

Sexually Transmitted Diseases

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Biography



- Chief of Infectious Diseases at South Shore Health
 - Vice Chairman of the Dept of Medicine.
 - Medical Director of the Weymouth Dept of Public Health and a regular channel 5 medical contributor. He has also been the medical technical lead for SARS, pandemic influenza H1N1, Ebola, and COVID19 at South Shore Health
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Disclosure

- NONE
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What's New? DoxyPEP

- In three large randomized controlled trials, 200 mg of doxycycline taken within 72 hours after sex has been shown to reduce syphilis and chlamydia infections by >70% and gonococcal infections by approximately 50%.

What's New? DoxyPEP

- Providers should counsel all gay, bisexual, and other men who have sex with men (MSM) and transgender women (TGW) with a history of at least one bacterial sexually transmitted infection (STI) (specifically, syphilis, chlamydia or gonorrhea) during the past 12 months about the benefits and harms of using doxycycline 200 mg once within 72 hours of oral, vaginal, or anal sex
- Do not exceed 200 mg of doxy in any 24h period
- Offer doxycycline postexposure prophylaxis (doxy PEP) through shared decision-making.
- Ongoing need for doxy PEP should be assessed every 3–6 months.

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- No recommendation can be given at this time on the use of doxy PEP for cisgender women, cisgender heterosexual men, transgender men, and other gender-diverse persons.

STI Prevention

- Condoms
 - HPV vaccine
 - HBV vaccine
 - HAV vaccine
 - Mpox vaccine
 - Pap smear
 - Anal Pap
 - STI screening (HIV, Chlamydia, Gonorrhea, Syphilis, HBV) and treatment
 - PEP/PREP
 - DoxyPEP*
 - Counseling
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Case 1

- 40 yo MSM, unprotected insertive anal intercourse and oral intercourse within 1 week of painful, multiple penile ulcers
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What's the most likely cause of these painful ulcers?

- A) Syphilis with bacterial superinfection
 - B) Chancroid
 - C) Genital herpes in the setting of declining cell-mediated immunity
 - D) Lymphogranuloma venereum (LGV)
 - E) Mpox
-

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 - **C) Genital herpes**
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STD Treatment Guidelines 2021

Centers for Disease Control and Prevention
MMWR

Recommendations and Reports / Vol. 70 / No. 4

Morbidity and Mortality Weekly Report

July 23, 2021

Sexually Transmitted Infections Treatment Guidelines, 2021

<https://www.cdc.gov/std/treatment-guidelines/toc.htm>

Genital HSV – Key points

- HSV-2 is more common in women than men
 - Most HSV-2-infected individuals are undiagnosed and unaware of their infection; those periodically shed virus in their genital tract (2-28% of days)
 - Most transmission is from asymptomatic carriers
 - Primary symptomatic outbreak with b/l painful vesicles, inguinal LAD, dysuria, urinary retention can be from HSV-1 or 2
 - Recurrence and asymptomatic shedding are more common with genital HSV-2
 - CDC does not recommend routine STI screening for HSV
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Type-Specific HSV-2 serology

- HSV IgM not reliable and not type specific and PCR more sensitive for acute infection with lesions
 - HSV-2 IgG antibody to assess concordance or discordance of sex partners and to help with evaluation of culture/PCR-negative ulcers/lesions.
 - Seroconversion of IgG occurs in 50% in 3 weeks, 70% in 6 weeks, and 90% at 3 months
 - Watch false + HSV-2 IgG in asymptomatic patients with EIA values b/w 1.1-2.9
 - Need to send another HSV-2 serology (e.g western blot or Biokit)
-

Genital HSV Prevention

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

JANUARY 1, 2004

VOL. 350 NO. 1

Once-Daily Valacyclovir to Reduce the Risk of Transmission of Genital Herpes

Lawrence Corey, M.D., Anna Wald, M.D., M.P.H., Raj Patel, M.B., Ch.B., Stephen L. Sacks, M.D., Stephen K. Tyring, M.D., Ph.D., Terri Warren, M.S., John M. Douglas, Jr., M.D., Jorma Paavonen, M.D., R. Ashley Morrow, Ph.D., Karl R. Beutner, M.D., Ph.D., Leonid S. Stratchounsky, M.D., Ph.D., Gregory Mertz, M.D., Oliver N. Keene, M.Sc., M.A., Helen A. Watson, M.Sc., Dereck Tait, M.B., Ch.B., and Mauricio Vargas-Cortes, Ph.D., for the Valacyclovir HSV Transmission Study Group*

Antiviral Therapy for Prevention of HSV-2 Transmission

- Prospective placebo-controlled study of heterosexual HSV-2 sero-discordant couples
 - HSV-2 positive partner given valacyclovir 500 mg daily or placebo
 - HSV-2 susceptible partners assessed monthly
 - Condoms and safe sex counseling provided at all visits
 - After 8 months of therapy Symptomatic HSV-2 transmission was reduced by 77%, and asymptomatic acquisition by 50%
 - Valacyclovir is now FDA approved for this indication
-

Evaluation of the Patient with Genital Ulcer

- A diagnosis based on history/physical is often inaccurate
 - Obtain a serologic test for syphilis
 - If serology negative, repeat within 3 months
 - Send HSV PCR of lesion (more sensitive than culture)
 - MSM and endemic areas: serology for LGV and Chlamydia PCR / NAAT
 - Mpox testing if pt exposed to suspected/confirmed case or other STI testing negative in pt with unexplained genital ulcers (esp. if vesicles, pustules, umbilicated lesions, or lesions with raised borders in extragenital sites)
 - Consider empiric therapy based on most likely diagnosis
-

Case 2: Penile Funk









Syphilis Fast Facts

- Painless ulcer, think syphilis, test and treat empirically
 - RPR and Treponemal ab testing often negative in primary dz
 - Rash involves palms and soles, think syphilis, test, and treat empirically
 - Need to consider dx in women with unexplained maculopapular rash
 - Early syphilis (primary/secondary) treat all sex partners with past 90 days and sex partners after 90 days can be tested
 - Follow pts to make sure RPR has fallen at least 4 fold
 - Screening with RPRs leads to false +’s so +RPRs need to be confirmed by treponemal test
 - Screening with specific Treponemal test avoids false + RPR but introduces scenario +Treponemal test with negative RPR
-

Neurosyphilis

- May occur during any stage
- Symptoms: asymptomatic, meningitis, cranial nerve palsies, general paresis, tabes dorsalis, meningovascular disease, auditory symptoms, optic neuritis, cognitive dysfunction,
- CSF-VDRL is specific but insensitive
- Elevated CSF protein (>45 mg/dl) and WBC (>4 /mL) is supportive but non-specific;

Indication for CSF Analysis

- neurologic involvement is observed (e.g., cognitive dysfunction, motor or sensory deficits, cranial nerve palsies, or symptoms or signs of meningitis or stroke)
 - Treatment failure without clear explanation
 - Isolated ocular (no cranial nerve involvement) or otic syphilis does not require CSF analysis but should be treated as neurosyphilis
-

Syphilis

Follow Response to Treatment

- Re-examine clinically and follow non-treponemal test titer (RPR, VDRL)
 - Goal: sustained ≥ 4 -fold decrease in titer and symptom resolution
 - Testing intervals:
 - Primary/secondary syphilis: 6 and 12 months
 - Late syphilis: 6, 12, 18, and 24 months
 - HIV-infection: 3,6,9,12, and 24 months (most respond to therapy)
-

Syphilis

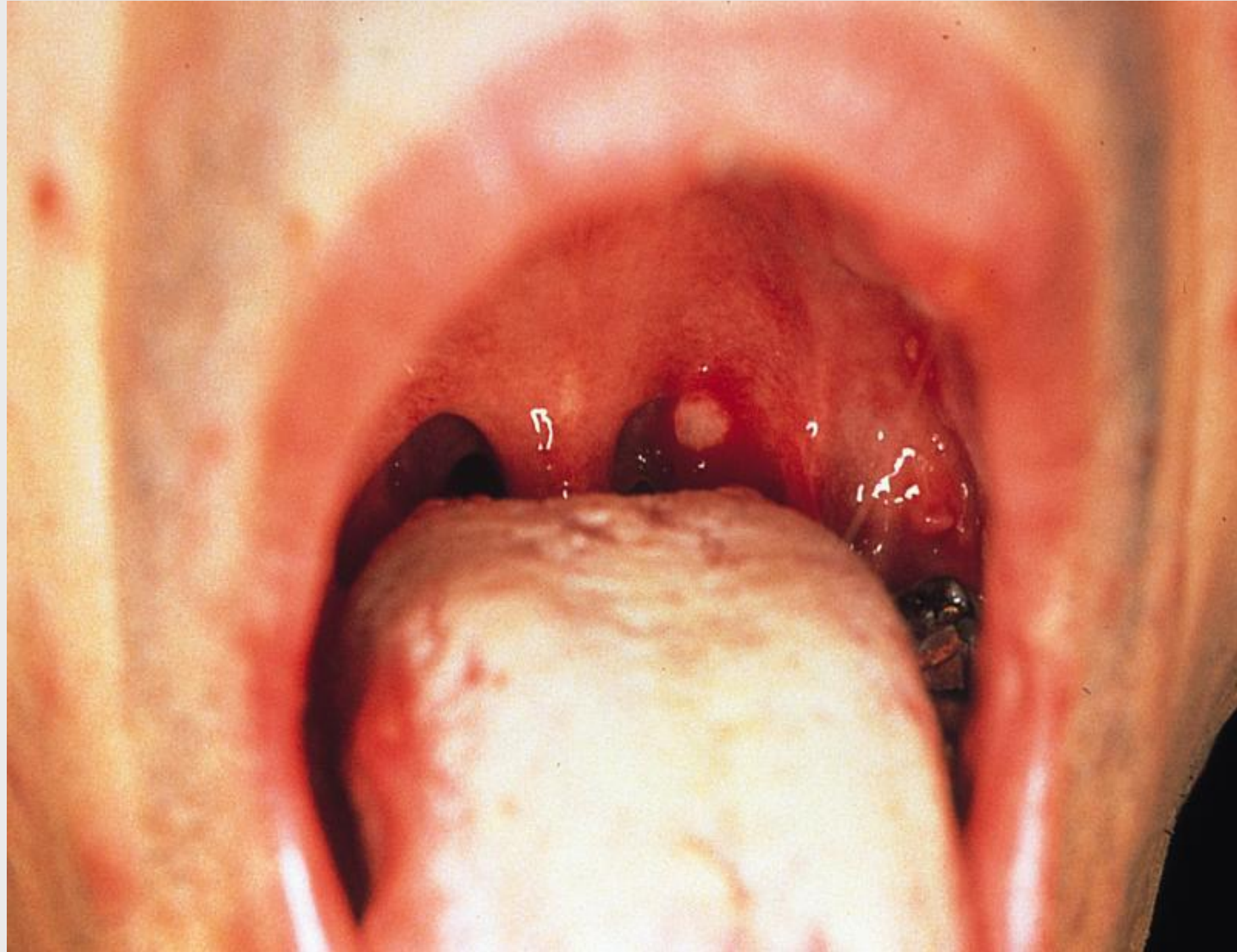
Treatment Failure

- Definition of treatment failure:
 - Signs/symptoms persist
 - Failed to achieve 4-fold decrease in titer within 6-12 months
 - Sustained 4-fold increase in titer (e.g. 1:8→1:32)
 - Management of treatment failure:
 - HIV test (should have been done at diagnosis)
 - CSF analysis
 - If CSF normal administer benzathine pcn weekly x 3 wks
 - If titers don't decline after repeat therapy (re-infection not suspected and the CSF examination is normal) no additional therapy indicated
-

Case 3: 34 y.o. male with fever, rash, headache

- Well until 7 days prior, when he developed sore throat, anorexia, diarrhea; + non-pruritic rash
 - PE: Ill-appearing. T = 103.4. Oroph with ulcer left tonsil. Mild generalized lymphadenopathy. Diffuse maculopapular exanthem over body, greatest on neck, back, trunk, and arms.
 - LAB: WBC 5.1 (53 P, 11 B, 28 L, 8 M, 0 Atyp), PLT = 125; ALT 88, remainder of labs normal
-





34-y.o. male with fever, rash:

Evaluation

- Throat culture no beta strep; blood cultures heterophile, RPR neg; CMV IgG pos, IgM neg; hep A, B: no evidence acute infection.
 - HIV antigen/antibody negative
-

What's the most likely diagnosis?

- A) Syphilis
 - B) Epstein-Barr Virus
 - C) Acute HIV
 - D) Primary HSV gingivostomatitis
-

HIV Viral Load >750,000 copies/ml

CASE 4

42 year old MSM with multiple sex partners the past few weeks develops this rash.



What's the diagnosis?

Mpox

- Look for pustular rash in sexually active adults (mostly though not exclusively in MSM and bisexual men)
- Clues can be rashes in different stages (pustules, umbilicated papules)
- May be genital and/or extragenital
- Consider when standard STI testing negative
- Can coexist with other STI's including HIV, syphilis
- Mpox vaccine x 2 doses effective at reducing infection
 - Consider for MSM/bisexual male with more than 1 partner or STI in last 6 months, or sex in association with large public event in a geographic area where Mpox is circulating
- Tecovirimat (TPOXX) was initially advised for severe disease based on observation studies, but RCT's showed that TPOXX did not reduce time to resolution of mpox lesions



27 yo male with tender swelling in left groin,
multiple sex partners

Lymphogranuloma Venereum

- Primary lesions (3-30d incubation): papule of small ulcer, Indistinct from HSV or syphilis, often painless
 - Secondary stage (2-6w)
 - Anogenitoretal: proctitis (purulent, mucous, bloody)
 - Inguinal: buboes, cellulitis, periadnitis, dissemination
 - Long-term complications: chronic ulceration, fistulae, strictures, genital elephantiasis
 - Diagnosis
 - Nucleic acid testing: may be positive in early stages, not FDA approved, and requires lab validation
 - Serology: complement fixation (CF $\geq 1:64$) or microimmunofluorescence (MIF $\geq 1:128$)
-

Clinical Manifestations of LGV

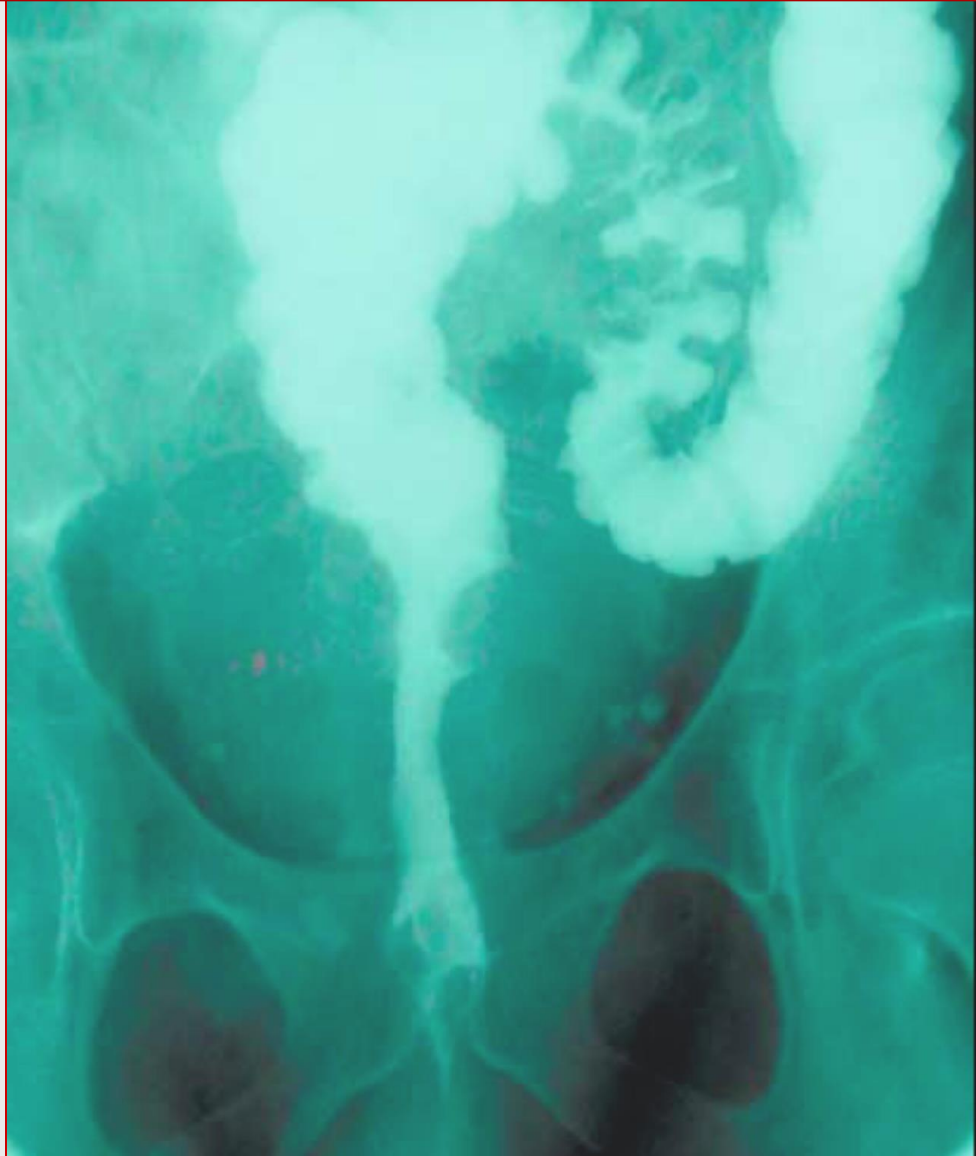


Weir. *CMAJ* 2005;
172:185

Primary Lesion

LGV Complications

Anal Stricture



Williams *et al.* *BMJ*, 2006; 332:99-100

LGV Therapy

- Treat suspected cases, as diagnosis is challenging
 - Treatment:
 - doxycycline, 100 mg BID x21 days
 - alternative: azithromycin 1g/week x 3 weeks
 - Asymptomatic sex partners:
 - doxycycline 100 mg bid x 7 days
 - azithromycin 1g x1
-

Non-Ulcerative Sexually Transmitted Diseases

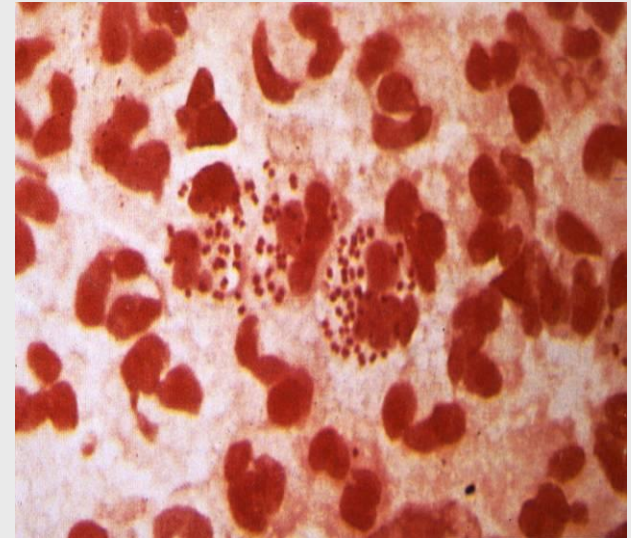
Clinical Manifestations of Gonorrhea

- Urethritis (men or women)
- Epididymitis
- Cervicitis
- PID
- Proctitis
- Pharyngitis
- Disseminated infection (DGI) (complement deficiency, women > men, tenosynovitis, dermatitis)
- Conjunctivitis
- Rare: meningitis, hepatitis, endocarditis



Diagnosing Gonorrhea

- Gram stains: 95-100% sensitive 98% specific in male urethritis; o/w low sensitivity
- Culture: most important to detect DRNG
- Nucleic acid amplification tests (NAATs) approved for vaginal, endocervical, urethral, & urine specimen; 97-99% sensitive and 99% specific for cervical & urethral swabs.
- FDA approved testing for extragenital GC of rectum and pharynx



The Boston Globe

WEDNESDAY, MARCH 10, 2004

- Use of FQ is NOT recommended unless susceptibility results available
- Antimicrobial susceptibility results only available with culture tests
- Perform culture & susceptibility if GC infection persists or recurs
- Most common cause is re-infection
- True Rx failures or resistant GC isolates should be reported

Resistant form of gonorrhea gains in Mass.

By Stephen Smith

GLOBE STAFF

A dangerous form of gonorrhea that can't be treated with standard antibiotics has swiftly established a foothold in Massachusetts, highlighting a resurgence of sexually transmitted illnesses across New England, disease trackers report.

The new germ was first detected in the state in 2002. By last year, one of every seven gonorrhea patients tested positive for the bacteria, which cannot be treated with the cheapest antibiotic pills. Maine reported its first case in January.

Though other New England health departments do not routinely examine blood samples for the new bug, health officers in those states said they suspect its presence.

Massachusetts detects gonorrhea strain showing resistance to nearly all antibiotics used to treat it

Although standard treatment still works, the new bug, never before seen in the US, shows signs of developing resistance to the recommended drugs.

By Felice J. Freyer | Globe Staff. Updated January 19, 2023, 3:01 p.m.



The new strain of gonorrhea is resistant to most antibiotics used to treat it, including Ciprofloxacin. MITU EMBEADOC - CIPRODIN-FC

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HEALTH

Massachusetts detects troubling new strain of gonorrhea

By Felice J. Freyer — Boston Globe Jan. 19, 2023

Reprints



The new strain of gonorrhea is resistant to most antibiotics used to treat it, including ciprofloxacin. COURTESY MITU EMBEADOC

Massachusetts detects troubling new strain of gonorrhea

Treatment of Gonorrhea

- **Ceftriaxone 500 mg IM x1 (wt <150 kg) and 1000 mg IM x1 (wt ≥ 150kg) (assuming Chlamydia has been excluded)**
 - Azithromycin no longer recommended due to increase in macrolide resistant GC
- **If Chlamydia has not been excluded, CTX 500 mg IM x1 plus doxy 100 mg po bid x 7d**
- Cefixime 400 mg po x 1 is no longer recommended
- True beta-lactam allergy:
 - Gentamicin 240 mg IM x1 plus either Azithromycin 2g po x1 or Cefixime 800 mg po x 1 (Cefixime does not cover Chlamydia)
- Higher dose for DGI
- Rescreen at 3m or within 12m (NOT A TEST OF CURE)
- Test of cure for pharyngeal GC (ideally with GC culture) recommended 7-14 days after treatment
- <https://www.cdc.gov/std/treatment-guidelines/gonorrhea-adults.htm>

Epidemiology of Chlamydia trachomatis (serotypes D-K)

- Most frequently reported infectious disease in the US
 - At least 75% of women and 50% of men have no symptoms
 - Rapid diagnostic tests allow for easier office testing
-

Screening for Chlamydia trachomatis

- Up to 40% of women with untreated chlamydia will develop PID. Of those with PID:
 - 20% will become infertile
 - 18% will experience chronic pelvic pain
 - 9% will have a tubal pregnancy
 - Two CDC asymptomatic screening studies have resulted in decline in overall infection rates
 - Chlamydia screening followed by treatment not only reduced the prevalence of lower genital tract infection, but also complication rates and cost
-

Screening for Chlamydia trachomatis

- Screening for Women:
 - <25 yrs screen annually
 - >24 screen at least once a year if at risk:
 - inconsistent use of barrier method
 - new or more than one partner in last 3 months
 - other STD
 - Screening for Men: no routine screening. May be considered in high risk setting (adolescent and STD clinics, correctional facilities)
-

Chlamydia

Rescreening and test-of-cure

- CDC guidelines: rescreen all women with Chlamydia infection 3-4 months after treatment or when they next present for care
 - Rescreening is distinct from early retesting to detect therapeutic failure (test-of-cure)
 - Except in pregnant women, test-of-cure is not recommended unless therapeutic compliance is in question
-

Treatment of Chlamydia

- Assuming GC has been excluded, **Doxy 100 mg po bid x 7d**
- In patients with both GC and Chlamydia, Ceftriaxone 500 mg IM x1 and doxy 100 mg po bid
- In patients with rectal Chlamydia, new data supports doxy 7d over azithromycin single dose
- Alternates to doxy include azithromycin 1g po x1 and levofloxacin 500 mg po x7d

<https://www.cdc.gov/std/treatment-guidelines/chlamydia.htm>

Screening Guidelines for MSM*

- Genital chlamydia (at least annually)
- Rectal chlamydia (if exposed at least annually)
- Genital gonorrhea (at least annually)
- Rectal gonorrhea (if exposed at least annually)
- Pharyngeal gonorrhea (if exposed at least annually)
- Syphilis (at least annually)
- HIV (at least annually if HIV negative)
- HAV (First visit)
- HBV (First visit)
- HCV (At least once if HIV neg, annually if HIV+*)

*sexually active

Screening STI in transgender & gender-diverse patients

- Transgender and gender-diverse persons — Gonorrhea and chlamydia screening recommendations should be adapted based on anatomy (ie, screening recommendations for cisgender females should be extended to all transgender males and gender-diverse people with a cervix).
- Screening at the pharyngeal and rectal site for gonorrhea and chlamydia should be considered based on reported sexual behaviors and exposure.
- Screening at other sites and for other pathogens depends on the specific sexual behavior, exposures, and anatomy

What about recurrent urethritis?

- **Mycoplasma genitalium** causes majority of cases of recurrent non-gonococcal urethritis
 - Doxy 100 mg po bid x 7 days f/b Moxifloxacin 400 mg po daily x 7d (this assumes no resistance test)
 - Increasing macrolide resistance
 - **Trichomonas vaginalis** + test in female rescreen after 3 months. NAAT testing more sensitive than wet mount
-

What else should you know?

- Pts diagnosed and treated for urethritis should abstain from sex for 7d after treatment (of patient and partner) and be retested at 3 months to detect repeat infection
 - Treatment of PID: Ceftriaxone 1g IV q24h 24-48h+ doxy 100 mg po bid + **mnz 500 mg po bid** x 14d
-

Which of the following patients is best suited for doxyPEP script based on CDC guidance?

- A) 21 yo heterosexual female with 3 new partners over the past 6 months and 1 episode of Chlamydia over the past year
 - B) 30 yo transgender male with syphilis diagnosed 6 months previously
 - C) 40 yo MSM on PREP with 1 episode of rectal GC over the past year
 - D) 50 yo bisexual male with multiple partners over the past 6 months but no STI's over the past year
-

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-

References

- CDC. Sexually transmitted diseases treatment guidelines, 2021 (on line)
 - Up to Date in Medicine: Screening for STD's (last update 2025)
-