

# Sexually transmitted infections

## Evidence brief

*More than 1 million sexually transmitted infections occur every day.*



### Key facts

- ▶ More than 1 million sexually transmitted infections (STIs) occur every day.
- ▶ An estimated 376 million chlamydia, gonorrhoea, syphilis and trichomoniasis infections occur each year.
- ▶ More than 500 million people have genital infection with a herpes simplex virus (HSV1 or HSV2).
- ▶ Approximately 300 million women have a human papillomavirus (HPV) infection and this number is likely similar in men.
- ▶ The majority of STIs occur without symptoms.
- ▶ Some STIs can increase the risk of HIV acquisition three-fold or more.
- ▶ STIs can have serious consequences beyond the immediate infection itself, through mother-to-child transmission of infections or conditions such as infertility and cervical cancer.
- ▶ Drug resistance for gonorrhoea is a major threat to controlling this STI worldwide.

### What are sexually transmitted infections and how are they transmitted?

STIs are caused by more than 30 different bacteria, viruses and parasites and are spread predominantly by sexual contact, including vaginal, anal and oral sex.

Many STIs – including chlamydia, gonorrhoea, hepatitis B, HIV, HPV, HSV2 and syphilis – can also be transmitted from mother to child during pregnancy and childbirth. The organisms causing STIs can also be spread through non-sexual means such as blood products and tissue transfer.

A person can have an STI without having obvious symptoms of disease. Therefore, the term “sexually transmitted infection” is a broader term than “sexually transmitted disease” (STD). Common symptoms of STIs

include vaginal discharge, urethral discharge in men, genital ulcers, and abdominal pain.

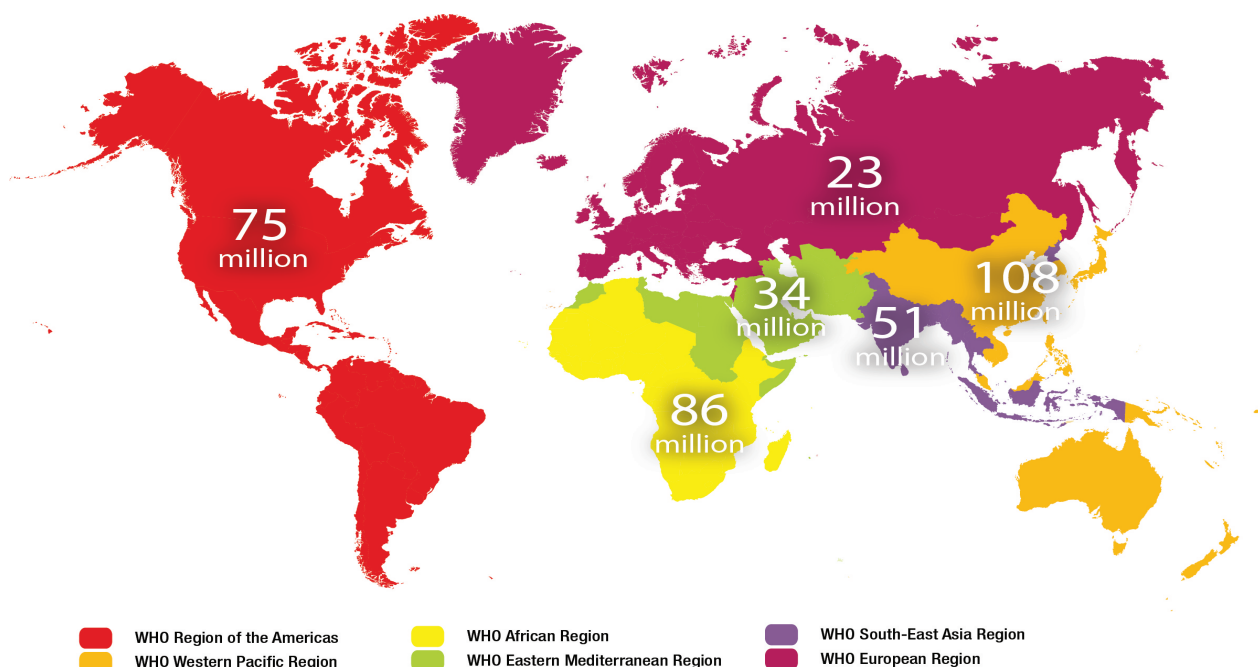
Eight of the more than 30 pathogens known to be transmitted through sexual contact have been linked to the greatest incidence of illness. Of these eight infections, four are currently curable: syphilis, gonorrhoea, chlamydia and trichomoniasis. The other four are viral infections and are incurable, but can be mitigated or modulated through treatment: hepatitis B, herpes, HIV, and HPV.

### Scope of the problem

STIs have a profound impact on sexual and reproductive health worldwide. More than 1 million sexually transmitted infections occur every day. Each year, an estimated 376 million infections occur with one of four curable STIs: chlamydia, gonorrhoea, syphilis and

trichomoniasis. More than 500 million people are living with genital herpes infection. Approximately 300 million women have HPV infection and numbers among men are likely as high.

### Estimated new cases of curable sexually transmitted infections (gonorrhoea, chlamydia, syphilis and trichomoniasis) by WHO region, 2016



STIs can have serious consequences beyond the immediate impact of the infection itself.

- Some STIs such as HSV2 can increase the risk of HIV acquisition three-fold or more.
- Mother-to-child transmission of STIs can result in stillbirth, neonatal death, low birth weight and prematurity, sepsis, pneumonia, infant eye infections, and birth defects. Syphilis in pregnancy leads to approximately 200 000 fetal and neonatal deaths every year and leaves over 150 000 infants at increased risk of dying from prematurity, low birth weight or congenital disease.
- HPV infection causes 570 000 cases of cervical cancer and over 300 000 cervical cancer deaths each year.
- STIs such as gonorrhoea and chlamydia are major causes of pelvic inflammatory disease, adverse pregnancy outcomes and infertility.

## Prevention of STIs

### Counselling and behavioural approaches

Counselling and behavioural interventions offer primary prevention against STIs (including HIV),

as well as against unintended pregnancies. These include:

- comprehensive sexuality education, STI and HIV pre- and post-test counselling;
- safer sex/risk-reduction counselling, condom promotion; and
- interventions targeted at key and vulnerable populations, such as adolescents, sex workers, men who have sex with men and people who inject drugs.

In addition, counselling can improve people's ability to recognize the symptoms of STIs and increase the likelihood they will seek care or encourage a sexual partner to do so. Unfortunately, lack of public awareness, lack of training of health workers, and long-standing, widespread stigma around STIs remain barriers to greater and more effective use of these interventions.

### Barrier methods

When used correctly and consistently, condoms offer one of the most effective methods of protection against STIs, including HIV. Female condoms are effective and safe but are not used as widely by national programmes as male condoms.

## Diagnosis of STIs

Accurate diagnostic tests for STIs are widely used in high-income countries. These are especially useful for the diagnosis of asymptomatic infections. However, in low- and middle-income countries, diagnostic tests are largely unavailable. Where testing is available, it is often expensive and geographically inaccessible; and patients often need to wait a long time (or need to return) to receive results. As a result, follow up can be impeded and care or treatment can be incomplete.

Both an inexpensive rapid dual HIV/syphilis blood test and single rapid test for syphilis are currently available. These tests are already in use in some resource-limited settings. These tests are accurate, can provide results in 15 to 20 minutes, and are easy to use with minimal training. Rapid syphilis tests have been shown to increase the number of pregnant women tested for syphilis. However, increased efforts are still needed in most low- and middle-income countries to ensure that all pregnant women receive a syphilis test.

Several rapid tests for other STIs are under development and have the potential to improve STI diagnosis and treatment, especially in resource-limited settings.

## Treatment of STIs

Effective treatment is currently available for several STIs.

- Three bacterial STIs (chlamydia, gonorrhoea and syphilis) and one parasitic STI (trichomoniasis) are generally curable with existing, effective single-dose regimens of antibiotics.
- For herpes and HIV, the most effective medications available are antivirals that can modulate the course of the disease, though they cannot cure the infection.
- For hepatitis B, immune system modulators and antiviral medications (tenofovir) can help to fight the virus and slow damage to the liver.

Resistance of gonorrhoea – to antibiotics has increased rapidly in recent years and has reduced treatment options. The emergence of decreased susceptibility of gonorrhoea to the “last line” treatment option (oral and injectable cephalosporins) together with antimicrobial resistance already shown to penicillins, sulphonamides, tetracyclines, quinolones and macrolides make gonorrhoea a multidrug-

resistant organism. Antimicrobial resistance for other STIs, though less common, also exists, making prevention and prompt treatment critical.

## STI case management

Low- and middle-income countries rely on syndromic management, which is based on the identification of consistent groups of symptoms and easily recognized signs (syndromes) to guide treatment, without the use of laboratory tests. This approach, which often relies on clinical algorithms, allows health workers to diagnose a specific infection on the basis of observed syndromes.

Syndromic management is simple, assures rapid, same-day treatment, and avoids expensive or unavailable diagnostic tests. However, incorrect diagnoses occur and this approach misses infections that do not demonstrate any symptoms or syndromes - the majority of STIs globally.

## Vaccines and other biomedical interventions

Safe and highly effective vaccines are available for two STIs: human papillomavirus (HPV) and hepatitis B. These vaccines represent major advances in STI prevention.

Eighty-five countries, mostly high- and middle-income, include HPV vaccination as part of their routine immunization programmes. HPV vaccination could prevent the deaths of more than 4 million women over the next decade in low- and middle-income countries, where most cases of cervical cancer occur, if 80% vaccination coverage can be achieved.

The vaccine against hepatitis B is included in infant immunization programmes for more than 95% of countries and global coverage for the 3 dose infant HBV vaccine is currently 84% (unchanged between 2015 and 2017) with global targets of 90% vaccine coverage and 90% reduction in incidence by 2030.

Research to develop vaccines against herpes and HIV have advanced with several vaccine candidates in clinical studies. Research into vaccines for chlamydia, gonorrhoea, syphilis and trichomoniasis are at earlier stages of development.

Other biomedical interventions to prevent some STIs include adult male circumcision and microbicides.

- Male circumcision reduces the risk of heterosexually acquired HIV infection in men by

approximately 60% and provides some protection against other STIs, such as herpes and HPV.

- Vaginal microbicides have the potential to allow women to actively avert HIV acquisition.

## Current efforts to contain the spread of STIs are not sufficient

### Behaviour change is complex

Despite considerable efforts to identify simple interventions that can reduce risky sexual behaviour, behaviour change remains a complex challenge. Research has demonstrated the need to focus on carefully defined populations, consult extensively with the identified target populations, and involve them in design, implementation and evaluation.

### Health services for screening and treatment of STIs remain weak

People seeking screening and treatment for STIs face numerous problems. These include limited resources, stigmatization, poor quality of services, and little or no follow-up of sexual partners.

- In many countries, STI services are provided separately and are not available in primary health care, antenatal care, family planning and other routine health services.
- In many settings, services are often unable to provide screening for asymptomatic infections and lack trained personnel, laboratory capacity and adequate supplies of appropriate antibiotics for the treatment of STIs, e.g. benzathine penicillin for the treatment of syphilis.
- Marginalized populations with the highest rates of STIs – such as sex workers, men who have sex with men, people who inject drugs, prison inmates, mobile populations and adolescents – often do not have access to adequate health services.

## WHO response

WHO develops global norms and standards for STI treatment and prevention, strengthens systems for surveillance and monitoring, including those for drug-resistant gonorrhoea, and leads the setting of the global research agenda on STIs.

Our work is guided by the Sustainable Development Goals, the Global Health Sector Strategy on STIs adopted by the World Health Assembly in 2016 and the 2015 United Nations Secretary-General's Global Strategy for Women's Children's and Adolescents' Health, which highlights the need for a comprehensive, integrated package of essential interventions, including information and services for the prevention of HIV and other sexually transmitted infections

WHO works with countries to:

- Scale-up effective STI services including:
  - STI case management and counseling;
  - syphilis testing and treatment, in particular for pregnant women;
  - HPV and hepatitis B vaccination.
- Promote strategies to enhance STI-prevention impact including:
  - integrate STI services into existing health systems;
  - promote sexual health;
  - measure the burden of STIs;
  - monitor and respond to STI antimicrobial resistance.
- Support the development of new technologies for STI prevention such as:
  - point-of care diagnostic tests for STIs;
  - additional drugs for gonorrhoea and syphilis.
  - STI vaccines and other biomedical interventions.



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