The Resurgence of Syphilis in British Columbia:  
Who is affected?
What are the challenges?
How can we improve our response?

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Objectives for Today

**Presentation (30 min)**

1. Syphilis basics: transmission, symptoms, tests, and treatment
2. Recent epidemiology and trends in British Columbia
3. Recommended strategies for screening, diagnosis, and partner notification/testing

**Discussion and Q&A (30 min)**

1. Prevention
2. Communication
3. New strategies
**Treponema pallidum**

- Bacterial infection
- Sexually (or vertically) transmitted
- Cause of outbreaks throughout the world for many centuries
  - History of stigma (“French disease”)
  - History of infamous, unethical public health research (Tuskegee experiments)
- *T. pallidum* identified as cause in 1905
  - First effective treatment 1910
  - Penicillin 1943

**Source:** US CDC STD Clinical Slides (2011)
Sexual Transmission

- **Oral**, anal, or vaginal sex
- Skin-to-skin contact with open sore ("chancre") or skin rash
- Also, during pregnancy (congenital syphilis uncommon in current BC epidemic)
Stages of Syphilis

• “The Great Imitator”
• Infectious
  – Primary (symptomatic; 3 days – 3 months)
  – Secondary (symptomatic; 2 weeks – 6 months)
  – Early latent (no symptoms; anytime in first year)
• Late latent (>1 year)
• Diagnosis … a combination of:
  – Clinical findings
  – Diagnostic tests
  – Health history
Primary (+3 days – 3 months)

- Typically a solitary, **painless**, indurated ulcer/chancre at site of exposure (mouth, genitals, rectum, vagina)
- Untreated lesion will last approx. 1 month
- Screening tests may or **may not** be reactive
Primary: Chancre

Source: US CDC STD Clinical Slides (2011)
Secondary (+2 weeks – 6 months)

- Rash on trunk, palms, soles, or genitals
- Other symptoms:
  - Lymphadenopathy
  - Mucous patches
  - Condyloma lata (wart-like lesions)
  - Fever, malaise
- RPR usually reactive (1:8 or higher)
Secondary: Rash

Source: US CDC STD Clinical Slides (2011)
Early Latent (within 1 year)

- No symptoms
- RPR usually reactive (1:8 or higher)
- Evidence of recent infection or risk of infection (1y):
  - History of non-reactive serology
  - History of symptoms

**Infectious Stages**

- PRIMARY
- SECONDARY
- EARLY LATENT
Early Latent (Probable) – BC only

- No symptoms
- RPR reactive
- No screening in last year
- Sexually active with:
  - New partner
  - Multiple partners
  - Partner with syphilis
Complications

• Damage to brain, heart, other organs (tertiary syphilis)

• Neurosyphilis
  – **Note:** can be seen at any stage of infection (including within first year)
  – Persistent headache
  – Dizziness
  – Loss of vision, hearing, balance, motor skills
  – Personality changes, dementia
  – Numbness/weakness in legs

• Congenital syphilis
Tests

- **Screening → RPR**
  - Non-specific but sensitive

- **Confirmatory → TPPA/FTA**
  - Treponemal-specific

**Treatment**

- **Infectious (primary, secondary, early latent)**
  - Bicillin 2.4MU single injection (or doxycycline 100mg BID x 14 days)
  - Alternative: azithromycin 2g (potential resistance)

- **Late stage**
  - 3 sets of Bicillin 2.4MU injections (or doxycycline 100mg BID x 28 days)
  - Alternative:
Local Epidemiology
Infectious syphilis by exposure category, BC
Toronto

Figure 1.32: Incidence rates of infectious syphilis by sex and year.
Toronto, 2001 - 2011.

Source: Toronto Public Health, STBBI 2011 Annual Report
Figure 9: Reported Cases of Early Syphilis by Sexual Orientation*,
King County, WA, 1994-2011

Source: Public Health Seattle & King County, 2011 STD Epi Report
New York City

Figure 3. Primary and secondary (P&S) syphilis and congenital syphilis cases reported to the NYC DOHMH. P&S syphilis case rate (per 100,000 population) by sex, and congenital syphilis cases rate (per 100,000 live births*), 1997 through 2012**.

Source: NYC DHMH, Bureau of STD Control, 2012 Report
HIV status of syphilis cases in BC, 2003-2012

Other jurisdictions in North America: 30-60% HIV co-infection
HIV Epidemic among Gay Men in BC

Source: Public Health Agency of Canada (2012)
Characteristics of Syphilis Cases, 2003-2012

Gay & Bisexual Men (85% of cases in recent year)

- **Average age: 41 years** (50% were 32-47 years)
- **81% in Vancouver Coastal region**
- 67% white, 7% Asian, 6% Latino

Where, how are they diagnosed?

- **51% private physicians**, 32% BCCDC, 13% other STI clinic
- **46% asymptomatic** (early latent)
- 4% co-diagnosed with neurosyphilis
% cases diagnosed in early latent phase
Is the recent increase a new outbreak?
Clinical Characteristics by HIV status

<table>
<thead>
<tr>
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<th>HIV positive n=783</th>
<th>HIV negative n=473</th>
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<tbody>
<tr>
<td>Early latent (asymptomatic)</td>
<td>49%</td>
<td>43%</td>
</tr>
<tr>
<td>Diagnosed by private physician</td>
<td>61%</td>
<td>36%</td>
</tr>
<tr>
<td>LGV co-diagnosis</td>
<td>2%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Neurosyphilis co-diagnosis</td>
<td>5%</td>
<td>4%</td>
</tr>
</tbody>
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15% of individuals had >1 syphilis diagnosis during 2003-2012:
  21% among HIV positive men
  7% among HIV negative men
The Importance of Partner Notification

21% of contacted partners were themselves positive for syphilis
50% of gay/bisexual men participating in a local study moved to Greater Vancouver within the past 5 years

Source: BC Stats, 2011
Hypotheses Concerning the Rise in Cases

• Testing patterns
  – Increased volume
  – Unable to determine proportion of tests among gay and bisexual men

• Changes in sexual networks (“core”)
• Natural oscillation in syphilis trends
• Changes in sexual behaviours
  – Condoms
  – Oral sex
Recommendations for Providers

1. **Test.** Maintain high clinical suspicion for syphilis in differential diagnosis of:
   - Genital, anal, or oral ulcers/lesions
   - Rashes of unknown origin (esp. palms, soles)
   - New onset of neurologic symptoms (incl. vision, hearing loss)

2. **Screen.** RPR screening recommended for:
   - As part of routine STI screening
   - MSM (every 3-6 months if >1 sex partner, including oral sex)
   - HIV-positive MSM (every 3 months, with routine blood work)
   - Contacts to syphilis

3. **Prevention.**
Prevention

- Condoms → limited (depending on site of infection)
- Highlight/discuss risk of re-infection
- Assistance with partner testing
- Awareness of symptoms
- Beyond syphilis…
Contact to Syphilis

- Test with RPR and confirmatories
- If exposure within last 3mths or exposure time unknown: treat as a precaution
- Regardless of test results contacts to syphilis can be treated
Challenges in Case Follow-Up

- Public perception of the seriousness of syphilis
- Public perception of the role of the BC CDC/partner follow up (“sex police”)
Recent Campaigns

Source:
SFDPH, 2009
ACON, 2010
CATIE, 2011
Lessons Learned

- Target your response (people, place)
- Recommend frequent screening
- Reduce barriers to testing
- Enhance and support client-led partner notification

Responses to syphilis outbreaks among gay and other men who have sex with men: case studies from the United Kingdom and the United States

Dean Murphy and Martin Holt

Acknowledgements

- Nurses and clinicians at BCCDC
- Surveillance team
- BC Public Health Microbiology and Reference Laboratory
- Regional health authorities
- Community-based organizations working with gay and bisexual men and HIV positive persons in BC
Resources

- **SmartSexResource**: [www.smartsexresource.com](http://www.smartsexresource.com)
  - Chat with a nurse
  - Find a clinic
  - STI information and updates

- BCCDC syphilis nursing line: 604-707-5607
- BCCDC syphilis physician line: 604-707-5606
Discussion

• Questions
• Your experiences with clients
• How can we emphasize syphilis prevention/screening in context of other STI, including HIV?
• How do we increase awareness of the epidemic among the “right” audiences?
• How do we reach MSM most susceptible to syphilis infection or re-infection?
• Community-led approaches
• Working with providers (including private physicians)
Further Investigation

• Epidemic is likely driven by core sexual networks
  – Substantiated by high rate of STI co-diagnosis, HIV co-infection, and syphilis re-infection

• Further evaluation of these groups is needed
  – Spatio-temporal cluster analysis
  – Qualitative work to understand barriers to care and prevention

• Partner notification is an effective activity
  – How to support and enhance PN activities among men with multiple sex partners…
STI Trends, BCCDC Clinics, 2000-2011

Source: BCCDC STI Clinic Information System