

*A Practical Approach to STD
Screening & Treatment in
College Students*

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- The CDC estimates that 19 million Sexually Transmitted Infections (STI's) occur each year, almost half of them among young people ages 15 to 24.
- Providing access to health care for this group requires a fundamental knowledge of common STI's and corresponding diagnostic procedures.
- Knowledge can create a comfort level for health care professionals, educators, medical records personnel and those who schedule health service appointments.
- This presentation will examine the most common STI's among college students, i.e. HPV, HSV, Chlamydia and Gonorrhea, with a focus on screening and diagnosis.

Chlamydia & Gonorrhea Overview

- Almost 3 million new **Chlamydia** infections occur each year in the U.S., making it the most frequently reported infectious disease with prevalence highest in people ≤ 25 years old.
- An estimated 600,000 new **Gonorrhea** infections occur each year. Gonorrhea is the second most commonly reported bacterial STD.
- Chlamydia or gonorrhea can cause complications such as: urethritis, cervicitis, pelvic inflammatory disease (PID), ectopic pregnancy, infertility, and chronic pelvic pain in women. In men: urethritis, acute epididymitis, infertility, chronic prostatitis, and urethral strictures.

Transmission of Chlamydia and Gonorrhea

- Vaginal
- Anal
- Oral sex
- These STI's can also be spread from mother to baby during delivery.

Signs and symptoms

Chlamydia

- 70- 90% of women and 50% of men are **asymptomatic**.
- Symptoms appear in 1-2 weeks
- Female, symptoms:
 - abnormal vaginal discharge
 - burning sensation when urinating.
 - With PID:
 - abdominal or back pain, nausea, fever, dysparunia, BTB.
- Male symptoms:
 - Clear to cloudy discharge
 - Dysuria or burning/itching at urethral meatus
 - Testicular pain uncommon.
- Rectal pain, discharge, or bleeding.

Gonorrhoea

- May be **asymptomatic**.
- Symptoms usually in 2 to 10 days, but can be up to 30 days.
- Female, early symptoms mild:
 - Bleeding with vaginal intercourse
 - Dysuria
 - Yellow or bloody vaginal discharge
 - With PID:
 - cramps and pain, BTB, vomiting, fever
- Male symptoms:
 - White, yellow, or green discharge
 - Dysuria that may be severe
 - Swollen or painful testicles
- Rectal discharge, itching, bleeding, or painful bowel movements.

Chlamydia



Gonorrhoea



Cervicitis with Chlamydia

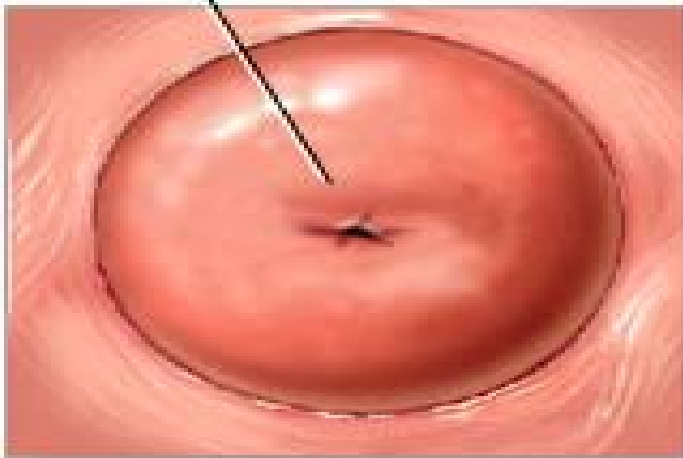


Melbourne Sexual Health Centre - www.mshc.org.au

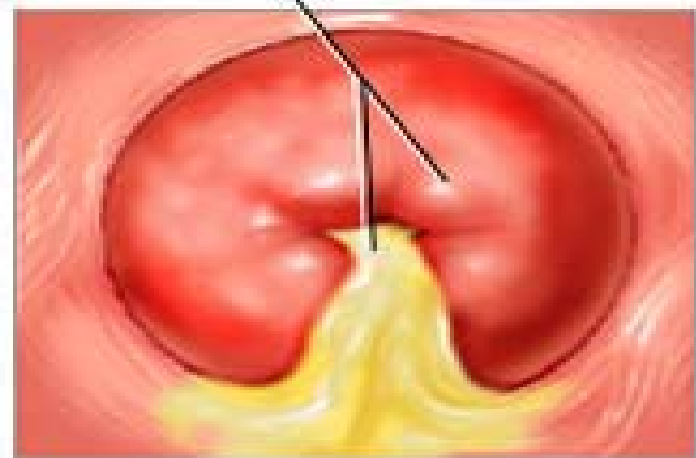
Cervicitis with Gonorrhea

Cervicitis symptoms include a red and inflamed cervix with an unusual discharge

Normal cervix



Cervicitis



Testing

- Gen-Probe
 - endocervical and urethral swab test for *C. trachomatis* and *N. gonorrhoeae*
- Urine test
- Culture
- Gram stain

Chlamydia Treatment

Recommended Regimens

Azithromycin 1 g orally in a single dose

OR

Doxycycline 100 mg orally twice a day for 7 days

Alternative Regimens

Erythromycin base 500 mg orally four times a day for 7 days

OR

Erythromycin ethylsuccinate 800 mg orally four times a day for 7 days

OR

Ofloxacin 300 mg orally twice a day for 7 days

OR

Levofloxacin 500 mg orally once daily for 7 days

Uncomplicated Gonococcal Infections

*Recommended Regimens**

Ceftriaxone 125 mg IM in a single dose

OR

Cefixime 400 mg orally in a single dose

OR

Ciprofloxacin 500 mg orally in a single dose*

OR

Ofloxacin 400 mg orally in a single dose*

OR

Levofloxacin 250 mg orally in a single dose*

*Recommended Regimens for MSM or Heterosexuals with a History of Recent Travel**

Ceftriaxone 125 mg IM in a single dose

OR

Cefixime 400 mg orally in a single dose

* Quinolones should not be used for infections in MSM or in those with a history of recent foreign travel or partners' travel, infections acquired in California or Hawaii, or infections acquired in other areas with increased QRNG prevalence.

Management of Partners

- Partners from the past 60 days should be evaluated and treated for Gonorrhea and/or Chlamydia trachomatis. If last sexual contact was more than 60 days, treat the most recent partner.
- Abstain from all sexual intercourse until all partners have completed treatment. Abstinence should be continued until 7 days after a single-dose regimen or after completion of a 7-day regimen.
- Patient-delivered therapy.

Prevention

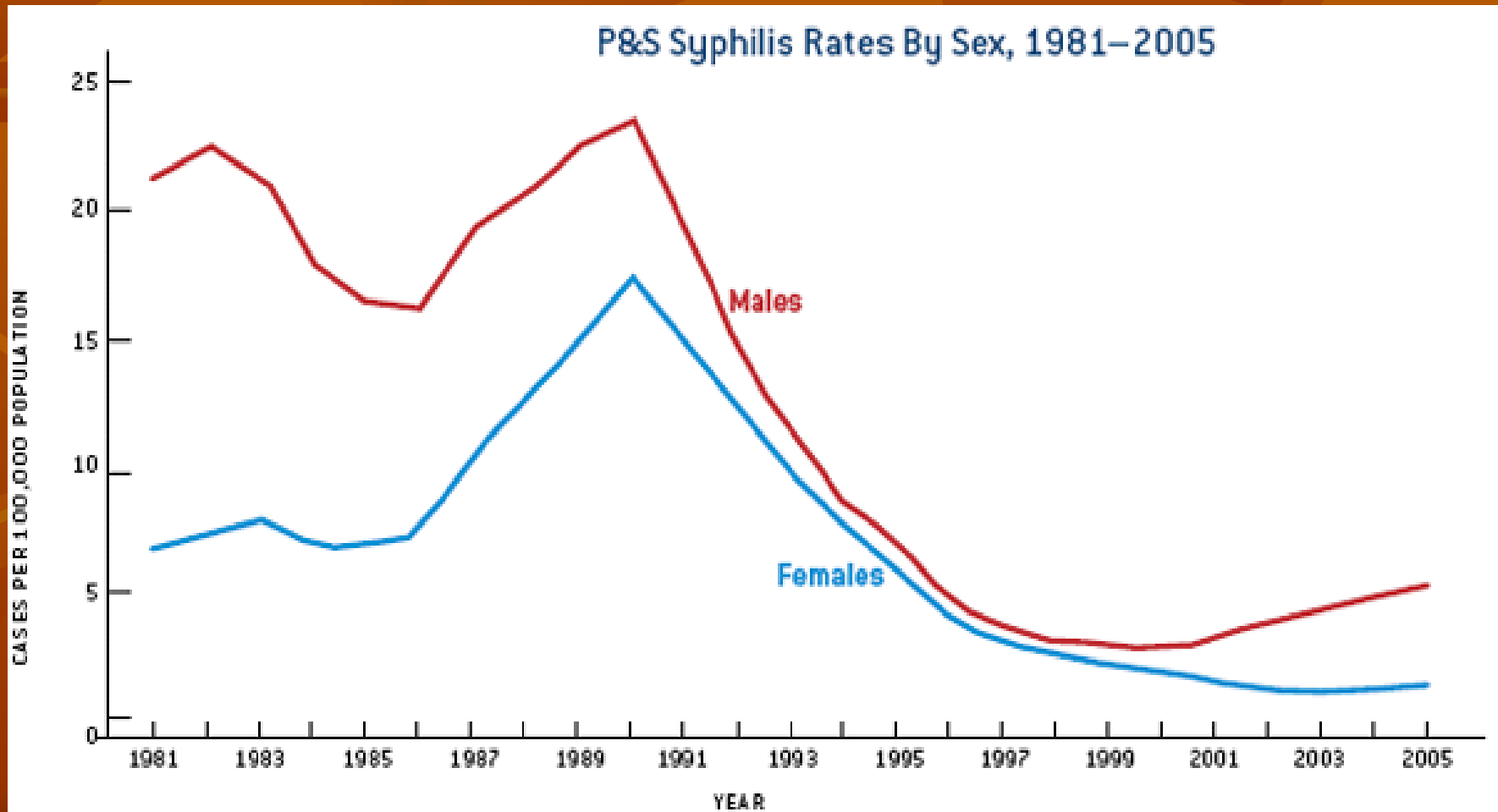
- The surest way to avoid transmission of sexually transmitted diseases is to **abstain** from sexual contact.
- Or be in a long-term **mutually monogamous** relationship with a partner who has been tested and is known to be uninfected.
- Or use latex or polyurethane **condoms** or barriers.
- 48.9% of college students reported condom use at last vaginal intercourse.*

The U.S. Preventive Services Task Force (USPSTF) recommends:

- Screen all at risk sexually active women for **gonorrhea**
 - <25 years old
 - previous gonorrhea infection or other sexually transmitted infections
 - new or multiple sex partners
 - inconsistent condom use
 - commercial sex work and drug use.
- Annual **chlamydia** screening of all sexually active women aged ≤ 25 years, and older women with risk factors (see above).
- Routine screening of men was rare before urine-based screening tests became available. Trials are underway to assess the role of screening men as one strategy for controlling chlamydial infection.

Syphilis

- Syphilis is a systemic disease caused by *T. pallidum*.
- In the United States, health officials reported over 32,000 cases of syphilis in 2002.



Signs and symptoms

- **Primary Stage**
The primary stage of syphilis is usually marked by the appearance of a single sore which appears 10-90 days from exposure.
- **Secondary Stage**
Skin rash and mucous membrane lesions characterize the secondary stage.
- **Tertiary Stage or Latent**



Transmission:

Syphilis is passed from person to person through direct contact with a syphilis sore during vaginal, anal, or oral sex .

Diagnosis

Serologic test: nontreponemal antibody tests (RPR)

Treatment

Primary and Secondary Syphilis

Parenteral penicillin G has been used effectively for more than 50 years to achieve clinical resolution.

Recommended Regimen for Adults*

Benzathine penicillin G 2.4 million units IM in a single dose

* Recommendations for treating HIV-infected persons and pregnant women for syphilis can be found in CDC treatment guidelines.

Management of Sex Partners

- Sexual transmission of *T. pallidum* occurs only when syphilitic lesions are present; usually within the first year of infection.
- However, persons exposed sexually to a patient who has syphilis in any stage should be evaluated clinically and serologically and treated with a recommended regimen, per the CDC treatment guidelines.
- HIV testing should also be done.

Hepatitis B

- In adults, approximately half of newly acquired HBV infections are symptomatic, and approximately 1% of cases result in acute liver failure and death.
- HBV is efficiently transmitted by needle stick or mucous membrane exposure to infectious blood or body fluids that contain blood.
- No specific therapy is available for acute hepatitis B; treatment is supportive. Students with chronic HBV infection should be referred.

Prevention

- **VACCINATE:**
 - All infants
 - All previously unvaccinated children through age 18 years
 - All previously unvaccinated adults at increased risk for infection.
- Vaccination coverage among high-risk adults (ie, more than one partner in the previous 6 months, MSM, and IDUs) have remained low.
- STD clinics and settings that provide services to high-risk adults are ideal sites to provide hepatitis B vaccination to adults at risk.

Prevaccination Antibody Screening

- The CDC recommends serology to test for disease in unvaccinated adults:
 - Anti-HBc-if positive, then test for HBsAg.
 - If HBsAg negative, no further action is required.
- If not sure of vaccine status, can do HBsAb test.
- Vaccination of those who are already immune to HBV infection does not increase the risk for adverse events.

Hepatitis B vaccine

- Approximately 30%–55% of people acquire a protective antibody response after the first vaccine dose
- 75% after the second
- and >90% after the third.
- Vaccine-induced immunity persists for at least 15–20 years.

Genital HSV Infections

- Genital herpes is a chronic, life-long viral infection. Two types of HSV have been identified, HSV-1 and HSV-2.
- The majority of cases of recurrent genital herpes are caused by HSV-2, although HSV-1 might become more common as a cause of genital herpes.
- At least 50 million people in the United States have genital HSV infection, or 1 in 4 people.

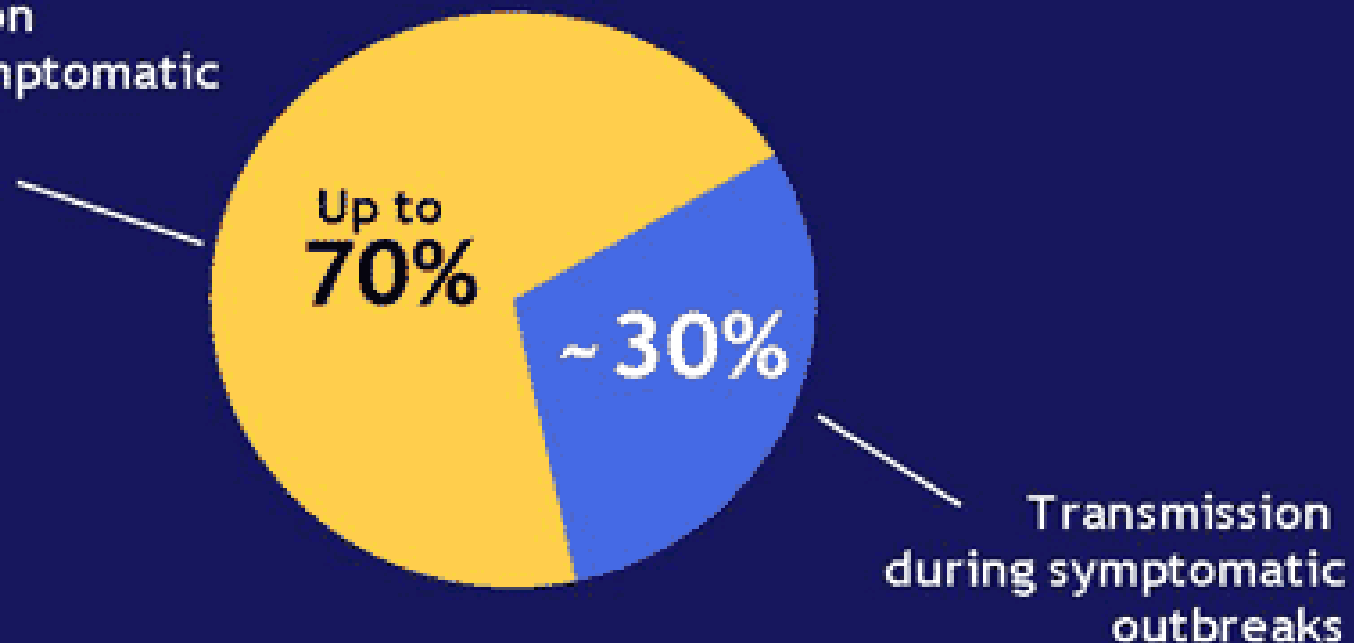
TRANSMISSION

- Vaginal intercourse.
- Oral-genital contact. HSV 1 can be spread from the mouth to the genitals.
- Anal intercourse.
- ‘Outercourse’ rubbing unclothed genitals together.
- Autoinoculation is possible but quite uncommon. It may occur during the first outbreak when the immune system has not yet produced an immune response.
- Asymptomatic shedding.

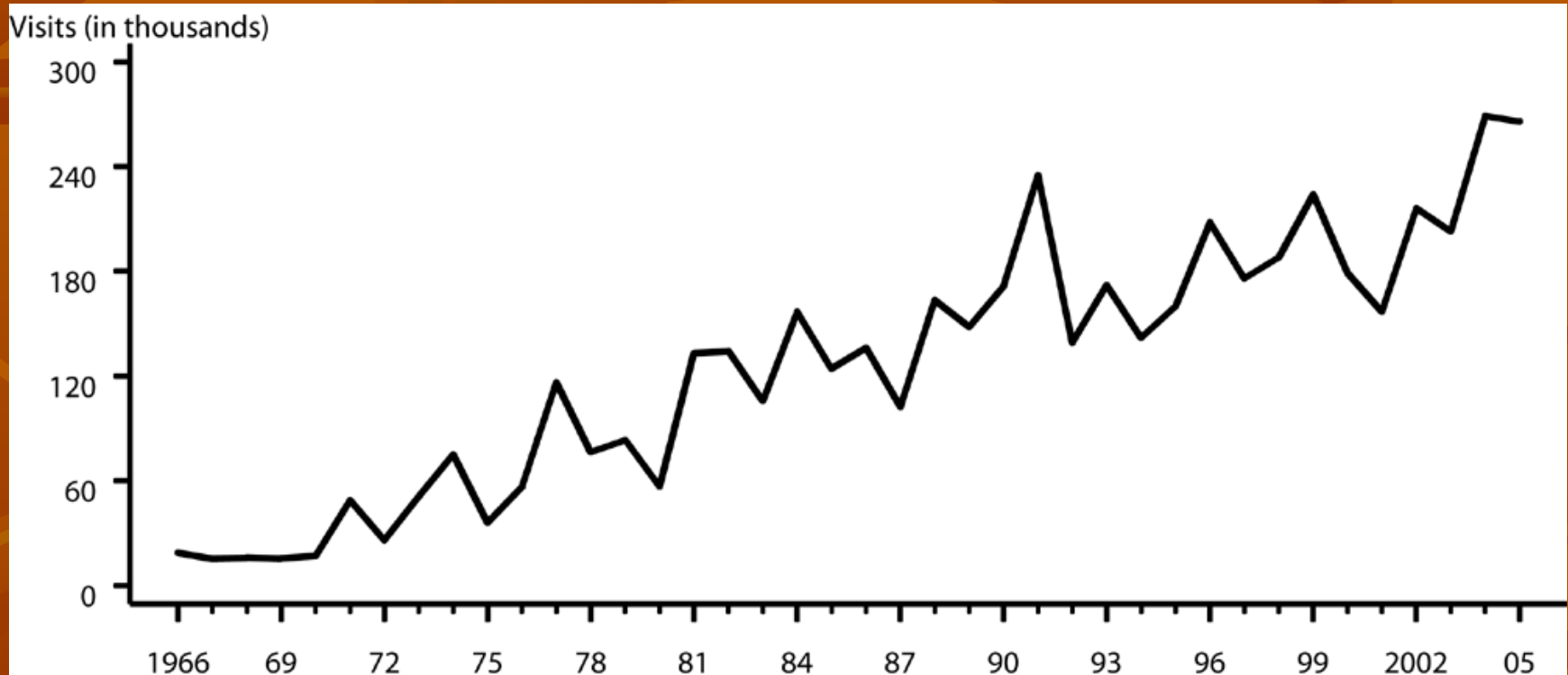
Up to 70% of Transmission May Occur During Asymptomatic Shedding

- 9.7% of patients infected their partners (14 of 144)
- Transmission frequently occurs between outbreaks

Transmission during asymptomatic shedding



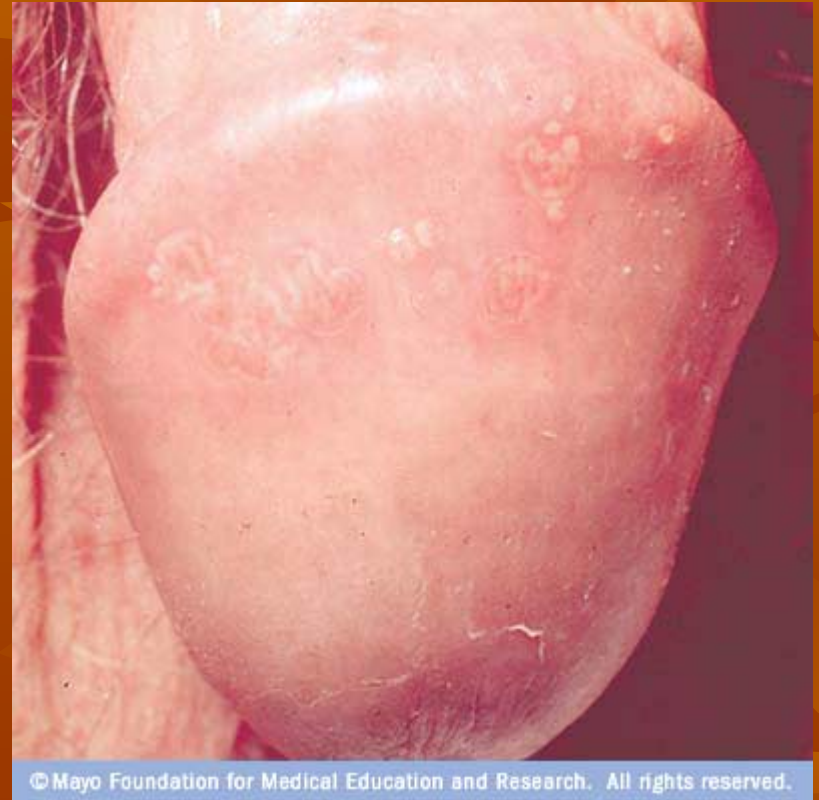
Genital herpes — Initial visits to physicians' offices: United States, 1966–2005 (CDC STD Surveillance)



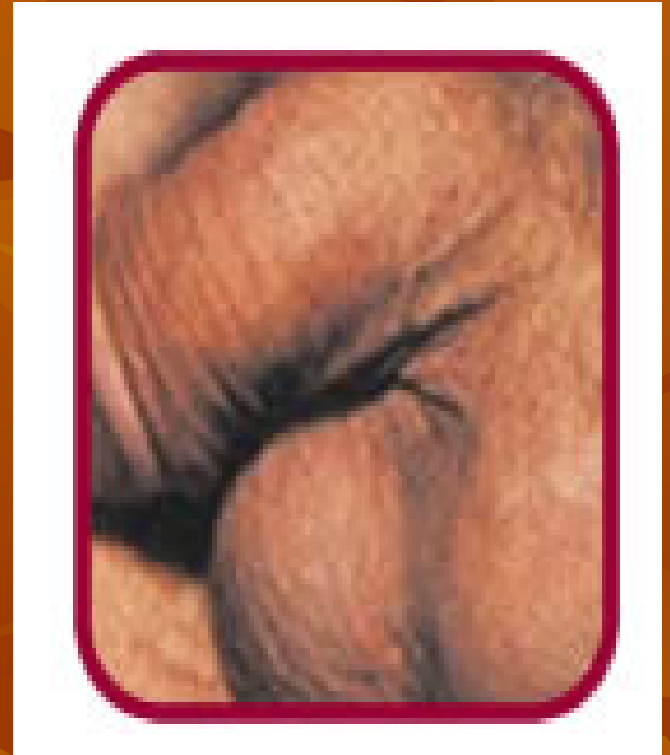
Signs and sx of HSV Infection

- PRIMARY outbreak within two days to 3 weeks of exposure.
- Symptoms: sores, painful urination, itching, and a discharge from the penis or vagina. Vesicles or blisters form, then break open and form ulcers. Crusts or scabs form, and eventually heal without treatment. Women may have lesions on the cervix, and men may have them inside the penis.
- Other s/sx during the primary episode may include flu-like symptoms, fever and swollen glands.
- A new crop of vesicles may appear 5-7 days after the first outbreak. The typical primary outbreak lasts from 2-3 weeks.
- Recurrent outbreaks can appear weeks or months after the first. It almost always is less severe and shorter than the first and without the systemic symptoms. The average recurrence lasts about 2-10 days. Although the infection can stay in the body indefinitely, the number of outbreaks tends to decrease over a period of years.
- However, many individuals with HSV-2 infection may never have sores, or they may have very mild signs that they do not even notice or that they mistake for insect bites or another skin condition.

HSV vesicles



'Classic' vs mild s/sx



'Classic' vs mild s/sx



Virologic Tests

- Viral culture has been the preferred test for HSV in patients with genital ulcers. However, the sensitivity is low and declines rapidly as lesions heal.
- **PCR (POLYMERASE CHAIN REACTION)** assays for HSV DNA are more sensitive and are being used here instead of viral culture.
 - This test is done by swabbing the lesion with a Dacron swab and inserting in the viral culture medium.
 - PCR is more expensive, but up to four times more sensitive.
 - Samples tested by PCR are more stable, less likely to be influenced by transport issues or length of time taken to get to the lab.
 - Quick turn around time.
 - Typed to determine HSV-1 or HSV-2.
- Lack of HSV detection (i.e., culture or PCR) does not indicate a lack of HSV infection, as viral shedding is intermittent.

Counseling

- The psychological effects of HSV infection. Common concerns regarding genital herpes include the severity of initial symptoms, recurrent episodes, sexual relationships and transmission to partners, and ability to have healthy children.
- Recurrence of genital lesions.
- Type HSV-1 vs. HSV-2
 - Recurrence rate for genital HSV 1 infection is about one outbreak every other year vs. HSV 2 which recurs 4-6 times per year.
 - Asymptomatic viral shedding with HSV 1 occurs on about 18% of days vs HSV 2 on up to 27% of days, but during the first 6 to 12 months, rates of shedding are higher.
- Inform current partners and future partners before initiating a sexual relationship.
- Abstain from sexual activity with uninfected partners when lesions or prodromal symptoms are present.
- The risk for neonatal HSV infection should be explained.

Antiviral Treatment of Genital Herpes

Initial Episode

*Recommended Regimens**

Acyclovir 400 mg orally three times a day for 7–10 days

OR

Acyclovir 200 mg orally five times a day for 7–10 days

OR

Famciclovir 250 mg orally three times a day for 7–10 days

OR

Valacyclovir 1 g orally twice a day for 7–10 days

* Treatment might be extended if healing is incomplete after 10 days of therapy.

Antiviral therapy for recurrent herpes can be either episodic or continuously to suppress recurrences.

Episodic Therapy for Recurrent Genital Herpes
Recommended Regimens

Acyclovir 400 mg orally three times a day for 5 days

OR

Acyclovir 800 mg orally twice a day for 5 days

OR

Acyclovir 800 mg orally three times a day for 2 days

OR

Famciclovir 125 mg orally twice daily for 5 days

OR

Famciclovir 1000 mg orally twice daily for 1 day

OR

Valacyclovir 500 mg orally twice a day for 3 days

OR

Valacyclovir 1.0 g orally once a day for 5 days

- For effective episodic treatment begin therapy within 1 day of lesion onset or during the prodrome. The patient should be provided with a supply of drug or a prescription with instructions to initiate treatment immediately when symptoms begin.

Suppressive Therapy for Herpes

Recommended Regimens

Acyclovir 400 mg orally twice a day

OR

Famciclovir 250 mg orally twice a day

OR

Valacyclovir 500 mg orally once a day

OR

Valacyclovir 1.0 g orally once a day

Which Patients Should Receive Suppressive Antiviral Therapy?

- Frequent recurrences
- Psychological distress
- Acyclovir - excellent safety for ≥ 6 years¹
- Famciclovir² and valacyclovir³ - safety for 1 year
- Consider discontinuation after 1 year
 - To observe rate of recurrence
 - To monitor adjustment to recurrences
- No evidence of emergence of resistant strains in immunocompetent persons

1. Fife, et al. *J Infect Dis.* 1994. 2. Diaz-Mitoma. *JAMA.* 1998. 3. Reitano, et al. *J Infect Dis.* 1998.

Type-Specific Serologic Tests

- The sensitivities of glycoprotein G type-specific tests vary from 80%–98%, and false-negative results might be more frequent at early stages of infection. The specificities of these assays are $\geq 96\%$.
- False-positive results can occur, especially in patients with a low likelihood of HSV infection. Repeat or confirmatory testing might be indicated if recent acquisition of genital herpes is suspected. Most people will seroconvert and acquire antibody by 3 months.
- The presence of HSV-1 antibody can mean:
 - oral HSV acquired during childhood, which might be asymptomatic.
 - However genital HSV-1 is increasing, and might be asymptomatic.
 - Lack of symptoms in an HSV-1 seropositive does not distinguish anogenital from orolabial or cutaneous infection.
- The presence of type-specific HSV-2 antibody implies asymptomatic anogenital infection and education and counseling should be provided.
- HSV-1 positive, regardless of site of infection, remain at risk for HSV-2.

Type-specific HSV serologic assays might be useful in the following scenarios:

- Recurrent genital symptoms or atypical symptoms with negative HSV cultures or PCR.
- A clinical diagnosis of genital herpes without laboratory confirmation.
- A type specific test may sort out new from old infection.
- A partner with genital herpes.
- Repeated UTIs but never grows out a bacteria on a urine culture.
- Pregnant women.
- Some specialists believe that HSV serologic testing should be included in a comprehensive evaluation for STDs.

The USPSTF recommends against routine serological screening for HSV in asymptomatic adolescents and adults.

- *Rationale:* The USPSTF found no evidence that screening asymptomatic adolescents and adults with serological tests for HSV antibody improves health outcomes or symptoms or reduces transmission of disease.
 - There is good evidence that serological screening tests can accurately identify those persons who have been exposed to HSV.
 - There is good evidence that antiviral therapy improves health outcomes in symptomatic persons with multiple recurrences; however, there is no evidence that the use of antiviral therapy improves health outcomes in those with asymptomatic infection.
- The potential harms of screening: false-positive test results, labeling, anxiety, although there is limited evidence of any potential harms of either screening or treatment.
- The USPSTF determined the benefits of screening are minimal, at best, and the potential harms outweigh the potential benefits.

Management of Partners

- The partners of patients who have genital herpes can benefit from evaluation and counseling.
- Symptomatic partners should be evaluated and treated in the same manner as patients who have genital lesions.
- Asymptomatic partners should be questioned concerning histories of genital lesions. Partners should be advised that they might be infected even if they have no symptoms.
- Type-specific serologic testing of asymptomatic partners is recommended to determine whether at risk for HSV.
- HSV 1 genital infection can happen in a relationship where neither person has ever had another sexual partner if the couple engages in oral sex.

Prevention

- Condoms, when used consistently and correctly, reduced the risk for genital herpes by 50% in a recent study. Since a condom may not cover all infected areas, even correct and consistent use of latex condoms cannot guarantee protection from genital herpes.
- Abstain from sexual activity with uninfected partners when lesions or other symptoms are present.
- Asymptomatic shedding. Inform partners of dx.
- A study in 2002, found that daily treatment with valacyclovir 500 mg could reduce the risk of transmission of HSV 2 in healthy, heterosexual adults, from an infected partner to an uninfected one by 48% over placebo.

VACCINES

- A vaccine to protect against infection with herpes simplex virus is currently being tested. It is a subunit recombinant vaccine, which means that it contains only a small portion of the viral genetic material. The vaccine has shown efficacy only in women and only for women who are negative for both HSV 1 and 2. A large-scale trial involving this vaccine started in 2003.

[http://www.herpesvaccine.nih.gov/dmid/stds/herp
evac/](http://www.herpesvaccine.nih.gov/dmid/stds/herp
evac/)

HIV Overview

- Human Immunodeficiency Virus = the virus that can lead to AIDS (acquired immunodeficiency syndrome)
- HIV infects specific white blood cells (CD4+ T lymphocytes) vital to a fully functioning immune system
- Depleted CD4 levels → weakened immune system and decreased ability to fight infection and certain cancers
- CDC definition of AIDS: HIV-infected people who have a CD4+ T lymphocyte count of <200 (healthy people have CD4+ T counts of 1,000 or greater)

HIV Transmission

Body Fluids Known to Transmit HIV:

- Blood
- Semen
- Vaginal Secretions
- Breast Milk

HIV Transmission

Body Fluids Not Known for HIV Transmission:

- Urine
- Feces
- Tears
- Sweat
- Saliva*

HIV Transmission

Mode of Transmission:

- Unprotected Sexual Contact – Oral, Anal* or Vaginal Penetration
- Sharing Needles
- Blood Transfusions Prior to 1985
- Contact with Infected Material
- Mother to Infant during Pregnancy, Birth or Breast Feeding
- Having sexually transmitted infections increases the risk of acquiring HIV infection.

HIV Signs & Symptoms

- In Many Cases, There are NO Symptoms
- Some Experience a “Flu-Like” Illness (within 4 – 8 weeks after infection):
 - Fever
 - Headache
 - Fatigue
 - Enlarged Lymph Nodes in the Neck & Groin

HIV Signs & Symptoms

- Adults infected with HIV may not have acute symptoms for up to 10 years after transmission
- Infants born with HIV infection can have symptoms of acute illness within 2 years

HIV Testing

- HIV Screening = testing for the presence of HIV antibody
- Antibody production begins with infection
- Antibody may not be immediately detectable

HIV Testing

The Seroconversion or “Window” Period

- The time between initial infection and the production of enough antibody to be detectable
- In most cases, antibody is detectable in 4 -6 weeks post-exposure
- Research has demonstrated that the majority of HIV infected individuals will test positive by 3 months after transmission

HIV Testing

- At SUHS:
 - ELISA (Enzyme-linked immunosorbent assay)
 - Detects Antibody for HIV-1
 - Sensitive Test
 - Low False-Negative Rate
 - Most Predictive at 13-weeks (3 months) post-exposure

HIV Treatment

- Treatment of HIV+ Patients is a Specialized Field
- HAART (highly active antiretroviral therapy)
 - a combination of different drug types involving 3 or > medications
- HIV Prophylaxis – post exposure

Management of Sex Partners

PNAP

Partner Notification Assistance Program

NY State Department of Health

HIV Prevention

- Protected Sex
- Avoid Needle – Sharing
- Compliance with OSHA Guidelines

Human Papillomavirus (HPV)

Overview

- HPV can be *cutaneous* resulting in Common Warts or Plantar Warts
- HPV can also be *mucosal* resulting in a sexually transmitted disease (STD)
- Genital HPV infection is the **most common** STD among the college-age population
- HPV infection rates are estimated as high as 80% in the 18yr – 28yr age group
- Knowledge of HPV has been lacking until the recent promotion by Merck Pharmaceutical

HPV Overview

- HPV causes genital warts in both men and women
- Men are less apt to have visible symptoms of genital warts than women
- HPV infection in women can lead to cervical cancer
- Pap Testing has reduced death rates from cervical cancer from #1 to #11 since 1950
- HPV tends to be a self-limiting infection in the majority of cases

HPV Overview

- HPV mucosal types can be:
 - Low Risk: causing most external genital warts and some low grade cervical cell abnormalities (most common strains are HPV-6 & HPV-11)
 - High Risk: having the potential to lead to cervical and ano-rectal cancers in the absence of proper follow-up (most common strains are HPV-16 & HPV-18)

HPV Transmission

Direct Contact

Skin to Skin

With or Without Visible Symptoms

HPV Signs & Symptoms

- External HPV Lesions (genital warts) can be:
 - Cauliflower-Like
 - Flat
 - Smooth
 - Single Lesions
 - Clusters

- Or Invisible..... Even to the Professional Eye

HPV Signs & Symptoms



HPV Signs & Symptoms



HPV Signs & Symptoms



HPV Infection

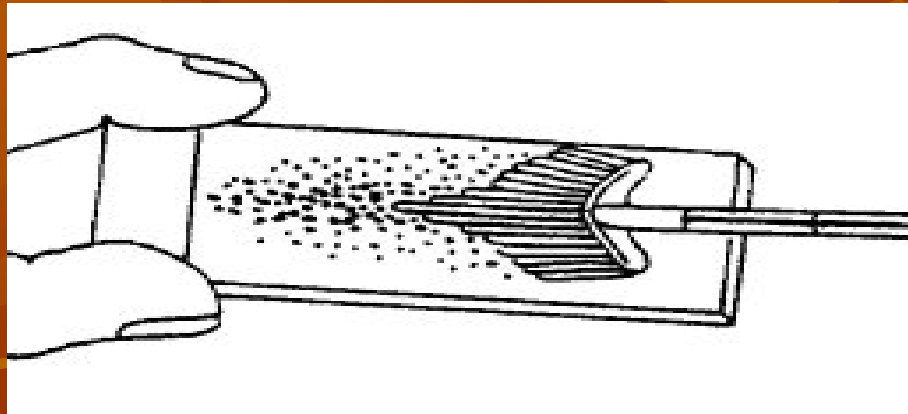
- Begins with **Transmission**
- An **Asymptomatic Incubation Period** follows lasting several weeks to several years
- **Active Viral Growth** → symptomatic or asymptomatic infection
- **Immune Response** → sustained remission

HPV Screening & Testing

- *Cytology* i.e., Pap Testing: a screening for the cellular changes typical with HPV infection
 - Initial use in 1943
 - Since routine use of Pap Smears, the incidence of Cervical Cancer has decreased from #1 to #11
 - Use as an Anal Screening for anyone engaging in frequent anal penetration e.g., MSM

HPV Screening & Testing

The “Traditional” Pap Smear



HPV Screening & Testing

- Types of Pap Tests:
 - Liquid-Based: (Thin Prep, Sure Path)



HPV Testing & Screening

- HPV DNA Typing:
 - Highly sensitive for HPV DNA
 - Can distinguish high-risk and low-risk types of HPV
 - Are not species specific i.e., cannot distinguish between high-risk types

HPV Screening & Testing

■ Bethesda System

- Standardized format for interpreting and reporting Pap test results (1991)
- Abnormal Pap Test Results: (Most Common)
 - ASCUS (Atypical Squamous Cells of Undetermined Significance)
 - LGSIL (Low Grade Squamous Intraepithelial Lesion)
 - HGSIL (High Grade Squamous Intraepithelial Lesion)

HPV Screening & Testing

- Colposcopy/Biopsy:
 - Colposcope: an instrument allowing a magnified view (usually of the cervix)
 - Biopsy is indicated according to visual findings
 - Pathology reports direct follow-up
 - Surgical intervention is reserved for persistent HPV infection as **the majority of cases are self-limiting**

HPV Screening & Testing

- HPV Serology: (Antibody Screening)
 - Dependent upon an immune response which is variable among individuals
 - HPV doesn't tend to stimulate antibody production as consistently as other viruses
 - Little to no clinical significance
 - Can be useful in research in conjunction with other forms of screening

HPV Screening & Testing

- Screening Specific for Males:
 - Acetic Acid Whitening (White Vinegar)
 - **There is no approved clinical testing modality for male HPV infection**

HPV Treatment

- Persistent HGSIL:
 - Cryosurgery - freezing identified cells
 - Laser Surgery
 - LEEP (Loop Electrosurgical Excision Procedure) usually reserved for Carcinoma In Situ

HPV Treatment

- Ano-Genital Warts: (Condyloma)
 - Ablation: By Provider
 - BCA/TCA - Bichloroacetic/Trichloroacetic Acid
 - Liquid Nitrogen
 - Podophyllin

HPV Treatment

- Ablation: By Patient
 - Podophylox - used infrequently
 - Aldara Cream
 - can cause irritation
 - expensive

HPV Treatments

- Additional:
 - 5-FU cream - an antimetabolite
 - Laser Surgery for condyloma
 - Home and Internet Remedies:
 - *OxiMED cream*: kills HPV with oxygen
 - *Warts No More*: like DuoFilm
 - *ImmunoBoost*: a dietary supplement

HPV: Management of Partners

- The high possibility of asymptomatic HPV infection can make partner management difficult
- If symptoms are present, it would be best to recommend that the partner be examined
- In most cases, the exam will be negative

HPV Prevention

- Studies indicate that at least 50% (and up to 80%) of the sexually active population will have experienced HPV infection by age 50
- Complete protection from HPV would require complete and permanent abstinence
- Optimum and most realistic prevention is monogamy with an equally monogamous partner

HPV Prevention

- HPV is spread through direct contact
- Condom use cannot completely eliminate the spread of HPV
- A 2001 - 2005 study of condom use at the University of Washington concluded that those 100% compliant were 70% less likely to become infected with HPV

HPV Prevention

■ HPV Vaccines

- Gardasil (Merck & Co.): (quadrivalent)
 - Three dose series (0, 2 and 6 months)
 - Recommended for females ages 9 - 26 yrs
 - Ongoing clinical trials for use in males
 - Effective for the 4 most common HPV species
 - Low risk HPV-6 & HPV-11 responsible for 90% of ano-genital warts
 - High risk HPV-16 & HPV-18 responsible for 70% of ano-genital cancers (primarily cervical)

HPV Prevention

- HPV Vaccines

- Cervanix (Glaxo): (bivalent)

- recommended exclusively for women

- effective for the high risk types HPV-16 and HPV-18

HPV Prevention

- Drawbacks to HPV Vaccines:
 - Cover the most predominate, but **not all** HPV species
 - Multiple Doses with high price tag
 - Currently not covered by many Insurance companies
 - In clinical trials, Gardasil effectiveness has been calculated at only 2.5 - 3.5 years after the initial series

A Practical Approach to STD Screening & Treatment in College Students

- QUESTIONS??

Resources

- CDC STD Treatment Guidelines 2006
<http://www.cdc.gov/std/treatment/2006/toc.htm>
- HSV-2 and Asymptomatic Viral Shedding: Prevention and Management for Healthcare Providers
<http://www.medscape.com/viewarticle/523405>
- Genital Warts: Best Practices for Diagnosis and Management
http://www.medscape.com/viewprogram/6385_pnt
- <http://www.ashastd.org>
- <http://www.ihmf.org>