

HIV, STI AND OTHER BLOOD- BORNE DISEASES

Kolářová M., EPI Autumn 2015

- Chlamydia infection
- Genital warts
- Gonorrhoea
- Hepatitis B
- Hepatitis C
- HIV infection and AIDS
- Human papillomavirus infection
- Sexually Transmitted Infections (STI)
- Syphilis

SYPHYLIS

Etiology:

The bacterium *Treponema pallidum*. It is susceptible to the environment

The source of infection

After an incubation period of 10 to 90 days (three weeks on average) clinical symptoms appear: at first a primary lesion at the site of infection (chancre), then a series of eruptions on mucous membranes and skin (secondary syphilis), followed by long periods of latency (latent or tertiary syphilis). If untreated, many years after the initial infection, tertiary syphilis lesions might finally appear (visceral, multi-organ involvement, including serious vascular and neurological damage).

Route of transmission

By direct contact through infectious exudates of infected persons - most commonly through sexual intercourse (saliva, sperm, blood, vaginal secret).

Transmission by blood transfusion - a blood donor in a seronegative stage.

Transplacental transmission or intranatal infection – (congenital syphilis).

Susceptibility

General

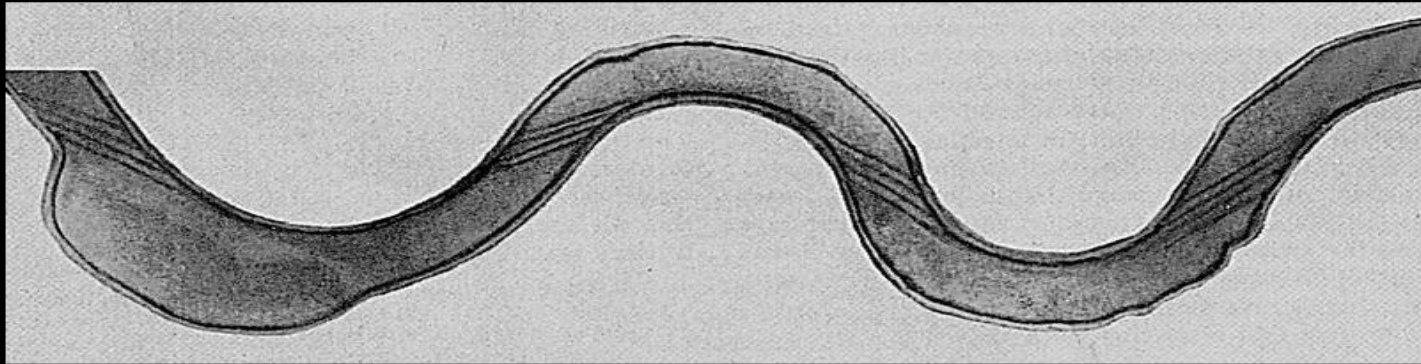
Preventive measures:

Health education aimed at young people. Active search for persons with latent syphilis, and adequate treatment. Serologic examination of females in the early stage of gravidity - prevention of congenital syphilis

Syphilis

- Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum*. It may also be transmitted mother-to-child (congenital syphilis).
- Humans are the only reservoir and, apart from congenital cases, the only epidemiologically relevant mode of transmission is by direct contact with treponema-rich, open lesions and contaminated secretions from a patient.
- After an incubation period of 10 to 90 days (three weeks on average) clinical symptoms appear: at first a primary lesion at the site of infection (chancre), then a series of eruptions on mucous membranes and skin (secondary syphilis), followed by long periods of latency (latent or tertiary syphilis). If untreated, many years after the initial infection, tertiary syphilis lesions might finally appear (visceral, multi-organ involvement, including serious vascular and neurological damage).
- Mother-to-child transmission might result in foetal death, perinatal death or congenital syphilis. The latter can be without symptoms or present stigmata or determine multi-organ pathology.
- With the widespread use of penicillin, syphilis prevalence had significantly declined after World War II. However, in several industrialised countries a considerable resurgence occurred in the late 1980s.

Helical structure of *Treponema pallidum* with the periplasmic flagella.



Secondary **syphilis** with typical skin rash.



- It is the third most frequently reported sexually transmitted disease in the EU after chlamydia and gonorrhoea.
- In 2010, 17 884 syphilis cases were reported by 29 EU/ EEA Member States, resulting in a reported case rate of 4.4 per 100000 population. Almost 60% of all cases were reported by four countries (Germany, United Kingdom, Spain and Romania).
- The majority of cases in 2010 (59%) were reported in the age groups 25–34 years (31% of cases, 6.1 cases per 100000 population) and 35–44 years (28% of cases, 4.8 per 100 000). Only 17% of cases are reported in the 15–24 years age group

Syphilis

During the last 10 years, rates of reported syphilis cases have increased in a number of European countries. Increases have occurred predominantly among men who have sex with men, but outbreaks have also been recorded among other subgroups including commercial sex workers and their clients, migrant communities, and among heterosexual adults.

Gonorrhoea

Etiology:

Neisseria gonorrhoeae bacteria..

- Women may experience a yellow or bloody discharge and find urination painful. However, many women with gonorrhoea will have no or mild symptoms. Men may experience a burning sensation when urinating and a pus-like discharge from the penis.
- It may take anywhere from three to 14 days after sexual contact with an infected person to develop symptoms. However, some infected people may not develop any symptoms but can still transmit the infection to sexual partners. Untreated cases may remain infectious from six months to more than one year.

The source of infection

Route of transmission

Gonorrhoea is transmitted through sexual contact including sex without using a condom, vaginal intercourse, anal and oral sex. During sexual intercourse, gonorrhoea is more likely to be transmitted from men to women than from women to men. The infection can also be transmitted from mother-to-child during childbirth.

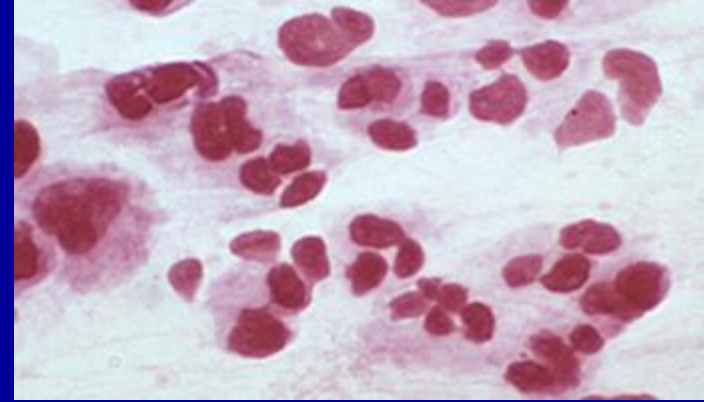
Susceptibility

General

Preventive measures:

Using a condom and avoiding risky sexual behaviours, like having lots of partners, can protect against getting STIs, including gonorrhoea.

Gonorrhoea



Gonorrhoea is a sexually transmitted infection (STI) caused by *Neisseria gonorrhoeae* bacteria. Urethral infections in men and uro-genital infections in women are the main presenting feature, but a broad spectrum of clinical presentations can occur, including systemic dissemination with fever and skin and joint involvement. Throat and ano-rectal infections also occur.

Gonorrhoea

Urethral symptoms and vaginal discharge may appear after a short incubation (2–7 days following exposure), but in women cervicitis may remain without symptoms. Once a diagnosis is made, uncomplicated gonorrhoea is usually cured by a single dose of a suitable antibiotic. Partner notification and treatment is essential to curtail transmission.

Gonorrhoea

Symptoms

Women may experience a yellow or bloody discharge and find urination painful. However, many women with gonorrhoea will have no or mild symptoms. Men may experience a burning sensation when urinating and a pus-like discharge from the penis.

- It may take anywhere from three to 14 days after sexual contact with an infected person to develop symptoms. However, some infected people may not develop any symptoms but can still transmit the infection to sexual partners. Untreated cases may remain infectious from six months to more than one year.

Complications

If left untreated, women can develop pelvic inflammatory disease (PID) as the infection spreads further in the upper genital tract. PID may cause pelvic pain, discharges and bleeding but may also be without specific symptoms. If the infection goes untreated, it can spread further in to the fallopian tubes and lead to ectopic pregnancy or infertility. The infection can then spread even further and affect the abdomen and liver.

Gonorrhoea

Ways to catch gonorrhoea

Gonorrhoea is transmitted through sexual contact including sex without using a condom, vaginal intercourse, anal and oral sex. During sexual intercourse, gonorrhoea is more likely to be transmitted from men to women than from women to men. The infection can also be transmitted from mother-to-child during childbirth.

People most at risk

Those who have had gonorrhoea infection in the past may be re-infected in the future. People particularly at risk include those who have multiple sexual partners and concurrent partnerships; people who don't use condoms; people whose partners are infected or who have partners with risky sexual behaviour; young people, particularly those under the age of 25; men who have sex with men (MSM); people with a history of sexually transmitted infections (STIs) or who are HIV positive and; commercial sex workers.

Gonorrhoea

Diagnosis

Samples from the genital area of an infected person are examined under a microscope and laboratory tests are carried out to diagnose gonorrhoea. However, because many women with gonorrhoea do not have any symptoms, it can lead to a delay in being diagnosed and getting treatment which, in turn, can lead to complications.

Treatment

Gonorrhoea is caused by bacteria and therefore can be treated with antibiotics. Anyone infected with gonorrhoea should be treated immediately to reduce the chance of spreading the infection further and getting complications. Ideally, all of a patient's recent sexual partners should also be treated immediately.

Chlamydia infection

The obligate intracellular Gram negative bacterium *Chlamydia trachomatis*. *Chlamydia trachomatis* is one of four species in the genus *Chlamydia* and the family *Chlamydiaceae* which also include *C. pneumoniae*, *C. psittaci* and *C. pecorum*.

Etiology:

The source of infection

Chlamydia disease surveillance shows that the number of Chlamydia infections is increasing in Europe: there are now more than 250 000 new cases reported each year. Many Chlamydia infections do not produce symptoms, and the growing number of reported cases is likely to be the result of increased awareness about the disease and intensified testing.

Route of transmission

Sexually active young people are most at risk of chlamydia, and women below 24 years of age have the highest number of infections in Europe.

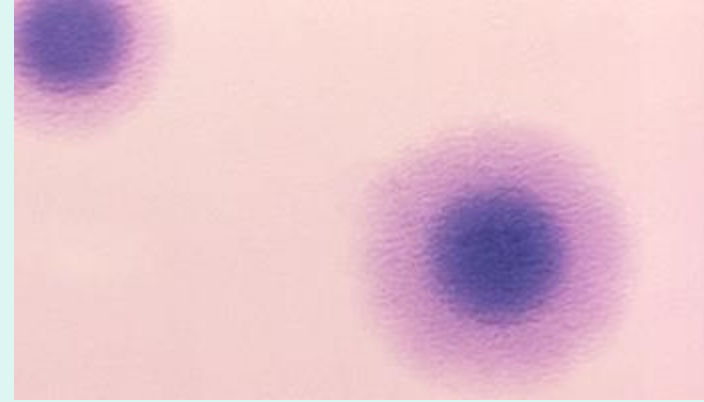
Susceptibility

General

Preventive measures:

Control of genital chlamydia focuses on reducing sexual risk behaviour, condom use, early diagnosis, and effective management of sexual partners in order to break the chain of transmission.

Chlamydia infections (genital)



Genital chlamydia is the leading sexually transmitted infection in Europe and the cause of considerable acute morbidity and long term reproductive health problems, particularly in young people. Many infections are asymptomatic resulting in delayed diagnosis and uninterrupted transmission. Chlamydia salpingitis can cause tubal adhesions and is an important risk factor for female infertility and extra-uterine pregnancy. It is an important cause of pelvic inflammatory disease. Chlamydia is under epidemiological surveillance within the EU. The reported national incidence rates vary widely and most of the more than 250 000 cases reported to ECDC for 2007 were notified by only five countries. The number of reported cases reflects the intensity of testing rather than true differences in disease burden.

Chlamydia infections (genital)

The pathogen

- Genital chlamydia is caused by the obligate intracellular Gram negative bacterium *Chlamydia trachomatis*.
- *Chlamydia trachomatis* is one of four species in the genus *Chlamydia* and the family *Chlamydiaceae* which also include *C. pneumoniae*, *C. psittaci* and *C. pecorum*.
- *Chlamydia trachomatis* causes acute eye infections, trachoma, genital infections and the more invasive sexually transmitted infection; lymphogranuloma venereum (LGV).
- The strains that cause eye and genital infections are labelled D through K and grow only in the columnar and squamo-columnar epithelial cells that make up the conjunctivae and the mucosa in the respiratory tract, urethra, cervix and rectum.
- Lymphogranuloma venereum is caused by the invasive L1, L2 and L3 strains of *C. trachomatis*, sometimes referred to as the LGV serovars.

Chlamydia infections (genital)

Clinical features and sequelae

- Genital infections with *C. trachomatis* present as urethritis and proctitis in men and women, cervicitis, salpingitis, endometritis and pelvic inflammatory disease (PID) in women, and orchitis, epididymitis and prostatitis in men.
- Perinatal transmission of *C. trachomatis* can result in conjunctivitis (ophthalmia neonatorum) and pneumonia in newborns and young infants.
- Conjunctivitis and respiratory infections can be the result of contact with contaminated hands, or direct exposure to semen and vaginal fluids.
- At least 70% of genital *C. trachomatis* infections in women and 50% in men are asymptomatic at the time of diagnosis.
- The natural course of genital chlamydia infections is not well understood:
 - Spontaneous resolution of asymptomatic infections is not uncommon.
 - Asymptomatic infections, particularly endocervical infections, can persist for long periods.
 - Many patients with asymptomatic infections will at some point develop symptoms and clinical disease.
 - Asymptomatic infections can result in complications such as blocked tubes and pelvic inflammatory disease.
- Lymphogranuloma venereum (LGV) affects both men and women.

Chlamydia infections (genital)

Urethritis

- Symptoms include urgency, frequency, burning sensation and pain when passing urine in both men and women.
- Dysuria in women often reflects concurrent urethral and endocervical infections.
- Acute urethral syndrome is a condition with symptoms suggestive of lower urinary tract infection in the absence of significant bacteruria ($< 10^5$ organisms/ ml of urine) that can be caused by *C. trachomatis*.
- In men, genital chlamydia typically presents as dysuria and urethral discharge. The discharge tends to be less profuse than that produced by gonococcal infections, but there is significant overlap between the two diseases and chlamydia cannot be distinguished clinically from gonorrhoea or other causes of urethritis.
- Only about half of genital *C. trachomatis* infections in men are symptomatic. In one study in which infected men were observed without treatment for a minimum of 21 days, one in eight developed symptomatic urethritis.
- Some 30% to 50% of non-gonococcal urethritis is believed to be due to *C. trachomatis*.

Chlamydia infections (genital)

Cervicitis

- Endocervical chlamydia infections present as vaginal discharge, bleeding between periods, mild abdominal pain, and often dysuria.
- Seven out of ten women with endocervical infection have no or only mild symptoms that may not prompt medical contact.
- About half of all genital chlamydia infections in women are concurrent urethral and cervical infections.

Salpingitis

- Salpingitis is typically the result of an ascending lower reproductive tract infection and can be symptomatic or without clinical signs and symptoms.
- Symptoms include fever, discomfort and pain in the lower abdomen, and tenderness on palpation.

Proctitis

- Proctitis manifests as anal pruritis and rectal discharge. The infection is limited to the rectum and resembles gonococcal proctitis.
- Asymptomatic rectal infections are common.
- *C. trachomatis* is a common cause of proctitis in men who have sex with men. Proctitis can result from direct inoculation of the rectum in both men and women through anal intercourse, or through secondary spread of secretions from the cervix.

Chlamydia: High numbers, low awareness



1. Chlamydia is the most common sexually transmitted infection in Europe and particularly affects young people.
Chlamydia is the most frequently reported sexually transmitted infection in Europe, and the number of cases is steadily increasing. It disproportionately affects young people. Studies have shown that up to 10% of sexually active people younger than 25 years are infected.
2. Chlamydia can have long-term consequences for sexual and reproductive health.
Untreated chlamydia can have serious reproductive health consequences for women. Both asymptomatic and symptomatic chlamydia infections can result in blockage of the Fallopian tubes, a leading cause of difficulties becoming pregnant (tubal infertility) and pregnancy outside of the womb (ectopic pregnancy).
3. Chlamydia can be controlled through prevention, case finding and effective case management.
Easy access to STI services for young people, rapid diagnosis and treatment, contact tracing, and partner management are key components of successful chlamydia control programmes. Active case-finding, which should include opportunistic testing and contact tracing, should target young and sexually active people.

Human papillomavirus infection

Etiology:

HPV is a group of viruses, of which more than 100 types have been described. About 40 of them can infect the genitals.

HPV 16 and HPV 18 are the most common types, causing about 70 percent of all cases of cervical cancer. 'Low risk' HPV types, most commonly HPV 6 and HPV 11, are responsible of about 90% of cases of condylomata acuminata (genital warts).

The source of infection

Cervical cancer is the second most common cancer after breast cancer to affect women aged 15–44 years in the European Union. Each year, there are around 33 000 cases of cervical cancer in the EU, and 15 000 deaths. The primary cause of cervical cancer is a persistent infection of the genital tract by some specific types of human papillomavirus (HPV). HPV is present in most cases of cervical lesions, which can further develop into cancer.

Route of transmission

Sexual contact.

Susceptibility

Chlamydia disease surveillance shows that the number of Chlamydia infections is increasing in Europe: there are now more than 250 000 new cases reported each year. Many Chlamydia infections do not produce symptoms, and the growing number of reported cases is likely to be the result of increased awareness about the disease and intensified testing.

Preventive measures:

Two prophylactic HPV vaccines have been licensed in Europe, a bivalent and a quadrivalent vaccine: both have a good safety profile and protect against the high-risk HPV types 16 and 18. The quadrivalent vaccine also protects against HPV 6 and 11. Both vaccines have been shown to prevent more than 90% of precancerous lesions associated with HPV 16 and 18. The vaccines are given in three doses over a six-month period. They do not cure existing infections and should therefore be given before onset of sexual activity.

Genital warts

- **are...**
- ...various sorts of warts found on or around the penis, anus or vagina caused by the human papilloma virus (HPV).

Symptoms

- They can be small pimples, smooth-topped pimples or nodules or large outward-growing masses and may cause itching, bleeding or mild burning.

Genital warts

- **Symptoms**
- They can be small pimples, smooth-topped pimples or nodules or large outward-growing masses and may cause itching, bleeding or mild burning.
- **Complications**
- Complications are unusual. Once genital warts have developed they can show minimal change over time, get larger or reduce spontaneously.

Genital warts

- **Ways to catch genital warts**
- Genital warts are passed on through direct skin-to-skin contact, usually during sexual activity.
- **People most at risk**
- Genital warts are one of the most common viral, sexually transmitted infections (STIs) and are strongly associated with having a high number of sexual partners and having unprotected sex without using a condom. They are most common among young adults aged 16–24. The majority of genital warts cases are acquired through heterosexual sex, although rates are increasing in men who have sex with men (MSM).

Genital warts

- **Diagnosis**
- Diagnosis of warts is based on a doctor examining the clinical symptoms.
- **Treatment**
- A number of treatments are available for genital warts, although there is not one specific treatment that will completely get rid of the HPV or stop warts from recurring in future. Treatment choice depends on the form, structure and extent of the warts and the patient's choice.

Genital warts

- **How to avoid getting genital warts**
- There is one HPV vaccine that protects against the virus strain that is responsible for most genital warts. The use of condoms may not prevent HPV infection but can considerably reduce the risk.
- **What to do if you have genital warts**
- Screening for other sexually transmitted infections is recommended in patients who have genital warts. Current sexual partners could also have undetected warts or other STIs and may benefit from testing.