

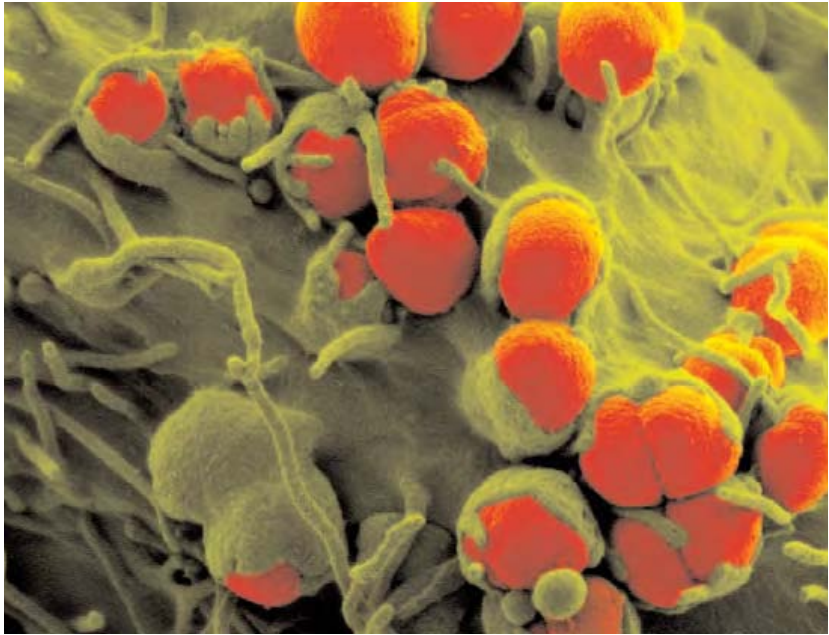
Fast Facts



Fast Facts: Sexually Transmitted Infections

**Anne Edwards, Jackie Sherrard
and Jonathan Zenilman**

Second edition





Fast Facts: Sexually Transmitted Infections

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Declaration of Independence

This book is as balanced and as practical as we can make it.
Ideas for improvement are always welcome:
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Fast Facts: Sexually Transmitted Infections

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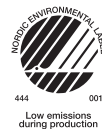
The cover shows a colored scanning electron micrograph of *Neisseria gonorrhoeae* bacteria (round) on a human epithelial cell.
Credit: Science Photo Library.

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Glossary of abbreviations

AIDS: acquired immune deficiency syndrome

CPPS: chronic pelvic pain syndrome

DGM: dark ground microscopy

FTA-ABS: fluorescent treponemal antibody-absorbed [test]

GUD: genital ulcer disease

GUM: genitourinary medicine

HAART: Highly active antiretroviral treatment

HBeAg: hepatitis B 'e' antigen

HBsAg: hepatitis B surface 's' antigen

HBV: hepatitis B virus

HCV: hepatitis C virus

HIV: human immunodeficiency virus

HPV: human papillomavirus

HSV: herpes simplex virus

HTLV: human T-cell lymphotropic virus

Ig: immunoglobulin

LGV: lymphogranuloma venereum

MSU: midstream urine

NAAT: nucleic acid amplification test

NSU: non-specific urethritis

PCR: polymerase chain reaction

PID: pelvic inflammatory disease

PPV: positive predictive value

RPR: rapid plasma reagin

RT-PCR: reverse transcriptase polymerase chain reaction

STI: sexually transmitted infection

UTI: urinary tract infection

VDRL: venereal disease research laboratory

Introduction

Sexually transmitted infections (STIs), particularly human immunodeficiency virus (HIV) infection, are an important cause of morbidity and mortality worldwide, and are responsible for the loss of many productive years. They have a disproportionate impact on adolescents and young adults.

In developed countries, the incidence of most viral and bacterial STIs is increasing. The World Health Organization estimated that in 1999 there were 340 million cases of selected curable STIs (gonorrhoea, *Chlamydia* infection, syphilis, chancroid and trichomoniasis), 90% occurring in resource-poor countries. Among the sexually active population, the prevalence of herpes simplex type 2 infection and of sexually transmitted human papillomavirus infection is estimated to be 20–40% and 30–60%, respectively. These rates are higher in developing countries. Since 1998 there has been an upsurge of STIs in homosexual men, a trend that has profound implications for the epidemiology of STIs and HIV infection.

The annual cost of STIs is estimated at US\$7.18 billion in the USA, and that of treating the short-term effects of STIs at £700 million in the UK. Two STIs – gonorrhoea and chancroid – no longer respond reliably to readily available and inexpensive antimicrobials and, increasingly, expensive third-generation cephalosporins and fluoroquinolones are required to treat these two diseases, causing particular problems in resource-poor areas.

STIs are important cofactors in the sexual transmission of HIV. In addition, the treatment of a number of STIs has become more challenging in immunocompromised individuals with HIV infection. Every family physician now encounters patients with STIs. We hope that *Fast Facts: Sexually Transmitted Infections* will provide a useful summary of current thinking on the diagnosis and effective management of these wide-ranging infections.

Treatment guidelines

The treatment guidelines presented in each chapter are adapted from the UK guidelines for the management of STIs. The US recommendations (2006) have been added where these differ from the UK guidelines. Full details of the US recommendations can be found in the Centers for Disease Control and Prevention publication *Clinical prevention guidance. Sexually transmitted diseases treatment guidelines 2006* (MMWR *Recomm Rep* 2006;55:1–94; www.guideline.gov).

Each patient should be assessed individually for history of drug allergy, pregnancy risk and other medication that may result in interactions. All treatment is oral unless otherwise stated. All tetracycline-based antibiotics are contraindicated in pregnancy.

Epidemiology

It is well established that a number of pathogens are transmitted sexually (Table 1.1). Several other common syndromes cause genital tract symptoms, but sexual transmission is not established, or is less important; these include bacterial vaginosis (an ecological disturbance of vaginal flora) and genital candidiasis.

Diagnoses of most sexually transmitted infections (STIs) have increased in recent years. Figures 1.1 and 1.2 show annual incidences in the UK and the USA, respectively. In the USA, the Centers for Disease Control and Prevention estimate that over 15 million STIs are diagnosed each year. The impact of STIs and their associated complications (Table 1.2) on public health is considerable.

Treatment and control

Successful control of STIs depends on:

- early diagnosis – screening programs are often required as many STIs are asymptomatic
- effective treatment (for curable infections), with oral and single-dose regimens wherever possible, ideally free for the patient
- contact tracing – referral and treatment of sexual partners
- education – behavioral risk reduction and prevention of transmission
- counseling and voluntary testing for human immunodeficiency virus (HIV) – this should be an integral part of any STI control program, as HIV is mostly transmitted sexually, and other STIs facilitate HIV transmission (on both a biological and a behavioral basis).

STIs are frequently asymptomatic, particularly in women. People with asymptomatic infection may not perceive themselves to be at risk of infection and may not access healthcare services. When asymptomatic infection is detected by screening, identified infected individuals may be less likely to comply with treatment or partner referral recommendations.

TABLE 1.1

Sexually transmitted pathogens

Viral pathogens

- Herpes simplex virus (genital herpes): HSV 1 and HSV 2
- Human immunodeficiency virus (HIV)
- Human papillomavirus (genital warts)
- Hepatitis B virus
- Human herpesvirus-8 (Kaposi's sarcoma)
- Human T-cell lymphotropic viruses: types 1 and 2 (HTLV1 & 2)
- Cytomegalovirus
- Hepatitis C virus – sexual transmission occurs occasionally (< 5% cases)
- Molluscum contagiosum – caused by a member of the Poxviridae family

Ectoparasites

(transmission occurs through close contact, sexual intercourse is not required)

- *Phthirus pubis* (pubic lice)
- *Sarcoptes scabiei* (scabies)

Bacterial pathogens

- *Chlamydia trachomatis*
- *Neisseria gonorrhoeae* (gonorrhea)
- *Treponema pallidum* (syphilis)
- Genital mycoplasmas (including *Mycoplasma genitalium*)
- *Haemophilus ducreyi* (chancroid)
- *Klebsiella granulomatis* (donovanosis)
- Overgrowth of predominantly anaerobic organisms (e.g. *Gardnerella vaginalis*, *Oreovotella* spp., *Mycoplasma hominis*, *Mobiluncus* spp.) in the vagina is characteristic of bacterial vaginosis*

Protozoa

- Intestinal protozoa (amebiasis, giardiasis)
- *Trichomonas vaginalis*

Fungi

- *Candida* spp. (may be passed from female to male partners)

*Bacterial vaginosis is seen almost exclusively in women who have been sexually active but the relevance of sexual transmission is not clear.

Vaginal discharge is common and is often not pathological. Normal discharge ranges in appearance from mucoid to opaque, and in quantity from minimal to copious, and the quality and quantity of discharge may vary over the menstrual cycle and over a woman's lifetime.

Most women are aware of a change from their normal pattern; it is therefore not surprising that a spontaneous complaint of abnormal vaginal discharge has good positive predictive value for the detection of pathology. Leading questions and the investigation of asymptomatic discharge are less helpful and may result in asymptomatic women becoming concerned.

Associated vulvovaginal symptoms may provide clues to the etiology. For example, in some women an underlying vulval disorder may be relevant; a careful history and examination should distinguish this patient group (see Chapter 5).

Recent studies have confirmed that most infectious discharge is caused by vaginal pathogens (Table 4.1). Purely cervical infections (e.g. gonorrhoea or chlamydial infection) are rarely responsible for vaginal discharge, which, in this setting, is usually due to concomitant vaginal infection, such as bacterial vaginosis (Figure 4.1) or *Candida* vulvovaginitis (Figure 4.2). Women may not appreciate this difference between vaginal and cervical infection, and the cause of discharge needs to be resolved by physical examination.

Assessment and investigation

A history and examination should be undertaken (see Chapter 2). The assessment should routinely include a drug history (with particular emphasis on antibiotic use), and any associated vulvovaginal symptoms should be noted (Table 4.2). Women with poorly controlled diabetes may present with troublesome vulvovaginal candidiasis. The vulval skin should be inspected carefully to exclude any underlying dermatoses (see Chapter 5). If vaginal discharge is observed during an examination, it is important to establish whether the discharge is usual for the

TABLE 4.1

Common causes of vaginal discharge

Epidemiology	Comments
Bacterial vaginosis	
<ul style="list-style-type: none"> • Most common cause of abnormal discharge in women of childbearing age • Prevalence increased: <ul style="list-style-type: none"> – in African/Afro-Caribbean women – with intrauterine contraceptive devices – with recent partner change – in women with STIs (probably) 	<ul style="list-style-type: none"> • Sexually associated but not an STI • pH < 4.5 almost always excludes the diagnosis
<i>Candida</i> spp.	
<ul style="list-style-type: none"> • In 20% of women there is normal carriage • Increased colonization in pregnancy (30–40%) • Uncontrolled diabetes • HIV infection • High-dose estrogens 	<ul style="list-style-type: none"> • Premenarche and postmenopausal women rarely have problems with <i>Candida</i> • Routine cultures are unnecessary • Self-limiting vulvovaginal symptoms are common and are often not related to <i>Candida</i> (50% of women who self-treat probably do not have candidiasis) • Recurrent vaginal candidiasis is not a marker for HIV infection
<i>Trichomonas vaginalis</i>	
<ul style="list-style-type: none"> • Common in resource-poor countries, but 5 million cases occur annually in the USA • This is an STI • Asymptomatic in 10–50% of cases 	<ul style="list-style-type: none"> • Increased risk of adverse pregnancy outcome • Cytology is not reliable for diagnosis, which should be confirmed with a microbiological test
HIV, human immunodeficiency virus.	