



Sexually Transmitted Diseases (STDs)

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STD Risk and Oral Sex – CDC Fact Sheet

Fast Facts

- Many sexually transmitted diseases (STDs) spread through oral sex.
- Using a [condom](#), dental dam, or other barrier methods [the right way](#) every time you have oral sex can reduce the risk of giving or getting an STD.
- There is little to no risk of getting or transmitting HIV from oral sex.

What is Oral Sex?

Oral sex involves using the mouth to stimulate the genitals or genital area of a sex partner. Types of oral sex include the penis (fellatio), vagina (cunnilingus), and anus (anilingus).



85% of sexually active adults aged 18-44 years reported having had oral sex at least once with a partner of the opposite sex

Oral sex is commonly practiced by sexually active adults. More than 85% of sexually active adults aged 18-44 years reported having oral sex at least once with a partner of the opposite sex. A separate survey conducted during 2011 to 2015 found that 41% of teenagers aged 15-19 years reported having oral sex with a partner of the opposite sex.

Can STDs Spread During Oral Sex?



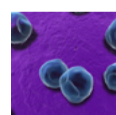
Yes. Many STDs and other infections are spread through oral sex. Anyone exposed to an infected partner can get an STD in the mouth, throat, genitals, or rectum. The risk of getting an STD or spreading an STD to others through oral sex depends on several things, including the particular STD, type of sex, and number of sex acts performed.

In general:

- It is possible to get some STDs in the mouth or throat after giving oral sex to a partner who has a genital or anal/rectal STD.
- It is possible to get certain STDs on the genitals and genital areas after receiving oral sex from a partner with a mouth or throat infection.
- It is possible to have an STD in more than one area at the same time. For example, you can have an STD in the throat and the genitals.
- Several STDs (i.e., syphilis, gonorrhea, and intestinal infections) that are transmitted by oral sex can spread in the body.
- Oral sex involving the anus (or anilingus) can transmit hepatitis A and B. It also can transmit intestinal parasites like *Giardia* and bacteria like *E.coli* and *Shigella*.
- If you have an STD, you might not know it because many STDs are **symptomless**. It is possible to spread STDs even when you don't have any signs or symptoms.

Which STDs Can Be Passed On from Oral Sex?

Chlamydia Gonorrhea Syphilis Herpes HPV (human papillomavirus) HIV Trichomoniasis



Chlamydia
(*Chlamydia trachomatis*)

Risk of infection from oral sex:

- Giving oral sex to a partner with an infected penis can cause chlamydia in the throat.
- Giving oral sex to a partner with an infected vagina or urinary tract may cause chlamydia in the throat.*
- Giving oral sex to a partner with an infected rectum might cause chlamydia in the throat.*
- Getting oral sex on the penis from a partner with chlamydia in the throat can cause chlamydia of the penis.
- Getting oral sex on the vagina from a partner with chlamydia in the throat might cause chlamydia of the vagina or urinary tract.*
- Getting oral sex on the anus from a partner with chlamydia in the throat might cause chlamydia in the rectum.*

* Statements with an asterisk (*) need more research.

Areas of initial infection:

- Throat
- Genitals

- Urinary tract
- Rectum

Initial signs and symptoms of infection:

- Most chlamydia infections in the throat have no symptoms. When symptoms are present, they can include a sore throat.
- Many genital, urinary tract, or rectal chlamydia infections have no symptoms. When symptoms are present, they can include:
 - Discharge from the vagina or penis (discharge from the vagina may be bloody)
 - Burning feeling when peeing
 - Painful or swollen testicles
 - Rectal pain or discharge

Treatment:

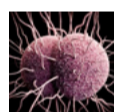
- The right medicine can cure [chlamydia](#).
- Sex partners of a person with chlamydia should also receive testing to ensure there is no infection. People with chlamydia should not have sex until 7 days after they and their sex partners receive and complete treatment.

If left untreated, throat infections:

- Can spread to sex partners who do not have the infection, often by performing oral sex on a male partner's penis.

If left untreated, genital, urinary and/or rectal infections:

- Can spread to uninfected sex partners.
- In women:
 - Can cause [pelvic inflammatory disease \(PID\)](#), which can lead to
 - chronic pelvic pain,
 - infertility, and
 - [ectopic pregnancy](#) (a pregnancy in the fallopian tube or outside of the womb)
- In [pregnant people](#):
 - Might result in premature birth or low birth weight in babies.
 - Can spread to the baby during delivery and cause infection in the eyes or respiratory tract.
- In men:
 - Can cause epididymitis, a painful condition of the ducts attached to the testicles that may lead to ductal scarring.
- In everyone:
 - May increase risk of getting [HIV infection](#).
 - Might increase risk of spreading HIV to sex partners.
 - May cause a reaction throughout the body known as reactive arthritis. This can lead to:
 - arthritis (joint pain)
 - conjunctivitis (pink eye)
 - a rash on the soles of the feet or elsewhere



Gonorrhea (*Neisseria gonorrhoeae*)

Risk of infection from oral sex:

- Giving oral sex to a partner with an infected penis can cause gonorrhea in the throat.
- Giving oral sex to a partner with an infected vagina or urinary tract might cause gonorrhea in the throat.*
- Giving oral sex to a partner with an infected rectum might cause gonorrhea in the throat.*
- Receiving oral sex on the penis from a partner with gonorrhea in the throat may cause gonorrhea of the penis.
- Receiving oral sex on the vagina from a partner with gonorrhea in the throat might cause gonorrhea of the vagina or urinary tract.*
- Receiving oral sex on the anus from a partner with gonorrhea in the throat might cause gonorrhea in the rectum.*

* *Statements with an asterisk (*) need more research.*

Areas of initial infection:

- Throat
- Genitals
- Urinary tract
- Rectum

Initial signs and symptoms of infection:

- Most gonorrhea infections in the throat have no symptoms. When symptoms are present, they can include a sore throat.
- Symptoms of genital, urinary tract, or rectal infection may include:
 - Discharge from vagina or penis (discharge from the vagina may be bloody)
 - Burning feeling when peeing
 - Painful or swollen testicles
 - Rectal pain or discharge

Treatment:

- [Gonorrhea](#) infections in the throat are harder to cure than genital or rectal infections but are treatable with antibiotics.
- Genital and rectal infections are curable with the right medicine.
- Sex partners of a person with gonorrhea should also receive testing to ensure there is no infection. Those with gonorrhea should not have sex until 7 days after they and their sex partners receive and complete treatment.

If left untreated, throat infections:

- Can be spread to sex partners who do not have the infection.

- Might spread through the body causing a rash and joint pain. This condition is disseminated gonococcal infection. A heart infection can also occur, which is a serious and potentially life-threatening condition.

If left untreated, genital, urinary and/or rectal infections:

- Can be spread to other sex partners.
- In women:
 - Can cause [pelvic inflammatory disease \(PID\)](#), which can lead to
 - chronic pelvic pain,
 - infertility, and [ectopic pregnancy](#) (a pregnancy in the fallopian tube or outside of the womb)
- In [pregnant people](#):
 - Might result in premature birth or low birth weight in babies.
 - Can spread to the baby during delivery, and can cause blindness, joint infection, or a life-threatening blood infection in the baby.
- In men:
 - Can cause epididymitis, a painful condition of the ducts attached to the testicles that may lead to ductal scarring.
- In everyone:
 - May increase risk of getting [HIV infection](#).
 - Might increase risk of spreading HIV to sex partners.
 - May spread through the body causing skin sores and joint pain. This condition is disseminated gonococcal infection. A heart infection can also occur, which is a serious and potentially life-threatening condition.



Syphilis (*Treponema pallidum*)

Risk of infection from oral sex:

- Giving oral sex to a partner with a syphilis sore or rash on the genitals or anus can cause syphilis.
- Receiving oral sex from a partner with a syphilis sore or rash on the lips or mouth, or in the throat, can cause syphilis.
- Another important factor that affects risk of spreading syphilis is how long your partner had syphilis.

Areas of initial infection:

- Lips
- Mouth
- Throat
- Genitals
- Anus
- Rectum

Initial signs and symptoms of infection:

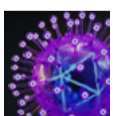
- May not have symptoms
- One or more painless ulcers or sores on the
 - lips, mouth, or throat
 - skin
 - on or near the genitals or anus
- Rash on trunk, palms of hands, and/or soles of feet
- Flu-like symptoms

Treatment:

- [Syphilis](#) is curable with the right medicine.
- Some past and current sex partners of a person with syphilis also should be tested for infection. Even if their syphilis test results are negative, some of these partners should still receive treatment.

If left untreated, syphilis:

- Can spread to others through contact with syphilis sores or rash.
- In [pregnant people](#):
 - Can spread to the baby during pregnancy
 - Can cause stillbirth (a baby born dead)
 - Babies that don't receive treatment may have developmental delays, seizures, or die
- In everyone:
 - Can increase risk of getting [HIV infection](#)
 - Can increase risk of spreading HIV to sex partners
 - May cause damage to internal organs, blindness, muscle weakness, dementia, and even death



Herpes (herpes simplex virus types 1 and 2)

Risk of infection from oral sex:

- Giving oral sex to a partner with herpes on the genital area, anus, buttocks, or in the rectum may cause oral herpes.
- Receiving oral sex from a partner with herpes on the lips, mouth, or in the throat can cause herpes on the genital area, anus, buttocks, or in the rectum.

Areas of infection:

- Lips
- Mouth
- Throat
- Genital area
- Anus
- Rectum

- Buttocks

Signs and symptoms of infection:

- May not have symptoms
- Headache or fever (during initial infection)
- Painful or itching sores at or near the area of infection

Treatment:

- There is no cure for a herpes, but [antiviral medicine](#) can shorten symptoms and decrease outbreaks.
- Daily antiviral medication can prevent or shorten herpes outbreaks.

Even with treatment, oral (lip, mouth and throat) infections:

- Can spread to others, including sex partners.

Even with treatment, genital area, buttock, anal, and/or rectal infections:

- Can spread to sex partners who do not have the infection.
- In [pregnant](#) people:
 - May spread to the baby during delivery, causing damage to the brain and internal organs and even death.
- In everyone:
 - Can increase risk of getting [HIV infection](#).
 - Can increase risk of giving HIV to sex partners.



HPV
(human papillomavirus)

Risk of infection from oral sex:

- Giving oral sex to a partner with an HPV-infected penis or genital area can cause HPV in the throat.
- Giving oral sex to a partner with an HPV-infected vagina or genital area can cause HPV in the throat.
- Giving oral sex to a partner with HPV on the anus or in the rectum may cause HPV in the throat.*
- Receiving oral sex from a partner with HPV in the throat might cause HPV on the genital area, anus, or rectum.*

** Statements with by an asterisk (*) need more research.*

Areas of infection:

- Mouth
- Throat
- Genital area
- Vagina
- Cervix
- Anus
- Rectum

Signs and symptoms of infection:

- May have no symptoms
- Warts in the throat (laryngeal or respiratory papillomatosis):
 - May cause changes in the voice, difficulty speaking, or shortness of breath
- Genital or anal warts
- Abnormal changes in cells of vagina, cervix, or anus found by clinical exams and tests ([Pap and/or HPV tests](#))
- Some types of HPV can lead to vaginal or cervical, anal, penile, head, and neck cancers

Vaccine:

- HPV vaccine protects against transmission of certain types of HPV. All boys and girls aged 11-12 should receive the vaccination, including everyone through age 26 if not vaccinated already. More details about HPV vaccination are available from CDC's [HPV website](#).

Treatment:

- Warts in the mouth and throat:
 - May disappear, stay the same, or grow in size or number
 - Surgery can remove warts in the throat
 - [Treatment](#) may reduce warts but does not cure HPV infection
- Genital and anal warts:
 - May go away on their own, stay the same, or grow in size or number
 - Treatments include medicines to apply on warts, freezing the warts (cryotherapy), or surgery to remove the warts
 - Treatment may reduce warts but does not cure HPV infection
- Abnormal changes in cells of vagina, cervix, or anus:
 - May need more clinical exams and tests ([Pap and/or HPV tests](#))
 - Other procedures include biopsy (taking a small sample of tissue) and/or removal of abnormal tissue, depending on age, pregnancy status, and test results

Even with treatment, warts in the throat:

- Might be spread to sex partners who do not have the infection.
- May have recurrences (recurrent respiratory papillomatosis).

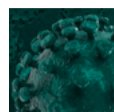
Even with treatment, genital and anal warts:

- Can spread to sex partners who do not have the infection.
- May return but will not develop into cancer.

Mouth and throat infections by *several types of HPV that do not cause warts* may develop into head or neck cancer.

Abnormal changes in cells of vagina or anus:

- Might develop into cancer. Although some women have abnormal [Pap and/or HPV test results](#), few get cervical cancer if they get the right follow-up and treatment.



HIV (human immunodeficiency virus)

Risk of infection from oral sex:

- Giving oral sex on the penis of a partner with HIV can cause HIV. The risk of infection is lower than the risks from vaginal or anal sex.
- Giving oral sex on the vagina of a partner with HIV may cause HIV. The risk of infection is thought to be very low.
- Giving oral sex on the anus of a partner with HIV may cause HIV. There are few reports of transmission from this type of oral sex.
- Receiving oral sex on the penis from a partner with HIV may cause HIV. This risk is thought to be very low and has not been well studied.
- Receiving oral sex on the vagina from a partner with HIV might cause HIV. This risk is thought to be extremely low and has not been well studied.
- Receiving oral sex on the anus from a partner with HIV might cause HIV. There are few reports of transmission from this type of oral sex.
- The virus level (or viral load) in an infected partner's blood and other body fluids during a sexual encounter. An undetectable HIV viral load eliminates the risk of spreading HIV from oral sex.

Areas of infection:

- Infection of the immune system throughout the body.

Initial signs and symptoms of infection:

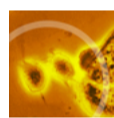
- May have no symptoms for many years
- Flu-like symptoms

Treatment

- There is no cure for HIV, but antiviral and other medicines can help people live longer with a better quality of life.

Even with treatment, HIV infection:

- Can increase the risk of getting certain infections and cancers



Trichomoniasis (infection with *T. vaginalis*)

Risk of infection from oral sex:

- Giving oral sex to a partner with the infection in their genitals might cause trichomoniasis of the throat. There are few reports of potential spread from oral sex.
- Spread of trichomoniasis by other oral sex practices has not been reported.

Areas of initial infection

- Vagina
- Penis
- Mouth/throat (possibly)

Initial signs and symptoms of infection

- Infections of the genitals or urinary tract may have no symptoms, especially in men
- Symptoms of genital or urinary tract infection can include:
 - Discharge from vagina or penis
 - Vaginal area redness
 - Vaginal itching
 - Burning feeling when peeing

Treatment

- Is curable with right
- The sex partners of people with trichomoniasis should receive testing to ensure there is no infection. Those with trichomoniasis should not have sex until they and their sex partners complete treatment.

If left untreated, genital or urinary infections:

- Can spread to sex partners who do not have the infection

Is Oral Sex Safer than Vaginal or Anal Sex?

- It is difficult to compare the risks of getting specific STDs from specific types of sexual activity.
 - Most people who have oral sex also have vaginal or anal sex.
 - Few studies look at the risks of getting STDs, other than HIV, from giving oral sex on the vagina or anus, compared to the penis.
- Studies show the risk of getting HIV from oral sex (giving or receiving) with a partner who has the infection is much lower than the risk of getting HIV from anal or vaginal sex. This may not be true for other STDs.
 - In a study of gay men with syphilis, 1 out of 5 reported having only oral sex.



- Getting HIV from oral sex may be extremely low, but it is hard to know the exact risk. If you are having oral sex you should protect yourself.
- It is possible that getting certain STDs in the throat like chlamydia or gonorrhea may not be as harmful as getting an STD in the genital area or rectum. Having these infections in the throat might increase the risk of getting HIV. Having gonorrhea in the throat also may lead to the spread of disease throughout the body. In addition:
 - Having infections of chlamydia and gonorrhea in the throat may make it easier to spread these infections to others through oral sex. This is especially important for gonorrhea, since throat infections can be harder to treat.
 - Infections from certain STDs, such as syphilis and HIV, spread throughout the body. Therefore, infections acquired in the throat may lead to the same health problems as infections acquired in the genitals or rectum.
 - Mouth and throat infections by certain types of HPV may develop into oral or neck cancer.

What May Increase the Chances of Giving or Getting an STD through Oral Sex?

Certain factors may increase a person's chances of getting HIV or other STDs during oral sex if exposed to an infected partner. Factors like:

- Poor oral health, which can include tooth decay, gum disease or bleeding gums, and oral cancer.
- Sores in the mouth or on the genitals.
- Exposure to the "pre-cum" or "cum" (also known as pre-ejaculate or ejaculate).

However, there are no scientific studies that show whether these factors increase the risk of getting HIV or STDs from oral sex.

What Can You Do to Prevent STD Transmission During Oral Sex?

You can lower your chances of giving or getting STDs during oral sex. Use a condom, dental dam or other barrier methods every time you have oral sex.

- For oral sex on the penis:
 - Cover the penis with a non-lubricated latex condom.
 - Use plastic (polyurethane) condoms if you or your partner is allergic to latex.
- For oral sex on the vagina or anus:
 - Use a dental dam.
 - Cut open a condom to make a square and put it between your mouth and your partner's vagina or anus.

The only way to avoid STDs is to not have vaginal, anal, or oral sex.

If you are having sex, you can lower your chances of getting an STD by:

- Being in a long-term mutually monogamous relationship with a partner who does not have an STD (e.g., a partner with negative STD test results).
- Using latex condoms [the right way](#) every time you have sex.

It's important to remember that many people with an STD may be unaware of their infection. STDs often have no symptoms and are unrecognized.

If you are having sex, ask your healthcare provider to test you regularly for STDs and HIV. Talk openly with your provider about activities that might put you at risk for an STD, including oral sex. You also should talk to your partner(s) about STDs. [Free and low-cost options for testing are available in your area.](#) [↗](#)

References ▼

Patel et al. AIDS. 2014 Jun 19; 28(10): 1509–1519.

Habel MA, Leichter JS, Dittus PJ, Spicknall IH, Aral SO. Heterosexual Anal and Oral Sex in Adolescents and Adults in the United States, 2011–2015. *Sex Transm Dis.* 2018 Dec;45(12):775–782.

Chandra A, Mosher WD, Copen C, Sionean C. Sexual behavior, sexual attraction, and sexual identity in the United States: data from the 2006–2008 National Survey of Family Growth. 36, 1–36. 2011. Hyattsville, MD, National Center for Health Statistics. National health statistics reports.

Copen CE, Chandra A, Febo-Vazquez I. Sexual behavior, sexual attraction, and sexual orientation among adults aged 18–44 in the United States: data from the 2011–2013 National Survey of Family Growth. 88, 1–13. 2016. Hyattsville, MD, National Center for Health Statistics. National health statistics reports.

Sparling PF, Swartz MN, Musher DM, Healy BP. Clinical Manifestations of Syphilis. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;662–684.

Dooley SW, Thrun M. HIV Transmission Prevention in the Context of Care. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1362–1392.

Centers for Disease Control and Prevention. Questions and answers on the use of HIV medications to help prevent the transmission of HIV. 4-13-2010. 2-7-2012.

Jones RB, Rabinovitch RA, Katz BP et al. Chlamydia trachomatis in the pharynx and rectum of heterosexual patients at risk for genital infection. *Annals of Internal Medicine* 1985;102:757–762.

Templeton DJ, Jin F, Imrie J et al. Prevalence, incidence and risk factors for pharyngeal chlamydia in the community based Health in Men (HIM) cohort of homosexual men in Sydney, Australia. *Sexually Transmitted Infections* 2008;84:361–363.

Wikstrom A, Rotzen-Ostlund M, Markowitz E. Occurrence of pharyngeal Chlamydia trachomatis is uncommon in patients with a suspected or confirmed genital infection. *Acta Obstetrica et Gynecologica* 2010;89:78–81.

Benn PD, Rooney G, Carder C et al. Chlamydia trachomatis and Neisseria gonorrhoeae infection and the sexual behaviour of men who have sex with men. *Sexually Transmitted Infections* 2007;83:106–112.

Bradshaw CS, Tabrizi SN, Read TRH et al. Etiologies of nongonococcal urethritis: bacteria, viruses and the association with orogenital exposure. *Journal of Infectious Diseases* 6 A.D.;193:336–345.

Jin F, Prestage GP, Mao L et al. Incidence and risk factors for urethral and anal gonorrhoea and chlamydia in a cohort of HIV-negative homosexual men: the Health in Men Study. *Sexually Transmitted Infections* 2007;83:113–119.

- Bernstein KT, Stephens SC, Barry PM et al. Chlamydia trachomatis and Neisseria gonorrhoeae transmission from the oropharynx to the urethra among men who have sex with men. *Clinical Infectious Diseases* 2009;49:1793-1797.
- Lafferty WE, Hughes JP, Handsfield HH. Sexually transmitted diseases in men who have sex with men. Acquisition of gonorrhea and nongonococcal urethritis by fellatio and implications for STD/HIV prevention. *Sexually Transmitted Diseases* 1997;24:272-278.
- Stamm WE. Chlamydia trachomatis Infections of the Adult. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;575-593.
- Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2010. *Morbidity & Mortality Weekly Report* 2010;59:1-110.
- Paavonen J, Westrom L, Eschenbach D. Pelvic Inflammatory Disease. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1017-1050.
- Hitti J, Watts DH. Bacterial Sexually Transmitted Infections in Pregnancy. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1529-1561.
- Kohlhoff SA, Hammerschlag MR. Gonococcal and Chlamydial Infections in Infants and Children. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1613-1627.
- Geisler WM, Krieger JN. Epididymitis. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1127-1145.
- Berman SM, Cohen MS. STD Treatment: How Can It Improve HIV Prevention in the South? *Sexually Transmitted Diseases* 2006;33:850-857.
- Rottingen JA, Cameron DW, Garnett GP. A systematic review of the epidemiologic interactions between classic sexually transmitted diseases and HIV: how much really is known?. [Review] [147 refs]. *Sexually Transmitted Diseases* 2001;28:579-597.
- Fleming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. [Review] [81 refs]. *Sexually Transmitted Infections* 1999;75:3-17.
- World Health Organization. Consultation on STD interventions for preventing HIV: what is the evidence? 1-54. 2000. UNAIDS/00.06E, WHO/HIS/2000.02. 2-19-2010.
- Colven R. Generalized Cutaneous Manifestations of STD and HIV Infection: Typical Presentations, Differential Diagnosis, and Management. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1177-1197.
- Murray AB, Greenhouse PR, Nelson WL, Norman JE, Jeffries DJ, Anderson J. Coincident acquisition of Neisseria gonorrhoeae and HIV from fellatio. *Lancet* 1991;338:830.
- Wong ML, Chan RK. A prospective study of pharyngeal gonorrhoea and inconsistent condom use for oral sex among female brothel-based sex workers in Singapore. *International Journal of STD & AIDS* 1999;10:595-599.
- Morris SR, Klausner JD, Buchbinder SP et al. Prevalence and incidence of pharyngeal gonorrhea in a longitudinal sample of men who have sex with men: the EXPLORE study. *Clinical Infectious Diseases* 2006;43:1284-1289.
- Sackel SG, Alpert S, Fiumara NJ, Donner A, Laughlin CA, McCormack WM. Orogenital Contact and the Isolation of Neisseria gonorrhoeae, Mycoplasma hominis, and Ureaplasma urealyticum from the Pharynx. *Sexually Transmitted Diseases* 1979;6:64-68.
- Wong ML, Chan RK, Koh D. Promoting condoms for oral sex: impact on pharyngeal gonorrhea among female brothel-based sex workers. *Sexually Transmitted Diseases* 2002;29:311-318.
- Castor D, Jolly PE, Furlonge C et al. Determinants of gonorrhoea infection among STD clinic attenders in Trinidad – II: Sexual behavioural factors. *International Journal of STD & AIDS* 2002;13:46-51.
- Hook EW, III, Handsfield HH. Gonococcal Infections in the Adult. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;627-645.
- Jin F, Prestage GP, Imrie J et al. Anal Sexually Transmitted Infections and Risk of HIV Infection in Homosexual Men. *Journal of Acquired Immune Deficiency Syndromes: JAIDS* 2010;53:144-149.
- Weir SS, Feldblum PJ, Roddy RE, Zekeng L. Gonorrhea as a risk factor for HIV acquisition. *AIDS* 1994;8:1605-1608.
- Peterman TA, Furness BW. The resurgence of syphilis among men who have sex with men. [Review] [65 refs]. *Current Opinion in Infectious Diseases* 2007;20:54-59.
- Centers for Disease Control and Prevention (CDC). Transmission of primary and secondary syphilis by oral sex—Chicago, Illinois, 1998-2002. *MMWR – Morbidity & Mortality Weekly Report* 2004;53:966-968.
- Houriham M, Wheeler H, Houghton R, Goh BT. Lessons from the syphilis outbreak in homosexual men in east London. *Sexually Transmitted Infections* 2004;80:509-511.
- Imrie J, Lambert N, Mercer CH et al. Refocusing health promotion for syphilis prevention: results of a case-control study of men who have sex with men on England's south coast. *Sexually Transmitted Infections* 2006;82:80-83.
- Simms I, Fenton KA, Ashton M et al. The re-emergence of syphilis in the United Kingdom: the new epidemic phases. *Sexually Transmitted Diseases* 2005;32:220-226.
- Campos-Outcalt D, Hurwitz S. Female-to-female transmission of syphilis: a case report. *Sexually Transmitted Diseases* 2002;29:119-120.
- Ditzen AK, Braker K, Zoellner KH, Teichmann D. The syphilis-HIV interdependency. *International Journal of STD & AIDS* 2005;16:642-643.
- McCall MB, van Lith-Verhoeven JJ, van CR et al. Ocular syphilis acquired through oral sex in two HIV-infected patients. *Netherlands Journal of Medicine* 2004;62:206-208.
- Jin F, Prestage GP, Kippax SC et al. Epidemic syphilis among homosexually active men in Sydney.[see comment]. *Medical Journal of Australia* 2005;183:179-183.
- Shafii T, Radolf JD, Sanchez PJ, Schulz KF, Murphy KF. Congenital Syphilis. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1577-1612.
- Jin F, Prestage GP, Mao L et al. Transmission of herpes simplex virus types 1 and 2 in a prospective cohort of HIV-negative gay men: the health in men study. *Journal of Infectious Diseases* 2006;194:561-570.
- Lafferty WE, Coombs RW, Benedetti J, Critchlow C, Corey L. Recurrences after oral and genital herpes simplex virus infection. Influence of site of infection and viral type. *New England Journal of Medicine* 1987;316:1444-1449.

- Lafferty WE, Downey L, Celum C, Wald A. Herpes simplex virus type 1 as a cause of genital herpes: impact on surveillance and prevention. *Journal of Infectious Diseases* 2000;181:1454-1457.
- Lowhagen GB, Tunback P, Andersson K, Bergstrom T, Johannisson G. First episodes of genital herpes in a Swedish STD population: a study of epidemiology and transmission by the use of herpes simplex virus (HSV) typing and specific serology. *Sexually Transmitted Infections* 2000;76:179-182.
- Corey L, Wald A. Genital Herpes. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;399-437.
- Whitley RJ. Herpes Simplex Virus. In: Wallace RB, ed. *Public Health and Preventive Medicine*. The McGraw-Hill Companies, Inc.; 2008.
- Coyle PV, O'Neill HJ, Wyatt DE, McCaughey C, Quah S, McBride MO. Emergence of herpes simplex type 1 as the main cause of recurrent genital ulcerative disease in women in Northern Ireland. *Journal of Clinical Virology* 2003;27:22-29.
- Lowhagen GB, Tunback P, Bergstrom T. Proportion of herpes simplex virus (HSV) type 1 and type 2 among genital and extragenital HSV isolates. *Acta Dermato-Venereologica* 2002;82:118-120.
- Bradford RD, Whitley RL, Stagno S. Herpesvirus Infections in Neonates and Children: Cytomegalovirus and Herpes Simplex Virus. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1629-1658.
- Smith EM, Ritchie JM, Summersgill KF et al. Age, sexual behavior and human papillomavirus infection in oral cavity and oropharyngeal cancers. *International Journal of Cancer* 2004;108:766-772.
- Kashima HK, Shah F, Lyles A et al. A comparison of risk factors in juvenile-onset and adult-onset recurrent respiratory papillomatosis. *Laryngoscope* 1992;102:9-13.
- D'Souza G, Kreimer AR, Viscidi R et al. Case-control study of human papillomavirus and oropharyngeal cancer. *New England Journal of Medicine* 2007;356:1944-1956.
- Coutlee F, Trottier AM, Ghattas G et al. Risk factors for oral human papillomavirus in adults infected and not infected with human immunodeficiency virus. *Sexually Transmitted Diseases* 1997;24:23-31.
- Dahlstrom KR, Li G, Tortolero-Luna G, Wei Q, Sturgis EM. Differences in history of sexual behavior between patients with oropharyngeal squamous cell carcinoma and patients with squamous cell carcinoma at other head and neck sites. *Head & Neck* 2010;33:847-855.
- D'Souza G, Agrawal Y, Halpern J, Bodison S, Gillison ML. Oral sexual behaviors associated with prevalent oral human papillomavirus infection. *Journal of Infectious Diseases* 2009;199:1263-1269.
- Kreimer AR, Alberg AJ, Daniel R et al. Oral human papillomavirus infection in adults is associated with sexual behavior and HIV serostatus. *Journal of Infectious Diseases* 2004;189:686-698.
- Kreimer AR, Alberg AJ, Viscidi R, Gillison ML. Gender differences in sexual biomarkers and behaviors associated with human papillomavirus-16, -18, and -33 seroprevalence. *Sexually Transmitted Diseases* 2004;31:247-256.
- Rintala M, Grenman S, Puranen M, Syrjanen S. Natural history of oral papillomavirus infections in spouses: a prospective Finnish HPV Family Study. *Journal of Clinical Virology* 2006;35:89-94.
- Clarke J, Terry RM, Lacey CJ. A study to estimate the prevalence of upper respiratory tract papillomatosis in patients with genital warts. *International Journal of STD & AIDS* 1991;2:114-115.
- Aaltonen LM, Cajanus S, Back L, Nieminen P, Paavonen J, Ranki A. Extralaryngeal HPV infections in male patients with adult-onset laryngeal papillomatosis. *European Archives of Oto-Rhino-Laryngology* 2005;262:708-712.
- Gillison ML, Broutian T, Pickard RKL et al. Prevalence of oral HPV infection in the United States, 2009-2010. *JAMA* 2012;307:E1-E11.
- Winer RL, Koutsky LA. Genital Human Papillomavirus Infection. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;489-508.
- Castro TP, Bussoloti F, I. Prevalence of human papillomavirus (HPV) in oral cavity and oropharynx. [Review] [82 refs]. *Revista Brasileira de Otorrinolaringologia* 2006;72:272-282.
- Miller CS, White DK. Human papillomavirus expression in oral mucosa, premalignant conditions, and squamous cell carcinoma: a retrospective review of the literature. [Review] [99 refs]. *Oral Surgery Oral Medicine Oral Pathology Oral Radiology & Endodontics* 1996;82:57-68.
- Terai M, Hashimoto K, Yoda K, Sata T. High prevalence of human papillomaviruses in the normal oral cavity of adults. *Oral Microbiology & Immunology* 1999;14:201-205.
- Derkey CS, Darrow DH. Recurrent respiratory papillomatosis. [Review] [63 refs]. *Annals of Otolaryngology, Rhinology & Laryngology* 2006;115:1-11.
- Derkey CS. Recurrent respiratory papillomatosis. [Review] [39 refs]. *Laryngoscope* 2001;111:57-69.
- Hawes SE, Kiviat NB. Screening for Cervical Cancer. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1075-1104.
- Balasubramanian A, Palefsky JM, Koutsky LA. Cervical Neoplasia and Other STD-Related Genital Tract Neoplasias. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1051-1074.
- Datta DS, Dunne E, Saraiya M, Unger E, Markowitz L. Human Papillomavirus. In: Roush SW, McIntyre L, Baldy LM, eds. *Manual for the Surveillance of Vaccine-Preventable Diseases*. Fourth ed. Atlanta, GA: Centers of Disease Control and Prevention; 2008;1-10.
- Markowitz LE, Dunne EF, Saraiya M, et al. Use of 9-valent human papillomavirus (HPV) vaccination: updated HPV vaccination recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR – Morbidity & Mortality Weekly Report. Recommendations and Reports*. 2014;63(RR05):1-30.
- Petrosky E, Bocchini Jr JA, Hariri S, et al. Human papillomavirus vaccination: recommendations of the Advisory Committee on Immunization Practices. *MMWR – Morbidity & Mortality Weekly Report*. 2015;64(11):300-304
- Derkey CS, Wiatrak B. Recurrent respiratory papillomatosis: a review. [Review] [106 refs]. *Laryngoscope* 2008;118:1236-1247.
- Ragin CC, Modugno F, Gollin SM. The epidemiology and risk factors of head and neck cancer: a focus on human papillomavirus. [Review] [152 refs]. *Journal of Dental Research* 2007;86:104-114.
- Kreimer AR, Clifford GM, Boyle P, Franceschi S. Human papillomavirus types in head and neck squamous cell carcinomas worldwide: a systematic review. [Review] [31 refs]. *Cancer Epidemiology, Biomarkers & Prevention* 2005;14:467-475.

- Gillison ML. Human papillomavirus-related diseases: oropharynx cancers and potential implications for adolescent HPV vaccination. [Review] [99 refs]. *Journal of Adolescent Health* 2008;43:Suppl-60.
- Centers for Disease Control and Prevention. Making Sense of Your Pap and HIV Test Results. *Centers for Disease Control and Prevention* [serial online] 2008; Available from: Centers for Disease Control and Prevention. Accessed February 25, 2010.
- National Cancer Institute. Pap Test Fact Sheet. *National Cancer Institute* [serial online] 2009; Available from: National Cancer Institute. Accessed February 25, 2010.
- Keet IP, brecht van LN, Sandfort TG, Coutinho RA, van Griensven GJ. Orogenital sex and the transmission of HIV among homosexual men. *AIDS* 1992;6:223-226.
- del Romero J., Marincovich B, Castilla J et al. Evaluating the risk of HIV transmission through unprotected orogenital sex. *AIDS* 2002;16:1296-1297.
- de Vincenzi I. A longitudinal study of human immunodeficiency virus transmission by heterosexual partners. European Study Group on Heterosexual Transmission of HIV. *New England Journal of Medicine* 1994;331:341-346.
- Page-Shafer K, Shiboski CH, Osmond DH et al. Risk of HIV infection attributable to oral sex among men who have sex with men and in the population of men who have sex with men. *AIDS* 2002;16:2350-2352.
- Samuel MC, Hessel N, Shiboski S, Engel RR, Speed TP, Winkelstein W, Jr. Factors associated with human immunodeficiency virus seroconversion in homosexual men in three San Francisco cohort studies, 1984-1989. *Journal of Acquired Immune Deficiency Syndromes* 1993;6:303-312.
- Vittinghoff E, Douglas J, Judson F, McKirnan D, MacQueen K, Buchbinder SP. Per-contact risk of human immunodeficiency virus transmission between male sexual partners. *American Journal of Epidemiology* 1999;150:306-311.
- Lavoie E, Alary M, Remis RS et al. Determinants of HIV seroconversion among men who have sex with men living in a low HIV incidence population in the era of highly active antiretroviral therapies. *Sexually Transmitted Diseases* 2008;35:25-29.
- Schacker T. The role of HSV in the transmission and progression of HIV. [Review] [45 refs]. *Herpes* 2001;8:46-49.
- van Griensven GJ, Tielman RA, Goudsmit J et al. Risk factors and prevalence of HIV antibodies in homosexual men in the Netherlands. *American Journal of Epidemiology* 1987;125:1048-1057.
- Raiteri R, Fora R, Sinicco A. No HIV-1 transmission through lesbian sex. *Lancet* 1994;344:270.
- Darrow WW, Echenberg DF, Jaffe HW et al. Risk factors for human immunodeficiency virus (HIV) infections in homosexual men. *American Journal of Public Health* 1987;77:479-483.
- Moir S, Chun T-W, Fauci AS. Immunology and Pathogenesis of Human Immunodeficiency Virus Infection. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;341-358.
- Coombs RW. Clinical Laboratory Diagnosis of HIV-1 and Use of Viral RNA to Monitor Infection. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1329-1347.
- Eron JJ, Hirsch MS. Antiviral Therapy of Human Immunodeficiency Virus Infection. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1393-1421.
- Kaplan JE, Masur H. Preventing Opportunistic Infections Among HIV-Infected Persons. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1423-1440.
- Decker CF, Masur H. Clinical Management of HIV Infection: Management of Opportunistic Infections. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1441-1467.
- Cornett PA, Volberding P. AIDS-Related Malignancies. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1470-1421.
- Press N, Chavez VM, Ticona E et al. Screening for sexually transmitted diseases in human immunodeficiency virus-positive patients in Peru reveals an absence of Chlamydia trachomatis and identifies Trichomonas vaginalis in pharyngeal specimens. *Clinical Infectious Diseases* 2001;32:808-814.
- Hobbs MM, Sena AC, Swygard H, Schwebke JR. Trichomonas vaginalis and Trichomoniasis. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;771-793.
- Lemon SM, Lok A, Alter MJ. Viral Hepatitis. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;509-543.
- Centers for Disease Control and Prevention. *Shigella sonnei* Outbreak Among Men Who Have Sex with Men — San Francisco, California, 2000–2001. *MMWR – Morbidity & Mortality Weekly Report* 2001;50:922-926.
- Aragon TJ, Vugia DJ, Shallow S et al. Case-control study of shigellosis in San Francisco: the role of sexual transmission and HIV infection. *Clin Infect Dis* 2007;44:327-334.
- Rompalo AM, Quinn TC. Sexually Transmitted Intestinal Syndromes. In: Holmes KK, Sparling PF, Stamm WE et al., eds. *Sexually Transmitted Diseases*. Fourth ed. New York: McGraw-Hill; 2008;1277-1308.
- Salit IE, Khairnar K, Gough K, Pillai DR. A possible cluster of sexually transmitted Entamoeba histolytica: genetic analysis of a highly virulent strain. *Clin Infect Dis* 2009;49:346-353.
- Stark D, van Hal SJ, Matthews G, Harkness J, Marriott D. Invasive amebiasis in men who have sex with men, Australia. *Emerging Infectious Diseases* 2008;14:1141-1143.
- Baggaley RF, White RG, Boily MC. Systematic review of orogenital HIV-1 transmission probabilities. [Review] [29 refs]. *International Journal of Epidemiology* 2008;37:1255-1265.
- Bratt GA, Berglund T, Glantzberg BL, Albert J, Sandstrom E. Two cases of oral-to-genital HIV-1 transmission. *International Journal of STD & AIDS* 1997;8:522-525.
- Edwards S, Carne C. Oral sex and the transmission of viral STIs. [Review] [99 refs]. *Sexually Transmitted Infections* 1998;74:6-10.
- Edwards SK, White C. HIV seroconversion illness after orogenital contact with successful contact tracing. *International Journal of STD & AIDS* 1995;6:50-51.
- Lifson AR, O'Malley PM, Hessel NA, Buchbinder SP, Cannon L, Rutherford GW. HIV seroconversion in two homosexual men after receptive oral intercourse with ejaculation: implications for counseling concerning safe sexual practices. *American Journal of Public Health* 1990;80:1509-1511.
- Varghese B, Maher JE, Peterman TA, Branson BM, Steketee RW. Reducing the risk of sexual HIV transmission: quantifying the per-act risk for HIV on the basis of choice of partner, sex act, and condom use. *Sexually Transmitted Diseases* 2002;29:38-43.

Weinstock H, Workowski KA. Pharyngeal gonorrhea: an important reservoir of infection? *Clinical Infectious Diseases* 2009;49:1798-1800.

Robinson EK, Evans BG. Oral sex and HIV transmission. [Review] [16 refs]. *AIDS* 1999;13:737-738.

Rothenberg RB, Scarlett M, del RC, Reznik D, O'Daniels C. Oral transmission of HIV. [Review] [126 refs]. *AIDS* 1998;12:2095-2105.

Hawkins DA. Oral sex and HIV transmission. *Sexually Transmitted Infections* 2001;77:307-308.

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