

# **Sexually Transmitted Infections**

**(STDs)**



# Epidemiology of STIs

- In 2012, an estimated 357 million new cases of curable STIs (gonorrhoea, chlamydia, syphilis and trichomoniasis) occurred among 15–49 year-olds worldwide, including 131 million cases of chlamydial infection.
- In developing countries, STIs & their complications rank in the top five diseases for which adults seek health care.
- More than a million STIs are acquired every day.



# Epidemiology of STIs

- Sexually transmitted infections (STIs) are a major public health problem worldwide, affecting quality of life and causing serious morbidity and mortality.
- STIs have a direct impact on reproductive and child health through infertility, cancers and pregnancy complications, and
- They have an indirect impact through their role in facilitating sexual transmission of human immunodeficiency virus (HIV) & thus they also have an impact on national & individual economies.



# Epidemiology of STIs

- The prevention and control of STIs is an integral component of comprehensive sexual and reproductive health services that are needed to attain the related targets under:
- Sustainable Development Goal (SDG) No. 3:
- (Ensure healthy lives and promote well-being for all at all ages), including the following targets:



# Epidemiology of STIs

- Target 3.2 to end preventable deaths of newborns & children under 5 years of age
- Target 3.3 to end the epidemics of AIDS & other communicable diseases
- Target 3.4 to reduce premature mortality from non-communicable diseases & promote mental health & well-being
- Target 3.7 to ensure universal access to sexual & reproductive health-care services
- Target 3.8 to achieve universal health coverage.



# STIs are a Public Health Issue

- Infection with STIs can lead to
  - Acute symptoms
  - Chronic infection
  - Serious delayed consequences such as
    - Infertility
    - Ectopic pregnancy
    - Cervical cancer
    - Untimely death of infants & adults.



# Infections & Transmission

- STIs are infections that are spread primarily through person-to-person sexual contact.
- There are more than 30 different sexually transmissible bacteria, viruses & parasites.
- Several, in particular HIV & syphilis, can also be transmitted from mother to child during pregnancy & childbirth, & through blood products & tissue transfer.



# Causes of STI

Some of the commonest sexually transmitted pathogens can be divided into those caused by bacteria, viruses and parasites.



# STIs: Common Bacterial Infections

1. **Neisseria gonorrhoeae** (causes gonorrhoea or gonococcal infection)
2. **Chlamydia trachomatis** (causes chlamydial infections)
3. **Treponema pallidum** (causes syphilis)
4. **Haemophilus ducreyi** (causes chancroid)
5. **Klebsiella granulomatis** (previously known as *Calymmatobacterium granulomatis* causes granuloma inguinale or donovanosis).



# STIs: Common Viral Infections

1. HIV causes AIDS
2. Herpes simplex virus type 2 (causes genital herpes)
3. Herpes simplex virus type 1 (causes genital herpes in 20% of cases)
4. Human papillomavirus (causes genital warts & certain subtypes lead to cervical cancer in women)
5. Hepatitis B virus (causes hepatitis and chronic cases may lead to cancer of the liver).
6. Hepatitis A & C (rare)
7. Cytomegalovirus (causes inflammation in a number of organs including the brain, the eye, & the bowel).



# STIs: Common Parasitic Infections

1. **Trichomonas vaginalis (causes vaginal trichomoniasis)**
2. **Pubic lice or crabs (Pediculosis pubis)**
3. **Scabies *Sarcoptes scabiei***



# STIs: Common Fungal Infections

1. **Candida albicans** (causes vulvovaginitis in women; inflammation of the glans penis and foreskin [balano-posthitis] in men).



# STIs & Prevention of Serious Complications in Women

- STIs are the main preventable cause of infertility
- Between 10% & 40% of women with untreated chlamydial infection develop pelvic inflammatory disease (PID).
- Post-infection tubal damage is responsible for 30% to 40% of cases of female infertility.
- Women who have had PID are 6 to 10 times more likely to develop an ectopic pregnancy than those who have not, & 40% to 50% of ectopic pregnancies can be attributed to previous PID.
- Infection with certain types of the HPV can lead to the development of genital cancers, particularly cervical cancer in women



# STIs & Adverse Outcomes of Pregnancy

- **Untreated STIs are associated with congenital & perinatal infections in neonates**
- **In pregnant women with untreated early syphilis**
  - **25% of pregnancies result in stillbirth**
  - **14% in neonatal death**
  - **Overall perinatal mortality of about 40%.**
  - **Syphilis prevalence in pregnant women in Africa, ranges from 4% to 15%**



# STIs & Adverse Outcomes of Pregnancy

- Up to 30% of infants born to mothers with untreated chlamydial infection will develop a serious eye infection (ophthalmia neonatorum), which can lead to blindness if not treated early.
- It is estimated that, worldwide, between 1000 and 4000 newborn babies become blind every year because of this condition.



# STIs & HIV

- The presence of an untreated ulcerative or non-ulcerative STIs infection increases the risk of both acquisition and transmission of HIV by a factor of up to 10.
- Thus, prompt treatment for STIs is important to reduce the risk of HIV infection.
- Controlling STIs is important for preventing HIV in people at high risk, as well as in the general population. 

# STIs without symptoms

- Up to 70% of women & a significant proportion of men with gonococcal &/or chlamydial infections may experience no symptoms at all.
- Both symptomatic & asymptomatic infections can lead to the development of serious complications



# The approach to a patient with a suspected STI

- Patients with STI are often anxious, so staff must be friendly
- Put patient at ease, & reassure
- Keep confidentiality
- History focus on genital symptoms
- Ask about immunization status
- Ask about sexual partner & sexual practices
- Multiple STI may be found in same patient
- Do complete examination & investigation



# STI syndromes & Syndromic approach to patient management

- Although many different pathogens cause STIs, some of them give rise to similar or overlapping clinical appearances
- Some of these signs & symptoms are easily consistent & recognizable, giving what is known as a syndrome that signals the presence of one or a number of pathogens.
- For example, a discharge from the urethra in men can be caused by gonorrhoea alone, chlamydia alone or both together. 

# The main syndromes of common STIs are:

- Urethral discharge
- Genital ulcers
- Inguinal swellings
- Scrotal swelling
- Vaginal discharge
- Lower abdominal pain
- Neonatal eye infections



# Viral STIs/STDs

- HIV/AIDS
- HPV
- HSV1
- HSV2
- HBV



# HIV/AIDS



# HIV Transmission

- HIV is present in the blood & genital secretions of virtually all individuals infected with HIV, regardless of whether or not they have symptoms.
- The spread of HIV can occur when these secretions come in contact with tissues such as those lining the vagina, anal area, mouth, eyes, or with a break in the skin, such as from a cut or puncture by a needle.



# HIV Transmission

The most common ways in which HIV is spreading include

Sexual contact

Sharing needles

Tattoo & body piercing.

Transmission from infected mothers to their newborns during pregnancy, labor, or breastfeeding

- Sexual transmission of HIV has been described from men to men, men to women, women to men, & women to women through vaginal, anal, & oral sex

# HIV Transmission

- **Sharing needles, as in those used for illicit drugs.**
- **The risk of acquiring HIV from a blood transfusion is extremely small and is considered insignificant.**
- **Unless there are open sores or blood in the mouth, kissing is generally considered not to be a risk factor for transmitting HIV.**
- **Sharing of toothbrushes and shaving razors because they can cause bleeding,**



# IP

- The time from HIV infection to the development of AIDS varies.
- Some individuals develop complications of HIV that define AIDS within one year
- Others remain completely asymptomatic after as many as 20 years from the time of infection.
- In the absence of antiretroviral therapy the time for progression from initial infection to AIDS is approximately 8 to 10 years.
- Within weeks of infection, many people will develop the varied symptoms of primary or acute infection which typically have been described as influenza like illness

# Common Symptoms of Primary HIV Infection

- **Fever**
- **Aching muscles & joints**
- **Sore throat**
- **Swollen glands (lymph nodes) in the neck.**
- **It is not known, however, why only some HIV-infected people develop these symptoms.**
- **It also is unknown whether or not having the symptoms is related in any way to the future course of HIV disease.**



# Common Symptoms of Primary HIV Infection

- During the 1<sup>st</sup> wks of infection when a patient may have symptoms of primary HIV infection, antibody testing may still be negative, the so-called **window period**.
- If there is suspicion of early infection based upon
  - Types of symptoms present &
  - A potential recent exposure
- Having a test performed that specifically looks for the virus circulating in the blood, such as a viral load test or the use of an assay that identifies HIV antigen



# Common Symptoms of Primary HIV Infection

- Identifying & diagnosing individuals with primary infection is important to
  - Assure early access into care
  - Counsel them regarding the risk of transmitting to others.
  - The latter is particularly important since patients with primary HIV infection have very high levels of virus throughout their body & are likely to be highly infectious.



# Symptoms & Signs of HIV infection & AIDS

- Shortly after primary infection, most individuals enter a period of many years where they have no symptoms at all.
- During this time, CD4 cells may gradually decline, & with this decline in the immune system, patients may develop the mild symptoms of HIV such as
  - Vaginal or oral candidiasis
  - Fungal infections of the nails
  - Hairy leukoplakia
  - Chronic rashes
  - Diarrhea, fatigue
  - Weight loss.



# Symptoms & Signs of HIV infection & AIDS

- Any of these symptoms should prompt HIV testing if it is not being done for other reasons.
- With a further decline in function of the immune system, patients are at increasing risk of developing more severe complications of HIV, including many more
  - Serious infections (opportunistic infections)
  - Malignancies
  - Severe weight loss
  - Decline in mental function.



**Kaposi's sarcoma, an AIDS-related cancer.**



**In sub-Saharan Africa, AIDS was known as  
"slim disease."**



# Postexposure prophylaxis, preexposure prophylaxis to prevent HIV

- Use of antiretroviral therapy (ART) specifically to prevent HIV transmission.
- ART can be implemented for the protection of uninfected individuals both
  - Before (preexposure prophylaxis) to HIV infection &
  - After (postexposure prophylaxis) to HIV infection.



# Pre-exposure Prophylaxis to Prevent HIV

- **Pre-exposure prophylaxis** may be used coitally dependently when individuals are
  - Intermittently exposed or
  - Continuous daily dosing for those constantly exposed



# Postexposure prophylaxis, preexposure prophylaxis to prevent HIV

- **Targeting infectious individuals by drugs to make them less infectious**
- **Protecting uninfected exposed populations.**



# Postexposure prophylaxis, preexposure prophylaxis to prevent HIV

- ART can be used strategically to reduce the viral load & consequent infectiousness of an HIV-infected individual, thereby limiting the risk of onward viral transmission .
- A universal HIV testing for identification of all HIV-positive individuals followed by immediate treatment of all HIV-positive individuals, irrespective of their CD4 cell counts (universal test & treat.
- This concept represents a paradigm shift in the use of ART, targeting infectious individuals for prevention rather than protecting uninfected exposed populations.

# Postexposure prophylaxis, preexposure prophylaxis to prevent HIV

**This strategy have the advantage of**

- **Preventing transmission & reducing HIV incidence at a population level**
- **Delivering universal access to therapy for all people living with HIV and AIDS**
- **Potentially eliminating mother-to-child HIV transmission & limiting concomitant diseases such as TB.**



# Post-exposure prophylaxis of HIV infection

## (Preferred regime)

**Efavirenz +  
(lamivudine or  
emtricitaline) + (zidovudine  
or tenofovir)**

**None neocleoside reverse  
transcriptase inhibitors  
(NNRTI) based**

**Lopinavir/ritonavir +  
(lamivudine or  
emtricitaline) + zidovudine**

**Protease inhibitor (PI)  
based**

**Post-exposure prophylaxis is used in 28-day courses**



# Postnatal Exposure to HIV

- Nevirapine at the beginning of labor
- Single dose of nevirapine to the neonate 72 hours of birth



# Human Papilloma Virus

## HPV



# Genital HPV Infection

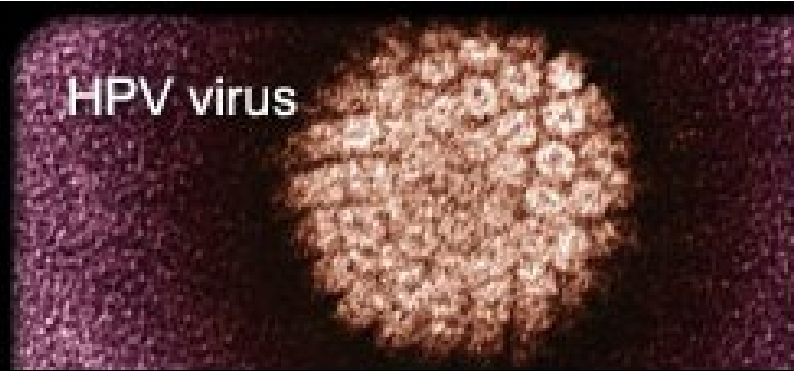
- Genital HPV is the most common sexually transmitted infection (STI).
- There are more than 40 HPV types that can infect the genital areas of males and females.
- These HPV types can also infect the mouth and throat.
- Most people who become infected with HPV do not even know they have it. 

# Signs & Symptoms

- Most people with HPV do not develop symptoms from it.
- In 90% of cases, the body's immune system clears HPV within two years.
- Certain types of HPV can cause genital warts in males & females.
- Rarely, these types can also cause warts in the throat
- Other HPV types can cause cervical cancer.
- Less common cancers, including cancers of the vulva, vagina, penis, anus, tongue, tonsils and throat.



# Genital Warts (HPV)









This image displays tiny elevations of the skin at the tip of the penis, typical of genital warts (condylomas).



This image displays how condyloma (genital warts) can be transferred to the mouth by oral sex.



# HPV vaccines

- HPV vaccines prevent serious health problems, such as
  - Cervical cancer & other, less common cancers, which are caused by HPV
- In addition to cancer, HPV can also cause other health problems, such as genital warts.
- HPV is a common virus



# HPV vaccines

- **Cervarix and Gardasil**
- Both are very effective against HPV types 16 & 18, which cause most cervical cancers.
- Both are very safe.
- Both are made with very small parts of the HPV
- Gardasil also protects against HPV types 6 & 11. These HPV types cause most genital warts in females & males.



# HPV vaccines

- **Cervarix and Gardasil**
- CDC recommends that the second dose be given one to two months after the first, and the third dose be given six months after the first dose.
- Pregnant women are not included in the recommendations for HPV vaccines

**Is the New HPV Vaccine  
a Good Choice for  
Your Daughter?**



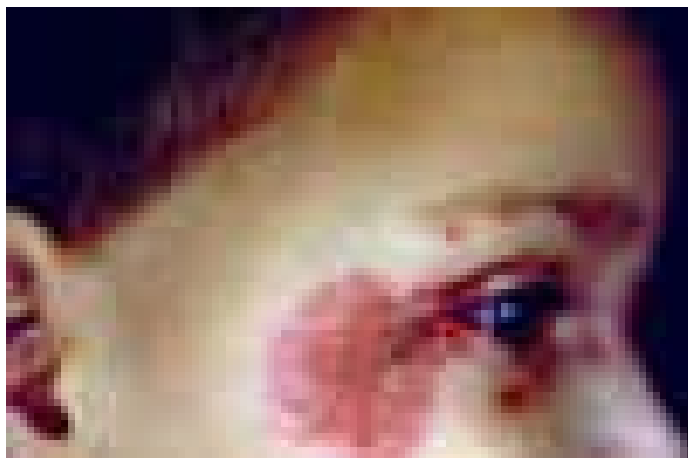
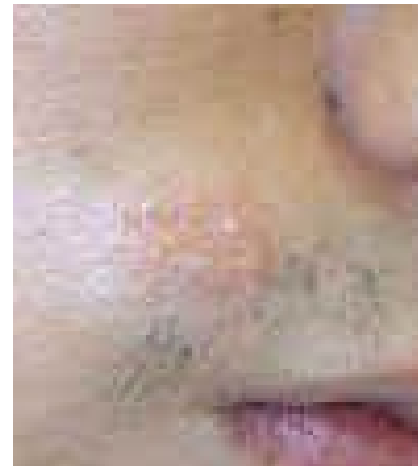


# HSV



# Herpes Simplex Virus Type 1





# Herpes Simplex Virus Type 2





# Genital Herpes on outside of Vagina





As displayed in this image, herpes outbreaks often consist of blisters closely spaced together, sometimes with subtle blistering and more redness than fluid.





This image displays blisters and swelling on the labia due to the herpes simplex virus.





As displayed in this image, herpes outbreaks often consist of blisters closely spaced together, sometimes with subtle blistering and more redness than fluid.





Herpetic whitlow is the term for herpes infection of the finger, which includes clustered blisters or pus-filled lesions.



# Hepatitis

A

B

C

D



# Bacterial STI



# Gonorrhea

- Gonorrhea is a bacterial infection caused by *Neisseria gonorrhoeae* that is transmitted by sexual contact.
- Gonorrhea is one of the oldest known STD.
- It is estimated that over one million women are currently infected with gonorrhea.
- Among women who are infected, 25%-40% also will be infected with chlamydia
- Gonorrhea cannot be transmitted from toilet seats or door handles.
- It cannot live outside the body for more than a few seconds or minutes, nor can it live on the skin of the hands, arms, or legs.
- It is found most commonly in the vagina, cervix and urethra,

# Symptoms of gonorrhea

- Over 50% of infected women have no symptoms, especially in the early stages of the infection. Symptoms include
  - Burning or frequent urination
  - A yellowish vaginal discharge
  - Redness & swelling of the genitals
  - A burning or itching of the vaginal area.
- If untreated, gonorrhea can lead to a severe pelvic infection with inflammation of the Fallopian tubes and ovaries.
- Gonorrheal infection of the Fallopian tubes can lead to a serious, painful infection of the pelvis known as pelvic inflammatory disease or PID.

# Diagnosis of gonorrhea

- **Swabbing the infected site (rectum, throat, cervix) and identifying the bacteria in the laboratory either through culturing of the material from the swab (growing the bacteria)**
- **Identification of the genetic material from the bacteria. polymerase chain reaction, or PCR)**



# The Clap (Gonorrhea)



# Gonorrhea



# Gonorrhea





A discharge of pus from the tip of the penis (urethra) is typical of gonorrhea.

# Treatment of gonorrhea

## Genital anorectal gonococcal infections

- Recommendation 1: The WHO STI guideline suggests the following options: In settings where local resistance data are not available, the WHO STI guideline suggests dual therapy over single therapy for people with genital or anorectal gonorrhoea.



# Treatment of gonorrhea

## Genital anorectal gonococcal infections

- **Dual therapy (one of the following)**
  - Ceftriaxone 250 mg intramuscular (IM) as a single dose PLUS azithromycin 1 g orally as a single dose
  - Cefixime 400 mg orally as a single dose PLUS azithromycin 1 g orally as a single dose
- **Single therapy (one of the following, based on recent local resistance data confirming susceptibility to the antimicrobial)**
  - Ceftriaxone 250 mg IM as a single dose
  - Cefixime 400 mg orally as a single dose
  - Spectinomycin 2 g IM as a single dose.



# Treatment of gonorrhea

## Oropharyngeal gonococcal infections

- Recommendation 2: In adults and adolescents with gonococcal oropharyngeal infections, the WHO STI guideline suggests dual therapy over single therapy.



# Treatment of gonorrhea

## Oropharyngeal gonococcal infections

The WHO STI guideline suggests the following options:

- **Dual therapy (one of the following)**
  - Ceftriaxone 250 mg IM as a single dose PLUS azithromycin 1 g orally as a single dose
  - Cefixime 400 mg orally as a single dose PLUS azithromycin 1 g orally as a single dose
- **Single therapy (based on recent local resistance data confirming susceptibility to the antimicrobial)**
  - Ceftriaxone 250 mg IM as single dose.

# Treatment of gonorrhea

## Retreatment of gonococcal infections after treatment failure

- **Recommendation 3:** If reinfection is suspected, re-treat with a WHO recommended regimen, reinforce sexual abstinence or condom use, and provide partner treatment.
- If treatment failure occurred after treatment with a regimen not recommended by WHO, re-treat with a WHO-recommended regimen.
- If treatment failure occurred and resistance data are available, re-treat according to susceptibility.
- If treatment failure occurred after treatment with a WHO-recommended single therapy, re-treat with WHO-recommended dual therapy. 

# Treatment of gonorrhea

## Retreatment of gonococcal infections after treatment failure

**Recommendation 3:** If treatment failure occurred after a WHO recommended dual therapy, re-treat with one of the following dual therapies:

- Ceftriaxone 500 mg IM as a single dose PLUS azithromycin 2 g orally as a single dose
- Cefixime 800 mg orally as a single dose PLUS azithromycin 2 g orally as a single dose
- Gentamicin 240 mg IM as a single dose PLUS azithromycin 2 g orally as a single dose
- Spectinomycin 2 g IM as a single dose (if not an oropharyngeal infection) PLUS azithromycin 2 g orally as a single dose.

# Treatment of gonorrhea

## Ophthalmia neonatorum

- **Recommendation 4:** In neonates with gonococcal conjunctivitis, the WHO STI guideline suggests one of the following treatment options:
  - Ceftriaxone 50 mg/kg (maximum 150 mg) IM as a single dose
  - Kanamycin 25 mg /kg (maximum 75 mg) IM as a single dose
  - Spectinomycin 25 mg/kg (maximum 75 mg) IM as a single dose. 

# Treatment of gonorrhea

## Ophthalmia neonatorum

- **RECOMMENDATION 5**
- For all neonates, the WHO STI guideline recommends topical ocular prophylaxis for the prevention of gonococcal and chlamydial ophthalmia neonatorum.



# Treatment of gonorrhea

## Ophthalmia neonatorum

- **RECOMMENDATION 6:** For ocular prophylaxis, the WHO STI guideline suggests one of the following options for topical application to both eyes immediately after birth:
  - Tetracycline hydrochloride 1% eye ointment
  - Erythromycin 0.5% eye ointment
  - Povidone iodine 2.5% solution (water-based)
  - Silver nitrate 1% solution
  - Chloramphenicol 1% eye ointment.



# What is chlamydia?

- Chlamydia (*Chlamydia trachomatis*) is a bacterium that causes an infection that is very similar to gonorrhea in the way that it is spread and the symptoms it produces.
- It is common and affects approximately 4 million women annually.
- Like gonorrhea, the chlamydia bacterium is found in the cervix & urethra & can live in the throat or rectum.
- Both infected men & infected women frequently lack symptoms of chlamydia infection.
- Thus, these individuals can unknowingly spread the infection to others.
- Another strain (type) of *Chlamydia trachomatis*, which can be distinguished in specialized laboratories, causes the STD known as lymphogranuloma venereum (LGV)

# Chlamydia



# Epidemiology

- Chlamydial infection, caused by *Chlamydia trachomatis*,
- is the most common bacterial STI & results in substantial morbidity & economic cost worldwide.
- The WHO estimates that the overall prevalence of 4.2% for females and 2.7% for males.
- The three biovars of *C. trachomatis*, each consisting of several serovars or genotypes, cause genital infections, lymphogranuloma venereum (LGV: a genital ulcer disease [GUD] that affects lymphoid tissue), and trachoma (eye infection).

# CLINICAL PRESENTATION

- Genital infections due to *C. trachomatis* are asymptomatic in approximately 70% of women & 50% of men.
- Symptoms of uncomplicated chlamydial infection in women include abnormal vaginal discharge, dysuria, & post-coital & intermenstrual bleeding.
- Common clinical signs on speculum examination include cervical friability & discharge.
- Symptomatic men usually present with urethral discharge & dysuria, sometimes accompanied by testicular pain. 

# CLINICAL PRESENTATION

- If left untreated, most genital infections will resolve spontaneously with no sequelae but they may result in severe complications, mainly in young women.
- Infection can ascend to the upper reproductive tract and can cause pelvic inflammatory disease, ectopic pregnancy, salpingitis and tubal factor infertility in women &
- Epididymitis in men.
- The risk of complications may increase with repeated infection.



# CLINICAL PRESENTATION

Infections at non-genital sites are common.

- Rectal infection may manifest as a rectal discharge, rectal pain or blood in the stools, but is asymptomatic in most cases.
- Oropharyngeal infections can manifest as pharyngitis and mild sore throat, but symptoms are rare.



# CLINICAL PRESENTATION

- Chlamydial infection in pregnancy is associated with preterm birth & LBW. Infants of mothers with chlamydia can be infected at delivery, resulting in neonatal conjunctivitis and/or nasopharyngeal infection
- Symptoms of ophthalmia include ocular discharge & swollen eyelids.
- In newborns, nasopharyngeal infection can lead to pneumonitis.



# CLINICAL PRESENTATION

- LGV, caused by a more invasive serovar of *C. trachomatis*, affects the submucosal connective tissue and can spread to regional lymph nodes. It commonly presents as a unilateral, tender inguinal or femoral lymph node and a genital ulcer or papule.
- Anorectal exposure may result in proctitis, rectal discharge, pain, constipation or tenesmus. Left untreated, LGV can lead to rectal fistula or stricture.



# LABORATORY DIAGNOSIS

- Culture,
- Direct immunofluorescence assays (DFAs), and laboratory-based and point-of-care enzyme linked immunosorbent assays (ELISAs), nucleic acid amplification tests (NAATs) are strongly recommended due to their superior performance characteristics.
- NAATs are highly sensitive & specific and can be used for a wide range of samples, including urine and vulvovaginal, cervical and urethral swabs. 

# Treatment

- UNCOMPLICATED GENITAL CHLAMYDIA
  - RECOMMENDATION 1
  - • azithromycin 1 g orally as a single oral dose
  - • doxycycline 100 mg orally twice a day for 7 days
- or one of these alternatives:
- • tetracycline 500 mg orally four times a day for 7 days
  - • erythromycin 500 mg orally twice a day for 7 days
  - • ofloxacin 200–400 mg orally twice a day for 7 days.

# Treatment

- ANORECTAL CHLAMYDIAL INFECTION
- RECOMMENDATION 2
- In people with anorectal chlamydial infection, the
- WHO STI guideline suggests using doxycycline 100 mg orally twice daily for 7 days over azithromycin 1 g orally single dose.



# Treatment

- CHLAMYDIAL INFECTION IN PREGNANT WOMEN
- azithromycin 1 g orally as a single dose
- amoxicillin 500 mg orally three times a day for 7 days
- erythromycin 500 mg orally twice a day for 7 days.



# Treatment

- LYMPHOGRANULOMA VENEREUM (LGV)
- In adults and adolescents with LGV, the WHO STI guideline suggests using doxycycline 100 mg oral twice daily for 21 days over azithromycin 1 g orally, weekly for 3 weeks.



# Treatment

- OPHTHALMIA NEONATORUM
- In neonates with chlamydial conjunctivitis, the WHO STI guideline recommends using oral azithromycin 20 mg/kg/day orally, one dose daily for 3 days, over
- erythromycin 50 mg/kg/day orally, in four divided doses daily for 14 days.



# Treatment

## RECOMMENDATION 7

- For ocular prophylaxis, the WHO STI guideline suggests one of the following options for topical application to both eyes immediately after birth:
- tetracycline hydrochloride 1% eye ointment
- erythromycin 0.5% eye ointment
- povidone iodine 2.5% solution (water-based)
- silver nitrate 1% solution
- chloramphenicol 1% eye ointment.

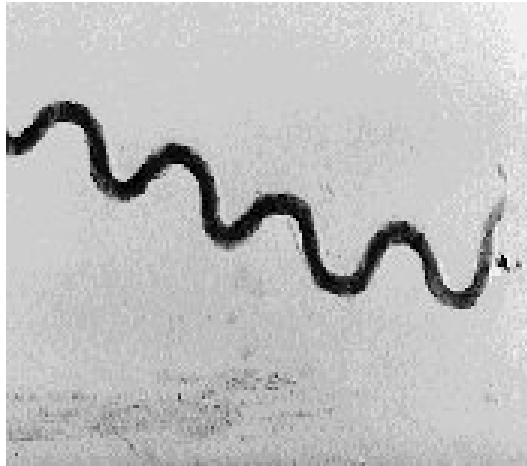




This image displays a woman's cervix with red erosions due to a chlamydial infection.

# Syphilis

## Treponema Pallidum



# Stages of Syphilis

- **Early syphilis**
  - Primary syphilis**
  - Secondary syphilis**
  - Maculopapular rash
  - Condylomata lata
  - Generalized lymphadenopathy
  - Mucous patches
- Latent syphilis**
  - Early latency within 2 years of infection (infectious)
  - Late latency (not infectious), may persist for years or life
- **Late syphilis**
  - Tertiary syphilis (develop 3 to 10 years after infection)**
  - Gumma
  - Cardiovascular syphilis (syphilitic aortitis)
  - Neurosyphilis (tabes dorsalis or general paralysis of insane)
- **Congenital syphilis**

# Syphilis

## Early syphilis

### Primary syphilis

#### Secondary syphilis

- Maculopapular rash
- Condylomata lata
- Generalized lymphadenopathy
- Mucous patches

#### Latent syphilis

- Early latency within 2 years of infection (infectious)
- Late latency (not infectious), may persist for years or life

## Late syphilis

### Tertiary syphilis (develop 3 to 10 years after infection)

- Gumma
- Cardiovascular syphilis (syphilitic aortitis)
- Neurosyphilis (tabes dorsalis or general paralysis of insane)

# Syphilis



# **Primary Syphilis**

## **Primary Lesion or Chancre**



**IP 14-28 days with range of 9-90 days  
Chancre develops at site of infection**

**A dull red macule develops,  
becomes papular  
& then erodes to  
form an indurated  
ulcer, Inguinal  
lymph nodes  
enlarged. Ulcer &  
lymph nodes are  
painless  
Without  
treatment ulcer  
will resolve within  
2 to 6 wks leaving  
fine scar**



This image displays a chancre, and ulcer of primary syphilis.



This image displays a painless ulcer with a red base, typical of primary syphilis.

# Secondary Syphilis

## Rash

Starts 6 to 8 weeks after development of chancre



Untreated may last 12  
weeks



# Chancroid

# Chancroid

- **Organism**
- **Hemophilus ducreyi**
- **C/P**
- **Single or multiple painful ulcers with ragged undermined edges**
- **Tender, unilocular, suppurative inguinal lymph nodes**
- **Treatment**
- **Azithromycin**
- **Ceftriaxone**
- **Ciprofloxacin**

# Chancroid

Chancroid bacteria





# **LGV (Lymphogranuloma Venereum)**

# LGV (Lymphogranuloma Venereum)

- **Organism**
- **Chlamydia trachomatis types L1, 2, 3**
- **C/P**
- **Small transient painless ulcer**
- **Tender, unilateral, matted, multilocular suppurative, inguinal lymph nodes.**
- **Treatment**
- **Doxycycline**
- **Erythromycin**

# LGV (Lymphogranuloma Venereum)





LGV primary lesion



Chronic lymphogranuloma venereum.  
Female genital elephantiasis



LGV lymphadenopathy

# Urethritis

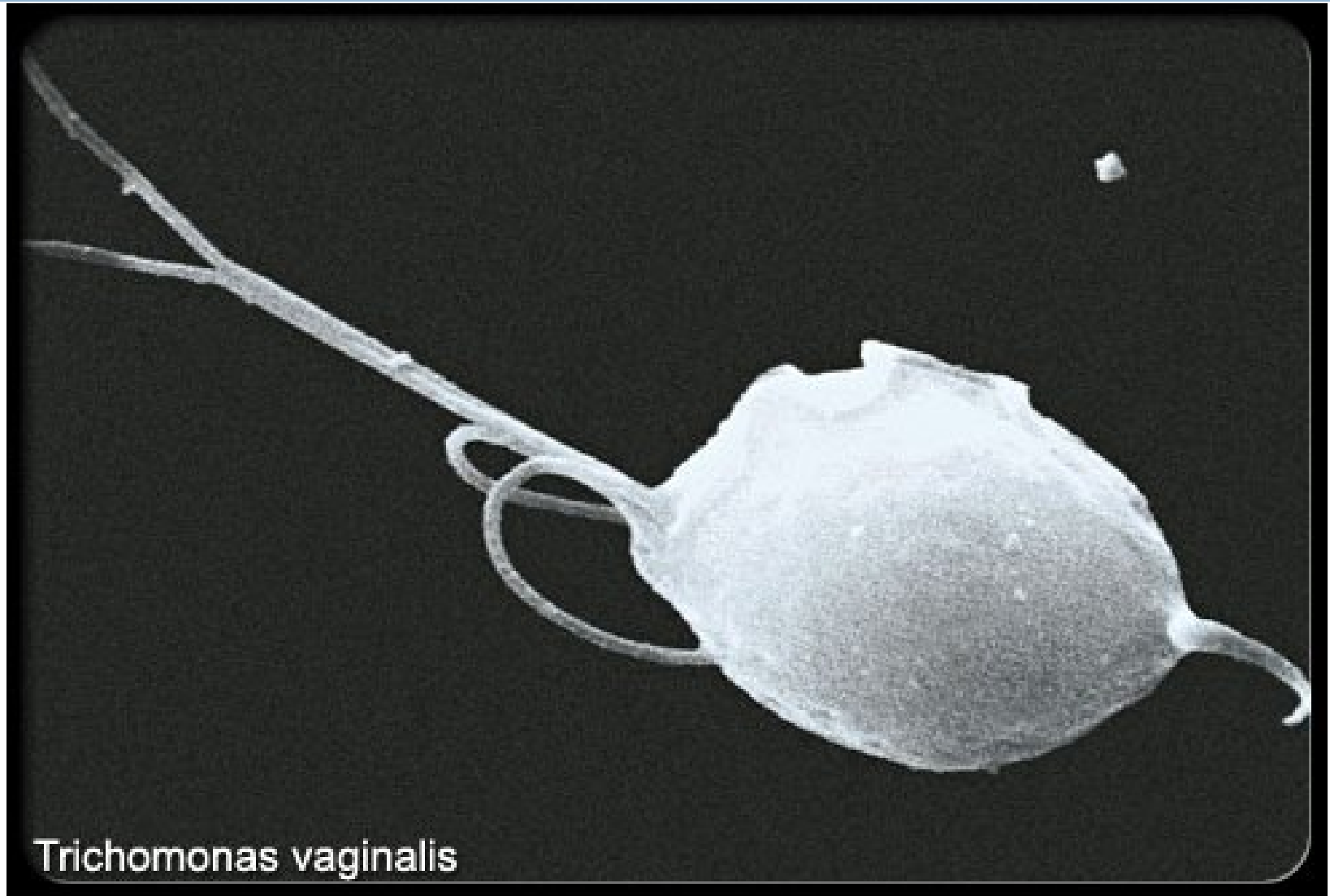
- An inflammation of the urethra with or without discharge, is most commonly caused by
  - Chlamydia or
  - Gonorrhea
  - But can also be caused by *Trichomonas vaginalis* .
- Urethritis as a result of chlamydia tends to be more subtle in presentation than gonococcal urethritis (gonorrhea).
- Chlamydial white/cloudy, watery discharge from the tip of the penis.



# Parasitic STI

# Trichomonus Vaginalis

# Trichomoniasis



# Crabs (Pubic Lice)



# Pubic Lice



# Scabies



# Investigations for STI

## Females

| Focus           | Investigation                                                                           |
|-----------------|-----------------------------------------------------------------------------------------|
| Urethral meatus | Gm stain smear & culture for gonococci<br>Swab for chlamydia (PCR)                      |
| Vagina          | Wet saline mount & Gm stain for candida, trichomonus, & bacterial vaginosis             |
| Cervical os     | Gm stain smear & culture for gonococci<br>Swab for chlamydia (PCR)<br>Cervical cytology |
| Rectum          | Gm stain smear & culture for gonococci<br>Swab for chlamydia (PCR)                      |
| Throat          | culture for gonococci<br>Swab for chlamydia (PCR)                                       |

# Investigations for STI

## Males

| Focus    | Investigation                                                      |
|----------|--------------------------------------------------------------------|
| Urethral | Gm stain smear & culture for gonococci<br>Swab for chlamydia (PCR) |
| Rectum   | Gm stain smear & culture for gonococci<br>Swab for chlamydia (PCR) |
| Throat   | culture for gonococci<br>Swab for chlamydia (PCR)                  |

# Investigations for STI

## All patients

| Focus                 | Investigation                                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Eyes                  | Gm stain smear & culture for gonococci<br>Swab for chlamydia (PCR)                                                                              |
| Contacts of gonorrhea | Gm stain smear & culture for gonococci<br>Swab for chlamydia (PCR)                                                                              |
| Genital ulcers        | Microscopy for treponema pallidum<br>Swab for herpes<br>Test for lymphogranuloma venerium, chancroid, granuloma inguinale<br>Blood for syphilis |