

Syphilis Update

NITHA Public Health Unit

Our Mission

The NITHA Partnership, a First Nations-driven organization, is a source of collective expertise in culturally based, cutting edge professional practices for northern health services in our Partner Organizations.

Our Vision

Partner Communities will achieve improved quality health and well-being, with community members empowered to be responsible for their health.

Sab Gupta
Nnamdi Ndubuka
James Piad

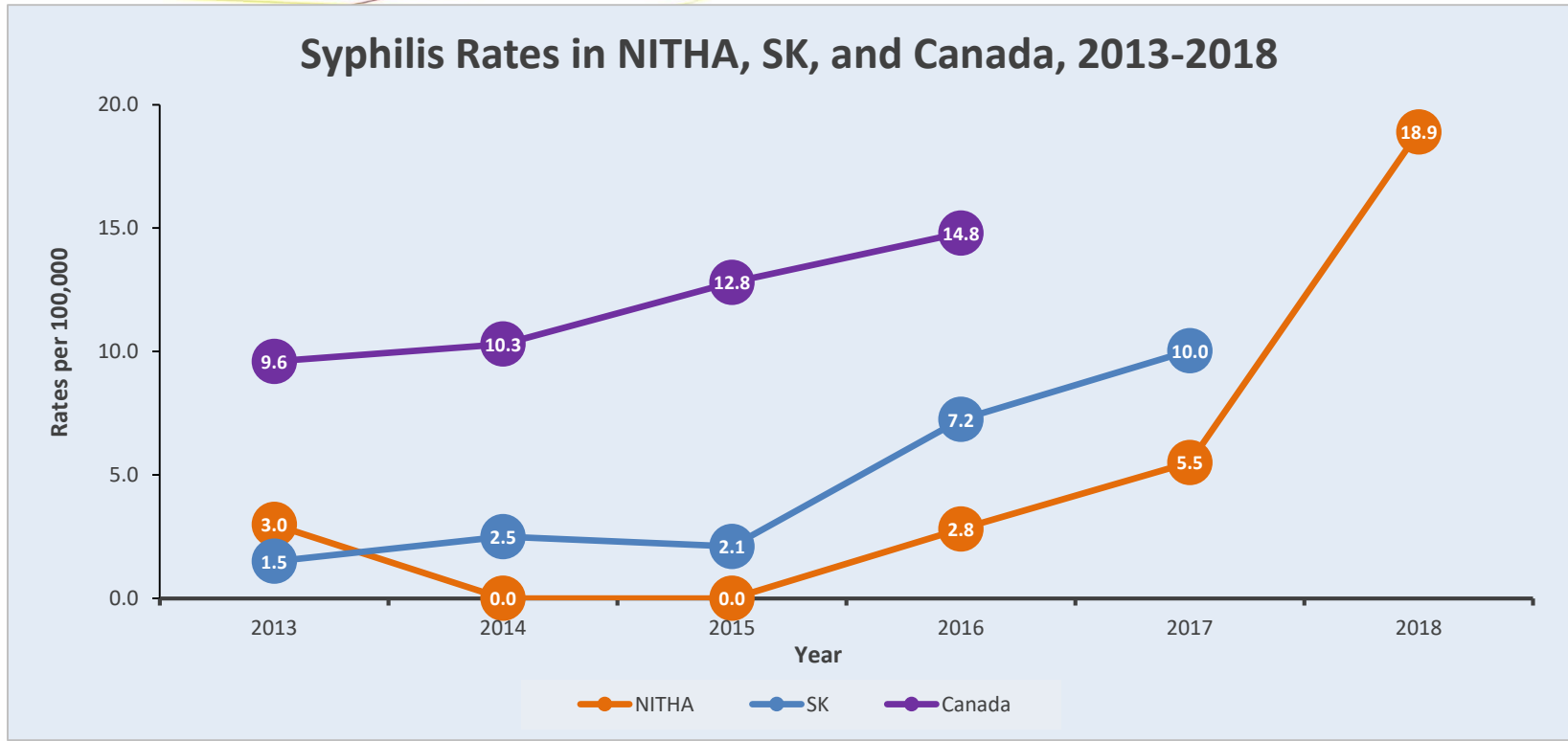
March 7, 2019



Objectives

1. To discuss epidemiology, pathogenesis, clinical features, diagnosis and treatment of syphilis
2. To highlight public health prevention approach
3. To discuss approach to contact investigation

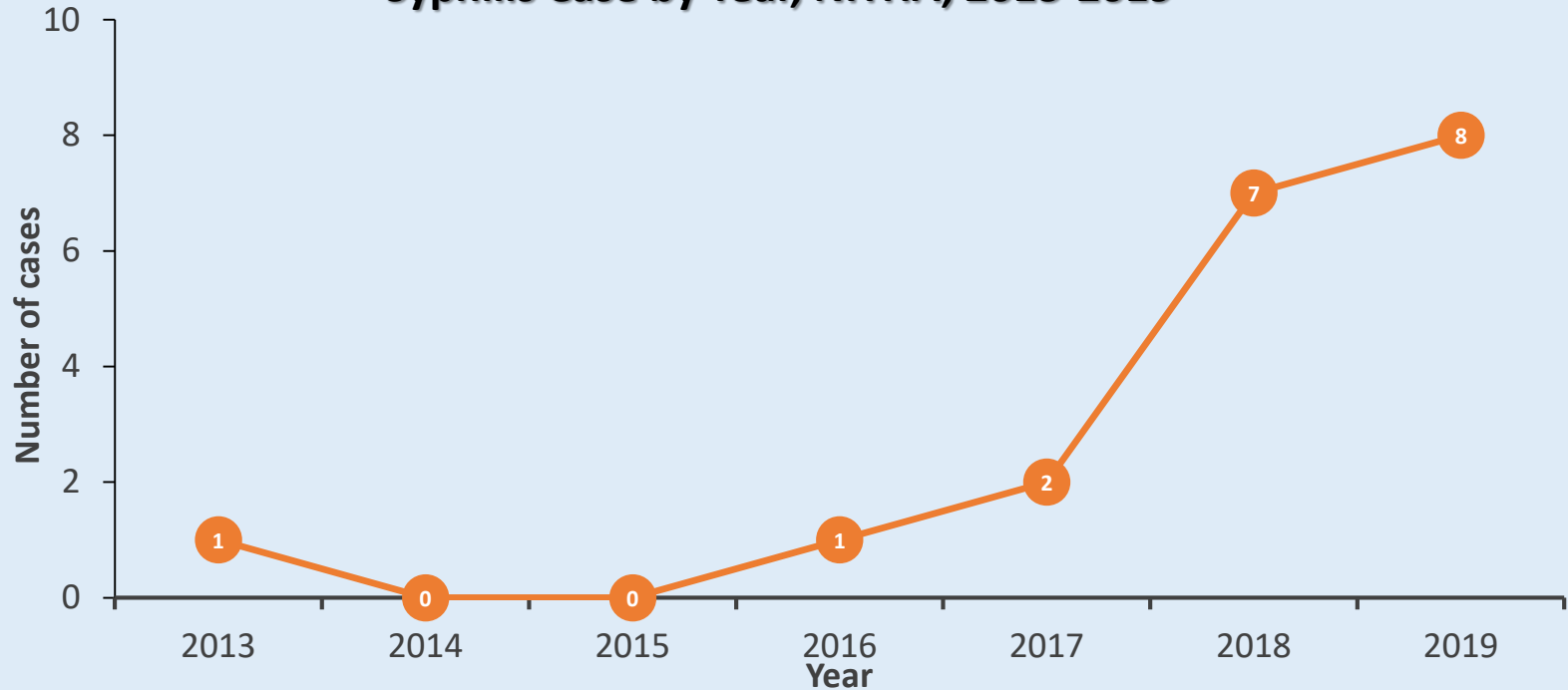
Epidemiology



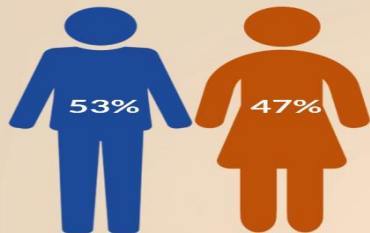
*Note: Latest possible rates available

Epidemiology

Syphilis Case by Year, NITHA, 2013-2019

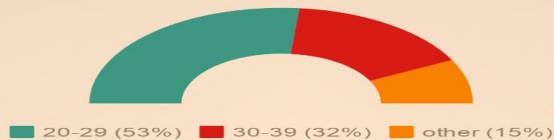


Epidemiology

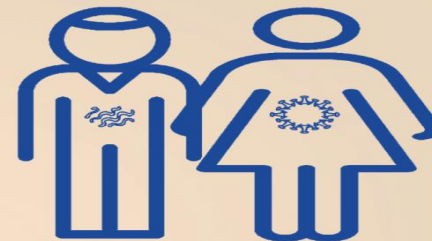


Proportion of male was slightly higher

Syphilis in NITHA (2013-2019)



More than half the cases were aged 20-29 years



Self reported Risk Factors (2013-2019)



Heterosexual



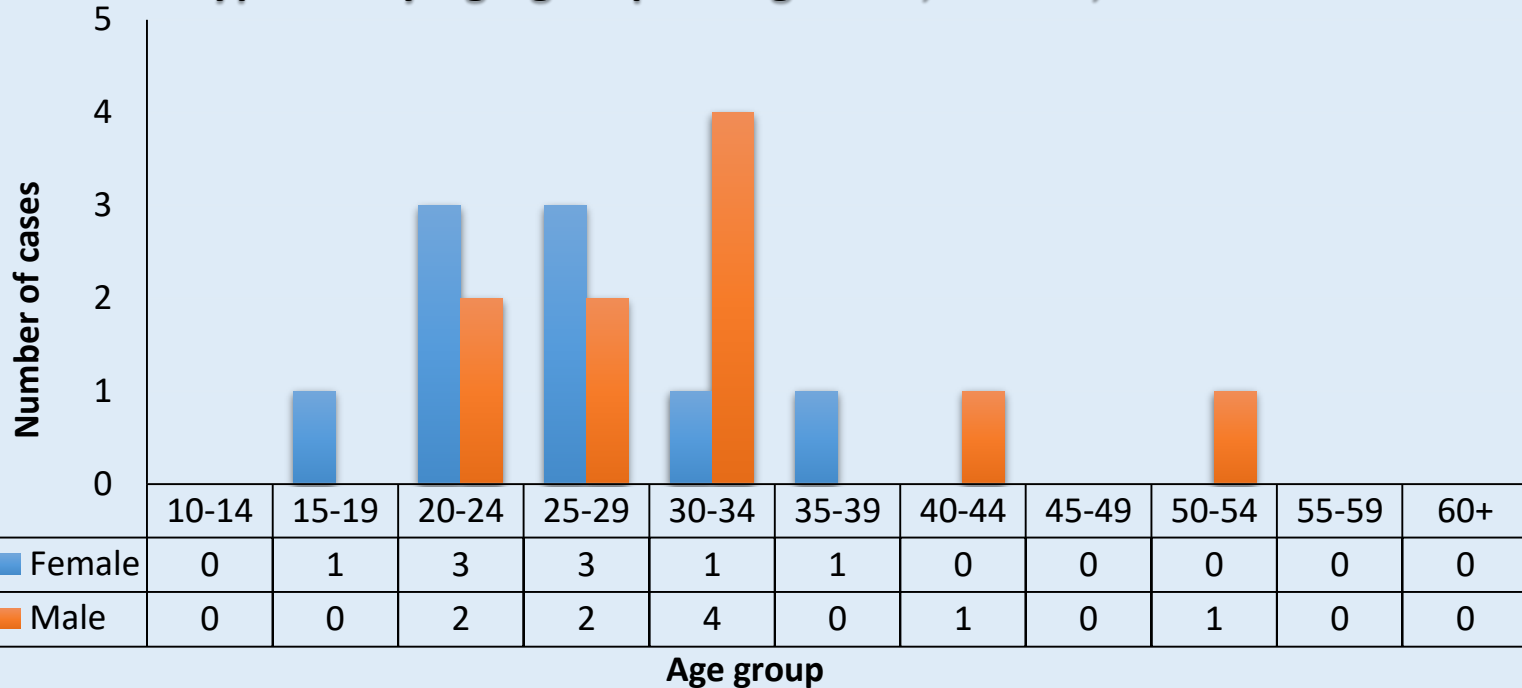
Alcohol/drug use



MSM/WSW

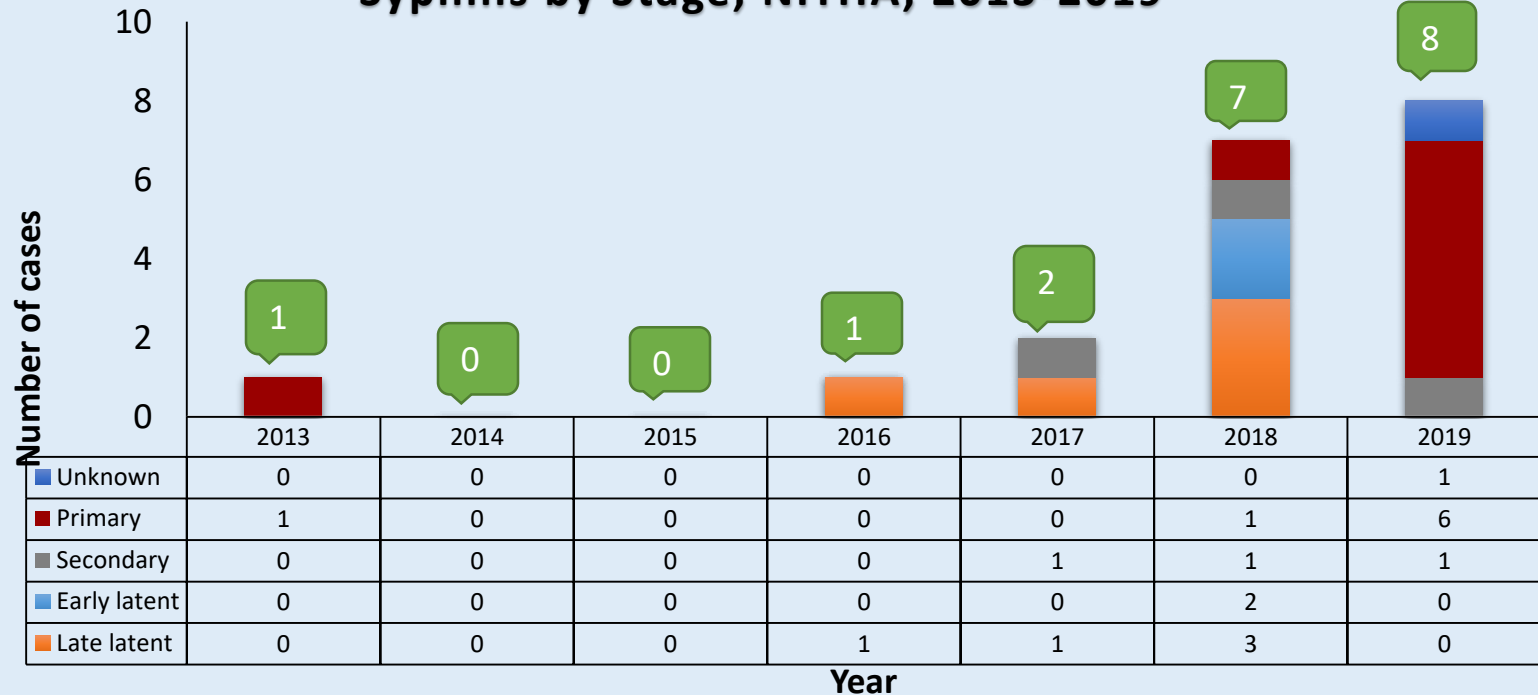
Epidemiology

Syphilis by age group and gender, NITHA, 2013-2019

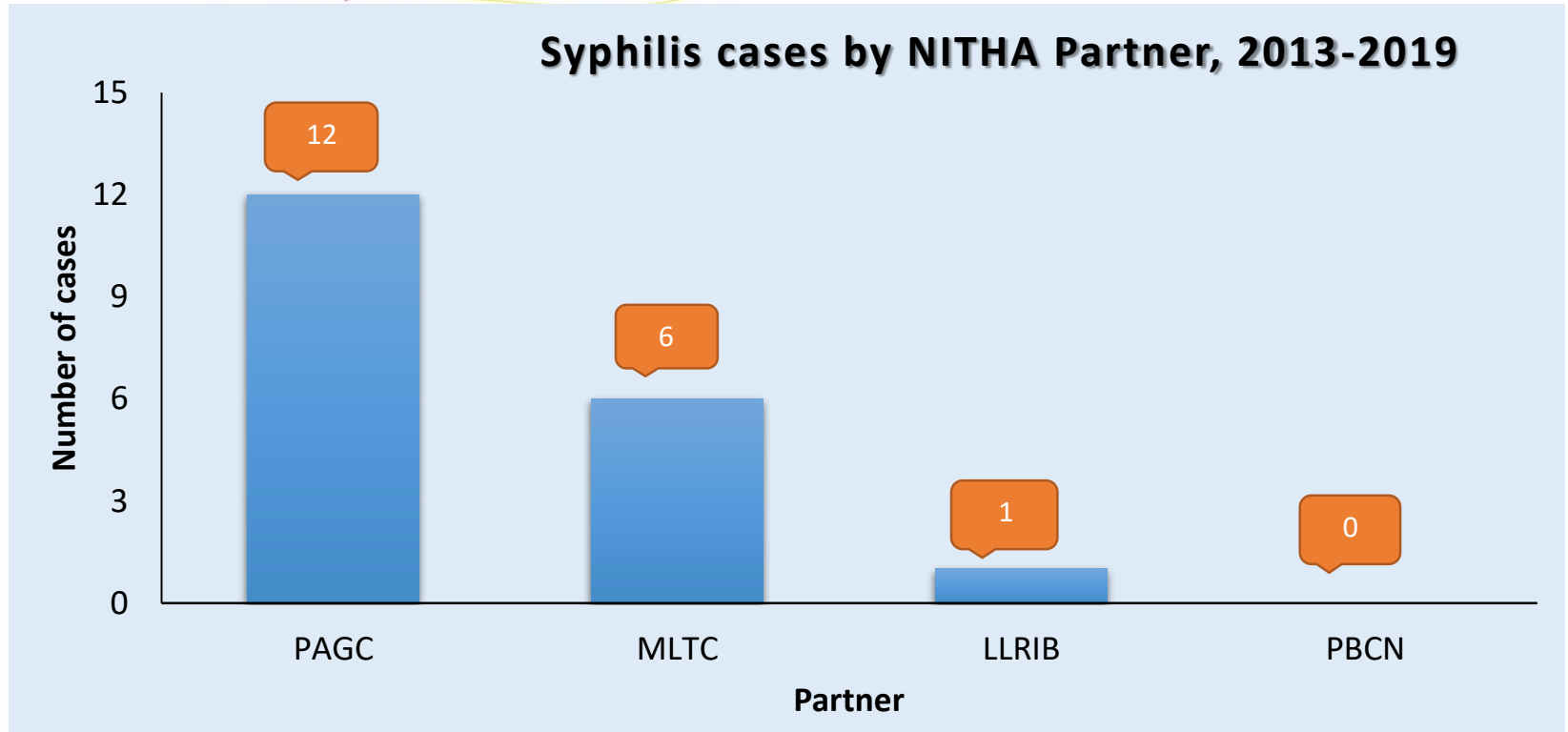


Epidemiology

Syphilis by Stage, NITHA, 2013-2019



Epidemiology



Risk Factors

- Sexual contact of a known syphilis case
- MSM, especially anonymous partnering via internet
- Being a sex worker or client of a sex worker
- Those with street involvement
- Injection drug use
- Those with multiple sex partners
- History of syphilis, HIV and other STIs
- New sex partner (within the last 3 months)
- Engaging in unsafe sexual practices

Pathogenesis

- Cause: *Treponema pallidum*
- Transmission:
 - ✓ Sexual (vaginal, rectal, oral)
 - ✓ Skin contact with infectious lesions
 - ✓ Transplacental (mother to fetus)
 - ✓ Skin and mucous lesions of a newborn with congenital syphilis are highly infectious

Pathogenesis contd

Category II Communicable Disease

- Public Health to start investigating 24-48 hours (PH Act)

Treatable

- A treated infection, but does not create immunity against subsequent infections
- TPPA- treponemal confirmatory test will remain “reactive” for life
- RPR – non-treponemal test guides post-treatment serology

Reportable to Canadian Blood Services

- Any donated blood/received in or after 1975?
- *CBS Report*

Pathogenesis contd

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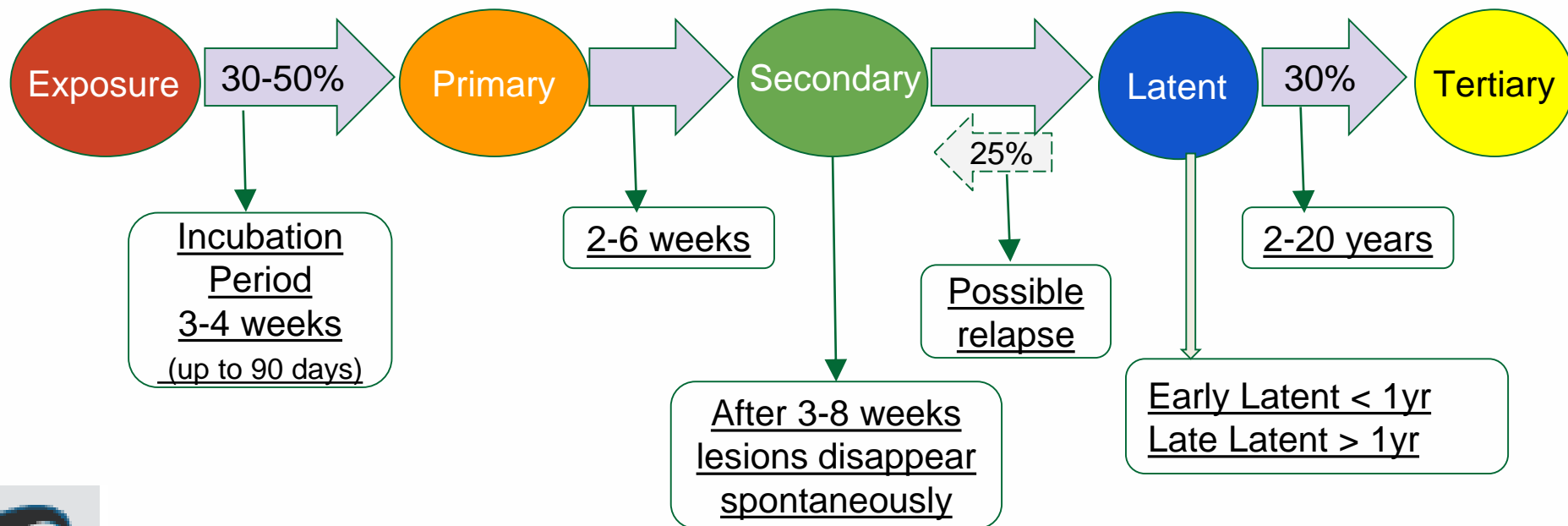
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Clinical Features: Syphilis Natural History

Infectious syphilis = primary, secondary & early latent (and late latent in pregnancy)



Ocular or Neurosyphilis can occur at any stage

Clinical Features

Incubation - 3-90 days (average: 3 weeks)

1. Primary Stage

Primary Lesion or “chancre”

- Develops at the site of inoculation
 - Progresses from macule to papule to ulcer
 - Round with sharp borders - “punched out button”
 - Painless, indurated and has a clean base
 - Highly infectious
 - Heals spontaneously within 3 to 6 weeks
- Regional lymphadenopathy
- Serological tests may not be positive during early primary stage



Clinical Features

1. Primary Stage



Clinical Features

2. Secondary Stage: highly infectious

Incubation period: 2 weeks – 6 months (usually 2 – 12 weeks)

Primary and Secondary stages may overlap

Signs and Symptoms:

- Rash 6 weeks–3 months after chancre, and may persist for wks to months
 - Diffuse macular rash
 - Palms and soles of feet
 - Mucous membrane lesions
- Fever or malaise
- Patchy alopecia
- Condylomata lata
- Lymphadenopathy



Clinical Features

Secondary Stage

- Rash disappear on its own between 2 – 12 weeks
- Differential diagnosis at this stage: other febrile rashes, condyloma accuminata (caused by non-oncogenic HPV).



Clinical Features

Secondary Stage



Courtesy:



[Gregory Melcher, UC Davis CAPTC](#)

[Susan Philip, SF DPH & UCSF](#)

Clinical Features

3. Latent stage : Patient is asymptomatic

Early latent

- Asymptomatic, as suppresses infection
- Only evidence is positive serologic test
- Less than 1 year from infection
- Patient considered infectious because of possibility of reverting back to secondary stage
- 25% relapse chance to secondary

Late latent phase

- 1 year or more from infection

Clinical Features

4. Tertiary stage

- 10 - 46 years after infection
- Cardiovascular syphilis
- Neurosyphilis: headaches, vertigo, personality changes, dementia, ataxia (aortic aneurysm, aortic regurgitation)
- Gumma: Tissue destruction of any organ.
Manifestations depend site involved

Syphilis in Pregnancy

Congenital syphilis

- *T. pallidum* infects and crosses placenta to infect the fetus
- Risk of transmission to fetus depends on the interval between infection and pregnancy

Transmission

(%)

70-

100

40

10

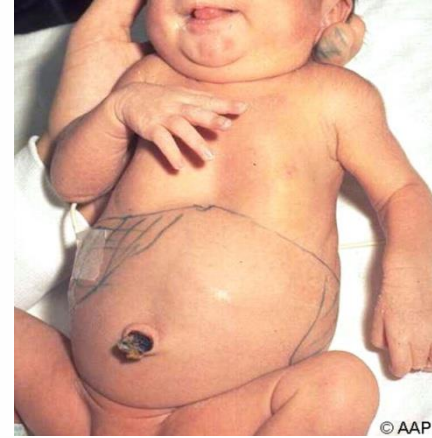
Pri. &
Sec

Early
Latent

Late
Latent

Syphilis in Pregnancy

- Stillbirth, especially with no treatment, inadequate or late treatment
- If alive, baby may be asymptomatic.
- If symptomatic: severe skin desquamation, skin rash, hepatosplenomegaly, nasal discharge, anemia, osteochondritis on X-ray of long bones



Diagnosis

Combination of:

1. Clinical History
2. Physical examination
3. Laboratory results

Diagnosis

1. Clinical History

Assess:

- History of Syphilis
- Known contact to an infectious case of syphilis
- Signs or symptoms of syphilis in the past 12 months
- Most recent serologic test for syphilis

Diagnosis

2. Physical examination

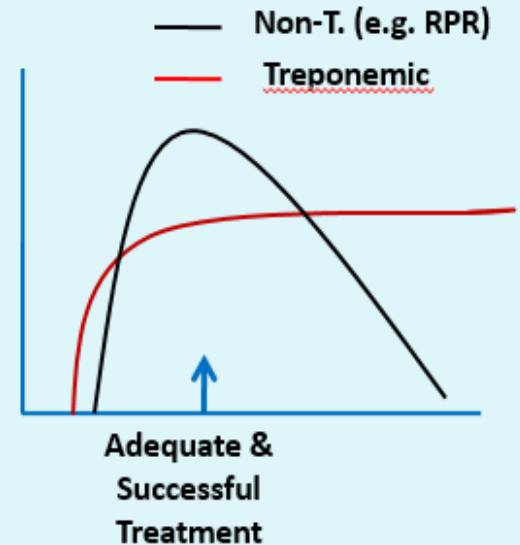
Examine:

- Oral cavity
- Lymph nodes
- Skin of torso
- Palms and soles
- Genitalia and perianal area
- Neurologic examination
- Abdomen

Diagnosis

3. Laboratory Serology results

- **Treponemic tests** (e.g. EIA, IgG, IgM, TPPA)
 - TPPA – T. pallidum Particle agglutination assay
 - Measure Ab specific for T. pallidum
 - Remains “Reactive” for life
- **Non-treponemic tests** (RPR, VDRL)
 - RPR – Rapid plasma regain: Quantitative
 - Guides treatment and re-infection for previous cases
 - N-R, 1:1, 1:2, 1:4, 1:8, 1:16, 1:32, 1:64, 1:128, 1:256, 1:512



Treatment

| | | |
|--|--|---|
| <p>Primary, Secondary Early latent</p> | <p>Benzathine penicillin G 2.4 million units (Bicillin L-A®) Deep IM, single dose</p> | <p>Alternative: Doxycycline 100 mg PO bid for 14 days. No alternative available in pregnancy.</p> |
| <ul style="list-style-type: none"> •Late latent •Late syphilis of unknown duration •Tertiary except neurosyphilis | <p>Benzathine penicillin G 2.4 million units, Deep IM weekly for 3 doses</p> | <p>Alternative: Doxycycline 100 mg PO bid for 28 days. Ceftriaxone 1g IV or IM daily for 10 days. No alternative available for pregnant women</p> |
| <p>Neurosyphilis</p> | <p>Penicillin G 3 – 4 million units IV every 4 hours for 10 – 14 days</p> | <p>Ceftriaxone 2 g IV/IM per day for 10 – 14 days</p> |
| <p>Congenital syphilis</p> | <p>Early (one month or less): crystalline penicillin G 50,000 units/kg IV every 6 - 8 hours (depending on age)for 10 - 14 days</p> | |

Treatment in Pregnancy

Treat with Bicillin L-A[®] according to stage:

Primary, Secondary, Early Latent:

- Treat with **1-2 doses** Bicillin L-A[®] weekly

Late Latent

- Treat with **3 weekly doses** Bicillin L-A[®]
- **Doxycycline is contraindicated**, clients who are skin-test-reactive to penicillin should be desensitized in the hospital and treated with Bicillin L-A[®].

Treatment

Deep IM injection: Bicillin L-A®

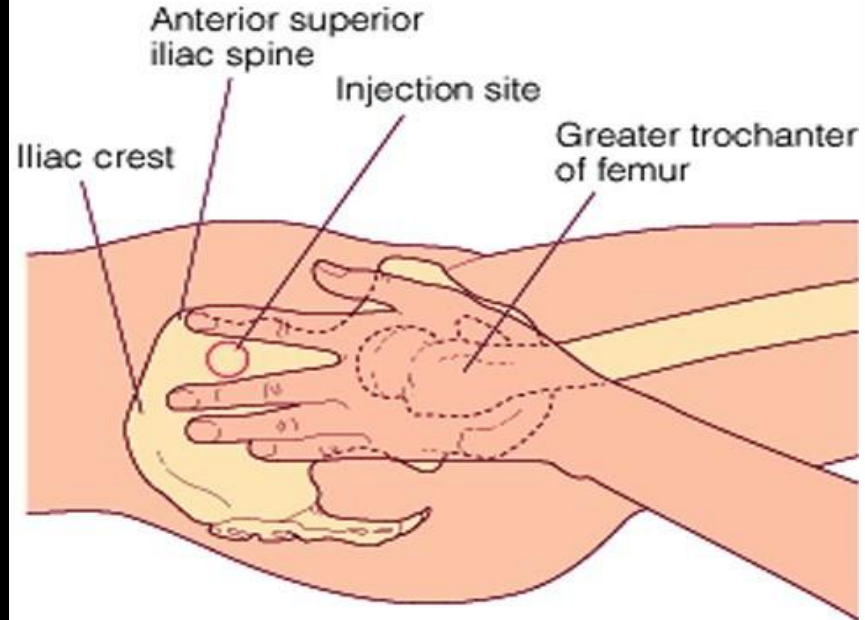
2 mls & 2 syringes

Dorsogluteal Site

A line can be drawn from the posterior superior edge of the iliac spine to the greater trochanter.



Ventrogluteal Site



Follow up Serology

| | |
|---|---|
| Primary, secondary, early latent | 1, 3, 6, 12 months after treatment |
| Late latent, tertiary | 12 and 24 months after treatment |
| Neurosyphilis | 6, 12 and 24 months after treatment |
| HIV-infected (any stage) | 1,3, 6, 12 and 24 months after treatment and yearly thereafter |
| Babies born to mothers with reactive syphilis serology | 3 and 6 months after birth. If still positive at 6 months, repeat at 12 and 18 months |
| Congenital syphilis | 0, 3, 6, 12 and 18 months after birth |

Prevention

- Primary prevention: Education, Awareness, condoms...
- Secondary prevention: Early detection and treatment, especially in pregnancy
- In pregnancy: repeat serology at 28-32 weeks and at delivery if:
 - ➔ high risk lifestyle
 - ➔ person lives in an outbreak area

Prevention

Test for one test for all!



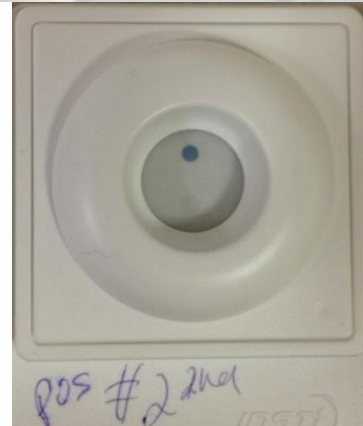
CT/GC



Syphilis

Hep A/B/C

HIV



Prevention

4P's – Pee, Pills, Partners and Paper

Pee

Obtain specimen(s)

Pills

Provide medication(s)

Sexual **P**artners

Syphilis according to stage:

* 3, 6 months or 1 year

Paper: CD66 To NITHA MHO

Management of Contacts

- Partner notification is based on the stage of syphilis in the index.
- Sexual / perinatal contacts with the case must be:
 - Located
 - Tested
 - Treated

Management of Contacts

| Stage of syphilis in the index | Time period |
|--------------------------------|--|
| Primary syphilis | 3 months prior to the onset of symptoms |
| Secondary syphilis | 6 months prior to the onset of symptoms |
| Early latent | 1 year prior to the diagnosis |
| Late latent | Assess marital and other long-term partners and children |
| Congenital | Assess mother and her sexual partner(s) |
| Stage undetermined | Assess / consult with a colleague / MHO |

A) PERSON REPORTING – HEALTH CARE PROVIDER INFORMATION

| | |
|---|---|
| Clinic Name: Location: Attending Physician or Nurse: Address: Phone number: | FOR PUBLIC HEALTH OFFICE USE ONLY: Service Area: Date Received: Panorama Client ID: Panorama Investigation ID: |
|---|---|

B) CLIENT INFORMATION

| | | |
|---|--|--|
| Last Name: | First Name: and Middle Name: | Alternate Name: |
| DOB: YYYY / MM / DD Age: _____ | Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Unknown <input type="checkbox"/> Other Gender Identity: <input type="checkbox"/> Transgender Male-to-female <input type="checkbox"/> Transgender Female-to-male <input type="checkbox"/> Undifferentiated <input type="checkbox"/> Other (specify) | Phone: <input type="checkbox"/> Primary Home: <input type="checkbox"/> Mobile contact: <input type="checkbox"/> Workplace: <input type="checkbox"/> Alt Contact: Name: _____ Relationship: _____ Preferred Communication Method: <input type="checkbox"/> Home <input type="checkbox"/> Work <input type="checkbox"/> E-mail <input type="checkbox"/> Text |
| Health Card Province: _____ Health Card Number (PHN): _____ | Email Address: _____ | |
| Place of Employment/School: | | |
| Address Type: <input type="checkbox"/> No fixed <input type="checkbox"/> Postal Address <input type="checkbox"/> Primary Home <input type="checkbox"/> Temporary <input type="checkbox"/> Legal Land Description Mailing (Postal address): Street Address or FN Community (Primary Home): | | |
| Is client pregnant? <input type="checkbox"/> Yes <input type="checkbox"/> No | Online Names: Site/Service: _____ | User name: _____ |
| Is case HIV positive? <input type="checkbox"/> Unknown <input type="checkbox"/> No <input type="checkbox"/> Yes, If Yes, does the client disclose status to partners? | <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown | |
| Is case HB positive? <input type="checkbox"/> Unknown <input type="checkbox"/> No <input type="checkbox"/> Yes, If Yes, does the client disclose status to partners? | <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> Unknown | |

C) IMMIGRATION INFORMATION

| |
|--|
| Country Born in: <input type="checkbox"/> Canada <input type="checkbox"/> Unknown <input type="checkbox"/> _____ |
| Country Emigrated from: _____ Arrival Date: YYYY / MMM / DD OR Arrival Year: _____ |

D) DISEASE EVENT HISTORY

| |
|--|
| Site / Presentation: <input type="checkbox"/> Infectious <input type="checkbox"/> Non-Infectious |
| Staging: <input type="checkbox"/> Primary <input type="checkbox"/> Late latent <input type="checkbox"/> Early congenital <input type="checkbox"/> Secondary <input type="checkbox"/> Tertiary other than neurosyphilis <input type="checkbox"/> Syphilitic stillbirth <input type="checkbox"/> Early latent <input type="checkbox"/> Late neurosyphilis (>1 year after infection) <input type="checkbox"/> Late congenital <input type="checkbox"/> Unknown <input type="checkbox"/> Early neurosyphilis (<1 year after infection) |

Management of Contacts

- Offer treatment (Bicillin, 2.4 mu)
- Blood work – baseline & follow-up serology
- Encourage to abstain from all sexual contacts for 2 weeks with anybody following treatment.
- If client has any lesion, extend abstinence period to until all lesions have healed.
- Encourage use of condom for all sexual partners

Data Collection Worksheet (DCW)

Report to Public Health
Submit DCW (Syphilis Notification form)
and complete all sections:

(see form)

Data Collection Worksheet

- Client information – pregnant, HIV (+), HB (+)
- Disease event history – infectious / non-infectious
- Staging - primary, secondary, early latent, etc
- Signs/symptoms - basis for staging / treatment
- Risk factors
- Treatment
- Infectious period – trace-back periods
- Sexual contact – DOB, PHN, contact information

Canadian Guidelines on Sexually Transmitted Infections

- Screening and Testing
- Treatment Recommendations
- List of Infections and Syndromes (A-Z)
- Primary Care Considerations
- Specimen Collection and Laboratory Diagnosis
- About

Version 2.0.4



Conclusion

- Syphilis is a complex disease which has come back after years of continuous regression
- Diagnosis must combine history, clinical signs and serology
- Early diagnosis and treatment are key for preventing complications associated with tertiary syphilis and congenital syphilis

Thank you for listening

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Questions