The Boston Public Health Commission has a goal to reduce Chlamydia rates overall among Boston residents 15 through 24 years of age and to reduce the gap in Chlamydia rates between Black, Latino, and White residents 15 through 24 years of age by 25% over the next five years.

**Chlamydia in Boston**

**Understanding all of the factors that affect our health**

Dr. Barbara Ferrer  
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Boston Public Health Commission

"Today there are groups of residents in Boston that have not benefited equally from our progress and who bear a severe and disproportionate burden of diseases."

In Boston, we have made significant progress improving the health status for many of our residents. Mortality rates have dropped steadily for the past 10 years, there are significantly fewer teen pregnancies, a near disappearance of lead-poisoned children, and fewer people are smoking tobacco. Our success is a result of improved surveillance; advances in medical research; increased access to prevention, screening, diagnosis, and treatment; and policy changes that reduced exposure to harmful substances.

Nevertheless, today there are groups of residents in Boston that have not benefited equally from our progress and who bear a severe and disproportionate burden of diseases. To tackle this imbalance, we must understand and address the many issues that influence our health, paying particular attention to finding approaches that allow all residents to have equal access to the conditions that promote the best possible health.

In the recent past, many of our programs have focused on individual-level interventions, intended to influence knowledge, attitudes, and behaviors. As we move forward, we will need to prioritize strategies that address the interpersonal, community, and societal influences of disease transmission and health. We will need to understand how racism and poverty limit the opportunity for many Boston residents to make healthy choices and have led in particular, to significantly worse health outcomes for many Black residents in the city. Our health is influenced by where we live, the jobs we hold, our knowledge of risk, our access to resources, and our support systems, making it critically important that our public health programs acknowledge and address these broader realities and contexts.

This briefing paper describes a significant racial inequity in Chlamydia rates in Boston and offers information to help us identify opportunities for reducing the gap. The purpose of the briefing paper is to allow our entire health department to work together through our practices, policies and research activities to advance the health of our communities and eliminate persistent racial inequities in health outcomes.
Executive Summary

Key Points in Efforts to Reduce Chlamydia Rates in Boston

High Chlamydia rates have costly impact:

- Chlamydia is the most frequently reported Sexually Transmitted Infection (STI) in the United States, with a 62% increase in rates nationally since 2000 (CDC, 2008a).
- In 2009, 4,148 Chlamydia cases were reported in Boston residents.
- Left untreated, Chlamydia infection can cause pelvic inflammatory disease and infertility in women.

Groups in Boston are affected at substantially different rates:

- Boston residents ages 15 through 24 are almost four times more likely to have Chlamydia than residents overall.
- Among that age group, 70% of those diagnosed are female.
- Blacks and Latinos of all ages had case rates seven to 11 times higher than Whites in Boston.
- Black adolescents and young adults (ages 15-24) had a case rate 20 times that of White adolescents and young adults.

A multifaceted approach is called for to reduce Chlamydia rates, including:

- Efforts to improve overall sexual knowledge and health.
- Skills building to change behavior and reduce unprotected sex.
- Examining and improving practices related to screening for and treating STIs.
- Changing policies related to sex education in schools, funding for prevention, and the treatment of the partners of STI cases.
- Examining factors that might contribute to early onset of sexual activity like access to high quality education, the availability of after-school programs, and life and work opportunities.

BPHC will build on existing efforts:

The Commission will build on the prevention, screening, treatment and policy work underway at BPHC. A few examples are:

- The BPHC is releasing the Sexual Health of Boston Teens. The report includes data on Chlamydia and other sexual health risk factors, a snapshot of the knowledge and attitudes of students and parents, and recommendations to address risk factors based on best practices.
- Entre Familia and other programs in the Addictions Bureau screen for sexual risk factors and offer educational groups for clients to learn about safer sex practices.
- The Commission’s School Based Health Centers provide STI screening for all sexually active patients, following best practice guidelines, and improving early diagnosis. They also offer sexual health education for individuals and groups.
- The Infectious Disease Bureau has surveyed Boston providers to determine current screening and treatment practices and to identify areas for improvement.

Find Out More
Visit the Commission-wide goals page on the BPHC Intranet for more information and to view an online presentation on this topic.
Chlamydia is a preventable and treatable Sexually Transmitted Infection (STI).

The disease is the most frequently reported STI in the United States, and infections have increased significantly over the past decade. The Centers for Disease Control and Prevention (CDC) reports a 62% increase in rates nationally since 2000 (CDC, 2008). Although some of this increase is due to technological improvements in laboratory testing, and improvements in disease reporting, it is likely that the actual case numbers have increased. In addition to the substantial costs associated with testing and treating the infection, left untreated, Chlamydia can cause pelvic inflammatory disease and infertility in women.

The CDC reported that in 1995, STIs were the most common reportable diseases in the United States. (CDC, 1995) "Each year an estimated 15 million new infections occur in the United States, and nearly 4 million teenagers are infected with an STI. (American Sexual Health Association, 1998) The direct and indirect costs of the major STIs and their complications ...are conservatively estimated at $17 billion annually." (IOM, 1997) STI rates in the United States are higher than in all other industrialized countries in the world. (American Social Health Association, 1998)

In 2008, 1.2 million Chlamydia cases were reported to the CDC, the most cases ever in one year of any disease with a rate of 401.3 cases per 100,000 people. Since many asymptomatic (without symptoms) cases are not detected, the actual number is likely to be higher.

The CDC report on Sexually Transmitted Disease Surveillance (CDC, 2008) shows the following national trends, some of which we see replicated in Boston:

- Chlamydia rates for all racial and ethnic groups increased from 2007 to 2008.
- The rate of Chlamydia among Black women was nearly eight times higher than the rate among White women (2,056.9 and 264.4 per 100,000 women, respectively).
- The Chlamydia rate among Black men was almost 12 times higher than the rate among White men (928.8 and 79.4 per 100,000 men, respectively).
- The rate for Latinos (519.4 per 100,000 population) was almost three times higher than for Whites (173.6).
- Young people (15-24) have Chlamydia at five times the rate of the total population (10-65).
- Black females ages 15-19 years old had the highest rate of any age/race subgroup at a staggering 10,513.4 cases per 100,000.

In 2009, 4,148 Chlamydia cases were reported in Boston residents. Rates were highest among Blacks, females, and those under age 25 years. The figures below show the dramatic differences in reported Chlamydia rates for different groups.

- Among 15 to 24 year old Boston residents, the Chlamydia incidence rate was 2,454 per 100,000 population as compared with the overall rate in Boston of 704 per 100,000 (Figure 1).
- 15 to 19 year old Boston residents had the highest Chlamydia rate (3,092 per 100,000) compared to any other age group (Figure 1).
- 74% of the cases among those 15 to 24 years of age were in females.
- Blacks and Latinos among all ages had case rates substantially higher than Whites in Boston (1,286 per 100,000 for Blacks compared to 820 for Latinos and 110 for Whites).
Multifaceted Approach is Required to Reduce Inequities in Chlamydia Infections

Why is reducing the inequities in Chlamydia rates important?

First, Chlamydia often goes undetected in both women and men. Without treatment, women can get pelvic inflammatory disease (PID) that can lead to pain and infertility. A high percentage of men and women have no symptoms and can continue to infect others if they are not screened and treated. In addition, having an STI (particularly untreated) may leave a person more vulnerable to other STIs including HIV. It is also a public health responsibility to decrease Chlamydia, the infection with the largest number of cases of any reportable condition. (CDC, 2008).

Finally, differences in infection rates between races are grounded in inequities and should be addressed.

BPHC has taken on the challenge of trying to reduce Chlamydia rates and to reduce the inequities between racial/ethnic groups. It is likely that some strategies being used to reduce infection rates will result in increased screening and thus the identification of more reported cases, at least temporarily. Reducing the differences in the rates of infection in Blacks and Latinos compared to Whites in the 15-24 year old range by 25% over the next five years will result in approximately 230 fewer cases in Black residents and 120 fewer cases in Latino residents in that time period.

A multifaceted approach is called for to reduce the Chlamydia rate. This includes:

• Efforts to improve overall sexual knowledge and health.
• Examining and improving practices related to screening for and treating STIs.
• Changing policies related to sex education in schools, condom availability, funding for prevention, and partner treatment regulations.
• Systems approaches such as availability of confidential teen services and examining factors that might contribute to early onset of sexual activity or prevalence rates like access to high quality education, the availability of after-school programs, and life and work opportunities.

How Does Racism Contribute to Poor Health & STIs?

All of the different forms of racism can have a corrosive affect on a person’s health in a number of ways. Racism can cause a lack of economic opportunity through denial of work opportunities which can lead to a person living in areas with high poverty, violence and environmental hazards. Racism can also limit the delivery of health services which could otherwise help preserve and promote good health. Exposure to racism, and the stress it causes, can affect a person’s self worth which can cause an increase in risky behavior and lifestyle choices.

(Source: California Dept. of Public Health, Presenting on STD Racial Health Disparities)

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<th>Internalized</th>
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<td>A set of private beliefs, prejudices, and ideas that individuals have about the superiority of Whites and the inferiority of people of color. Among people of color, it manifests as internalized racial oppression. Among Whites, it manifests as internalized racial superiority.</td>
<td>The expression of racism between individuals. These are interactions occurring between individuals that often take place in the form of harassing, racial slurs, or telling of racial jokes.</td>
<td>Discriminatory treatment, unfair policies and practices, inequitable opportunities and impacts within organizations and institutions, based on race.</td>
<td>Racial bias across institutions and society. It’s the cumulative and compounded effects of an array of factors such as public policies, institutional practices, cultural representations, and other norms that work in various, often reinforcing, ways to perpetuate racial inequity.</td>
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Chlamydia: The unequal burden of disease

The Commission’s framework on social determinants of health provides an outline of the factors that lead to racial inequities in health. As noted below, some of these factors may contribute to the inequities in Chlamydia rates.

“Individual sexual behaviors including age of initiation of sexual activity, number of lifetime sexual partners, condom use, and substance use or alcohol use during sex are associated with the level of risk for STIs. However, prior studies have documented that these individual risk behaviors do not fully account for the marked racial disparities that disproportionately affect Blacks. The social determinants of health, namely poverty, poor physical conditions of neighborhoods, disproportionate incarceration, and patterns of racial segregation have been shown to be key factors in shaping the dynamics of STDs.” (Hogben and Leichliter, 2008)

A 2008 national study documented that one in four adolescent girls has an STI (Chlamydia is among the four most common along with Human Papillomavirus - HPV, herpes and trichomoniasis). Half of the African American girls in the study were infected as compared with 20% of the White teen girls. (CDC, 2008)

Specific factors that may contribute to higher rates among teens, girls and Blacks include:

- **biological factors** that make young females more susceptible to Chlamydia;
- **sexism and lack of empowerment** that might affect the ability of women to negotiate safer sex. One study showed that women with less education or lower household incomes were more likely to report starting a relationship because of economic need or having transactional sex (Dunkle, Wingood, et al, 2010);
- **limited education and employment** opportunities and the impact of that on sense of possibility, and likelihood to initiate sexual activity at a younger age;
- **a higher rate of Chlamydia** in certain sexual networks (neighborhood, communities with higher rates of incarceration, etc.);
- **racism and its impact on sexual behavior**, and on the personal actions taken to promote one’s health and wellness.

In a study of African American teenagers and young adults in a rural area, lack of recreational opportunities, perceived lack of safety and few dating options were cited as factors that contributed to early or riskier sexual activity. (Akers, Younmans, et al, 2008). Similar data for urban areas are lacking. However, some have suggested that greater access to after-school programming or jobs for teens might reduce the level of sexual activity and enhance the perception of life opportunity, thereby reducing sexual exposure, transmission, the prevalence of infection and Chlamydia rates.

Social Determinants of Health Framework

Social determinants of health are the circumstances in which people are born, grow, live, work, play, and age that influence access to resources and opportunities that promote health. The social determinants of health include housing, education, employment, environmental exposure, health care, public safety, food access, income, and health and social services.
Chlamydia rates vary markedly among Boston neighborhoods with higher rates in areas with other health problems, lower income, less access to educational opportunity and more economic stressors. However, data are lacking on how some of these issues influence the prevalence of infection and sexual and protective behaviors.
Current Strategies & Efforts to Reduce Chlamydia and other STIs

There is already a great deal of work going on in Boston to lower the rates of STIs, using varied approaches. Some examples follow:

Policy:

• The BPHC established a cross-bureau committee to reduce STIs and will release a position statement and promote comprehensive sexual health education in the Boston Public Schools.

• The BPHC is releasing the Sexual Health of Boston Teens. The report includes data on Chlamydia and on sexual health risk factors. It is a snapshot of the knowledge and attitudes of students and parents, and contains recommendations to address risk factors based on best practices of condom availability, sexuality education focused on behavior change and skills, confidential teen services, etc.

• The creation of BPHC Comprehensive Reproductive and Sexuality Education Position Statement that ensures consistency of message and services across BPHC programs, and ideally citywide.

• Various groups are working to improve after school programs and jobs for teenagers to provide them with meaningful opportunities for learning and skills development.

Prevention:

• Entre Familia and other programs in the Addictions Bureau both screen for sexual risk factors and offer educational support for clients to learn about safer sex practices.

• The Infectious Disease Bureau collaborated with the Communications Office and with local teenagers on an STI campaign for teenagers, raising awareness through Facebook and PSAs.

• BeSafe, a citywide collaborative seeking to improve sexual health education in teen leadership and sports programs around the city of Boston, offers staff training and policy suggestions to organizations.

Screening (testing of asymptomatic patients):

• The Infectious Disease Bureau funds community agencies to provide integrated education and outreach for HIV, STIs and viral hepatitis.

• The Commission runs School Based Health Centers (SBHCs) that provide STI screening for all sexually active patients, following best practice guidelines, and improving early diagnosis. They also offer sexual health education for individuals and groups.

Data Collection:

• The Infectious Disease Bureau is working with MDPH to improve data collection and the accurate reporting of race, ethnicity and neighborhood data in order to better define groups at highest risk so resources can be effectively targeted.

• The BPHC collects and analyzes data on sexual behavior and health through various surveys including the Behavioral Risk Factor Surveillance System and Youth Risk Behavior Survey to better target prevention and intervention.

Treatment:

• The School Based Health Centers treat and re-test all patients they screen with positive diagnosis for STIs lowering the re-infection rate among the students they see who have Chlamydia or Gonorrhea.

• The Infectious Disease Bureau has surveyed Boston providers to determine current screening and treatment practices to identify areas for improvement.
Promising or Best Practices

STIs are “hidden epidemics of tremendous health and economic consequence in the United States” (IOM, 1997). The Institute of Medicine recommends that the “United States needs to establish a much more effective national system for STI prevention, which takes into account the complex interaction between biological and social factors that sustain STI transmission in populations; focuses on preventing the disproportionate effect that STIs have on some population groups; applies proven, cost-effective behavioral and biomedical interventions; and recognizes that education, mass communication media, financing, and health care infrastructure policies must foster change in personal behaviors and in health care services.” (CDC, 2000, page 25-3).

Evidence-based practices provide the best chances to successfully intervene, although data showing which practices actually lower STI rates are limited. However, a systematic review of the literature by the Agency for Healthcare Research and Quality (AHRQ) identified promising practices in behavioral counseling to prevent STIs. (Lin, Whitlock, et al, 2008) Two interventions that have demonstrated success in lowering STI rates include:

1. Safe in the City is a 23-minute HIV/STI prevention video developed for STI clinics. A study of three clinics in different urban areas found that patients (n= 38,635) assigned to the intervention (video watching as compared to regular waiting room environment) showed a nearly 10% reduction in new infections. This is impressive for a relatively low impact intervention. (Warner, Klausner, et al, 2008)

2. A study comparing three workshop models (in depth sex education and skills building workshops, general sex education or health education workshops) each delivered in three, four-hour sessions in an adolescent medicine clinic in an urban, low-income area, demonstrated some success. Sexually experienced African American and Latino adolescents (n=682) were assigned to receive one of the 3 interventions. The girls in the skills-intervention reported less unprotected sexual intercourse than the other two groups at the 12-month follow-up and reported fewer sexual partners and were less likely to test positive for STI than were the participants in the general health education group. (Jemmott, Jemmott, et al, 2005)

Getting Involved: What you and your program can do to reduce Chlamydia rates in Boston

How can your program or bureau be a part of this mission to reduce Chlamydia rates in 15 through 24 year olds in Boston, particularly Black and Latino residents? Some of the ideas submitted by bureaus may help you get started.

Policy

Policy work addresses the systems level components, taking broad steps to address this epidemic from a public health vantage point.

- The Commission can work with BPS, MDPH and others to get sexual health education into the Boston Public Schools and passed at the statewide level. As of August, 2010, 35 states and Washington DC require the provision of STI/HIV education, and 21 states and DC mandate sex education in public schools.

- Policy work can be integrated with the training and awareness efforts of the Center for Health Equity and Social Justice that focus on underlying social determinants, including racism, to address health inequities.
• BPHC can issue screening and treatment protocols for healthcare providers.

• BPHC can provide education related to the importance of consistent use of condoms. The Healthy People 2010 objective is to increase from 85% (1999) to 95% the percentage of adolescents in grades 9-12 who were not sexually active or who used condoms when sexually active.

Prevention/Education:

Effective STI prevention requires effective population-level and individual-level interventions. The IOM issued an optimistic and clarion call; we can “have a rapid and dramatic impact on the incidence and prevalence of STIs in the United States. Many effective and efficient behavioral and biomedical interventions are available.” (IOM, 2007)

Prevention is critical in significantly reducing the number of Chlamydia cases. Having fewer sexual partners and engaging in safer sex to reduce the risk of exposure and possible transmission (e.g. use of condoms prevents exposure that is likely to lead to infection) are two critical factors related to lowering the disease rate. Many programs are already providing group and individual education and screening for HIV & STIs. What other opportunities are there to educate about healthy relationships and sexual health, to teach about condom use and to support effective safer sex negotiation skills?

• Homeless Services offered the possibility of increasing condom distribution and safe sex education in their outreach efforts.

• Schools are the main source of STI information for most teenagers. Parents locally and nationally report the need to learn how to talk to their children about STIs as well as their desire to have schools offer comprehensive sexuality education.

Screening/Testing:

Since infection with Chlamydia is usually asymptomatic (without symptoms), screening is important. Data has shown that Chlamydia screening can reduce the incidence of pelvic inflammatory disease (PID, a principal cause of infertility) by as much as 60 percent (Scholes, Stergachis et al, 1996). Annual screening for sexually active females and males younger than 26 years of age is widely recommended as a means to detect and treat Chlamydia. (CDC, 2008; CDC, 2000)

• The Community Initiatives Bureau is considering training oral health providers to identify oral symptoms for STIs and to test during these appointments.

• CAFHB uses a health questionnaire to alert providers to the need to counsel and test women for all STIs, focusing on Black women in 7 high priority neighborhoods.

• EMS suggested training staff to be able to offer counseling and referrals.

Treatment:

Rapid diagnosis and treatment of cases and their partners results in a shorter time when the case is contagious. Duration of infectivity is an important contributor to disease spread.

• New guidelines for expedited treatment for cases and their partners can be explored.

• Public campaigns targeted to teens to increase testing and treatment might be effective.
Notes:
Reference List & Resources:


Reference List & Resources (cont.):


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