New Brunswick Clinician's Guide to Syphilis Diagnosis and Treatment 2013

Based on the Canadian Guidelines on Sexually Transmitted Infections

New Nouveau Brunswick

ETIOLOGY

Syphilis is caused by the spirochete (bacteria) Treponema pallidum.

EPIDEMIOLOGY

New Brunswick experienced an outbreak of infectious syphilis from 2009 to 2012 with 126 cases reported during that period of time. Cases have been mostly located in Fredericton, Moncton and Saint John with sporadic cases in rural areas. Cases have been primarily (but not exclusively) among men who have sex with men (MSM).

TRANSMISSION

The primary mode of transmission is by vaginal, anal and oral sexual contact. Needle sharing may result in transmission. Primary, secondary and early latent stages are considered infectious. Direct contact with lesions of primary and secondary syphilis pose the greatest risk of transmission. However, the lesions may not be readily apparent and as such, all patients with infectious syphilis should be considered potentially infectious regardless of presence or absence of obvious lesions. Infection during pregnancy may result in miscarriage, stillbirth or congenital infection.

WHO SHOULD BE SCREENED?

1. Anyone with risk behaviours/potential exposures to infectious syphilis

- Contacts of known syphilis cases
- Men who have sex with men (MSM)
- Street involved/homeless persons
- Injection drug users
- Those with multiple sexual partners
- Those with history of STIs
- Those originating from or having sex with an individual from a high prevalence country
- Sexual partners of any of the above

2. Anyone with *clinical signs* suspicious for infectious syphilis

- Current or past history of characteristic lesions or rash (see CLINICAL MANIFESTATIONS)

PREVENTION AND CONTROL

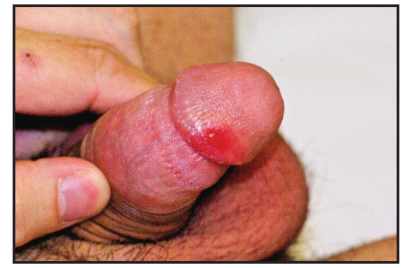
Persons presenting with concerns about syphilis provide an important opportunity for education and counseling about consistent practice of risk reduction behaviours. These practices include the proper and consistent use of barrier methods such as condoms and dental dams; reducing the number of sexual partners, syphilis screening of individuals at risk and routine screening of pregnant women. Safer sex counseling should include identifying barriers to prevention practices and the means to overcome them.

CLINICAL MANIFESTATIONS

Primary syphilis (infectious)

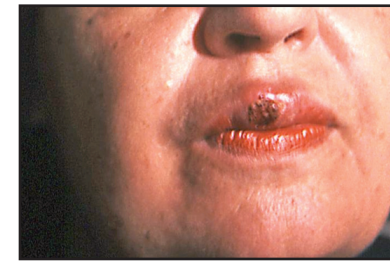
- 3 to 90 days after contact
- Chancre/lesion on genitals, anus or in the mouth (site of inoculation)
- Regional lymphadenopathy
- A high proportion of individuals fail to recall a primary chancre

Primary syphilis (chancre)



Dr Richard Garceau

Primary syphilis (chancre)

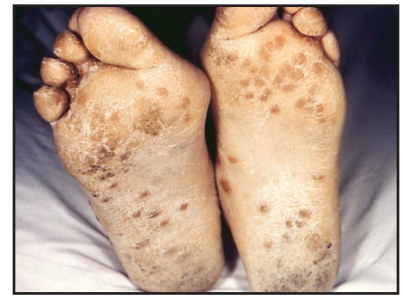


US Centers for Disease Control (CDC)

Secondary syphilis (infectious)

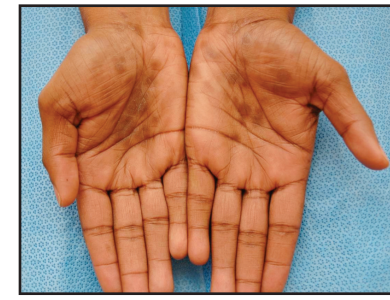
- 2 weeks to 6 months after contact
- Rash (often on palms of hands, soles of feet), fever, malaise, lymphadenopathy, mucosal lesions, condyloma lata, patchy or diffuse alopecia, meningitis, headaches, uveitis, retinitis

Secondary syphilis (papulosquamous rash)



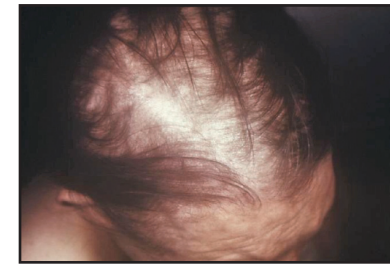
US Centers for Disease Control (CDC)

Secondary syphilis (rash)



Dr Gabriel Girouard

Secondary syphilis (alopecia)



US Centers for Disease Control (CDC)

Early latent syphilis (infectious)

- Duration varies from months to years
- Considered infectious within one year of contact
- Asymptomatic

Neurosyphilis

- Infectious in early stages
- <2 to 20 years after contact
- Ranges from asymptomatic to symptomatic with headaches, vertigo, personality changes, dementia, ataxia, presence of Argyll Robertson pupil

Congenital (infectious in early stage)

- Early congenital syphilis (onset <2 years of age) and late congenital syphilis (onset >2 years of age)
- 2/3 of patients may be asymptomatic
- Symptoms include fulminant disseminated infection, mucocutaneous lesions, osteochondritis, anemia, hepatosplenomegaly, neurosyphilis
- Infected infants may be seronegative if maternal infection occurred late in gestation

Co-infections with HIV

- Signs and symptoms may be modified in the presence of Human Immunodeficiency Virus (HIV)

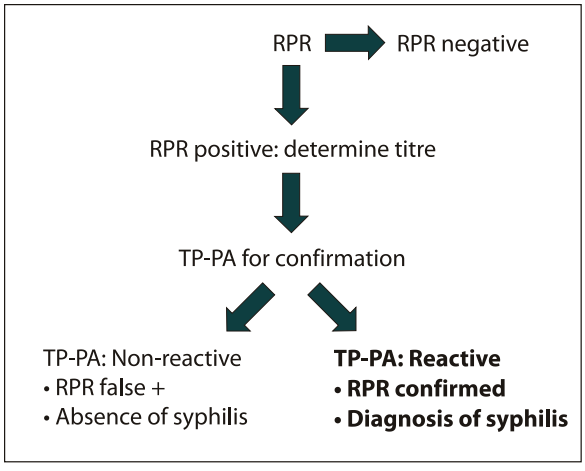
DIAGNOSIS OF SYPHILIS INFECTION

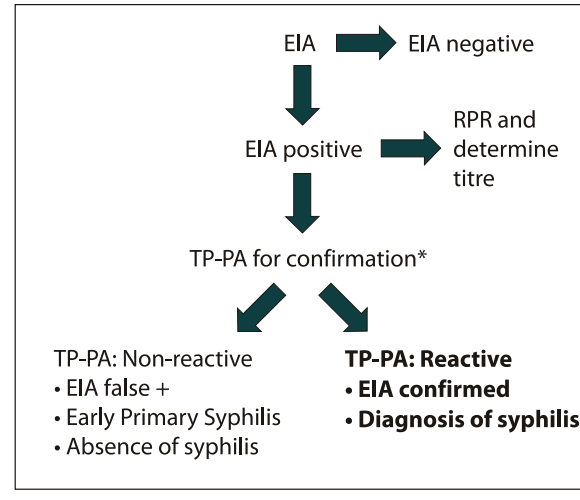
Serology

- **Serological testing should always be performed.** Consider testing for patients with compatible signs, symptoms and risk factors. Interpretation of serology should be made in consultation with experienced colleagues.
- Both non-treponemal and treponemal tests are used to diagnose syphilis. Non-treponemal tests include rapid plasma reagin (RPR) and Venereal Disease Research Laboratory (VDRL) tests. Treponemal tests include enzyme immunoassays (EIA) to detect IgG and/or IgM antibodies and *T. pallidum* particle agglutination (TP-PA) test.

Available syphilis testing protocols vary across New Brunswick. It is recommended that you check with your laboratory regarding local testing.

- Initial screening usually involves either a non-treponemal test or treponemal EIA test (depending on laboratory). Reactive screening tests are then confirmed by further testing (see figure below).
- NNT titres usually correlate with disease activity and are used to stage infection, to monitor response to treatment and to assess for re-infection.
- Serology can yield false negative results in the early stages, particularly in primary syphilis.
- In suspicious cases, serology should be repeated in 2 to 4 weeks.
- Refer to the Canadian Guidelines on Sexually Transmitted Infections for further interpretation of test results.





* Not all laboratories in New Brunswick perform TP-PA for confirmation of EIA.

Cerebrospinal fluid (CSF)

- CSF examination is indicated in patients with suspected/confirmed syphilis with a presence of neurologic or ophthalmic signs and symptoms; congenital syphilis and previously treated patients who fail to achieve adequate serologic response to treatment. Referrals to Infectious Disease specialists are advised in these cases.

MANAGEMENT

Clinicians are encouraged to discuss clinical management of cases with an Infectious Disease specialist

- Presumptive treatment should be considered for sexual contacts < 90 days in addition to syphilis testing and testing for other STIs if there is a concern about follow-up or in an outbreak situation.
- All sexual or perinatal contacts within the appropriate time periods (3 months for primary, 6 months for secondary, 12 months for early latent syphilis) must be located, tested and treated if necessary.

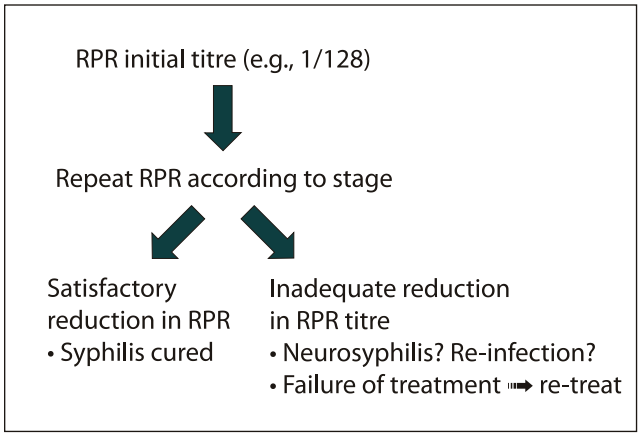
TREATMENT

Long-acting benzathine penicillin G (Bicillin-LA) as single dose of 2.4 million units IM is the preferred treatment for non-pregnant adults with primary, secondary and early latent syphilis

- Alternatives for penicillin-allergic patients:
  - Doxycycline 100 mg PO bid for 14 days
  - Ceftriaxone 1 g IV or IM daily for 10 days (exceptional circumstances only).
- Treatments for neurosyphilis, infections ≥1 year and congenital syphilis are listed in the Canadian Guidelines for STIs.
- Every effort should be made to obtain and document prior history of treatment for syphilis and prior serologic results in order to avoid unnecessary re-treatment.
- Presumptive treatment regime is benzathine penicillin G as a single dose of 2.4 million units IM.
- All patients should be made aware of the possible Jarisch-Herxheimer reactions to treatment.

CAUTION: Inappropriate use of short-acting benzylpenicillin (penicillin G) has been reported in New Brunswick.

Serological monitoring at 3, 6 and 12 months for early syphilis and at 12 and 24 month for late latent and tertiary syphilis is necessary to ensure adequate serological response after treatment.



Stage	Adequate serological response
Primary	4-fold drop at 6 months 8-fold drop at 12 months 16-fold drop at 24 months
Secondary	8-fold drop at 6 months 16-fold drop at 12 months
Early latent	4-fold drop at 12 months

SPECIAL CONSIDERATIONS

For pregnant women and newborns

- Universal screening of all pregnant women continues to be important and remains standard of care.
- Initial screening (ideally) in the first trimester. For high-risk women: repeat screening at 28-32 weeks and at delivery.
- Any woman delivering hydropic or stillborn infants at ≥20 weeks gestations should be tested for syphilis.
- Infants presenting with signs and symptoms compatible with early congenital syphilis should be tested even if mother was seronegative.

For persons co-infected with HIV

- Persons co-infected with HIV will require shared care with the appropriate specialist.
- CSF examination may be indicated for HIV patients with neurologic signs and symptoms, RPR ≥1:32 dilutions, CD4 <350 cells/µL or treated syphilis with suboptimal decline in VDRL/RPR titre. Some experts recommend CSF examination in all HIV-infected individuals.

Consideration of other STIs

- All patients with reactive syphilis serology should be tested for HIV. Persons co-infected with HIV may require a longer course of treatment, as well as closer and longer follow-up.
- Testing for other STIs, including chlamydia and gonorrhea, should be performed.
- Genital ulcers should be tested for HSV and/or chancroid and/or lymphogranuloma venerum, depending on epidemiologic risk.
- Immunize against hepatitis B if not already immune. Immunization against hepatitis A may be indicated. Discuss HPV vaccination with women.

REPORTING

Syphilis (infectious and non-infectious) is reportable in New Brunswick.

Please notify your Regional Public Health office of any new or suspected case(s) of syphilis. They can assist with determining the trace-back period and contact tracing.

Region	Contact
Moncton (Zone 1)	Phone: 506-856-3220 Fax: 506-856-3544
Saint John (Zone 2)	Phone: 506-658-5188 Fax: 506-643-7894
Fredericton (Zone 3)	Phone: 506-444-5905 Fax: 506-444-4877
Edmundston (Zone 4)	Phone: 506-735-2065 Fax: 506-735-3142
Campbellton (Zone 5)	Phone: 506-789-2266 Fax: 506-789-2349
Bathurst (Zone 6)	Phone: 506-547-2062 Fax: 506-547-7459
Miramichi (Zone 7)	Phone: 506-778-6104 Fax: 506-778-6756

REFERENCES AND OTHER RESOURCES

Canadian Guidelines on Sexually Transmitted Infections, 2010 Edition. Ottawa, ON: Public Health Agency of Canada.
- http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/section-5-10-eng.php

New Brunswick Office of the Chief Medical Officer of Health (Public Health):
- http://www2.gnb.ca/content/gnb/en/departments/ocmoh/cdc/content/sexually_transmitteddiseasesandinfections.html

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