The return of infectious syphilis in Ontario

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Objective: To describe the changing epidemiology of syphilis in Ontario

Outline:
• Background
• Incidence by:
  • Year, age, gender, geographic location
• Syphilis – HIV co-infection
• Reported risk factors
Syphilis - a brief description

• Caused by the spirochete *Treponema pallidum*

• Infection may result in:
  • Primary lesions
  • Secondary symptoms that may include rash
  • A period of latency following secondary symptoms
  • Involvement of the central nervous system resulting in neurosyphilis
  • Tertiary symptoms other than neurosyphilis include lesions in the aorta or gummas in the liver, bone, skin, mucous membranes etc,

• Most commonly transmitted via sexual contact
Reporting of syphilis in Ontario

- Syphilis is reportable under O. Reg. 559/91 of the *Health Protection and Promotion Act* and has been reportable in Ontario since 1991

- Public health units report cases of syphilis using the integrated Public Health Information System (iPHIS)
  - All analyses for this presentation are based on data from 2000-2013 extracted from iPHIS in September 2014, unless otherwise noted
  - Data are subject to change based on health unit reporting updates through iPHIS
  - Cases were identified as men who have sex with men - ‘MSM’ if:
    - Client Gender = ‘MALE’, and
    - Answer for risk factor ‘SEX WITH SAME SEX’ = ‘Y’
Reporting of syphilis in Ontario

• Syphilis stages captured under ‘infectious syphilis’:
  • Primary syphilis
  • Secondary syphilis
  • Early latent syphilis
  • Infectious neurosyphilis

• Other stages of syphilis include:
  • Late latent syphilis
  • Tertiary syphilis
  • Non-infectious neurosyphilis
Infectious syphilis by year and sex: Ontario, 2000-2013

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014
Note: Excludes one case with sex not specified as male or female in each of 2008 and 2012
Infectious syphilis by age group and year among males: Ontario, 2000-2013

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014
Infectious syphilis by age group and year among females: Ontario, 2000-2013

**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014

Staging* of infectious syphilis cases by year: Ontario 2000-2013

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014

*Infectious neurosyphilis was added to the provincial case definition for syphilis effective April 30, 2009
Incidence of infectious syphilis by public health unit: Ontario, 2013

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014
Public health units with one or more cases of infectious syphilis reported: Ontario, 2000-2013

Incidence of infectious syphilis by public health unit: Ontario, 2000-2013

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014
Syphilis-HIV co-infection in Ontario

• STIs can enhance the risk of HIV infection and transmission*
  • Lesions resulting from an STI may facilitate HIV transmission
  • Increased HIV viral load as a result of STI
  • HIV infection may also accelerate progression of inflammatory processes associated with an STI (e.g. multiple lesions or treatment failure with syphilis infection)

• Co-infections defined
  • Co-infection defined as HIV diagnosis prior to or concurrently (within 1 year) with syphilis diagnosis

Syphilis-HIV co-infection among infectious syphilis cases by year: Ontario 2000-2013

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014
## Risk Factors among syphilis cases from 2009 to 2013

- **Most common risk factor among:**
  - Males: 85.1% of cases identified as MSM
  - Females: 73.8% of cases reported ‘no condom used’

<table>
<thead>
<tr>
<th>Co-infected (Yes/No)</th>
<th>Risk factors</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Cases reporting at least one RF</td>
<td>1511</td>
<td>94.4%</td>
</tr>
<tr>
<td></td>
<td>MSM</td>
<td>1375</td>
<td>91.0%</td>
</tr>
<tr>
<td></td>
<td>No condom used</td>
<td>752</td>
<td>49.8%</td>
</tr>
<tr>
<td></td>
<td>More than one sex contact in last 6 months</td>
<td>644</td>
<td>42.6%</td>
</tr>
<tr>
<td></td>
<td>Bathhouse</td>
<td>141</td>
<td>9.3%</td>
</tr>
<tr>
<td></td>
<td>New contact in past 2 months</td>
<td>137</td>
<td>9.1%</td>
</tr>
<tr>
<td></td>
<td>Anonymous sex*</td>
<td>126</td>
<td>8.3%</td>
</tr>
<tr>
<td>No</td>
<td>Cases reporting at least one RF</td>
<td>2082</td>
<td>90.2%</td>
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<tr>
<td></td>
<td>MSM</td>
<td>1563</td>
<td>75.1%</td>
</tr>
<tr>
<td></td>
<td>No condom used</td>
<td>1455</td>
<td>69.9%</td>
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<tr>
<td></td>
<td>More than one sex contact in last 6 months</td>
<td>899</td>
<td>43.2%</td>
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<tr>
<td></td>
<td>New contact in past 2 months</td>
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<tr>
<td></td>
<td>Anonymous sex*</td>
<td>185</td>
<td>8.9%</td>
</tr>
<tr>
<td></td>
<td>Bathhouse</td>
<td>111</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

*Anonymous sex was added as a risk factor in iPHIS in 2011

**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario September, 2014
Summary – Infectious syphilis in Ontario

• Three major phases of incidence:
  • Low incidence (pre-2002)
  • Increasing incidence (2002-2004 and 2008-2009)
  • Establishment of new endemic levels (2004-2008 and 2009-2013)

• Incidence remains highest in Toronto, but syphilis is becoming more widespread with more public health units with one or more cases

• Provincial trends driven by cases in males, with most identifying as MSM, many of whom are HIV co-infected

• Commonly reported risk factors among HIV co-infected cases were not necessarily reported in the same proportions as non-co-infected cases
Acknowledgements

• Public Health Units and their staff for their diligent collection and reporting of STI information in iPHIS

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Questions?

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