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Prevention of Congenital Syphilis in the Context of Rising Syphilis Diagnoses

Jason Wong and Troy Grennan

Healthy Mothers and Healthy Babies

March 12, 2016

Objectives

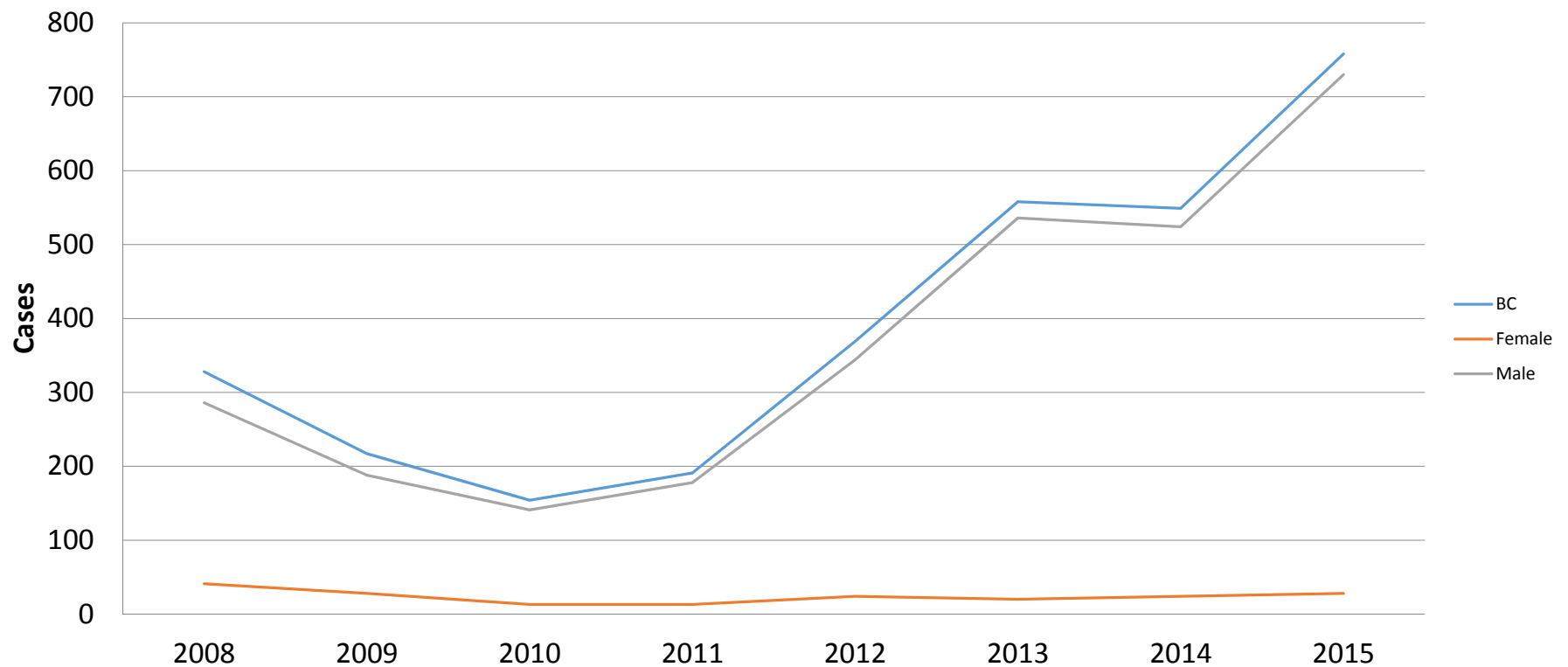
- Understand epidemiology of syphilis in BC
 - Particularly maternal and congenital syphilis
- Describe syphilis screening/testing process in BC
 - Primer on how to interpret RPR titres
- Review maternal and congenital syphilis
- Describe the prenatal STI screening recommendations
 - Rationale for 3rd trimester screening



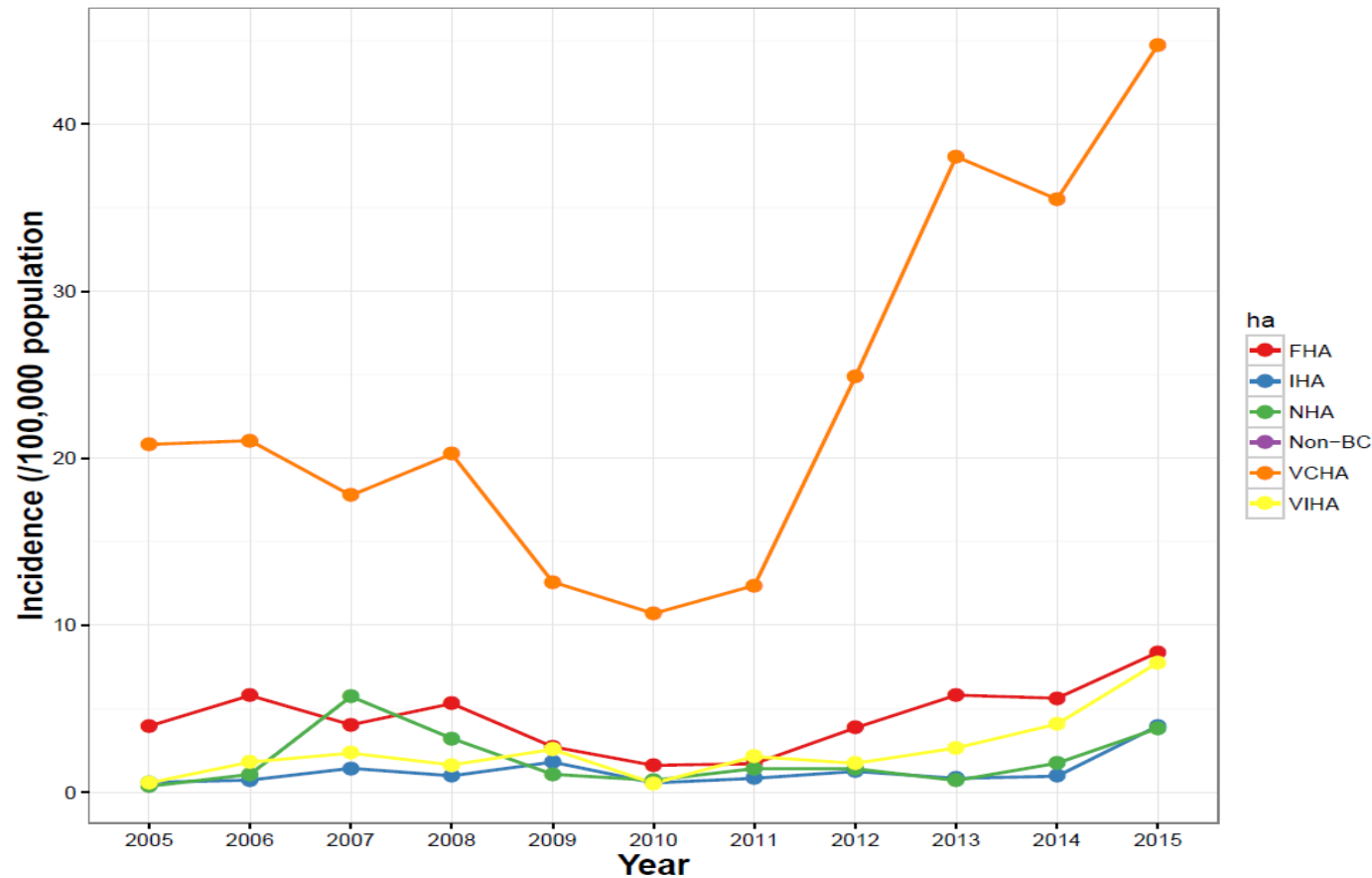
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Epidemiology of Syphilis in BC

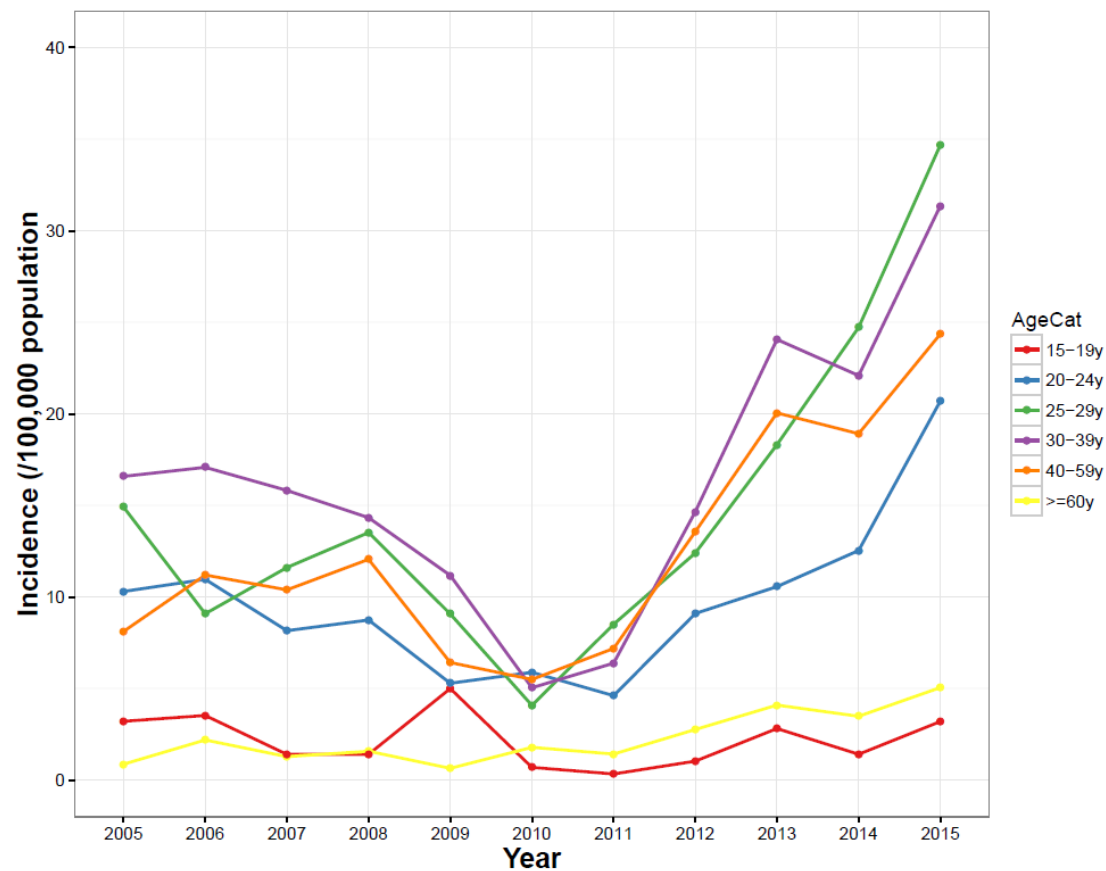
Infectious Syphilis Cases in BC



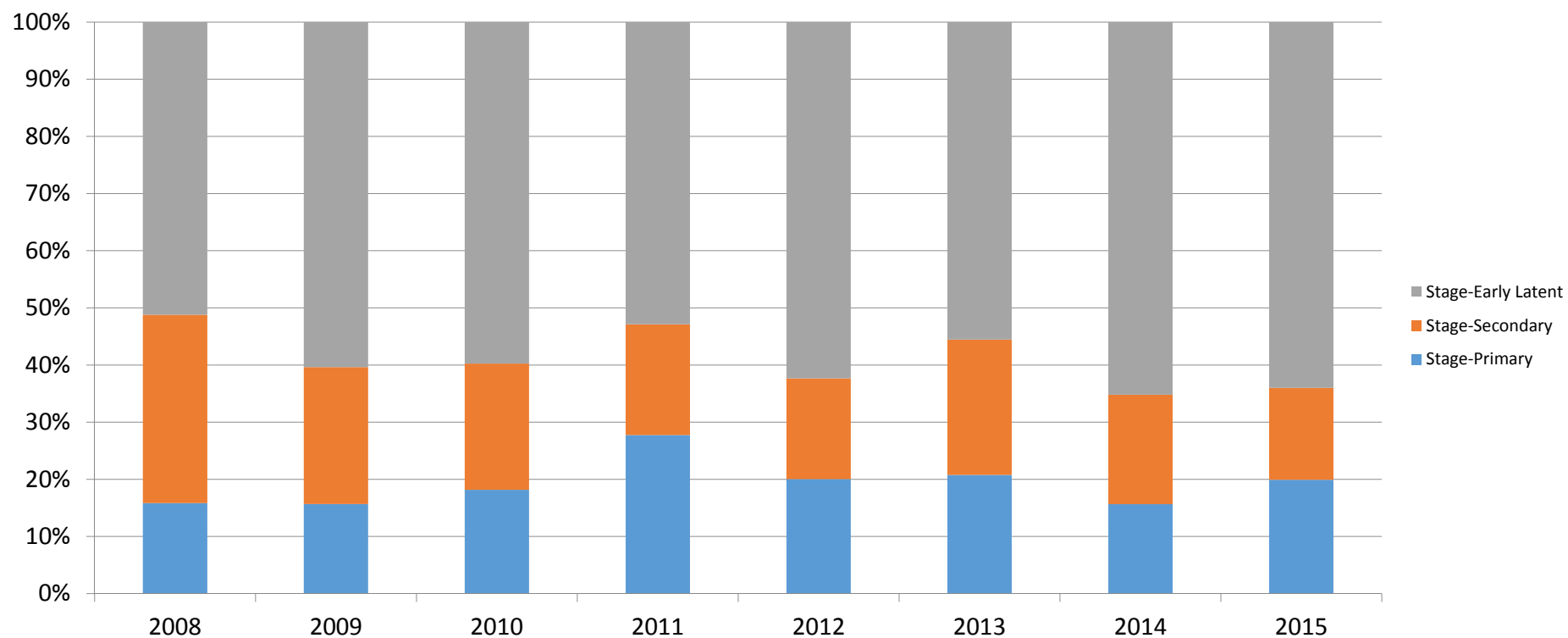
Syphilis Rates by Region



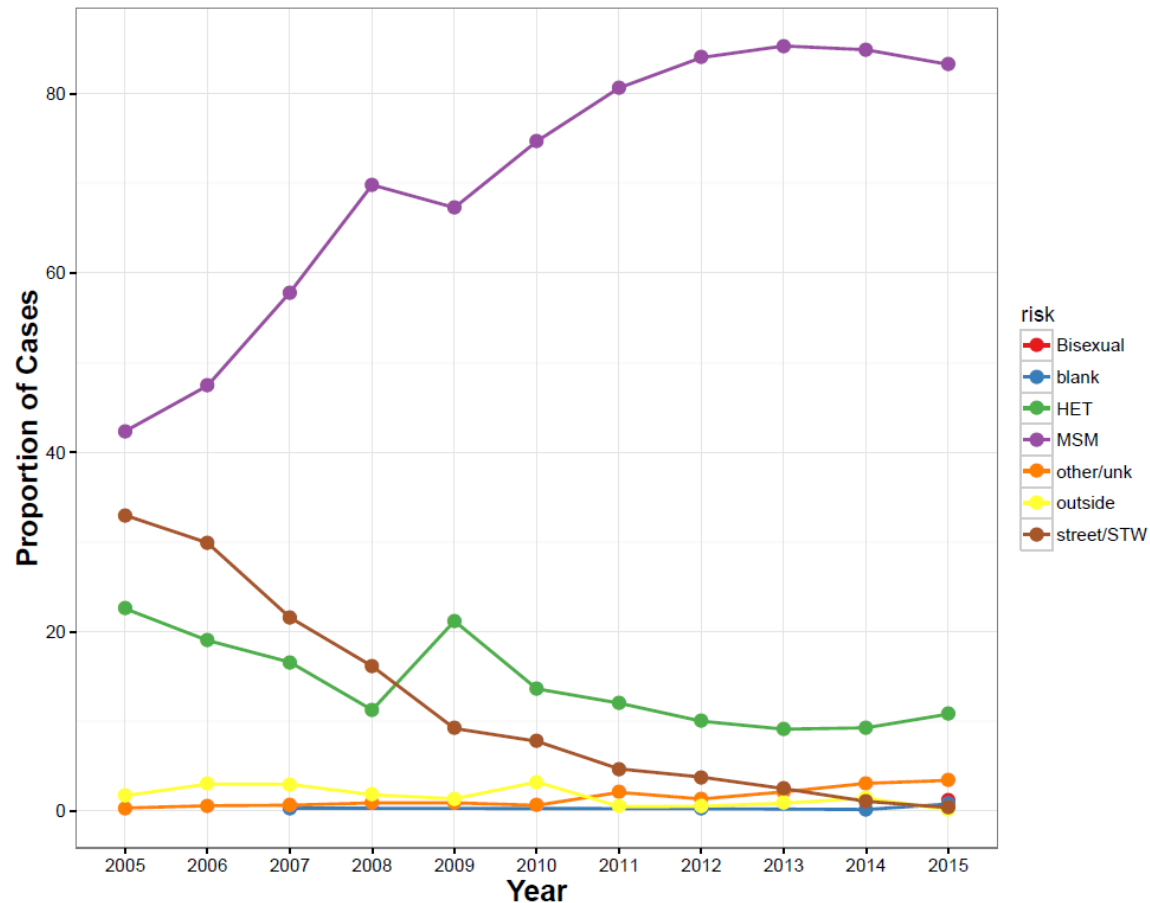
Syphilis Rates by Age



Stage of Infection



Proportion of Syphilis Cases by Exposure





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Syphilis among Women

Syphilis Cases in Women, by Age



Maternal and Congenital Syphilis

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Maternal syphilis	16	14	8	14	13	5	3	8	7	6	9
Early congenital syphilis	3	2	2	2	2	0	0	0	1	0	0
Live births	40,642	41,570	43,473	44,119	44,888	43,670	43,991	44,270	44,148	44,148	n/a
Prenatal syphilis tests	n/a	n/a	45,016	47,098	47,011	47,348	48,726	50,040	49,724	50,741	n/a



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Syphilis Outside BC

Syphilis Rates in Other Jurisdictions

Syphilis Rates in USA

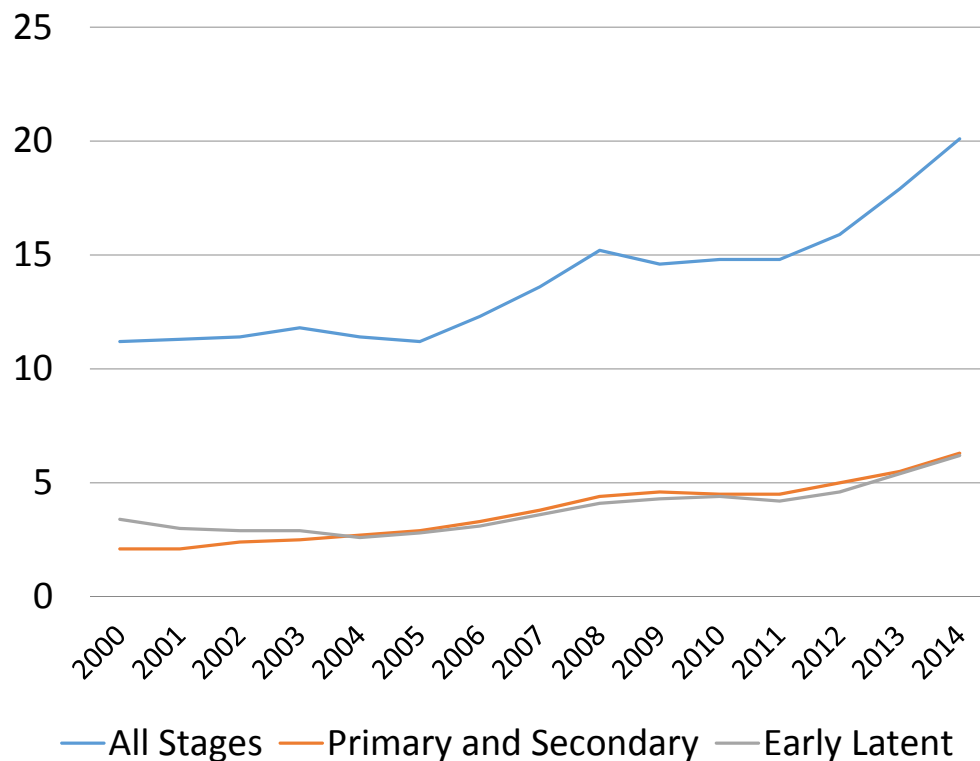
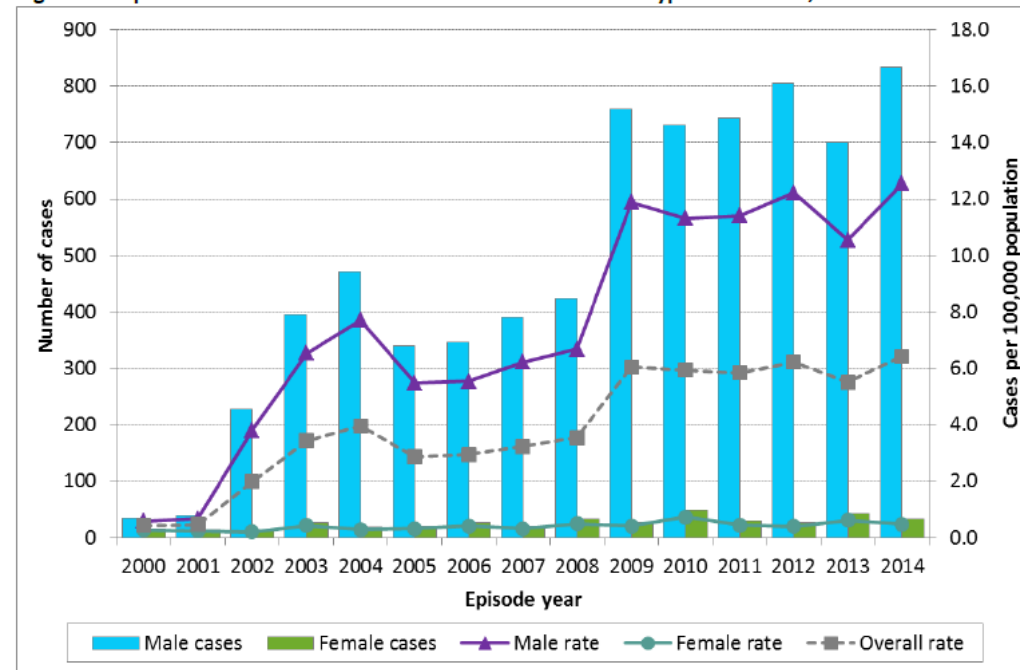


Figure 1. Reported number of cases and incidence of infectious syphilis: Ontario, 2000-2014



PHO 4(9): Sept 2015
CDC 2014 STD Surveillance

Congenital Syphilis in Alberta

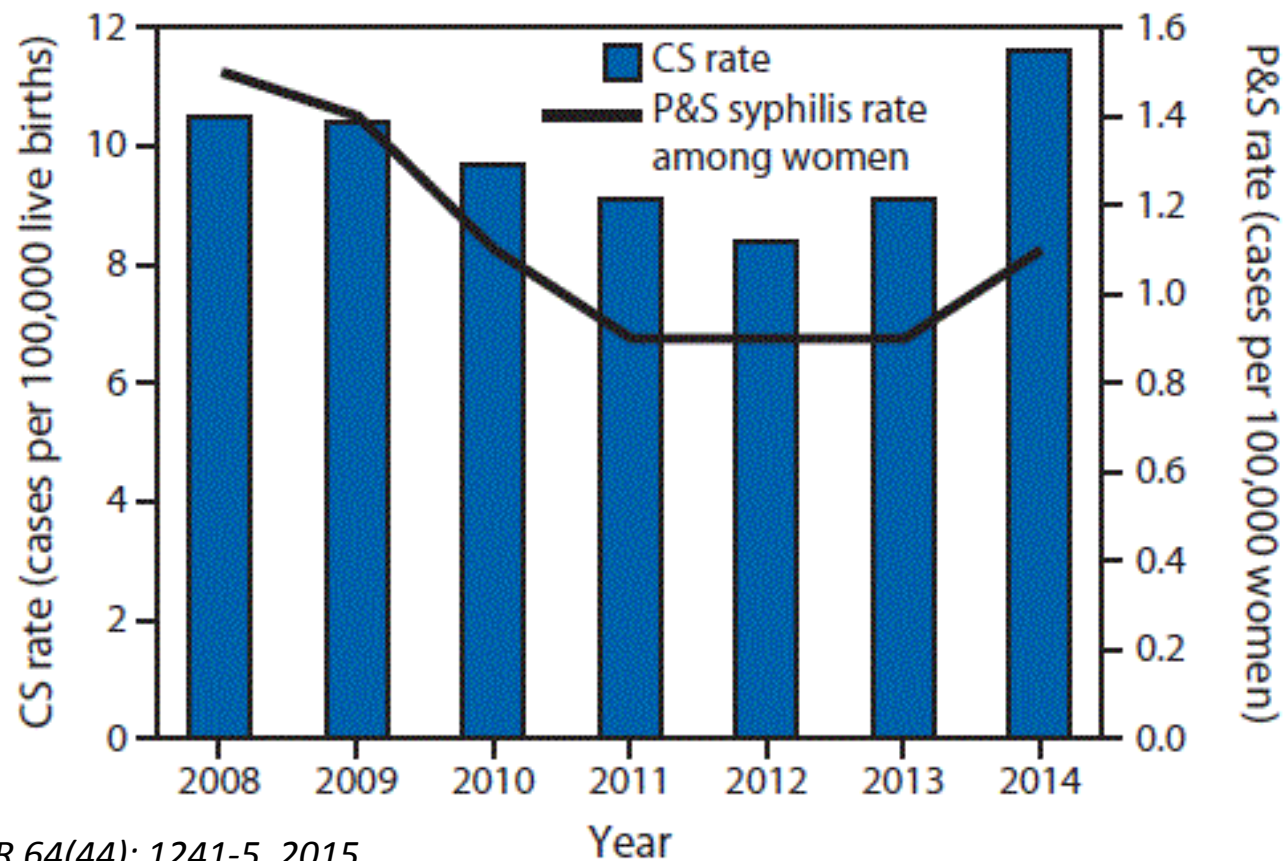
Table 1: Characteristics of 9 mothers in Alberta who each delivered a baby (in 2005 or 2006) with early congenital syphilis

Residence	No.	Marital status*	Age group	Sex trade worker	Syphilis test before delivery	Stage of maternal syphilis	Treated during pregnancy
Edmonton	8	5 partnered 3 unpartnered	15-40	5 of 8	4 yes 4 no	5 primary 3 secondary	7 no 1 yes†
Nonurban	1	Partnered	30-35	No	Yes	Primary	No

*Partnered = married or cohabiting (common-law), unpartnered = single or separated.

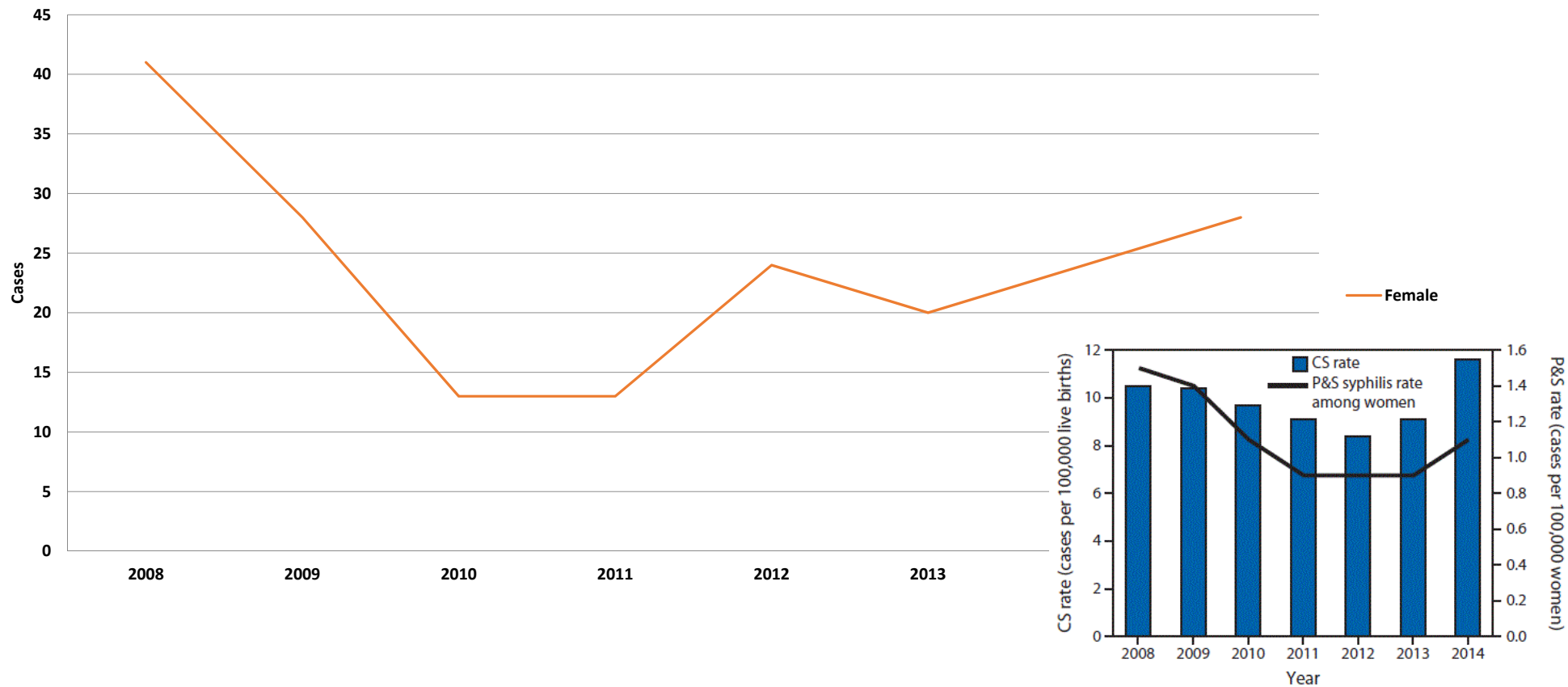
†Mother tested positive for syphilis 2 months before delivery but could not be located for treatment until the day of delivery.

Congenital Syphilis in USA



Bowen et al, MMWR 64(44): 1241-5, 2015

Similarities to BC?





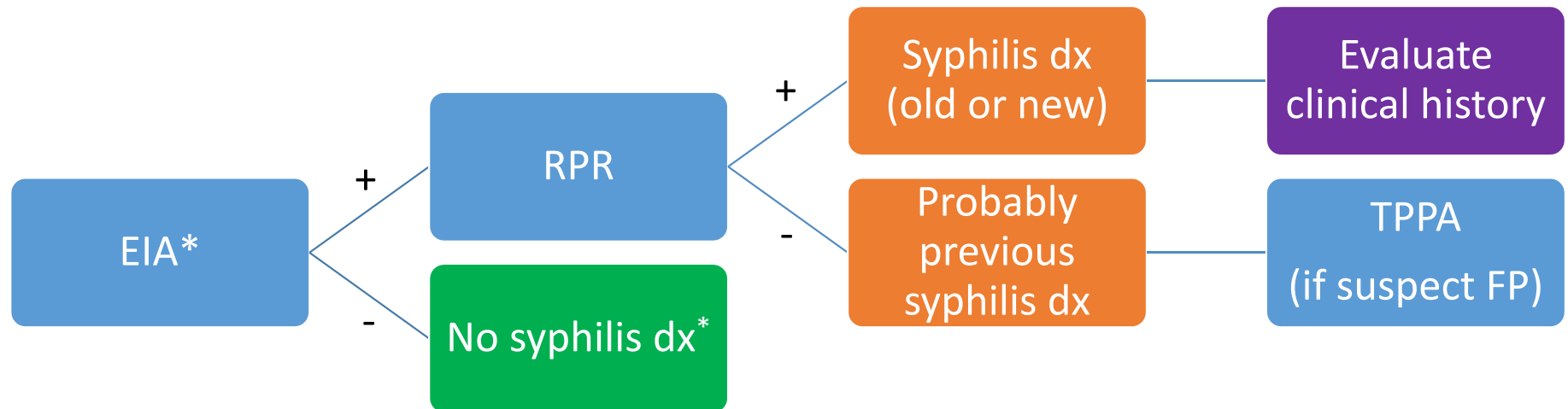
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Syphilis Screening and Testing

Syphilis Tests

- Treponemal tests (e.g. EIA, TPPA)
 - Highly specific for *T pallidum* but remain for life
 - Positive tests need a non-treponemal test to confirm active syphilis
- Non-treponemal tests (e.g. RPR, VDRL)
 - Highly sensitive, but not specific to *T. pallidum*
 - False-positive with IVDU, malaria, TB, some autoimmune disorders
- Direct methods
 - Darkfield microscopy
 - Direct fluorescent antibody (DFA)
 - Molecular testing

Current Algorithm for Syphilis Screening



* Repeat if clinically suspicious of early infection

RPR 101

- The natural history of RPR is that it will decrease even without treatment; it may even become non-reactive.
- Generally, an increase in RPR titre of ≥ 2 dilutions (or 4-fold) indicates a new infection.
 - E.g. 1:8 \rightarrow 1:32
- “Appropriate treatment response” = a 4-fold (or 2 dilution) drop in RPR titre following treatment (within 6-12 months)
- BUT, ...
 - Eventually (within ~ 2 years of treatment), RPR should be $< 1:8$.

Some illustrative examples

- **CASE 1:** 58F with previously treated syphilis 30 years ago.
 - EIA: Reactive
 - RPR: Non-reactive
 - TPPA: Reactive
- **CASE 2:** 58F with previously treated syphilis 30 years ago.
 - EIA: Reactive
 - RPR: 1:32
 - TPPA: Reactive

Reporting of Syphilis Cases to Public Health

- All reactive EIA and RPR reported to STI Physicians at BCCDC
 - High titres are called to STI physician immediately
- STI physician assesses, stages, and provides treatment recommendation
 - Based on RPR history, discussion with treating provider, etc.
- Syphilis nurses work with testing providers and/or patient to
 - Develop treatment plan
 - Discuss partner follow-up and care



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Maternal and Congenital Syphilis

Maternal Syphilis

- Woman diagnosed with syphilis (primary, secondary, early latent, or late latent), in pregnancy, *regardless* of how it was diagnosed:
 - Prenatal serology screening, *or*
 - Known to have given birth to an infant (live or stillborn) with congenital syphilis, *or*
 - Clinical presentation with infectious syphilis during pregnancy

Treatment Considerations

- Infected mom may transmit syphilis *in utero* to fetus
 - May also transmit via direct contact during delivery
- **Timely treatment of maternal syphilis will prevent congenital syphilis**
- Please consult Provincial STI/HIV Clinic Physician (604-707-5606)
- BCCDC STI Treatment Guidelines
 - Benzathine penicillin G 2.4M units in a single dose
 - Additional doses may be needed
 - Doxycycline is contraindicated in pregnancy

Congenital Syphilis

- CDC Case definition (generally, one of two criteria suffices):
 1. Physical, laboratory or radiographic signs of congenital syphilis
 2. Baby born to mom with untreated or inadequately treated syphilis
- Clinical manifestations:
 - Hepatosplenomegaly, rash, snuffles, condyloma lata, jaundice, edema, pseudoparalysis.
 - Older kids (>2 years): saber shins, Hutchinson incisors, mulberry molars, saddle nose, interstitial keratitis, rhagades.

Congenital syphilis cases should be reported to local health unit

Snuffles



Rhagades



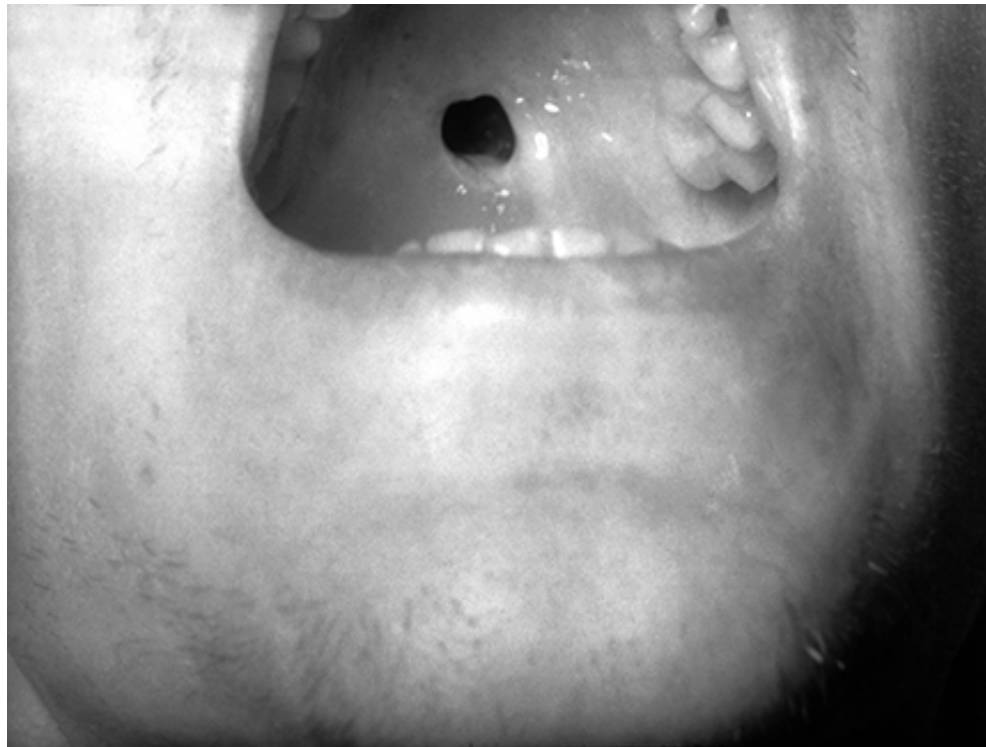
Saber shins



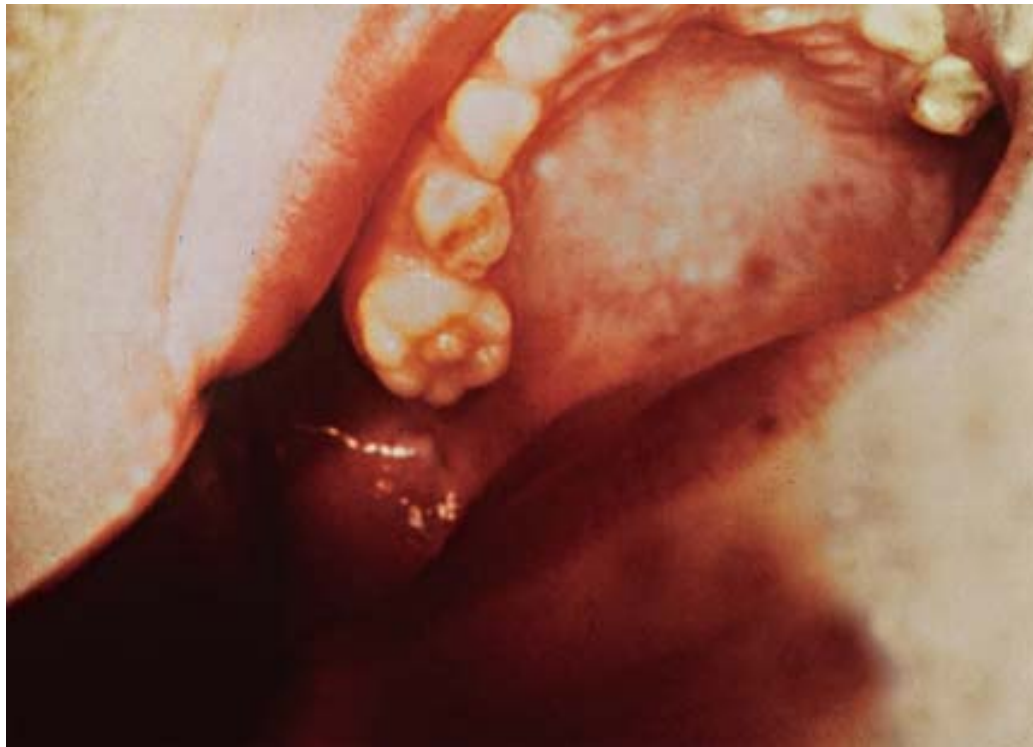
Interstitial keratitis



Perforated hard palate



Mulberry molars



Hutchinson incisors



Rash on soles



Clutton joints





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Prenatal STI Screening

STI Screening during Pregnancy

- Canadian Guidelines on Sexually Transmitted Infections
 - Syphilis, chlamydia, and syphilis screening recommended at **first prenatal visit**
 - Women with ongoing risk factors for STI acquisition should be considered for **rescreening each trimester**
 - Syphilis screening recommended at **28-32 weeks** and **at delivery** for women at high risk of acquiring syphilis (or areas experiencing heterosexual outbreaks of syphilis)
 - Syphilis testing recommended for women who has a **fetal death > 20 weeks gestation**
- No newborn should be discharged from hospital prior to documented confirmation that mother or infant has had syphilis serology



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Questions?