

Sexually transmitted infections (STIs)

One million people are infected with STIs every day worldwide. The diseases are passed from person to person through unprotected sex. Infection is usually identified by discharge or ulcers, but can also have no symptoms (asymptomatic). Everyone who has sexual intercourse is at risk from STIs.

Chlamydia

▷ bacterial infection with *Chlamydia trachomatis*

▷ most common bacterial STI in the UK

Symptoms include unusual discharge (♀,♂), pain when passing urine (♀,♂), bleeding between periods (♀), lower abdominal pain (♀), and burning or itching sensation in the genital area (♂).

Often there are no symptoms - in 50 % of infected men and 70 % of infected women.

Treatment: for uncomplicated infections is with antibiotics. If left untreated it can lead to pelvic inflammatory disease (PID) and infertility (♀), as well as pain and swelling around the testicles, and arthritis (Reiter's syndrome) (♂).

Lymphogranuloma venereum (LGV) is caused by specific types of *C. trachomatis* (serovars L1, L2 and L3). Symptoms start with a small, painless ulcer at the site of infection, which may go unnoticed, and develop into painful swelling of lymph nodes in the infected area, often accompanied by fever and general malaise. Treatment is with antibiotics, but severe cases may require surgery. If left untreated, it can lead to scarring, swelling and deformity. LGV may be asymptomatic, but still infectious.

Pelvic inflammatory disease (PID) is caused by chlamydia or gonorrhoea. If left untreated, the bacteria can spread, damaging the womb and reproductive tubes that lead to the ovaries. PID is difficult to treat. It results in chronic abdominal pain and can also lead to infertility and ectopic pregnancies.

Gonorrhoea

▷ bacterial infection with *Neisseria gonorrhoeae*

▷ second most common bacterial STI in UK

▷ occasionally causes serious complications

Symptoms begin 2 - 10 days after infection and include pain or burning sensation when urinating and yellow or bloody discharge.

Gonorrhoea can be asymptomatic, but still spread infection. Men are more likely to show symptoms than women.

Treatment: with antibiotics, but some strains are developing antibiotic resistance. If untreated, it can cause PID (♀). Infection can also spread to the bloodstream or joints (♀,♂), but this is rare.

Syphilis

▷ bacterial infection with *Treponema pallidum* subspecies *pallidum*

▷ was once rare, but becoming more common in the UK

▷ dangerous infection for pregnant women, as it can cause miscarriage, stillbirth or foetal abnormality

Symptoms are non-specific. Infection usually begins with one or more painless (but highly infectious) sores anywhere on the body. These clear up without treatment in 2 - 6 weeks. Later symptoms (6 weeks - 6 months) include a rash on the palms and soles. Late syphilis (four or more years after untreated initial infection) leads to complications of the heart, respiratory tract or central nervous system. Can also be asymptomatic, but still spread infection.

Treatment: all stages of infection are treatable with antibiotics.

microbiology
awareness
campaign

MAC

The Society for General Microbiology (SGM) Microbiology Awareness Campaign (MAC) aims to highlight the important issues relating to microbiology. Through its many members, the SGM can offer impartial and expert information on all microbiological topics. Enquiries are welcome. Contact SGM, Marlborough House, Basingstoke Road, Spencers Wood, Reading RG7 1AG (t 0118 988 1830; f 0118 988 5656; e pa@sgm.ac.uk).

Design: Faye Stokes.
Editors: Darriel Burdass and Janet Hurst.
Image: Computer model of HIV, Comstock Images / Jupiter Images.
Thanks are due to Dr Sheila Burns and Professor Heather Cubie, Royal Infirmary of Edinburgh, for their helpful comments on the text.
© 2009 Society for General Microbiology

HIV and AIDS

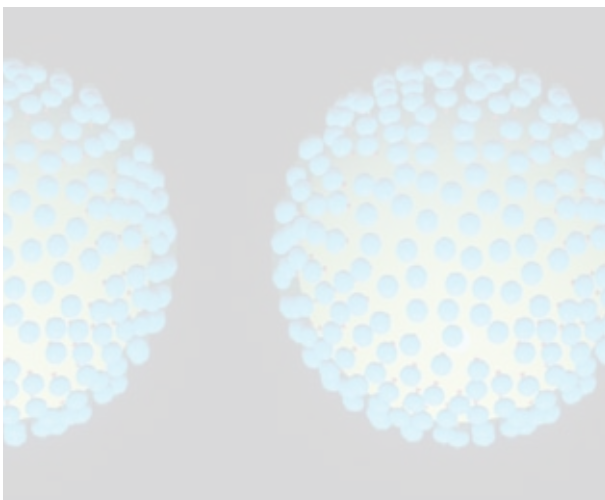
- ▶ 2 types of human immunodeficiency virus: (HIV-1 and HIV-2)
- ▶ HIV-1 most common in the UK
- ▶ HIV-1 is usually more severe than HIV-2

The virus slowly weakens the immune system by attacking white blood cells called CD4 cells. Once immunocompromised by HIV, a person is open to other infections and cancers. At this stage, he or she is said to have developed acquired immunodeficiency syndrome (AIDS).

The usual cause of death is not the virus itself, but the secondary illnesses that cannot be combatted by the weakened immune system.

HIV can be found in blood, semen, vaginal fluids and breast-milk. It can be spread though unprotected sex or contaminated bodily fluids.

Treatment: there is no cure or vaccine to protect against HIV. Highly active anti-retroviral treatment (HAART) can suppress the virus and protect the immune system from damage. Survival is greatly increased through use of HAART and life expectancy can be almost normal. However, HAART treatment does not prevent the virus from being passed on.



STI prevention

- ▶ safe sex should always be practised
- ▶ STIs require a physical barrier to stop spread of microbes from one person to another
- ▶ 'barrier' contraceptives, such as condoms, are the best method of preventing STIs

Genital warts

- ▶ viral infection with human papillomavirus (HPV)
- ▶ most common viral STI in the UK
- ▶ well over 100 types of HPV identified - around 30 types are sexually acquired and can infect any area of genital tissue
- ▶ HPV types are divided into low risk (e.g. HPV 6 & 11), associated with genital warts, and high risk (especially HPV 16 & 18), associated with cervical cancer and precancers

Symptoms (♀,♂) include visible warts in the genital area. May also be asymptomatic, but virus can still be spread. HPV is so common that the majority of sexually active people could have been infected and cleared the infection. Infection in the cervix can be detected by abnormalities in cervical smears.

Treatment: warts usually disappear if left untreated, but this can take months or years. Warts can also be removed with caustic agents or frozen with liquid nitrogen. Despite treatment, genital warts can recur. Women with cervical abnormalities may require local treatment and excision at Colposcopy clinics.

Vaccine: there are two new vaccines against HPV. One acts against infection with HPV 16 & 18 and can protect many women from developing cervical cancer. The other vaccine can also protect against genital warts.

Genital herpes

- ▶ viral infection with herpes simplex virus (HSV)
- ▶ most common ulcerative STI in the UK
- ▶ two distinct sub-types:
 - HSV-1 (genital and oral herpes - coldsores)
 - HSV-2 (genital herpes)

Symptoms (♀,♂) include itching, tingling or pain in genital area, followed by blisters or sores. Infection can also be asymptomatic.

Herpes is spread by direct contact with infectious blisters or sores, and also when there are no symptoms.

Initial genital herpes infection is often severe, with the sufferer feeling generally unwell and experiencing a burning sensation when urinating. The virus then becomes dormant in the nerve linked to the infected area, but can re-activate (and cause repeated attacks of blisters) at any time.

Treatment: there is no cure and infection is for life. The initial infection is often treated with antiviral drugs. Recurrences are frequent, but when mild do not require treatment.



microbiology
awareness
campaign

M
M
A
C