural factors contribute to the racial and ethnic STI disparities in RI, including limited access to testing and treatment services and dense sexual networks. Perhaps most notably, the majority of new STIs are concentrated within a few select census tracts in Providence. These geographic and racial disparities suggest that greater efforts are needed to address heavily impacted communities in culturally competent ways.

PUBLIC HEALTH RESPONSE IN RHODE ISLAND

Federal and state funding for STI has decreased in RI and throughout the US due to diminishing public health resources while social media and geo-location apps promulgate more anonymous sexual encounters in high-risk populations such as MSM, adolescents, and young adults. Health departments are encouraged to implement strategies that focus on strengthening collaborative relationships in order to meet the increased STI demands stretching each jurisdiction’s capacity. Within the Division of Infectious Diseases and Epidemiology at the RIDOH, the STI and HIV program have joined forces to integrate public health activities as the new combined Office of HIV/AIDS, Viral Hepatitis, STIs, and TB. To reflect the CDC priority for Program Collaboration and Service Integration (PCSI), community agencies in RI receive funding to provide comprehensive STI, HIV, and viral hepatitis testing and linkage to care for all patients. Partner services are strengthened through collaboration with clinical providers such as The Miriam Hospital HIV/STI Clinic and Planned Parenthood who service the most at-risk patients. In addition, academic detailing visits to primary care providers are used to promote STI prevention and care-specific messages such as syphilis screening among MSM, expedited partner therapy, and multidrug resistant gonorrhea.

THE MIRIAM HOSPITAL IMMUNOLOGY CENTER HIV/STI CLINIC

On June 30, 2011, Whitmarsh Clinic, the only public STI clinic in RI, closed due to state budget cuts. The clinic was located on the West side of Providence and had been offering accessible screening and treatment services for STIs. After Whitmarsh Clinic closed, there were no clinics in the state which provided safety net testing and treatment for STIs. To address this public health gap amid increasing rates of STIs, The Miriam Hospital Immunology Center opened a clinic in January 2012 offering free HIV and syphilis testing on a walk-in basis during Friday afternoons. The Clinic is under the direction of Dr. Philip A. Chan with support from the Division of Infectious Diseases. R. Bobby Ducharme, with over a decade of experience in HIV/STI prevention, manages the clinic.

The Clinic immediately became an important site for those in RI with undiagnosed and untreated syphilis. During the first year, the overall syphilis positivity rate was approximately 15%. With support from Dr. Kimberle Chapin (Department of Pathology), The Miriam Hospital agreed to provide financial coverage for STI testing at the Clinic, as a commitment to public health. As of January 1, 2013, the Clinic has expanded hours and is currently open Wednesday, Thursday, and Friday from 12:30–3:30 p.m. The Clinic currently works closely with the RIDOH as a referral center for partner notification and contact tracing services, and to provide education and support services to other clinics and medical providers in the state.

Figure 2. Services offered by The Miriam Hospital HIV/STI Clinic.

- Comprehensive testing and treatment for sexually transmitted infections including HIV, viral hepatitis, syphilis, gonorrhea, and chlamydia.
- Free services for individuals who are uninsured or underinsured.
- Walk-in hours, no appointments required.
- Personalized education and counseling services.
- Free condoms.
- Referral services for complicated cases of sexually transmitted infections.
- Expedited partner therapy.
- Partner notification through the Rhode Island Department of Health.
- Post-exposure prophylaxis (PEP) for sexual or other exposures to HIV.
- Pre-exposure prophylaxis (PrEP) for individuals at ongoing risk for HIV infection.

The Miriam Hospital Immunology Center HIV/STI Clinic provides free testing, treatment, and comprehensive counseling services for HIV, viral hepatitis, chlamydia, gonorrhea, and syphilis (**Figure 2**) to patients with or without health insurance. Clinic staff evaluate STIs such as herpes simplex virus, trichomoniasis, and others on a case-by-case basis. HIV and hepatitis C virus (HCV) testing are performed using rapid or serum antibody tests. For those with suspected acute HIV infection, viral loads are performed. Syphilis testing is performed via the standard CDC algorithm which involves nontreponemal testing (Rapid Plasma Reagin) followed by a confirmatory treponemal test (FTA-Abs). Gonorrhea and chlamydia are assessed by urine nucleic acid amplification testing (NAAT). For higher-risk individuals, pharyngeal and rectal NAAT testing is performed. Treatment and follow-up is arranged and provided for all patients.

BIOMEDICAL HIV PREVENTION INTERVENTIONS

Antiretrovirals (ARVs) are the cornerstone of HIV treatment. HIV -infected individuals who are diagnosed and treated early have a similar life expectancy to those who are HIV negative.⁷ These medications have fewer side effects and are much simpler to take than previous regimens. Several single tablet regimens are now available. A landmark study demonstrated that HIV positive individuals who are on treatment and have an undetectable viral load are 96% less likely to transmit the virus to others.⁸ This has led to increased efforts to diagnose and treat all those who are HIV positive. The Miriam Hospital Immunology Center has led aggressive retention and treatment programs for all individuals who are HIV positive.

ARVs are also now being used in HIV negative individuals to prevent HIV infection. Post-exposure prophylaxis (PEP)

has long been used in the medical field after an occupational exposure to HIV.⁹ Individuals with a non-occupational exposure (i.e. sex) can also take PEP within 72 hours of exposure to prevent HIV. The Clinic supports a PEP program to which individuals can be urgently referred to and seen same-day. The Clinic follows standard CDC guidelines for the administration and monitoring of PEP.⁹ The US Food and Drug Administration also recently approved as the drug combination tenofovir/emtricitabine (TDF/FTC) for pre-exposure prophylaxis (PrEP). PrEP is a single pill that HIV-negative individuals can take daily to prevent HIV infection.¹⁰ TDF/FTC is safe and very effective when taken every day. PrEP is an option for individuals who are at-risk of HIV. Given the higher numbers of HIV among gay, bisexual, and other MSM in RI, this population should consider PrEP depending on other sexual risk factors (i.e. unprotected sex, multiple partners). The Clinic has an ongoing PrEP program, among the first in the country, to which any patient may be referred to for counseling and consideration of PrEP, and the RIDOH is using it as a model to build a network of providers throughout the state with the capacity to offer PrEP.

COMMUNITY PARTNERS

Contact tracing to offer testing and referral services to partners of STI patients is a crucial component of addressing STI rates and requires close collaborations with the RIDOH, The Miriam Hospital HIV/STI Clinic, and other key RI providers and organizations. HIV, viral hepatitis, syphilis, gonorrhea, and chlamydia require mandatory reporting to the RIDOH. Surveillance data collected through reporting helps guide ongoing outreach efforts and testing programs in the state, such as AIDS Care Ocean State (ACOS), Project Weber, and AIDS Project Rhode Island (APRI). Partnership and communication with DOH occur at various levels (i.e. patient-level, community-level, and policy/administration) in order to effectively coordinate STI prevention and treatment services with key stakeholders throughout the state.

The Rhode Island Public Health Institute (RIPHI), under the direction of Dr. Amy Nunn, also supports the Clinic and community health in general with efforts to eliminate health disparities in the state. The institute partners with Brown University and the RIDOH to develop innovative public health community initiatives, research health policy, and to train students as well as public health officials and practitioners. More specifically, RIPHI disseminates information about HIV and other STIs, and spreads awareness about free testing and treatment services (www.Doftright.org).

CONCLUSION

STIs have significantly increased in RI over the last few years. The Miriam Hospital HIV/STI Clinic fills a critical need in the state to provide testing and treatment for STIs. Partnerships and collaborations across multiple sectors

are needed to effectively address the epidemic and reverse the increasing trends. More specifically, adolescents and younger adolescents who are most at-risk of gonorrhea and chlamydia need improved education and access to resources, especially in Providence where the majority of these cases are diagnosed. Increased education and awareness is also needed among gay, bisexual, and other MSM about HIV and syphilis, including newer strategies to prevent HIV such as PrEP. Only through ongoing and multifaceted efforts can STIs be effectively addressed in the state.

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