



**BC Centre for Disease Control**  
An agency of the Provincial Health Services Authority

# BC Syphilis Action Plan

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## INTRODUCTION

The last decade has seen a steady, significant upsurge in syphilis rates in most developed countries. In BC, the rate of infectious syphilis has increased almost five-fold from 3.4 per 100,000 in 2010 (154 cases) to 16.2 per 100,000 in 2015 (761 cases). Almost 30% of the diagnoses in 2015 were in September and October, raising concerns that BC may be entering a new growth phase of the syphilis epidemic.

FROM 2010 TO 2015,  
SYPHILIS HAS INCREASED  
**5-FOLD**

Syphilis is a sexually transmitted infection (STI), caused by the spirochete bacterium *Treponema pallidum*. Its natural history is well-described, and consists of multiple infectious stages, followed by a latent, non-infectious stage. Untreated, up to one third of individuals will go on to develop late complications, which may lead to end-organ disease in the brain and other parts of the nervous system, the eyes, the heart and cardiovascular system, the liver, the bones and the joints. In those co-infected with HIV, the manifestations of both early and latent syphilis may be unusual and difficult to diagnose. Further, the presence of concomitant STIs, particularly syphilis, enhances both the transmission of, and susceptibility to HIV.

While the current syphilis epidemic is primarily among gay, bisexual, and other men who have sex with men (gbMSM), there is concern that there may be a spill over into the maternal population. This could potentially lead to an increase in the incidence of congenital syphilis, a severe, often debilitating infection transmitted *in utero* from an infected woman. Though there has only been one case of congenital syphilis reported in BC in the last five years, the United States recently reported increases in congenital syphilis cases.<sup>1</sup> In BC, there has been an increase in the number of maternal syphilis cases reported compared with previous years, demonstrating that the risk for congenital syphilis remains.

## EPIDEMIOLOGY OF SYPHILIS

Like many jurisdictions in developed countries around the world, the majority of infectious syphilis cases in BC are among gbMSM. Since 2012, the proportion of syphilis cases that are gbMSM has consistently been around 85%. Based on provincial population size estimates of gbMSM developed by BCCDC with our partners, about 1 in 100 gbMSM in BC are infected with syphilis *each year*.

**1 IN 100**  
GBMSM IN BC  
ARE INFECTED  
WITH SYPHILIS  
EACH YEAR

**1 IN 20**  
HIV+ GBMSM IN  
BC ARE INFECTED  
WITH SYPHILIS  
EACH YEAR

The highest rates of infectious syphilis are in the Lower Mainland, and more specifically, the West End of Vancouver. However, the rates of infectious syphilis have increased in all five regional health authorities. The majority of cases are among those 40-59 years old. Since 2014, the rate of increase has been greatest in those 20-29 years old.

There has also been a steady increase in the proportion of cases in the early latent stage compared to primary and secondary stages, from about 50% in 2005 to almost 65% in 2015. The early latent stage of infection is defined

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<sup>1</sup> V Bowen, J Su, E Torrone, S Kidd, and H Weinstock. Increase in incidence of congenital syphilis – United States, 2012-2014. MMWR 64(44);1241-1245, 2015.

by the absence of symptoms, suggesting that the increase in the proportion of early latent stages may be a result of increased syphilis screening. However, the infectious period of syphilis in the early latent stage is up to 12 months, leading to a simultaneous increase in workload to notify and follow-up on sexual partners.

The greatest burden of syphilis is among gbMSM co-infected with HIV. Based on population size estimates developed by the Public Health Agency of Canada, we estimate that about 1 in 20 gbMSM living with HIV in BC is infected with syphilis *each year*. Importantly, the burden of syphilis infection among this subgroup is not uniform and there is likely a core group of individuals who are disproportionately affected by syphilis.

## CONTEXT OF SYPHILIS MANAGEMENT IN BC

In BC, the medical management and public health infrastructure to manage syphilis is centralized at the BCCDC. All syphilis testing (i.e. serology and PCR testing) is performed at the BCCDC Public Health Laboratory (BCCDC PHL) located at the BCCDC and all reactive results are reviewed by clinicians at the Provincial STI Clinic at BCCDC who contact the clients and/or their testing providers to help diagnose and stage syphilis infections, and offer treatment recommendations. Registered Nurses (known as the BCCDC syphilis nurses) and Sessional Physicians at the BCCDC dedicated to managing syphilis then help clients and/or their providers develop a treatment plan, coordinate the treatment delivery (as it typically requires a specific formulation of penicillin), and follow-up with the clients and/or their providers to ensure they are appropriately treated. At the same time, the BCCDC syphilis nurses engage with clients to identify partners who may have been exposed to syphilis and contact them (or support the clients to contact them) to ensure they are tested and/or treated to prevent transmission.

## FRAMEWORK FOR SYPHILIS CONTROL

While sexual behaviours, such as unprotected sex and having multiple sex partners, are important factors that increase one's risk to STIs, these are only the most proximal factors.

To reduce the burden of syphilis, we need to understand the context in which these proximal factors exist and develop interventions that mitigate more upstream factors.

“THE CHALLENGE WITH CURRENT APPROACHES TO SEXUAL HEALTH AND RELATED PREVENTION STRATEGIES IS THAT THEY ARE SIMPLISTIC AND REDUCTIONIST, ASSUMING THAT DECISIONS ABOUT SEX ARE MADE BASED SOLELY ON KNOWLEDGE ABOUT TRANSMISSION AND WEIGHING OF POTENTIAL RISKS; THUS, THEY FAIL TO RECOGNIZE THE INTRINSICALLY HUMAN FEELINGS AND DESIRES THAT PROPEL HUMAN SEXUALITY.”

--ADAPTED FROM *HIV, STIGMA, AND SOCIETY*

The BC Provincial Health Officer's 2010 Annual Report, *HIV, Stigma and Society: Tackling a Complex Epidemic and Renewing HIV Prevention for Gay and Bisexual Men in British Columbia* describes an approach to understanding the drivers of the HIV epidemic that considers three levels of factors

affecting HIV infection: behavioural and biological level factors, community and relationship level factors, and societal and structural level factors.<sup>2</sup>

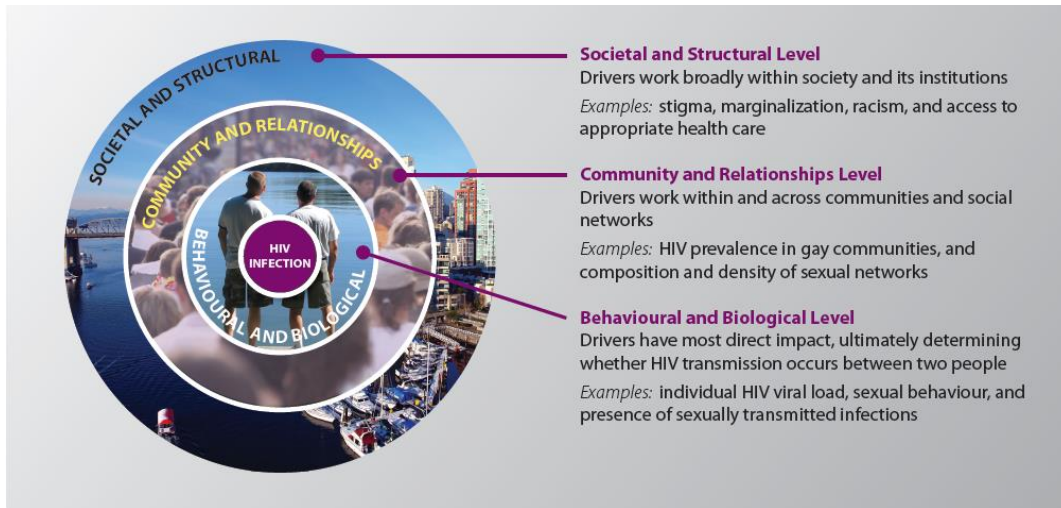


Figure 1: Conceptual approach to drivers of the HIV epidemic (from HIV, Stigma, and Society)

We have adapted this conceptual approach to develop a framework to prevent and control syphilis (Figure 2). This framework was intentionally ambitious and innovative, and sought to go beyond the traditional approaches of behavioural interventions to prevent syphilis. Thus, this framework emphasizes the need to understand and address the contextual, structural, and societal drivers of syphilis.

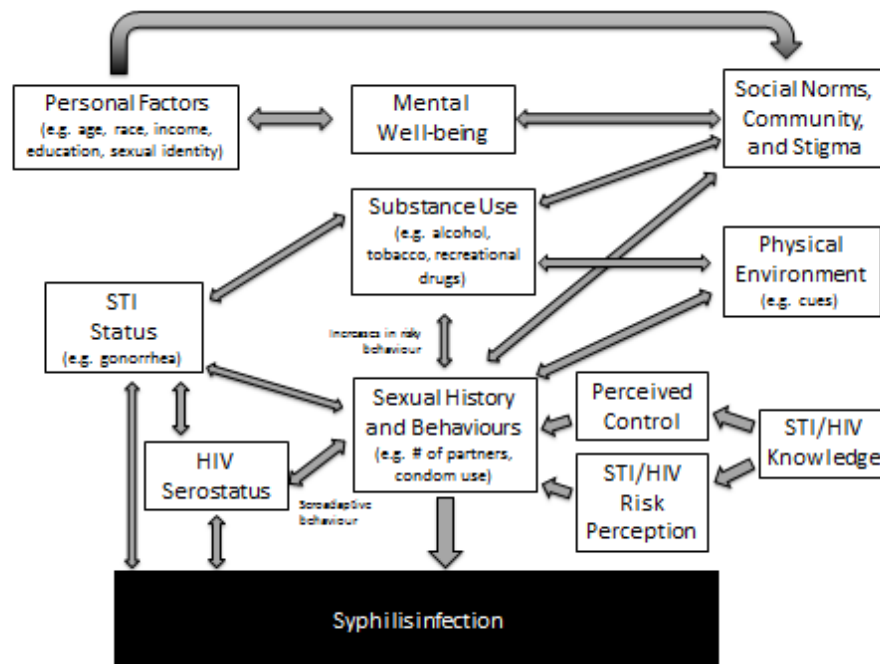


Figure 2: Framework for Syphilis Action Plan (Adapted from T Grennan, 2015<sup>3</sup>)

<sup>2</sup> British Columbia Provincial Health Officer. HIV, Stigma and Society: Tackling a Complex Epidemic and Renewing HIV Prevention for Gay and Bi Sexual Men in British Columbia. Provincial Health Officer's 2010 Annual Report. Victoria, BC: Ministry of Health, 2014.

Based on this framework, we developed a Syphilis Action Plan with 7 goals. The overarching aim of the Syphilis Action Plan is to prevent and control syphilis in British Columbia, with a focus on preventing morbidity from syphilis. The goals of this plan are to:

1. Improve understanding of the drivers of the current syphilis increase to prioritize and target messaging and interventions
2. Pilot and evaluate new primary prevention strategies
3. Increase awareness of syphilis among key populations and health care providers of key populations
4. Enhance surveillance of syphilis, particularly among key populations
5. Achieve earlier detection of syphilis
6. Maintain high treatment completion rates of infectious and latent cases of syphilis, in order to prevent complications and reduce onward transmission
7. Optimize the care of partners

While all sexually active individuals are potentially at risk for acquiring syphilis, given the epidemiology of syphilis, the Syphilis Action Plan focuses on groups who are more likely to be infected (or re-infected) with syphilis and groups who may experience morbidity from syphilis.

All regional health authorities, the First Nations Health authority (FNHA), Office of the Provincial Health Officer, Ministry of Health, Perinatal Services BC, community-based organizations, gbMSM-centered clinics and a number of clinical leaders were involved in the development of the plan and meet regularly to coordinate the syphilis response as members of the Syphilis Action Plan Committee.

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<sup>3</sup> JT Grennan. Risk factors for high-risk, oncogenic human papillomavirus (HPV) anal infection in HIV-positive and HIV-negative men who have sex with men (MSM) [Internet]. Department of Health Policy, Management and Evaluation, University of Toronto; 2015. Available at: [https://tspace.library.utoronto.ca/bitstream/1807/70410/3/Grennan\\_Jonathan\\_T\\_201511\\_MSc\\_thesis.pdf](https://tspace.library.utoronto.ca/bitstream/1807/70410/3/Grennan_Jonathan_T_201511_MSc_thesis.pdf).

<b>GOAL 1: DETERMINE THE DRIVERS OF THE CURRENT SYPHILIS OUTBREAK</b>
<p><b>Activity 1: Explore factors associated with recent syphilis infection among gbMSM</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>Factors for exploration include differences in demographic factors, sexual history/behaviours, risk perception of STIs/HIV, social factors (e.g. identity of being gay, community engagement), co-use of substances (e.g. recreational drugs, alcohol), mental health, and HIV optimism.</li> </ul>
<p><b>Activity 2: Develop and implement a mixed method study, with in-depth interviews among gbMSM</b>  <b>Lead Agency: BCCDC, HIM, Positive Living</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>Explore the impact of seroadaptive behaviours and other potential drivers of the syphilis epidemic</li> <li>Understand community context and healthcare experience of those with previous syphilis infections</li> </ul>
<b>GOAL 2: DEVELOP NEW SYPHILIS PREVENTION STRATEGIES</b>
<p><b>Activity 1: Develop new biomedical treatment approaches for individuals at risk for re-infection</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>Develop, implement, and evaluate an intervention of daily doxycycline prophylaxis</li> </ul>
<p><b>Activity 2: Enhance support for core groups infected/re-infected with/at risk for syphilis</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>Collaborate with STOP outreach teams, and other key stakeholders and utilize a determinants approach to syphilis management</li> </ul>
<b>GOAL 3: INCREASE SYPHILIS AWARENESS</b>
<p><b>Activity 1: Develop a coordinated one-year communication strategy targeted towards gbMSM</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>Develop a sequence of messages</li> <li>Focus channels on online, web, and other spaces to target MSM who may not identify as gay</li> </ul>
<p><b>Activity 2: Develop a syphilis specific website with online dashboards on SmartSexResource.com</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>Develop a website with specific syphilis information that supports the above campaigns</li> <li>Use dashboards to provide monthly updates on the number of syphilis cases and among key populations</li> </ul>
<p><b>Activity 3: Engage/provide in-services to providers who diagnose the most syphilis in the province</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>Provide in services regarding epi and treatment updates, partner follow up and centralized medical management.</li> </ul>

<p><b>Activity 4: Engage with maternal providers to raise awareness of the risk of congenital syphilis</b>  <b>Lead Agency: BCCDC, PSBC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>• Discuss relevant epidemiological information to raise clinical suspicion for maternal and congenital syphilis</li> </ul>
<p><b>Activity 5: Write a BCMJ article</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>• Discuss relevant epidemiological information to raise clinical suspicion for syphilis</li> </ul>
<p><b>Activity 6: Distribute practitioner alerts</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>• Discuss relevant epidemiological information and screening recommendations</li> </ul>
<p><b>GOAL 4: ENHANCE SURVEILLANCE</b></p>
<p><b>Activity 1: Enhance surveillance of syphilis</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>• Enhance collection of HIV co-infection, namely viral loads at/around time of syphilis diagnosis</li> <li>• Improve understanding of networks by improving the linkage of partners and cases</li> <li>• Improve systematic collection of end-organ involvement to identify complications</li> <li>• Explore common venues/apps/websites used to meet partners</li> </ul>
<p><b>Activity 2: Identify factors associated with syphilis core groups</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>• Characterize individuals with multiple syphilis infections in the previous 10 years and their partners</li> <li>• Describe geographic distribution of cases and partners with known addresses over time</li> <li>• Describe the proportion of syphilis and HIV diagnoses among partners</li> </ul>
<p><b>Activity 3: Describe the spatial epidemiology of syphilis</b>  <b>Lead Agency: BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>• Describe changes in the places of residences of individuals infected with syphilis</li> </ul>
<p><b>Activity 4: Characterize pregnant women who were diagnosed with syphilis</b>  <b>Lead Agency: PSBC, BCCDC</b>  <b>Description:</b></p> <ul style="list-style-type: none"> <li>• Describe characteristics of women diagnosed with syphilis while pregnant in order to inform strategies to improve prenatal care</li> </ul>

## GOAL 5: INCREASE EARLIER DETECTION OF SYPHILIS (SCREENING)

### Activity 1: Facilitate and improve access to testing for gbMSM

Lead Agency: BCCDC, RHASTOP Outreach teams

**Description:**

- Expand testing, clinic hours, and outreach services.
- Enhance engagement, management and care for individuals with multiple infections of syphilis or individuals reporting multiple partners to encourage regular testing
- Recognizing guidelines suggesting less frequent HIV viral load testing, promote STI testing at other HCP visits for those at greatest risk of syphilis
- Leverage existing low-barrier testing facilities, including the provincial STI clinics and the *Get Checked Online* program.

### Activity 2: Implement novel, improved diagnostic and screening methods

Lead Agency: BCCDC PHL

**Description:**

- Pilot PCR screening of residual samples collected for gonorrhoea and chlamydia testing from rectal, penile and pharyngeal sites
- Validate and pilot point-of-care testing
- Sequence PCR samples of syphilis to identify changes in strain type

### Activity 3: Offer text reminders for syphilis testing among those with a previous syphilis infection

Lead Agency: BCCDC

**Description:**

- Texting reminders are available via the Smart Sex Resource website

## GOAL 6: MAINTAIN HIGH TREATMENT COMPLETION RATES

### Activity 1: Enhance collaborations with treatment providers

Lead Agency: BCCDC

**Description:**

- Engage with public health practitioners and clinicians to ensure adequate treatment of syphilis and reduce infectious period

## GOAL 7: IMPROVE PARTNER FOLLOW UP

### Activity 1: Develop enhanced follow up procedures

Lead Agency: BCCDC, RHA

**Description:**

- Develop provincial STI partner notification guidelines
- Develop a shared provincial strategy document for procedures relating to enhanced follow-up of infectious cases, including the use of STOP and other outreach teams to engage with cases and their partners
- Monitor outcomes of partner notification

### Activity 2: Improve access to syphilis testing of partners

Lead Agency: BCCDC

**Description:**

- Leverage *Get Checked Online* as an alternative venue for syphilis testing for partners of cases of syphilis



## **EVALUATION**

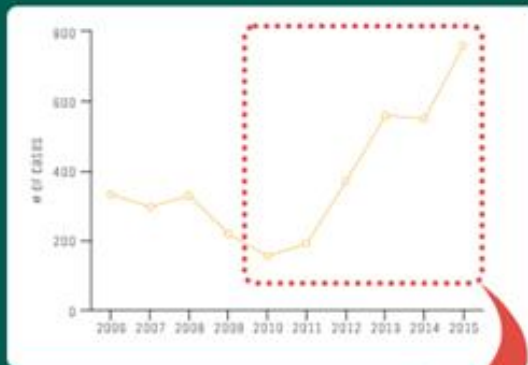
This document is intended to be a living document of the activities to prevent and control syphilis. As the secretariat for the Syphilis Action Plan Committee, the BCCDC will maintain this document. The Syphilis Action Plan Committee will also commit to evaluating the outputs and outcomes of this syphilis action plan in a year's time.

## **CONCLUSION**

Given the current syphilis situation in BC, with a significant rise in cases focused primarily amongst gbMSM – the majority of whom are HIV co-infected – there is an urgent need to implement a comprehensive, multifaceted response in collaboration with our regional and provincial partners. With the significant public health implications of the current syphilis epidemic – namely, the potential for serious clinical complications, increased HIV transmission, and the possibility of new cases of congenital syphilis – the BCCDC considers syphilis prevention and control to be a provincial public health priority requiring action. Partnering with provincial and regional stakeholders from both community and health settings, we will build on current syphilis prevention, treatment and control efforts to maximize impact, as well as develop novel, innovative ways to reduce both transmission and morbidity amongst the population.

# Overview of the British Columbia SYPHILIS ACTION PLAN

**!** Infectious Syphilis has been **increasing** in British Columbia since 2010



**?** Why is syphilis a concern ?

- Syphilis is highly infectious**
- If untreated, syphilis can lead to serious complications like blindness or brain damage**
- Syphilis can be transmitted in utero leading to congenital defects and even death**

In response to the increase, British Columbia developed a **Syphilis Action Plan** with the following **7 GOALS**

- Enhance the surveillance of syphilis and better describe spatial epidemiology of the disease in BC
- Understand the drivers of the current outbreak
- Develop new syphilis prevention strategies, especially among core groups
- Increase early detection (screening), including offering testing reminders for those with previous infections
- Maintain high treatment completion by improving collaboration with clinical partners
- Optimize care of partners, including improving testing and treatment outcomes
- Increase syphilis awareness by developing targeted communication strategy and engaging providers who diagnose most syphilis in BC