

# **Sexually Transmitted Diseases (STDs)**

**CLS 212: Medical Microbiology**

# What are STD's?

- STD's are infections that are spread from person to person through intimate sexual contact.
- They are also called: **sexually transmitted infections (STI's)** or **venereal disease (VD)**.
- They don't only affect the genital and urinary tracts, but also the skin, mucous membranes, blood, lymph, digestive system, and many other organs.
- STD's are dangerous because they are **easily** spread and most of the time **asymptomatic**.

# Sexually Transmitted Diseases (STD's)

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graph TD; A[Sexually Transmitted Diseases (STD's)] --> B[Bacteria]; A --> C[Viruses]; A --> D[Protozoa]; A --> E[Fungi]; B --> B1["Chlamydia trachomatis<br/>Neisseria gonorrhoeae<br/>Treponema pallidum"]; C --> C1["HSV-2<br/>HPV<br/>HIV<br/>HBV, HCV"]; D --> D1["Trichomonas vaginalis"]; E --> E1["Candida albicans"];
```

**Bacteria**

*Chlamydia trachomatis*  
*Neisseria gonorrhoeae*  
*Treponema pallidum*

**Viruses**

HSV-2  
HPV  
HIV  
HBV, HCV

**Protozoa**

*Trichomonas vaginalis*

**Fungi**

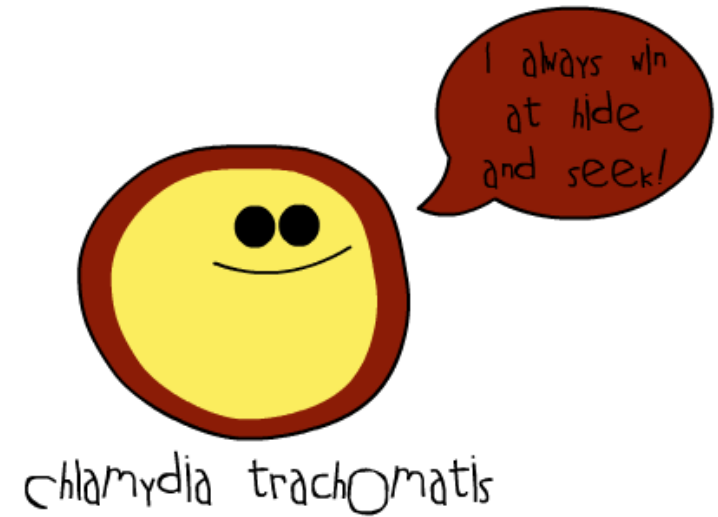
*Candida albicans*

# Bacterial STDs

## Genital Chlamydiasis

### Etiologic Agent:

- *Chlamydia trachomatis*.
- Tiny intracellular bacteria.



### Disease:

- It is a common STDs for both men and women
- Mostly asymptomatic (known as silent disease).

### Symptoms:

- ✓ **Male** → gray-white discharge from penis sometimes with painful testes.
- ✓ **Female** → increased vaginal discharge maybe accompanied by painful urination, abnormal vaginal bleeding and abdominal pain.

It can also cause ocular infection or pneumonia in new born babies of infected mother.

# Bacterial STDs

## Genital Chlamydia

### Complications:

The main importance of the infection is that it can produce pelvic inflammatory disease (PID) in women, damaging the fallopian tubes and promoting sterility or ectopic pregnancy.

# Bacterial STDs

## Gonorrhea

### Etiologic Agent:

- *Neisseria gonorrhoeae* (=gonococcus)
- Gram negative diplococci, intracellular.



### Disease:

- Asymptomatic infection can occur in both sexes.
- Rectal infection (in homosexuals), and pharyngitis (oral-genital contact) is common.

### Symptoms:

**Men** → urethritis, pain during urination and thick, pus-containing discharge from penis.

**Women** → painful urination and vaginal discharge and the symptoms tend to be mild, therefore women become unknowing carriers.

# Bacterial STDs

## Gonorrhea

### Complications:

- Can progress to pelvic inflammatory disease or ectopic pregnancy.
- It can cause eye infection to newborn babies of infected mothers.

# Bacterial STDs

## Syphilis



### Etiologic Agent:

- Treponemapallidum
- Gram-variable tiny coiled spirochete.

### Disease:

- the disease can occur in many forms and easily be confused with other disease.



# Bacterial STDs

## Syphilis

### Symptoms:

- There are three clinical stages for the disease:

Stage	Appearance of Symptoms	Symptoms
Primary syphilis	Around 3 weeks after infection	Painless red ulcer with hard rim at site of infection. Might pass un-noticed.
Secondary syphilis	After 2 to 10 weeks	Reddish-pink non-itchy <b>rash</b> on the trunk and extremities including the palms and soles. Other symptoms may include fever, sore throat, malaise, weight loss, hair loss, and headache.
Tertiary syphilis	After a latent period that can last for many years	Mental illness, blindness, stroke and other nervous system disorder.

# Viral STDs

## Genital Herpes

### Etiologic Agent:

- Herpes simplex virus type 2.

### Symptoms:

- ✓ **Men** → infection in urethra may imitate the symptoms of bladder infection.
- ✓ **Women** → starts with itching, burning and often severe pain.
- Blisters surrounded by redness will appear on the genitalia. The blisters break leaving an ulcerated area.
- Ulcer heals slowly.
- Some individuals may have recurrences for life.

### Complication:

- It can cause a serious risk to newborn babies if mother has a primary infection near the time of delivery.
- the baby will have 1 in 3 risk of occurring the infection
- Baby often dies from overwhelming infection or is permanently disabled by it.

# Viral STDs

## Acquired Immunodeficiency Syndrome (AIDS)

### Etiologic Agent:

- Human immunodeficiency virus type 1 or type 2.

### Symptoms:

- 6 days to weeks after contracting the virus, some individuals may develop flue like symptoms that will go away by themselves.
- Typically HIV disease is unnoticed for almost 10 years and the first evidence of the disease is usually malignancy or unusual microbial infection.
- Death usually occurs from opportunistic infections.
- The most common diseases associated with HIV infection are Tuberculosis and STDs.

# Protozoal STDs

## Trichomoniasis



### Etiologic Agent:

- *Trichomonas vaginalis*.
- It has flagella and show jerky motility on microscopic examination.
- Does not have a cyst form.

### Symptoms:

- ✓ **Men** → mostly asymptomatic, few may have discharge, burning urination and painful testes.
- ✓ **Women** → fishy odor, yellowish-green discharge. Itching and burning.

# Protozoal STDs

## Trichomoniasis



### Transmission:

- It can live for 24 hrs in urine sample, or semen, or even a water sample.
- It can live on a wet surface for 1-2 hrs.
- It is largely sexually transmitted.
- In veryrare cases it can be transmitted by using infected person towels or by using public hot paths where the parasite can live.
- New born infants can contract the infection from infected mothers at birth.