

# Sexually Transmitted Infections

## FACT SHEETS

for clinicians and all staff who work in family planning  
and other Reproductive Health Professionals



Developed by TRAINING 3, Family Planning Council, Inc. (2006)  
TRAINING 3 is the DHHS Region III Family Planning Training Center.  
TRAINING 3 is supported by the Office of Population Affairs  
and the Centers for Disease Control and Prevention,  
Department of Health and Human Services.

# Vaginitis

## Fact Sheet for Clinicians

This fact sheet will provides an overview of bacterial vaginosis, trichomoniasis, and monilia.

### **A. Bacterial Vaginosis:**

- disruption of the vaginal eco-system resulting in a loss of lactobacilli.

### **Diagnostic criteria:** (3 of the 4 must be present)

- whitish grayish discharge that coats the vaginal walls
- presence of clue cells on the wet mount
- pH greater than 4.5
- KOH Amine release: The 3 major amines released are known as Putrescine, Cadaverine, and Trimethylamine.
- bacterial vaginosis is a vaginosis not vaginitis, so if there are many WBC's evident, consider a co-committant infection.

### **Testing:**

- Wet mount, Gram stain, DNA probe test (ie: AFFIRM), test card (ie: FemExam) noting elevated pH

### **Treatment:** Per CDC 2004 Guidelines:

#### Oral:

- Metronidazole 500 mg bid x 7 days

#### Intra-vaginal:

- Metronidazole gel (Metrogel) 0.75% one full applicator (5 grams) qhs x 5 days or
- Clinamycin crème (Cleocin) 2% one full applicator (5 grams) qhs x 5 days

### **Key Points:**

- coital abstinence should be encouraged throughout treatment
- If using po metronidazole, ETOH consumption should be avoided 24 before and after treatment secondary to the antabuse reaction)
- partner treatment is not recommended

### **B. Trichomoniasis:**

- single protozoan, causing the infection known as **Trichomonas Vaginalis**
- Trichomonads are:
  - motile
  - possess an anterior flagella, an undulating membrane, and a stiff posterior axostyle
  - cause a inflammatory response to the vaginal and cervical mucosa resulting in **Colpitis Macularis** (also know as the "Strawberry Cervix'-punctated cervix)

### **Diagnostic Criteria:**

1. yellowish-greenish vaginal discharge
2. pH > 5.0
3. punctuated cervix
4. motile trichomonads and numerous WBC's (tntc) on Wet Mount

### **Treatment:**

#### **Oral:**

- Metronidazole : 2 Gram stat dose
- Tinidazole 2 Gram stat dose

### **Key Points:**

- coital abstinence should be encouraged throughout treatment
- ETOH consumption should be avoided 24 before and after treatment secondary to the antabuse reaction)
- partner treatment is necessary

### **C Vulvo-Vaginal Candidiasis (VVC)**

- Fungal infection caused primarily 90% by **Candida albicans** although other strains of organisms known as **glabrata** and **tropicalis** are also implicated.

VVC can be classified into uncomplicated and complicated cases:

#### **Uncomplicated (some criteria):**

- infrequent occurrence
- likely to be albicans organism
- non-immunocompromised woman

#### **Complicated (some criteria):**

- recurrent
- severe
- non-albicans in origin
- women who are immuno-compromised, or with medical conditions such as uncontrolled diabetes, or who are pregnant

#### **Diagnostic Criteria:**

- white, curdy, cottage-cheese like discharge
- reported symptoms include dysuria, pruritis
- will see hyphae, budding hyphae on wet mount
- pH usually < 4.5

### **Treatment:**

- Intravaginal azole medications can be used to treat uncomplicated VVC. Treatment modalities range from 3-7 days.
- Oral medication: Fluconazole 150 mg po, one dose.

### **Key Points:**

- if recurrent, or no relief, consider HIV testing and/or screening for diabetes
- partner treatment is not necessary since yeast is not normally acquired through sexual intercourse

# Vaginitis

## Fact Sheet for All Staff

### **Vaginal Infections**

Key points to remember:

- the normal pH of the vagina is 3.8-4.2 and any change, no matter how subtle, can cause an infection.
- vaginal discharges are normal-as long as they're clear, cloudy,: may stain underwear white or yellow
- itching, malodorous discharges are not normal

### **Overview**

The eco-system of the vagina:

the vagina contains various forms of bacteria, some which may cause infection if left 'unchecked'. The 'good' bacteria, known as lactobacillus actually prevents a build-up or overgrowth of the harmful bacteria; but, anything that changes the pH of the vagina, changes the ratio of the lactobacillus to the 'harmful' bacteria and can lead to a vaginal infection. For example: antibiotic use might 'kill' the lactobacilli, thereby allowing the 'bad' bacteria to over-grow and cause an infection. Other factors, like soaps, detergents, perfumed feminine hygiene items (sprays and/or pads), douches, non-cotton underwear can also contribute to a change in the vaginal pH leading to an abnormal vaginal discharge.

### **A. Bacterial Vaginosis:**

- patient may complain about a gray/malodorous discharge (fishy odor)
- may be more noticeable post-coitus
- is not always sexually transmitted
- associated with premature delivery, low birth rate and pelvic inflammatory disease
- can be detected on a wet mount
- (clinician makes a slide and views it under microscope...s/he will see what looks like epithelial cells covered with pepper...not sharp boundaries. These are known as clue cells
- if discharge is mixed with KOH (potassium hydroxide) amines are released causing a fish-like odor



### **Treatment:**

Oral meds:

- metronidazole (flagyl) 500 mg bid (twice/day) for 7 days
- Intra-vaginal meds:
- Metrogel :every night (qhs) x 5
- Cleocin crème: every night (qhs) x7

**Pt. Education:**

- avoid harsh soaps, detergents
- do not douche
- always wear cotton underwear. do not wear underwear at night
- no intercourse until infection has cleared
- sex toy use: from vagina to rectum. NOT rectum to vagina
- no alcohol use while on oral medication

**B. Trichomonas Vaginalis:**

Causative agent: trichomonas –protozoan

Symptoms/Signs:

- itching/discharge....may be asymptomatic
- clinician will notice reddened (punctuated) cervix..frothy yellowish/greenish discharge
- can see motile trich under microscope
- considered sexually transmitted-partner must be treated

**Treatment:**

- Metronidazole -2 Gram one time dose.
- Tinidazole- 2 Gram one time dose
- partner must be treated to avoid re-infection

**Patient education:**

- avoid harsh soaps, detergents
- do not douche
- always wear cotton underwear. do not wear underwear at night
- no intercourse until infection has cleared
- sex toy use: from vagina to rectum...NOT rectum to vagina
- no alcohol use while on oral medication



# Syphilis

## Fact Sheet for Clinicians

### Key points:

- Disease progresses in stages
- May become chronic without symptoms
- Treatment depends upon stage of disease

**Causative Agent:** treponema pallidum; a corkscrew shaped, motile, microaerophilic bacterium

**Prevalence:** affects approximately 70,000 people each year in the US  
Congenital syphilis affects 1:10,000 pregnancies

### Transmission:

- sexual and vertical
- most contagious during the primary and secondary stages

### Pathology:

- enters body through mucus membranes, skin abrasions during sexual contact
- travels the lymphatic system to regional lymph nodes, then throughout the blood stream
- invasion of CNS can occur at any stage of the disease
- transmitted transplacentally

### Symptoms

#### **Primary stage:**

- a chancre, a painless lesion occurs at the site where the infection entered the body
- appears anywhere from 3 weeks to three months post exposure.
- Highly infectious

#### **Secondary stage:**

- appears 3-6 weeks after the appearance of the chancre
- primary and secondary stage may overlap
- Symptoms include:
  - a skin rash covering the entire body-especially the soles of the feet and the palms of the hands
  - weight loss,
  - tiredness,
  - sore throat, swollen glands ,
  - alopecia
  - joint pain and
  - condyloma lata

#### **Latent:**

- No clinical signs-occurs between other phases or can overlap them.
- Only signs is a positive serology
- Categories of latency:
  - Early latent: < 1 year duration
  - Late latent: > 1 year duration

### Tertiary :

- systemic changes affecting the cardiac and neurological system, can lead to death.
- Approximately 30% of patients will progress to this stage within 1-20 years

### Diagnosis

#### Serological testing: 2 types:

##### 1) Non-treponemal (VDRL and RPR-qualitative and quantitative)

- positive in 70%-80% of primary syphilis cases, 100% positive
  - at high titers in the secondary stage, and about 70% in cases of untreated late stage syphilis.
  - assays do not detect antibodies to the treponemal organism itself, but detect reagin which is a nonspecific antibody-like substance produced in patients with syphilis
  - results may be nonreactive or positive in low titers.
  - Nontreponemal tests may also be used to detect re-infection with syphilis.
  - **false positive nontreponemal test** results often occur in a variety of conditions, including:
    - infectious mononucleosis,
    - pregnancy,
    - malaria,
    - leprosy,
    - systemic lupus erythematosus and
    - other autoimmune diseases,
- So, positive screening tests must be confirmed using a treponemal assay.

##### 2) reponemal (FTA-ABS and MHATP-treponemal)

- specific antibodies produced by the patient in response to components of the *Treponema pallidum* organism itself.
- Quantitative titers are performed in both of these tests and are useful in diagnosis.
- Treponemal assays remain positive after treatment and, therefore, are not useful in monitoring the effectiveness of treatment or the detection of re-infection.

Titers are reported in fourfold numbers.

.ie: 1:4; 1:8, 1:32, 1:64...1:512...corresponds to disease state in body

### **Treatment:**

- Penicillin is the preferred treatment option.
- For those allergic, may be treated with Doxycycline
- If pt is pregnant and allergic to penicillin, desensitization is recommended.
- Dose of Penicillin is determined by the length of exposure:
  - 1e: primary/secondary syphilis: 2.4 million units of benzathine penicillin in 1 injection
  - Disease of undetermined length: 7.2 million units; 2.4 million units IM, weekly for
  - 3 consecutive weeks

**Jarisch-Herxheimer Reaction:**

- Reaction may occur as a result of treatment
- Self-limiting
- Patients will experience fever, malaise, chills, N&V, rash
- occurs within 24 hours post treatment
- not considered an allergic reaction to PCN
- more frequent in treatment of early syphilis

**Sequae if left untreated:**

Women and men: ultimately death

Newborns: blindness, adverse effects to the spine, brain and heart...can cause blindness and stillbirth

**Patient Education:**

- titer remains elevated (i.e.: 1:2)
- is a reportable disease
- all partner contacts must be treated
- discuss safer sex practices
- practice abstinence until partner(s) have been treated

# Syphilis

## Fact Sheet for All Staff

### Syphilis

- Disease progresses in stages
- May become chronic without symptoms
- Treatment depends upon stage of disease

**Causative Agent:** treponema pallidum; a spirochete

**Prevalence:** affects approximately 70,000 people each year in the US Congenital syphilis affects 1:10,000 pregnancies

### Transmission:

- sexual and vertical
- most contagious during the primary and secondary stages

### Symptoms

#### **Primary stage:**

- a chancre, a painless lesion occurs at the site where the infection entered the body
- appears anywhere from 3 weeks to three months post exposure.
- Highly infectious

#### **Secondary stage:**

- appears 3-6 weeks after the appearance of the chancre
- primary and secondary stage may overlap
- Symptoms include:
  - a skin rash covering the entire body-especially the soles of the feet and the palms of the hands
  - weight loss,
  - tiredness,
  - sore throat, swollen glands ,
  - hair loss (alopecia)
  - joint pain and
  - condyloma lata (fleshy tissue growths)

#### **Latent:**

- No clinical signs-occurs between other phases or can overlap them.
- Only sign is a positive serology
- Categories of latency:
  - Early latent: < 1 year duration
  - Late latent: > 1 year duration

#### **Tertiary :**

- systemic changes affecting the cardiac and neurological system, can lead to death.
- Approximately 30% of patients will progress to this stage within 1-20 years

## **Diagnosis**

### **Serological testing: 2 types:**

- Non-treponemal (VDRL and RPR-qualitative and quantitative)
- Treponemal (FTA-ABS and MHATP-qualitative)

Titers are reported in fourfold numbers.

.ie: 1:4; 1:8, 1:32, 1:64...1:512...corresponds to disease state in body

### **Treatment:**

- Penicillin is the preferred treatment option.
- For those allergic, may be treated with Doxycycline
- If pt is pregnant and allergic to penicillin, desensitization is recommended.

### **Dose of Penicillin is determined by the length of exposure:**

- primary/secondary syphilis: 2.4 million units of benzathine penicillin in 1 injection
- Disease of undetermined length: 7.2 million units; 2.4 million units IM, weekly for 3 weeks

### **Sequelae if left untreated:**

Women and men: ultimately death

Newborns: blindness, adverse effects to the spine, brain and heart...can cause blindness and stillbirth

### **Patient Education:**

- titer remains elevated (i.e.: 1:2)
- is a reportable disease
- all partner contacts must be treated
- discuss safer sex practices
- practice abstinence until partner(s) have been treated

# Human Papilloma Virus (HPV)

## Fact Sheet for Clinicians

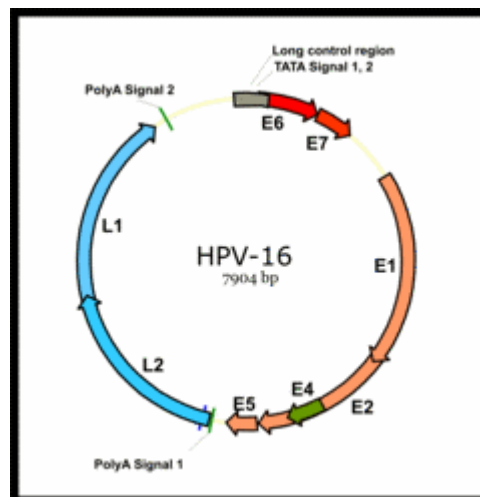
This fact sheet provides an overview of key points relating to HPV and management issues.

### Key points:

- An estimated 5.5 to 6 million cases are diagnosed each year and approximately 20 million people have detectable HPV DNA
- Approximately 75% of individuals between the ages of 15-19 have been exposed to HPV or show evidence of prior exposure.
- The majority of HPV infections are subtle, subclinical, and most individuals remain asymptomatic
- In spite of the fact that HPV has reached pandemic proportion, approximately 70% of Americans over the age of 18, had never heard of it.

### Overview: Cell life

- The Papilloma virus is dependent upon replication through the Host's DNA, and therefore it is advantageous for it to 'act fast', turn off the hosts tumor-suppressing genes, and quickly replicate.
- Skin cells in the outermost layer of the epidermis are constantly being lost and replaced by cells in the stratum basale, which divide and move up outward the skin's layers. As they move outward, these cells differentiate and usually withdraw from the cell cycle
- The viral proteins E6 and E7 from high-risk HPV types prevent cells from differentiating and withdrawing from the cell cycle as they move outward through the cell layers, while those from low risk types do not. The E6 protein binds to tumor suppressor protein p53, marking it for degradation, while E7 binds and inactivates Retinoblastoma protein, (Rb). Differentiating cells begin to produce more and more HPV-encoded proteins until, when they reach the skin surface, they produce complete virions, mature viruses that can survive outside of the host cell. Virions flake off with the discarded skin cells and can go on to infect other hosts and other areas on the same host.
- About 15 strains of HPV (including 16, 18, and 31) are called high-risk types because they can cause cervical cancer, anal cancer, vulvar cancer, head and neck cancers, nonmelanoma skin cancers, and (rarely) penile cancer. High-risk types of HPV can cause intraepithelial neoplasias, or abnormal and precancerous cell growth, in the vulva and cervix, which can progress to cancer. These tumours often have HPV viral sequences integrated into the cellular DNA. Some of the genes encoded by these viruses are known to act as oncogenes. The viral E6 protein from high-risk HPV types binds to and causes the degradation of the cellular protein p53 while the high-risk E7 protein interferes with the retinoblastoma protein



### **Transmission of the virus:**

- skin to skin contact with an infected partner.
- Co-factors include:
  - immuno-compromised status
  - smoking
  - co-infection with other STI's
  - number of sexual partners
  - age of initial coitus

### **Diagnosis:**

Made through clinical exam

### **Treatment**

#### **2 Modalities ( consult CDC Sexually Transmitted Guidelines 2002, p.54 for specific details):**

##### **Patient Applied:**

- 1.** Podofilox (Condylox) 0.5% solution or gel bid X 3 days (off for 4 days): May be repeated for up to 4 cycles. Safety during pregnancy has not been established.
- 2.** Imiquinod (Aldara) 5% crème applied qhs 3x week for up to 16 weeks. Treatment area should be washed off with soap and water 6-10 hours following application. Safety of Imiquimod during pregnancy had not been established.

##### **Clinician Applied:**

- 1.** Trichloroacetic Acid (TCA) or Bichloroacetic Acid (BCA) 80-90% .
- 2.** Podophyllin resin 10-25% in a compound tincture of benzoin
- 3.** Cryotherapy
- 4.** Surgical removal

### **HPV and Cervical Cancer Implications:**

- 2005 statistics regarding cervical cancer:
  - approximately 10,520 cases of cervical cancer diagnosed and
  - approximately 3900 women will die
  - of those diagnosed: 50% have never had a pap smear, 10% are over 65 and 25% have not had a pap smear within 5 years.
  - Peak incidence is in women over 40 years of age.
- In most women, HPV is a transient disease and will regress over time.

### **Counseling:**

- review nature of HPV ie: transient in nature
- most always sexually transmitted
- discuss risk reduction behaviors
- encourage smoking cessation
- encourage consistent condom use
- provision of educational material, hotlines and web sites

# Human Papilloma Virus (HPV)

## Fact Sheet for All Staff

**HPV is the virus that causes genital warts, or condyloma accuminata**

- there are over 100 different strains of the wart virus ;30 of them can infect the genital tract
  - Types 6-11 normally cause the exophytic (raised lesions) lesions that are visible on the penis and vulva.
  - Types 16,18, 31,33,and 35 have been implicated in vulvar, vaginal, cervical, and anal cancer.

**Prevalence:** 1:4 people in the US currently infected with the HPV.  
Associated with more than 1 million visits to clinics/medical offices yearly.

### **Symptoms:**

- Fleshy, soft, raised or flat, single or multiple lesions appear on the vagina, vulva, cervix, penis, anus and perineum.
- the virus may not always manifest itself in an outward appearance.
- May also be detected on a pap smear

**Diagnosis:** Generally made by clinical observation

### **Treatment:**

Primary goal is to treat the visible lesion, thereby removing the visible warts.  
If left untreated, the warts may regress on their own, remain the same or proliferate.

If the patient opts for treatment, may choose patient applied therapy or clinician applied:

### **Patient Applied modalities:**

1. Podofilox (Condylox)...patients apply twice a day for three days, followed by four days of no treatment.
2. Imiquimod (Aldara)...patients apply cream at bedtime every other day for up to 16 weeks. Cream should be washed off upon awakening



**Clinician therapies/intervention:**

1. TCA (trichloroacetic acid) or BCA (bichloroacetic acid)-80-90%...clinician 'paints' wart, allows area to dry, at which point, whitening will occur. Care must be taken to preserve the surrounding healthy tissue
2. Cryotherapy: warts may be frozen off with liquid nitrogen or cryoprobe
3. Surgery: warts may be excised, fulgerated or shaved off.

**Sequae:**

- -HPV has been implicated in cervical, vulvar, vulva and anal cancer.
- -If pregnant, external warts may proliferate (due to high levels of estrogen), necessitating a cesarean delivery
- HPV types 6 and 11 can cause laryngeal papilloma in newborns

**Patient Education:**

- women: consider pap smears with HPV typing
- discuss risk reduction behavior
- patient may be asymptomatic, and still shed the virus so transmission to partner is a distinct possibility
- no permanent cure; though visible warts can be treated and (hopefully) disappear
- encourage decrease smoking
- folic acid may be helpful in reducing viral load and outbreaks

# Gonorrhea

## Fact Sheet for Clinicians

**Causative agent:** gram negative diplo-cocci neisseria gonorrhoeae

**Prevalence:** approximately 650,000 new case are reported each year in the United States

**Incubation period:**

Men- incubation period is 1-14 days:most become symptomatic in 2-7 days;

Women- incubation period is unclear,symptoms may occur within 10 days of exposure

**Risk Factors:**

- multiple or new sex partners
- inconsistent condom use
- adolescents (females)
- drug use
- lower socio-economic status

**Symptoms**

**Men:**

- 25% of men are asymptomatic. If symptomatic, may experience:
- urethritis: purulent penile discharge
- epididymitis: unilateral testicular pain and edema

**Women:**

- Are frequently asymptomatic, but may experience
- abnormal vaginal discharge
- intermenstrual bleeding
- dysuria
- dyspareunia
- cervical contact bleeding.

**Testing for Gonorrhea:**

Tests include culture and non-culture diagnostics. Newer non-culture tests include nucleic acid detection tests, including both amplified and non-amplified tests.

**A. Culture:** low cost, Z track on Thayer-Martin medium. Direct inoculation with swab specimen is best; inoculated culture plate should be placed immediately into a CO<sub>2</sub> enriched environment and incubated at 35-37 degrees centigrade.

- Men: depending upon symptoms and exposure history can culture urethra, pharynx, rectum;
- Women: depending upon exposure history and symptoms culture cervix, rectum, pharynx;.If cervix is surgically absent, vagina can be cultured.

## **B.Non-Culture Tests:**

most common non-culture tests rely on detection of bacterial nucleic acid in patient samples.

### **1. Amplified Tests: NAATs (Nucleic Acid Amplification Tests)**

PCR-polymerase chain reaction;

TMA-transcription-mediated amplification

SDA-strand displacement amplification

#### **Advantages:**

- FDA approval for endocervical swabs in women; urethral swabs from men
- also cleared for testing urine in both men and women
- same sample can also be used for chlamydia testing
- sensitivity is as good as culture
- not approved for rectal or oropharyngeal specimens

### **2. Non-amplified tests:**

DNA probe

Gen Probe

Digene Hybrid Capture 2

#### **Advantages:**

- stable transport
- some samples can also be used for chlamydia testing
- FDA approval for endocervical swabs in women; urethral swabs from men

### **3. Gram Stain:**

Notes the presence of polymorphonuclear leukocytes (PMN's) with intra-cellular Gram negative diplococci indicates positivity for gonorrhea.

#### **Advantages:**

- reliable to either exclude or diagnose gonorrhea in symptomatic men-not recommended for endocervical specimens from women or pharyngeal and/or rectal specimens from women or men.

\*\*\*\*In suspected cases of sexual abuse, the legal standard is **culture** to confirm the presence of gonorrhea.\*\*\*\*

### **CDC recommended treatment for uncomplicated gonorrhea:**

Ceftriaxone (Rocephin) 125 mg. IM (intramuscular) or

Ciprofloxacin (Cipro) 500 mg po X 1 (one pill)

Cefixime 400 mg x 1 po (1 pill)

Ofloxacin 400 mg x 1 po (1 pill) or

Levofloxacin 250 mg po x1

\*Due to increasing drug resistance, Quinolones are no longer recommended as therapy for gonorrhea acquired in Hawaii, California or the Pacific Islands.  
(known as QRNG: quinolone resistance gonorrhea)

## **Complications**

### **Women:**

If left untreated, gonorrhea can cause PID, infertility, Fitz-Hugh- Curtis syndrome and pelvic abscesses.

### **Men:**

If untreated, can cause sterility, epididymitis, and urethral stricture

### **Newborns**

ophthalmic (eye) problems ,blindness, rhinitis, anal infections

## **Test of Cure:**

Not recommended if patient is treated with a CDC recommended regime

## **Partner Management:**

- all partners of a patients with gonorrhea should be evaluated and treated for gonorrhea if their last sexual encounter was within 60 days before the onset of symptoms or diagnosis
- If the patient's last sexual encounter was more than 60 days before the onset of symptoms or diagnosis, the patient's most recent partners should be treated.
- Abstinence should be encouraged until medical regime is completed and symptoms are gone

## **Patient Education:**

- Include disease, transmission and risk reduction
- Discuss patient's potential to change behavior
- Develop risk reduction plan with patient
- Discuss prevention strategies (abstinence, limit number of partners, consistent condom use)

# Gonorrhea

## Fact Sheet for All Staff

**Causative agent:** gram negative diplo-cocci neisseria gonorrhoeae

**Prevalence:** approximately 650,000 new case are reported each year in the United States

**Incubation period:**

Men-2-7 days;

Women- within 10 days of exposure

**Symptoms**

**Men:**

25% of men are asymptomatic. For those symptomatic men, a greenish-yellow discharge is noted from the penis with increased urinary frequency and possible burning with urination. (dysuria)

**Women:**

Are frequently asymptomatic, but may experience burning with urination (dysuria), an abnormal vaginal discharge or a change in menses.

**Testing for Gonorrhea:**

Most common type of test utilized in a Family planning center is the NAAT

**Nucleic acid amplification tests (NAAT).** NAATs detect and make many copies of the genetic material (DNA) of gonorrhea bacteria. NAATs include polymerase chain reactions (PCRs) and transcription mediated amplification (TMA). These tests are very accurate and can be done either on a urine specimen or a sample of body fluid from the potentially infected area.

**CDC recommended treatment for uncomplicated gonorrhea:**

Ceftriaxone (Rocephin) 125 mg. IM (intramuscular) or

Ciprofloxacin (Cipro) 500 mg po X 1 (one pill)

Cefixime 400 mg x 1 po (1 pill)

Ofloxacin 400 mg x 1 po (1 pill) or

Levofloxacin 250 mg po x1

\*Due to increasing drug resistance, Quinolones are no longer recommended as therapy for gonorrhea acquired in Hawaii, California or the Pacific Islands.  
(known as QRNG: quinolone resistance gonorrhea)

\*fluroquinolones are no longer recommended as first line treatment in MSM (men who have sex with men)

### **Complications**

#### **Women:**

If left untreated, gonorrhea can cause PID (pelvic inflammatory disease), infertility, and pelvic abscesses.

#### **Men:**

If untreated, can cause sterility, epididymitis, and urethral stricture

#### **Newborns**

ophthalmic (eye) problems ,blindness, rhinitis, anal infections

#### **Patient Education:**

- is a reportable disease
- all partner contacts must be treated
- discuss safer sex practices
- practice abstinence until partner(s) have been treated

# Chlamydia

## Fact Sheet for Clinicians

**Causative Agent:** chlamydia trachomatis (obligate intracellular parasites)

**Prevalence:** Chlamydia is at pandemic proportions. Approximately 3-4 million cases are diagnosed each year.

**Incidence:**

- Most frequently reported STI in United States
- Reported rates are 3 times higher in women than in men

**Transmission:**

- Transmission is either sexual or vertical
- Highly transmissible (co-infection rates in partners >50%)
- Most frequently reported STI in the United States
- Reported rate 3 times higher in females than in men
- Significant asymptomatic reservoir in population
- Reinfection is common

**Incubation period:** 7-21 days post exposure

**Risk Factors:**

- Adolescence
- New or multiple sex partners
- History of STD infection
- Presence of another STD

**Symptoms:**

**Women:** up to 70% are asymptomatic, may experience vaginal discharge, dysuria, pelvic pain, post-coital bleeding, abnormal vaginal bleeding

**Men:** up to 50% are asymptomatic: may experience mucoid penile discharge, Dysuria, Epididymitis, fever, scrotal pain

**Testing for Chlamydia:**

**1. Culture**

- "gold standard"
- sensitivity can vary (50-80%), but high specificity\*
- only approved test for legal investigations
- ability to be used in all anatomical sites

**2. Non-culture : a. Nucleic acid amplification tests (NAATs), most often used in family planning centers**

- Women: endocervical swabs and urine
- Men: urethral swabs and urine
- Sensitivity: 80-90%; specificity: >99%

**b.Non-NAAT's:** rely upon detection of bacterial products in patient samples.less expensive than NAAT's. Sensitivities range from 50-75%. Examples include:

- Non-culture-non-amplified tests: ie:DFA
- Enzyme Immunoassay (EIA) ie: Chlamydiazyme
- Nucleic Acid hybridization (NA) ie: GenProbe Pace 2

**\*Sensitivity and Specificity: Quick review**

**Sensitivity:**

- Likelihood a test will be positive when disease is present
- 100 people have the disease, 80 test positive-sensitivity is 80%

**Specificity:**

- Likelihood test will be negative if person is disease free
- 100 non-infected people are tested-and test results are negative for 99, specificity is 99%

**CDC Recommended Treatment for uncomplicated chlamydial infections**

- Azithromycin (Zithromax) 1 gm single dose or
- Doxycycline 100 mg bid (twice/day) for 7 days

**Sequae if left untreated:**

- Women: PID, infertility, ectopic pregnancy
- Newborn:neonatal conjunctivitis (30-50% of exposed babies), pneumonia, (3-16%)
- Men: Reiter's syndrome:conjunctivitis, urethritis, and arthritis. 1:3 men who develop this syndrome can become permanently disabled.

**Patient Education:**

- is a reportable disease in all 50 states.
- all partner contacts must be treated
- discuss safer sex practices
- practice abstinence until partner(s) have been treated

# Chlamydia

## Fact Sheet for All Staff

**Causative Agent:** chlamydia trachomatis (bacteria)

**Prevalence:** Chlamydia is at pandemic proportions. Approximately 3-4 million cases are diagnosed each year.

**Incidence:**

- Most frequently reported STI in the United States
- Reported rate 3 times higher in females than in men

**Incubation period:** 7-21 days post exposure

**Symptoms**

Women: up to 70% are asymptomatic, may experience vaginal discharge, dysuria (burning upon urinating), pelvic pain, bleeding post coitus, abnormal vaginal bleeding

Men: up to 50% are asymptomatic.. may experience penile discharge, burning upon urinating

**Testing for Chlamydia**

Most common type of test utilized in a Family planning center is the NAAT

**Nucleic acid amplification tests (NAAT).** NAATs detect and make many copies of the genetic material (DNA) of gonorrhea bacteria. NAATs include polymerase chain reactions (PCRs) and transcription mediated amplification (TMA). These tests are very accurate and can be done either on a urine specimen or a sample of body fluid from the potentially infected area.

**CDC Recommended Treatment for uncomplicated chlamydial infections**

- Azithromycin (Zithromax) 1 gm single dose or
- Doxycycline 100 mg bid (twice/day) for 7 days

**Sequelae if left untreated:**

- Women: PID, infertility, ectopic pregnancy
- Newborn: ophthalmic problems, blindness, lung infections, pneumonia,
- Men: Reiter's syndrome: which involves eye infections, urethritis, and arthritis. 1:3 men who develop this syndrome can become permanently disabled.

**Patient Education:**

- is a reportable disease in all 50 states.
- all partner contacts must be treated
- discuss safer sex practices
- practice abstinence until partner(s) have been treated

# Herpes

## Fact Sheet for Clinicians and All Staff

### **Overview:**

Herpes Simplex virus is a large double-strand DNA virus surrounded by an envelope of lipid glycoprotein. The virus enters the body through micro-abrasions, ascends along the sensory nerves, and lodges within the sensory nerve cell bodies within the dorsal root ganglia. Once infected, the virus can lie dormant for periods of time, but will present and reoccur when specific triggers are present (ie: fever, trauma, increased stress)



HSV 2 is more prevalent in genital disease, and tends to recur more frequently.

### **Prevalence:**

Estimates state roughly 45 million Americans are infected with genital HSV, with most being asymptomatic

Primary (initial) infections affect approximately 200,000 individuals yearly.

20% of individuals with HSV are symptomatic and diagnosed.

20% are asymptomatic and the remaining 60% are symptomatic, could be diagnosed but are not, because the symptoms are mild.

### **Some Key Points:**

- A prior infection of HSV 1 will increase the severity of an HSV 2 infection
- The risk of acquiring HSV from an infected partner is 10%
- Most transmission of HSV occurs without lesions present.
- HSV 1 and 2 cannot be distinguished during a clinical exam

### **Incubation period:**

Between 2-12 days. The average is 4 days.

### **Primary infection:**

- may experience intense pain in the genital area, dysuria, and inguinal lymphadenopathy
- single or multiple vesicles will appear...once they rupture, the shallow ulcers will become extremely painful. They will crust and heal over, resolve spontaneously with minimal scarring.
- there is no serum antibody when symptoms first appear; however, serum antibody will rise during convalescence
- mean duration of this first episodic outbreak is 12 days with recurrent outbreaks generally milder in scope.

### **Recurrent Infection:**

- generally milder with fewer lesions
- duration is generally 5-10 days.
- HSV 2 recurrent outbreaks-approximately 5 outbreaks/year
- HSV 1 recurrent outbreaks-approximately 1/year

### **Diagnosis:**

- Viral culture is considered the gold standard. Can type for both HSV 1 and 2. Optimum diagnosis is made within 5 days of the initial outbreak.
- If typing during a recurrency, a negative yield does not mean a definitive negative diagnosis of HSV
- Serological tests are also available: HerpeSelect HSV1, HSV 2 ElisaIgG, Biokit HSV2 (formerly POckit),
- or FOCUS

### **Treatment:**

- Consult the CDC Treatment guidelines (p.14) for dosages since treatment regimes vary based upon initial, episodic or suppressive therapy.
- Medications include Acyclovir, Valacyclovir(Valtrex), and Famciclovir (Famvir).
- Suppressive therapy should be considered since future outbreaks will be reduced by 70-80%

### **Management and Counseling Issues:**

The following table appears at [www.herpesdiagnosis.com](http://www.herpesdiagnosis.com).

Recently, the new CDC guidelines offered some key counseling points that should be discussed with every newly diagnosed patient. They are as follows:

- Patients should be educated about the natural history of the disease, i.e. potential for recurrences, asymptomatic shedding, risk of sexual transmission
- Patients experiencing first episode of genital herpes should be advised that suppressive and episodic antiviral therapy are available and effective at preventing or shortening the duration of an episode
- All patients with genital herpes should be encouraged to tell their current and future partners
- Transmission can occur during asymptomatic shedding and that asymptomatic shedding is more frequent with HSV-2, within the first year after acquisition
- Latex condoms can reduce the risk of transmission if used consistently and correctly
- Sex partners of persons with genital herpes should be advised that they might be infected even if they have no signs or symptoms
- Risk of neonatal herpes should be explained both partners. Pregnant women with genital herpes should inform their doctors. Pregnant women who are not infected should avoid intercourse with HSV-infected partner in the third trimester. Pregnant women not infected with HSV-1 should avoid oral sex in the third trimester

- Asymptomatic patients should receive the same counseling as symptomatic.

*(You may want to print this checklist as a counseling tool.)*

**Remember: Take a sympathetic, non-judgmental approach**

Epidemiology

- Genital herpes is common and may be caused by HSV-1 or HSV-2
- 1 in 5 people in the USA have genital herpes: 1 in 4 over 25 years of age

Natural History

- Most people (>90%) will experience symptomatic recurrences of genital herpes.
- About 80% of infections are not recognized because of mild or absent symptoms
- Most first episodes of herpes represent reactivation of previously latent infection rather than recently acquired primary infection
- People who experience a first episode will get better. Lesions will heal and recurrences will usually be less severe
- HSV-2 reactivates more frequently than HSV-1

Transmission / Acquisition

- Over 50% of people getting herpes get it from a partner who is unaware they have genital herpes
- Genital herpes can be transmitted by genital or oral sex (coldsore). Thus oral/genital sex should be avoided in the last trimester of pregnancy, if the partner has cold sores.
- Anyone with genital herpes may shed virus a few days per year without symptoms. The occurrences are as often as 15-25% of days.
- Transmission can occur during symptomatic and asymptomatic periods.
- Transmission of herpes can occur within committed long-term relationships and in people who have never had penetrative sex through close genital contact or oral genital contact
- Suppressive antiviral therapy can reduce the risk of transmission by 50%.

Condoms reduce the risk of transmission when used consistently and correctly, but it is also advisable to avoid skin to skin contact when lesions are present.

It is important to tell your partner that you have herpes. By disclosing that you have the disease, it can double the average time to transmission to to your partner.

#### Management Strategies

Antiviral treatment is effective in reducing duration of lesions. The disease can be managed episodically to treat recurrences or suppressively to prevent recurrences. Daily suppressive therapy reduces reactivation nearly completely

#### Complications

Genital herpes does not cause cervical cancer or affect your fertility

#### Herpes and pregnancy

Neonatal herpes is serious but rare, especially among persons with HSV-2. Tell your obstetrician

Women with genital herpes can have a safe pregnancy and vaginal delivery. New infections in the third trimester need especially close medical follow-up. Health care providers may consider antiviral therapy in the last four weeks to prevent transmission to the neonate.

## **References**

- Behrman, A.J. (2005) *Gonorrhoea*. Retrieved May 15,2002 from <http://www.emedicine.com/EMERG/topic220.htm>
- Center for Disease Control and Prevention. (2002) Sexually Transmitted Diseases Treatment Guidelines. *MMWR* 2002;51. Georgia. US Department of Health and Human Services
- Diagnosing Herpes-Guidelines for Health Care Professionals* (n.d.) Retrieved March 15,2006 from <http://www.herpesdiagnosis.com/guidelines.html>
- Hatcher, R.A., Trussell,J., Stewart,F., Nelson,A., Cates, W., Guest,F., Kowal,D. (2004) *Contraceptive Technology(18<sup>th</sup> edition)*. New York: Ardent Media.
- Gibson, M.V. (2005). Vaginitis-A Case Based Guide to Infectious Causes. *Patient Care For the Nurse Practitioner*. Retrieved January 15,2006 from <http://www.patientcarenp.com/pcnp/article/articleDetail.jsp?id=279955>
- Grimshaw,L.J. (2005) How to recognize and Manage HPV Infections. *Clinical Advisor* 8(3), 24-32
- National Network of STD/HIV Prevention Training Centers. *Ready to use STD Curriculum for Clinical Educators* (2005). Retrieved March 25,2006 from <http://www.cdc.gov/std/training/onlinetraining.htm>
- National Women's Health Information Center.(2006) *Gonorrhoea*. Retrieved May 17,2006 from <http://www.4woman.gov/faq/stdgonor.pdf>
- Pulver, B., (2004) *Syphilis*. Retrieved October 5,2005 from <http://www.emedicine.com/EMERG/topic563.htm>
- Wikipedia. *Sexually Transmitted Diseases* (2006) Retrieved May 17, 2006 from [http://en.wikipedia.org/wiki/Sexually\\_transmitted\\_disease](http://en.wikipedia.org/wiki/Sexually_transmitted_disease)