**Section 1**

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH GUIDE TO SURVEILLANCE, REPORTING AND CONTROL

Sexually Transmitted Infections

**ABOUT THE INFECTIONS**

***Gonorrhea***

**A. Etiologic Agent**

*Neisseria gonorrhoeae* are bacteria that appear as gram-negative diplococci on microscopic Gram-stained smears.

**B. Clinical Description**

Many infections occur without symptoms. Most males with urethral infection have symptoms of purulent or mucopurulent urethral discharge. Men may also experience epididymitis due to *N. gonorrhoeae*. Most infections in women are asymptomatic. Symptoms in women can include abdominal pain, and mucopurulent or purulent cervical discharge. Women may also get urethritis. *N. gonorrhoeae* can cause pelvic inflammatory disease. Disseminated (bloodstream) infection can occur with rash, and joint and tendon inflammation. Infections of the throat and the rectum can also occur and are often asymptomatic.

**C. Vectors and Reservoirs**

Humans are the only known natural hosts and reservoirs of infection.

**D. Modes of Transmission**

Gonorrhea is transmitted through oral, vaginal, or anal sex. Gonorrhea can also be transmitted at birth through contact with an infected birth canal.

**E. Incubation Period**

The incubation period for gonorrhea is usually 2-7 days for symptomatic disease.

**F. Period of Communicability or Infectious Period**

All sexual contacts within 60 days of the onset of symptoms or diagnosis of gonorrhea should be evaluated and treated. Individuals with asymptomatic infection are infectious as long as they remain infected.

**G. Epidemiology**

Gonorrhea is the second most commonly reported notifiable disease in the U.S.; over 450,000 cases were reported in 2016. The number of reported cases underestimates true incidence.

**H. Treatment**

Ceftriaxone 250 mg IM x 1 dose PLUS EITHER Azithromycin 1 gram PO x 1 dose (preferred)

OR Doxycycline 100 mg PO twice daily for 7 days is the recommended treatment in Massachusetts. For additional treatment options, see [*www.mass.gov/dph/cdc/std*](http://www.mass.gov/dph/cdc/std)

***Chlamydia***

**A. Etiologic Agent**

*Chlamydia trachomatis* is an intracellular bacterial pathogen.

**B. Clinical Description**

Most frequently, no noticeable symptoms are present. Males with urethral infections may have a mucoid or clear urethral discharge and dysuria. Men may develop epididymitis. Symptomatic females can have mucopurulent endocervical discharge, dysuria, and pain in the lower abdomen. *C. trachomatis* can cause pelvic inflammatory disease. Infection of the rectum may also occur and is often asymptomatic.

**C. Vectors and Reservoirs**

Humans are the only known natural hosts and reservoirs of infection.

**D. Modes of Transmission**

Chlamydia infection is transmitted through oral, vaginal, or anal sex. It can also be transmitted at birth through contact with an infected birth canal.

**E. Incubation Period**

The mean incubation period of chlamydia is usually 21 days for symptomatic disease.

**F. Period of Communicability or Infectious Period**

All sexual contacts within 60 days of the onset of symptoms or diagnosis of chlamydia should be evaluated and treated. Individuals with asymptomatic infection are infectious as long as they remain infected.

**G. Epidemiology**

Chlamydial infection is the most frequently reported notifiable sexually transmitted infection (STI) in the U.S.; over 1.5 million cases are reported annually. Many infections go undiagnosed and unreported. Reported rates are 2 times higher in females than in males.

**H. Treatment**

The following treatments are recommended in Massachusetts:

1. Azithromycin 1 gram PO x 1 dose;

or

1. Doxycycline 100 mg PO twice daily for 7 days.

For additional treatment options, see [*www.mass.gov/dph/cdc/std*](http://www.mass.gov/dph/cdc/std)

***Syphilis***

**A. Etiologic Agent**

*Treponema pallidum* are corkscrew-shaped bacteria (spirochetes).

**B. Clinical Description**

In primary syphilis, the first stage of syphilis, an ulcerous lesion or "chancre" develops at the site of inoculation. This is a painless ulcer, often on the genitalia, but depending on contact, this lesion may occur on any part of the body, including mucous membranes. Regional lymphadenopathy may also develop. In the secondary stage, disseminated skin rash and lesions of the mucous membranes are most common. Other manifestations include malaise, lymphadenopathy, mucous patches (elevated patches in the mouth or anus), condylomata lata (syphilitic wart-like lesions generally in the perineal and perirectal areas) and alopecia (patchy hair loss). Late stage syphilis may involve any organ of the body, but involvement of the nervous system, eyes, heart, and arteries are particularly common. During any time period after the onset of syphilis, latent infection may occur (latent infection is ongoing infection without signs or symptoms). Early latent syphilis, also known as non-primary, non-secondary early syphilis, is an asymptomatic period occurring in the first year after infection, with late latent syphilis describing asymptomatic infection of longer duration. Persons with primary, secondary, and early latent infection (non-primary, non-secondary early syphilis) are considered to be infectious.

**C. Vectors and Reservoirs**

Humans are the only known natural hosts.

**D. Modes of Transmission**

Syphilis is transmitted through oral, vaginal, or anal sex. Direct contact with a syphilitic sore can transmit infection. Transmission may also occur across the placenta prior to birth or during the birthing process. Transmission rarely occurs by blood transfusion.

**E. Incubation Period**

The incubation period of syphilis is 10–90 days—median 21 days for primary syphilis.

**F. Period of Communicability or Infectious Period**

Patients are most infectious during primary and secondary syphilis when lesions or rash are present. This is also consistent with the period of early latent syphilis. However, it may be possible to transmit the infection up to four years after initial infection.

**G. Epidemiology**

The rate of reported primary and secondary (P&S) syphilis in the U.S. decreased during the 1990s, and in 2000, was the lowest since reporting began in 1941. However, the number of cases of P&S syphilis began to increase in the early 2000s and continues to climb. This increase in incidence also represents shifting risk and demographic profiles, including an increase in risk among men who have sex with men.

**H. Treatment**

Penicillin is the treatment of choice for all stages of syphilis and is the only recommended treatment for congenital syphilis, syphilis in pregnant women, and syphilis in persons with HIV infection. Benzathine penicillin G 2.4 million units, IM x 1 dose is the recommended treatment for primary, secondary, and early latent syphilis in Massachusetts. For treatment recommendations for other presentations of syphilis and in the penicillin allergic patient, see[*www.mass.gov/dph/cdc/std*](http://www.mass.gov/dph/cdc/std)

***Pelvic Inflammatory Disease (PID)***

PID is an inflammation of the upper genital tract (uterus, tubes, and adjacent pelvic structures). It is characterized by lower abdominal/pelvic pain and tenderness, fever, and nausea and vomiting, with or without vaginal discharge. PID can be caused by *C. trachomatis* or *N. gonorrhoeae*, as well as by a variety of other infectious agents. The cause of PID cannot be determined solely on clinical grounds. Treatment is with a variety of antibiotic combinations. For more information, see [www.mass.gov/dph/cdc/std](http://www.mass.gov/dph/cdc/std)

***Chancroid, Lympogranuloma Venereum (LGV), and Granuloma Inguinale (Donovaniasis)***

Chancroid (caused by *Haemophilus ducreyi*), lympogranuloma venereum (LGV, caused by *C. trachomatis*, L1, L2, and L3), and granuloma inguinale (caused by *Klebsiella granulomatis)* are uncommon in Massachusetts. Concerns and questions about these diseases can be referred to the Division of STD Prevention (DSTDP) at (617) 983-6940*. See* [*www.mass.gov/dph/cdc/std*](http://www.mass.gov/dph/cdc/std) for treatment options.

**Section 2**

**REPORTING CRITERIA AND LABORATORY TESTING**

**A. What to Report to the Massachusetts Department of Public Health (MDPH)**

The following nine diseases and conditions (infectious agents) are reportable by health care providers directly to MDPH:

* Chlamydia infection (*Chlamydia trachomatis*)
* Gonorrhea (*Neisseria gonorrhoeae*)
* Syphilis (*Treponema pallidum*)
* Pelvic inflammatory disease (irrespective of etiology)
* Chancroid (*Haemophilus ducreyi*)
* Lympogranuloma venereum (LGV, *Chlamydia trachomatis* L1, L2 and L3)
* Granuloma inguinale (*Klebsiella granulomatis*)
* Neonatal herpes simplex virus infection (onset within 60 days after birth)
* Opthalmia neonatorum (*Neisseria gonorrhoeae, Chlamydia trachomatis*)

**B. Laboratory Testing Services Available**

Testing on some STIs is available at the MDPH William A. Hinton State Laboratory Institute. Please refer to the MDPH State Laboratory Manual of Tests and Services for information on testing availability

<http://www.mass.gov/eohhs/docs/dph/laboratory-sciences/sli-manual-tests-services.pdf>

**Section 3**

**REPORTING RESPONSIBILITIES AND CASE INVESTIGATION**

**A. Purpose of Surveillance and Reporting**

* To identify all cases of sexually transmitted infections (STI)
* To identify contacts of cases to prevent further spread

**B. Laboratory and Health Care Provider Reporting Requirements**

Health care providers and laboratories are required to report STIs directly to the Massachusetts Department of Public Health (MDPH), specifically to the MDPH Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance and Informatics Services (ISIS). The foundation of STI prevention and control is monitoring of disease trends. Cases of STIs, as determined by clinical diagnosis and/or laboratory evidence of infection, are reportable directly to the DSTDP within 24 hours of diagnosis (see regulations under *105 CMR 300.180* and *105 CMR 300.170*).

Health care providers must complete and send in a MDPH Case Report Formto the DSTDP or provide an equivalent report. Case Report Forms can be obtained on-line at [*www.mass.gov/dph/cdc/std*](http://www.mass.gov/dph/cdc/std). Laboratories must report significant findings by either mail or fax, or electronically.

**C. Local Board of Health (LBOH) Reporting and Follow-Up Responsibilities**

Since the nine diseases and conditions (infectious agents) listed above and defined as “Sexually Transmitted Infections” are reported directly to MDPH, there are no LBOH reporting and follow-up responsibilities. However, LBOH, health departments, clinicians, and laboratories can contact the DSTDP directly at (617) 983-6940 with questions or for technical assistance regarding reporting or treatment guidelines (see [*www.mass.gov/dph/cdc/std*](http://www.mass.gov/dph/cdc/std)*)*.

**Section 4**

**CONTROLLING FURTHER SPREAD**

The DSTDP is charged with surveillance, investigation, epidemiologic analysis and control of STIs. The DSTDP provides the services of Field Epidemiologists, formerly known as Disease Intervention Specialists (DIS). The Field Epidemiologists, with cooperation of the patient and health care provider, interview individuals diagnosed with “priority diseases” (infectious syphilis, rectal/pharyngeal gonococcal infection, antimicrobial-resistant gonorrhea, and LGV) regarding possible source(s) of infection, and they identify and notify others who may have been exposed. These highly trained investigators will try to locate each named contact and inform them of their exposure (discretely, and without revealing or acknowledging the source of information); will impress upon them the need for evaluation and presumptive treatment for possible infection; provide information about where such services are available; and provide focused risk-reduction counseling to prevent future exposures. Follow-up for priority cases is automatic, based on surveillance data, and individuals involved will be contacted and offered partner notification services. Diagnosing providers are contacted first, before case contact is attempted. Providers may also be contacted by Field Epidemiologists or a Public Health Nurse about case reports that have no treatment listed. Providers can contact the DSTDP at (617) 983-6940 to access field epidemiology services for assistance with any priority case, or with questions.

The MDPH Bureau of Infectious Disease and Laboratory Sciences supports a statewide network of integrated prevention, screening, and case management services located primarily in clinical settings such as community health centers and large safety net hospitals. Services prioritize HIV testing and linkage to care in the context of integrated screening for communicable diseases, including viral hepatitis, STIs, Tuberculosis, and access to the full array of communicable disease public health services. A subset of these sites have advanced STI specimen collection and treatment of STIs for identified patient populations and the capacity to triage clients to medical and other immediate needs. A complete listing of integrated prevention and screening programs are listed under HIV Prevention and Screening Programs on pages 8-11 of the HIV/AIDS Service and Resource Guide (see [*https://www.mass.gov/hiv*](https://www.mass.gov/hiv)*).* Local boards of health, health departments, clinicians, and laboratories can contact the DSTDP directly at (617) 983-6940 with questions or for technical assistance regarding reporting or treatment guidelines. See [*www.mass.gov/dph/cdc/std*](http://www.mass.gov/dph/cdc/std)*.* For help with interpreting syphilis serology results, clinicians can also call the DSTDP directly at (617) 983-6940.

Chlamydia infection, gonorrhea, and syphilis are the STIs most commonly reported to public health agencies. They are bacterial STIs. Viral STIs are much more common than bacterial STIs, but are not generally reportable, except for newborn herpes simples virus infection and HIV infection (see chapter on HIV/AIDS surveillance). Herpes simplex virus infection and infection with human papillomaviruses are very prevalent, but few states or local jurisdictions collect surveillance data for either.

**Section 5**

**REFERENCES**

Centers for Disease Control and Prevention. Sexually Transmitted Diseases Treatment Guidelines, 2015. MMWR Recomm Rep 2015; 64 (No. RR-3). <https://www.cdc.gov/std/tg2015/default.htm>

Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2016.* Atlanta: U.S. Department of Health and Human Services; 2017. <https://www.cdc.gov/std/stats16/default.htm>

Holmes, K.K., Sparling, P.F., Stamm ,W.E., Piot, P., Wasserheit, J.N., Corey, L., Cohen, M.S., Watts, D. H. eds. *Sexually Transmitted Diseases, 4th Edition.* New York, McGraw-Hill Book Co., 2008.

MDPH*. Regulation 105 CMR 300.000: Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements.* MDPH, February 2017. https://www.mass.gov/regulations/105-CMR-30000-reportable-diseases-surveillance-and-isolation-and-quarantine