Utah Department of Health & Human Services

Gonorrhea (GC)

Disease plan

Quick links

Last updated: December 21, 2022 by Nikki Baer

Questions about this disease plan?

Contact the Utah Department of Health and Human Services Office of Communicable Diseases: 801-538-6191.

Please note: Utah DHHS acknowledges transgender and gender non-conforming/binary individuals. In this disease plan, “male” refers to individuals with male anatomy and “female” refers to individuals with female anatomy to coincide with the language currently used by the CDC.

Gonorrhea critical clinical information

Clinical evidence

Signs/symptoms
• The majority of women are asymptomatic but may present with findings typical of cervicitis:
  o Vaginal discharge
  o Abnormal vaginal bleeding
  o Pelvic inflammatory disease
• The majority of men are asymptomatic but may present with findings typical of urethritis and/or proctitis:
  o Purulent or mucopurulent urethral discharge
  o Dysuria
  o Epididymitis
  o Rectal pain
  o Rectal discharge
• Common syndromes to women and men:
  o Conjunctivitis
  o Dysuria

Period of communicability • May extend for months in untreated individuals. Effective treatment ends communicability within hours.
Incubation period • In those with asymptomatic disease it is unclear how long the incubation period is. • In those with symptomatic disease incubation ranges from 1 to 14 days following infection.
Mode of transmission • Sexual: person to person via vaginal, anal, or oral sex • Vertical: from infected pregnant person to unborn baby via the bloodstream
Laboratory testing
Type of lab test/timing of specimen collection • Nucleic acid amplification testing (NAAT)

Type of specimens
• Women
  o Vaginal swab
  o Endocervical swab
  o Rectal swab
  o Pharyngeal swab
  o First-catch urine
• Men
  o First-catch urine
  o Urethral swab
  o Rectal swab
  o Pharyngeal swab

Treatment recommendations
Type of treatment Ceftriaxone 500 mg in a single IM dose for patients < 150kg (300lbs) and 1g in a single IM dose for patients ≥150 kg. When coinfection with chlamydia trachomatis has not been excluded, patients should also be given oral doxycycline 100mg twice daily for 7 days. **Time period to treat** ● Ceftriaxone: single-dose
Prophylaxis ● All contacts of gonorrhea cases exposed within 90 days of examination should receive treatment
Contact management
Isolation of case ● Cases should avoid sexual contact for 7 days after the single-dose therapy is administered and 7 days after their sex partners have been treated
Quarantine of contacts ● Not applicable
Infection control procedures
● Standard body substance precautions

Why is gonorrhea important to public health?

Gonorrhea is the second highest reportable sexually transmitted infection (STI) in Utah and the United States. Gonorrhea is easily transmitted through infected fluids and is one of the leading causes of preventable infertility in women.

Pregnant people who have gonorrhea can pass this infection on to the child during vaginal delivery. Pelvic inflammatory disease (PID) is a serious complication of gonorrhea in women, and can lead to infertility and chronic pelvic pain. In men, epididymitis, testicular inflammation, is a concern for untreated gonorrhea. Gonorrhea is a treatable condition, although there have been reported resistant strains of gonorrhea in other countries. There is only 1 recommended regimen currently in place as adequate treatment for this infection.

Disease and epidemiology

Clinical description

Gonorrhea is a common sexually transmitted disease caused by the bacterium *Neisseria gonorrhoeae*. Gonorrhea infects the mucous membranes of the reproductive tract, including the urethra, cervix, uterus, and fallopian tubes. Most males with urethral infection have symptoms of purulent or mucopurulent urethral discharge. Men may also have epididymitis (inflammation of the epididymis—swollen/painful testes) due to *N. gonorrhoeae*. In women, the symptoms of gonorrhea are often mild, or they have no symptoms. If present, symptoms for women can include abdominal pain, and mucopurulent or purulent cervical discharge. Women may also get urethritis (inflammation of the urethra—painful urination). *N. gonorrhoeae* can cause pelvic inflammatory disease (PID) in women. Infection of the throat and the rectum can also occur and are often asymptomatic, and people infected at these sites can experience anal itching, soreness, bleeding, or a red sore throat. Uncommonly, disseminated gonococcal infection (DGI) (bloodstream) can occur and present as a rash and joint and tendon inflammation. Rarely disseminated infection can be complicated by perihepatitis, endocarditis, or meningitis. Perinatal infections may result in inclusion conjunctivitis or *ophthalmia neonatorum* (eye infection that can result in blindness) and pneumonia in newborns.

Causative agent

Gonorrhea is caused by *N. gonorrhoeae*, a gram-negative oxidase-positive bacterium that appears as a diplococcus.

Differential diagnosis

The differential diagnosis for gonorrhea depends on the particular clinical syndrome and includes other sexually transmitted pathogens such as *Chlamydia trachomatis, Trichomonas vaginalis,* and *Mycoplasma gentalium.* Among men who have sex with men with infectious proctitis, the differential diagnosis includes *C. trachomatis,* herpes simplex virus*,* and *Treponema pallidum* infections.

Laboratory identification

A person with 1 or more of the laboratory findings listed below:

- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male or an endocervical smear obtained from a female, OR
- Isolation of typical gram-negative, oxidase-positive diplococci by culture (presumptive *N. gonorrhoeae*) from a clinical specimen, OR
- Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid.

Gonorrhea is typically identified by testing endocervical, vaginal, male urethra, or urine specimens. Culture and nucleic acid amplification tests (NAAT) are available for the detection of genitourinary infection with *N. gonorrhoeae;* culture requires female endocervical or male urethral swab specimens. Culture is also available for detecting rectal, oropharyngeal, and conjunctival gonococcal infection. NAAT testing offers the widest range of testing specimen types because they are FDA-cleared for use with endocervical swabs, vaginal swabs, male urethral swabs, rectal swabs, pharyngeal swabs, and female and male urine.

While the nucleic acid tests are more sensitive than culture, there are some situations where culture is recommended, such as in cases of suspected or documented treatment failure.

> **Utah Public Health Laboratory (UPHL):** The UPHL provides NAAT testing for both gonorrhea and chlamydia. UPHL can facilitate culture and antimicrobial susceptibility testing (AST). In the event a specimen requires AST, contact the DHHS Office of Communicable Diseases 801-538-6191.

Treatment

The following treatment is recommended for uncomplicated gonococcal infections of the cervix, urethra, rectum and pharynx:

> Ceftriaxone 500 mg in a single IM dose* for patients < 150 kg (300 lbs) and 1g in a single IM dose for patients ≥150 kg.
>
> *If chlamydial infection has not been excluded, treat for chlamydia with doxycycline 100 mg orally BID for 7 days.

Alternate regimens

If ceftriaxone is not available:

> Cefixime 800 mg single oral dose* (not recommended for oropharyngeal infections)
>
> *If chlamydial infection has not been excluded, treat for chlamydia with doxycycline 100 mg orally BID for 7 days.

If documented allergy to cephalosporin:

> Gentamicin 240 mg in a single IM dose *PLUS*
>
> Azithromycin 2 g orally in a single dose

For unique circumstances or additional treatment options please go to https://www.cdc.gov/std/treatment-guidelines/gonorrhea-adults.htm for CDC's Sexually Transmitted Infections Treatment Guidelines, 2021.

Expedited partner therapy (EPT) is the clinical practice of treating the sex partners of patients diagnosed with gonorrhea by providing prescriptions or medications to the patient to take to his/her partner without the healthcare provider first examining the partner. EPT is legal in Utah and highly recommended by public health officials. For details see Utah's EPT law.

Case fatality

Gonorrhea is not fatal.

Reservoir

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

Transmission

Gonorrhea is transmitted by direct sexual contact either through oral, vaginal, or rectal sex. Gonorrhea can also be transmitted at birth through contact with an infected birth canal.

Susceptibility

Sexually active individuals are susceptible to infection. People who are infected develop antibodies, but there are many different gonococcal strains so prior infection does not confer immunity to all strains and reinfection is common. Some people have hereditary complement deficiency and may be more susceptible to bacteremia. Younger women are more susceptible to infection than older women due to a change in the vaginal epithelium that occurs during aging.

Incubation period

The incubation period of gonorrhea is highly variable and poorly defined. For symptomatic patients, an incubation period of 1–14 days or longer is estimated.

Period of communicability

The period of communicability is unknown, and may be prolonged in untreated individuals. Effective treatment ends communicability within hours.

Epidemiology

In 2020, a total of 677,769 cases of gonorrhea were reported to the CDC in 50 states and the District of Columbia, making it the second most common notifiable sexually transmitted infection in the United States.

In Utah, 3,627 cases of gonorrhea were reported in 2021. Gonorrhea continues to be reported more frequently in Utah with a more than 1,009% rate increase since 2011. Salt Lake County and Weber-Morgan saw the highest rates of gonorrhea in 2021, with 198 and 96 cases per 100,000 population, respectively.

In 2021, 30% of gonorrhea cases reported in Utah were among persons 15-24 years of age. The majority of gonorrhea cases identified continue to be clustered in Utah's more populated counties along the Wasatch Front with Salt Lake (65%), Utah (10%), Weber (7%), and Davis (7%) counties accounting for approximately 89% of all identified cases. The highest rate of gonorrhea infections among racial/ethnic groups was reported among people who are Black/African Americans (707

cases per 100,000 population) followed by Native Hawaiians/Other Pacific Islanders (234), Hispanic/Latinos (187), and Native Americans (169).

Drug resistance is an increasingly important concern in the treatment and prevention of gonorrhea. CDC monitors trends in gonorrhea drug resistance through the Gonococcal Isolate Surveillance Project (GISP), which tests gonorrhea samples (isolates) from the first 25 men with urethral gonorrhea attending STI clinics each month in sentinel clinics across the United States (27 cities in 2014). Utah does not currently participate in GISP.

Public health control measures

Public health responsibility

- Investigate all confirmed and suspected cases of gonorrhea, complete, and submit appropriate disease investigation forms.
- Facilitate early detection and effective treatment of patients and their contacts.
- Provide education to the general public and clinicians regarding disease transmission and prevention.
- Identify clusters or outbreaks of this disease.
- Identify sources of exposure and stop further transmission.

Prevention

- Emphasis should be placed on early detection and effective treatment of patients and their contacts.
- Educate the community in general health promotion measures:
    - Provide health and sex education to teach the importance of delaying sexual activity until the onset of sexual maturity as well as the importance of establishing mutually monogamous relationships and reducing the numbers of sexual partners;
    - Discourage multiple sexual partners and anonymous or casual sexual activity;
    - Teach methods of personal prophylaxis applicable before, during, and after exposure, especially the correct and consistent use of condoms;
    - Protect the community by controlling STIs in sex workers and their clients.
- Ensure the availability of healthcare facilities for early diagnosis and treatment:
    - Encourage their use through public education about symptoms of sexually transmitted infections and modes of transmission.
    - Ensure these services are culturally appropriate and readily accessible and acceptable, regardless of economic status.
    - Provide adequate partner notification.
    - Conduct routine annual screening of sexually active adolescent females.

- Provide annual screening to women who are younger than 25 years old and to women 25 years or older if at increased risk for gonorrhea (have a new partner, more than one sex partner, a sex partner with concurrent partners, or a sex partner who has an STI; practice inconsistent condom use when not in a mutually monogamous relationship; have a previous or coexisting STI; have a history of exchanging sex for money or drugs; or have a history of incarceration). Both males and females with other STIs should be screened as well.
- Screen all pregnant people younger than 25 years of age, and those 25 years or older if at increased risk for gonorrhea. These groups should also be retested during the 3rd trimester. Pregnant people with gonorrhea should be retested within 3 months.
- Subgroups of men who have sex with men (MSM) are at high risk for gonorrhea infection and should be screened at all sites of exposure (urethral, pharyngeal, and rectal) every 3-6 months. All MSM should be screened at least annually.
- Test and adequately treat individuals who engage in commercial sex work and illicit drug use.
- Offer pre-exposure prophylaxis (PrEP) if HIV results are negative at the time of diagnosis.

Chemoprophylaxis

All sexual partners of infected patients should receive prophylaxis as well as infants born to untreated mothers with gonorrhea. For dosage information, see the treatment section of this document.

Vaccine

None.

Isolation and quarantine requirements

Isolation: Avoid sexual contact until 7 days post-treatment.

Hospital: Not applicable.

Quarantine: Not applicable.

Case investigation

Reporting

Gonorrhea is a reportable disease. Providers should report cases who meet the following criteria using the DHHS case report form.

Table of criteria to determine whether a case should be reported to public health authorities

Criterion	Reporting gonorrhea
Laboratory evidence	
Isolation of *N. gonorrhoeae* by culture of a clinical specimen	S
Microscopic visualization of *N. gonorrhoeae* (gram-negative intracellular diplococci of typical morphology associated with neutrophils) in a urethral specimen from men	S
Detection of *N. gonorrhoeae* by nucleic acid amplification in a clinical specimen	S
Detection of *N. gonorrhoeae* nucleic acid by hybridization with a nucleic acid probe in a clinical specimen	S
Detection of *N. gonorrhoeae* antigens in a clinical specimen	S
Microscopic visualization of *N. gonorrhoeae* (gram-negative intracellular diplococci of typical morphology associated with neutrophils) in an endocervical specimen from a woman	S

Note:
S = This criterion alone is sufficient to report a case

Case definition (Most recently updated by CSTE in 2014)

Epidemiologists classify infections according to the following:

Criteria for defining a case of gonorrhea

Criterion	Case definition	
Laboratory evidence	Confirmed	Probable
Isolation of *N. gonorrhoeae* by culture of a clinical specimen	S	
Microscopic visualization of *N. gonorrhoeae* (gram-negative intracellular diplococci of typical morphology associated with neutrophils) in a urethral specimen from men		S
Detection of *N. gonorrhoeae* by nucleic acid amplification in a clinical specimen	S	
Detection of *N. gonorrhoeae* nucleic acid by hybridization with a nucleic acid probe in a clinical specimen	S	
Detection of *N. gonorrhoeae* antigens in a clinical specimen	S	

Microscopic visualization of *N. gonorrhoeae* (gram-negative intracellular diplococci of typical morphology associated with neutrophils) in an endocervical specimen from a woman		S

Note:
S = This criterion alone is sufficient to report a case.

Gonorrhea (most recently updated by CSTE in 2014)

Clinical description

Infection with *N. gonorrhoeae* may result in urethritis, epididymitis, cervicitis, acute salpingitis, or other syndromes when sexually transmitted; however, the infection may be asymptomatic. Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns.

Laboratory criteria

- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male or an endocervical smear obtained from a female, or
- Isolation of typical gram-negative, oxidase-positive diplococci by culture (presumptive *N. gonorrhoeae*) from a clinical specimen, or
- Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid.

Case classification

Probable: demonstration of gram-negative intracellular diplococci in a urethral smear obtained from a male or an endocervical smear obtained from a female.

Confirmed: a person with laboratory isolation of typical gram-negative, oxidase-positive diplococci by culture (presumptive *N. gonorrhoeae*) from a clinical specimen, or demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or detection of nucleic acid via nucleic acid amplification (e.g., PCR) or hybridization with a nucleic acid probe.

Case investigation process

- Contact the medical provider to gather patient demographics, clinical, and treatment information, as well as patient notification status.
- Conduct a client interview.
- Complete a case morbidity record (CMR) in UT-NEDSS/EpiTrax according to the minimum data set on the original patient.
- Conduct investigations on contact event(s) and create UT-NEDSS/EpiTrax contact event(s) for contacts identified.
- Provide/facilitate treatment and follow-up for contacts.

- Complete CMR and contact event, if applicable.

Outbreaks

A gonorrhea outbreak occurs when the observed rate of disease in a geographical area exceeds the normal (endemic) rate.

Identify case contacts

Patients should be instructed to refer their sex partners for evaluation, testing, and treatment if they had sexual contact with the patient during the 90 days preceding onset of the patient's symptoms or gonorrhea diagnosis. Although the exposure intervals defined for the identification of at-risk sex partners are based on limited evaluation, the most recent sex partner should be evaluated and treated, even if the time of the last sexual contact was greater than 90 days before symptom onset or diagnosis.

Case contact management

Among heterosexual patients, if concerns exist that sex partners who are referred to evaluation and treatment will not seek services (or if other management strategies are impractical or unsuccessful), patient delivery of antibiotic therapy (expedited partner therapy or EPT) to their partners can be considered. Compared with standard partner referral, this approach, which involves delivering a prescription or the medication itself, has been associated with a trend toward a decrease in rates of persistent or recurrent gonorrhea. Patients must also inform their partners of their infection and provide them with written materials about the importance of seeking evaluation for any symptoms suggestive of complications (e.g., testicular pain in men and pelvic or abdominal pain in women). Patient-delivered partner therapy is not routinely recommended for MSM because of a high risk for coexisting infections, especially undiagnosed HIV infection, in their partners.

All contacts should be instructed to abstain from sexual intercourse until 7 days after a single-dose regimen or 24 hours after completion of a 7-day regimen. Timely treatment of sex partners is essential to decrease the risk for re-infecting the index patient.

Resources

CDC STI treatment guidelines, gonorrhea

CDC expedited partner therapy (EPT)

Utah's EPT law

DHHS gonorrhea report form

References

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Council of State and Territorial Epidemiologists (CSTE). (2013). *Update to public health reporting and national notification for gonorrhea* [Position statement 13-ID-03]. https://cdn.ymaws.com/www.cste.org/resource/resmgr/PS/13-ID-03.pdf

Version control

V.06.15: Updated Epidemiology information, added Utah-specific epidemiology. Updated treatment according to 2010 CDC treatment guidelines and included information regarding expedited partner therapy (EPT). Added minimum data set (MDS), added table of contents.

V.08.15: Updated treatment according to 2015 CDC treatment guidelines.

V.10.16: Updated minimum data set (MDS).

V.02.20: Critical clinician information and electronic laboratory reporting sections added to disease plan. Epidemiology updated with current national and Utah-specific data. Updated minimum data set (MDS) to reflect current Utah procedure.

V.12.22: Updated epidemiology information. Updated treatment and screening according to 2021 CDC treatment guidelines. Updated formatting to meet DHHS guidelines.

UT-NEDSS/EpiTrax minimum/required fields by tab

Morbidity event

Demographic

- Last name
- First name
- Street
- Unit number
- City
- State
- County
- ZIP code
- Date of birth
- Area code
- Phone number
- Birth sex
- Ethnicity
- Race
- Disposition *(if promoted contact)*
- Disposition date *(if promoted contact)*
- Contact type *(if promoted contact)*

Clinical

- Disease
- Date diagnosed
- Pregnant *(if female)*
- Expected delivery date *(if pregnant)*
- Treatment given
- Treatment *(if treated)*
- Date of treatment *(if treated)*
- Clinician last name
- Clinician area code
- Clinician phone
- Diagnostic facility
- Type of facility
- Method of case detection

Laboratory

- Lab
- Test type
- Organism
- Test result
- Specimen source
- Collection date

Contacts

- How many sex partners has the case had in the past 3 months?

Reporting

- Date first reported to public health

Investigation

- Was the case interviewed?
  - Interview date *(if yes)*
  - Interview period *(if yes)*
  - Reason not interviewed *(if no)*
- Date closed
- Is the patient MSM? *(if male)*

Administrative

- State case status *(completed by DHHS)*

Contact event

Demographic

- Contact name
- Contact address county *(if known)*
- Contact birth sex *(if known)*
- Contact disposition
- Contact disposition date
- Contact type

Clinical

- Contact pregnant *(if known)(if female)*
- Contact expected delivery Date *(if pregnant)*
- Contact treatment given *(if known)*
- Contact date of treatment *(if treated*

Electronic laboratory reporting (ELR) processing rules

Gonorrhea rules for entering test results

The following rules describe how laboratory results reported to public health should be added to new or existing events in UT-NEDSS/EpiTrax. These rules have been developed for the automated processing of electronic laboratory reports, although they apply to manual data entry, as well.

Test-specific rules

Test-specific rules describe what test type and test result combinations are allowed to create new morbidity events in UT-NEDSS/EpiTrax, and what test type and test result combinations are allowed to update existing events (morbidity or contact) in UT-NEDSS/EpiTrax.

Test type	Test result	Create a new event	Update an existing event
Culture	Positive	Yes	Yes
	Negative	No	Yes
	Other	No	Yes
DNA probe	Positive	Yes	Yes
	Negative	No	Yes
	Equivocal	No	Yes
PCR/amplification	Positive	Yes	Yes
	Negative	No	Yes
	Equivocal	No	Yes
	Other	No	Yes

Whitelist rules

Whitelist rules describe how long an existing event can have new laboratory data appended to it. If a laboratory result falls outside the whitelist rules for an existing event, it should not be added to that event, and should be evaluated to determine if a new event (CMR) should be created.

Gonorrhea morbidity whitelist rule

If there is a treatment start date:
If the specimen collection date of the laboratory result is 30 days or less after the last treatment start date, the laboratory result should be added to the morbidity event.

If there is no treatment start date:
If the specimen collection date of the laboratory result is 90 days or less after the event date, the laboratory result should be added to the morbidity event.

Gonorrhea contact whitelist rule

If there is a treatment start date:
If the specimen collection date of the laboratory result is 30 days or less after the last treatment start date, the laboratory result should be added to the contact event.

If there is no treatment start date:
If the specimen collection date of the laboratory result is 90 days or less after the event date of the contact event, the laboratory result should be added to the contact event.

Graylist rule

We often receive laboratory results through ELR that cannot create cases, but can be useful if a case is created in the future. These laboratory results go to the graylist. The graylist rule describes how long an existing event can have an old laboratory result appended to it.

Gonorrhea graylist rule

If the specimen collection date of the laboratory result is 30 days before to 7 days after the event date of the morbidity event, the laboratory result should be added to the morbidity event.

Other electronic laboratory processing rules

If an existing event has a state case status of not a case, ELR will never add additional test results to that case. New labs will be evaluated to determine if a new CMR should be created.