Key facts

- **More than 1 million curable sexually transmitted infections (STIs) are acquired every day worldwide in people 15–49 years old, the majority of which are asymptomatic.**
- **In 2020 there were are an estimated 374 million new infections in people 15–49 years with 1 of 4 curable STIs: chlamydia, gonorrhoea, syphilis and trichomoniasis.**
- **An estimated 8 million adults between 15 and 49 years old were infected with syphilis in 2022.**
- **More than 500 million people aged 15–49 years are estimated to have a genital infection with herpes simplex virus (HSV or herpes) *(1)*.**
- **Human papillomavirus (HPV) infection is associated with over 311 000 cervical cancer deaths each year *(2)*.**
- **1.1 million pregnant women were estimated to be infected with syphilis in 2022, resulting in over 390 000 adverse birth outcomes.**
- **STIs have a direct impact on sexual and reproductive health through stigmatization, infertility, cancers and pregnancy complications and can increase the risk of HIV.**
- **Drug resistance is a major threat to reducing the burden of STIs worldwide.**

Overview

More than 30 different bacteria, viruses and parasites are known to be transmitted through sexual contact, including vaginal, anal and oral sex. Some STIs can also be transmitted from mother-to-child during pregnancy, childbirth and breastfeeding. Eight pathogens are linked to the greatest incidence of STIs. Of these, 4 are currently curable: syphilis, gonorrhoea, chlamydia and trichomoniasis. The other 4 are viral infections: hepatitis B, herpes simplex virus (HSV), HIV and human papillomavirus (HPV).

In addition, emerging outbreaks of new infections that can be acquired by sexual contact such as mpox, *Shigella sonnei*, *Neisseria meningitidis*, Ebola and Zika, as well as re-emergence of neglected STIs such as lymphogranuloma venereum. These herald increasing challenges in the provision of adequate services for STIs prevention and control.

Scope of the problem

STIs have a profound impact on sexual and reproductive health worldwide.

More than 1 million curable STIs are acquired every day. In 2020, WHO estimated 374 million new infections with 1 of 4 STIs: chlamydia (129 million), gonorrhoea (82 million), syphilis (7.1 million) and trichomoniasis (156 million). More than 490 million people were estimated to be living with genital herpes in 2016, and an estimated 300 million women have an HPV infection, the primary cause of cervical cancer and anal cancer among men who have sex with men. In addition, updated WHO estimates indicate that 254 million people were living with hepatitis B in 2022.

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

- **STIs like herpes, gonorrhoea and syphilis can increase the risk of HIV acquisition.**
- **Mother-to-child transmission of STIs can result in stillbirth, neonatal death, low-birth weight and prematurity, sepsis, neonatal conjunctivitis and congenital deformities.**
- **HPV infection causes cervical and other cancers.**
- **Hepatitis B resulted in just over 1 million deaths in 2022, mostly from cirrhosis and hepatocellular carcinoma.**
- **STIs such as gonorrhoea and chlamydia are major causes of pelvic inflammatory disease and infertility in women.**

Prevention of STIs

When used correctly and consistently, condoms offer one of the most effective methods of protection against STIs, including HIV. Although highly effective, condoms do not offer protection for STIs that cause extra-genital ulcers (i.e., syphilis or genital herpes). When possible, condoms should be used in all vaginal and anal sex.

Safe and highly effective vaccines are available for 2 viral STIs: hepatitis B and HPV. These vaccines have represented major advances in STI prevention. By the end of 2023, the HPV vaccine had been introduced as part of routine immunization programmes in 140countries, primarily high- and middle-income countries. To eliminate cervical cancer as a public health problem globally, high coverage targets for HPV vaccination, screening and treatment of precancerous lesions, and management of cancer must be reached by 2030 and maintained at this high level for decades.

Research to develop vaccines against genital herpes is advanced, with several vaccine candidates in early clinical development. There is mounting evidence suggesting that the vaccine to prevent meningitis (MenB) provides some cross-protection against gonorrhoea. More research into vaccines for chlamydia, gonorrhoea, syphilis and trichomoniasis are needed.

Other biomedical interventions to prevent some STIs include adult voluntary medical male circumcision, microbicides, and partner treatment. There are ongoing trials to evaluate the benefit of pre- and post-exposure prophylaxis of STIs and their potential safety weighed with antimicrobial resistance (AMR).

Diagnosis of STIs

STIs are often asymptomatic. When symptoms occur, they can be non-specific.

Accurate diagnostic tests for STIs (using molecular technology) are widely used in high-income countries. These are especially useful for the diagnosis of asymptomatic infections. However, they are largely unavailable in low- and middle-income countries (LMICs) for chlamydia and gonorrhoea. Even in countries where testing is available, it is often expensive and not widely accessible. In addition, the time it takes for results to be received is often long. As a result, follow-up can be impeded and care or treatment can be incomplete.

On the other hand, inexpensive, rapid tests are available for syphilis, hepatitis B and HIV. The rapid syphilis test and rapid dual HIV/syphilis tests are used in several resource-limited settings.

Several other rapid tests 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 (chlamydia, gonorrhoea and syphilis) and one parasitic STIs (trichomoniasis) are generally curable with existing 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 disease.**
- **For hepatitis B, antivirals can help fighting the virus and slowing damage to the liver.**

AMR of STIs – in particular gonorrhoea – has increased rapidly in recent years and has reduced treatment options. The Gonococcal AMR Surveillance Programme

(GASP) has shown high rates of resistance to many antibiotics including quinolone, azithromycin and extended-spectrum cephalosporins, a last-line treatment *(3)*.

AMR for other STIs, like *Mycoplasma genitalium*, also exist but are not systematically monitored.

STI case management

LMICs rely on identifying consistent, easily recognizable signs and symptoms to guide treatment, without the use of laboratory tests. This approach – syndromic management – often relies on clinical algorithms and allows health workers to diagnose a specific infection based on observed syndromes (e.g., vaginal/urethral discharge, anogenital ulcers, etc). Syndromic management is simple, assures rapid, same-day treatment, and avoids expensive or unavailable diagnostic tests for patients with symptoms. However, this approach results in overtreatment and missed treatment as the majority of STIs are asymptomatic. Thus, WHO recommends countries to enhance syndromic management by gradually incorporating laboratory testing to support diagnosis. In settings where quality assured molecular assays are available, it is recommended to treat STIs based on laboratory tests. Moreover, STI screening strategies are essential for those at higher risk of infection, such sex workers, men who have sex with men, adolescents in some settings and pregnant women.

To interrupt transmission and prevent re-infection, treating sexual partners is an important component of STI case management.

Controlling the spread

Behaviour change is complex

Despite considerable efforts to identify simple interventions that can reduce risky sexual behaviour, behaviour change remains a complex challenge.

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

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 often out-of-pocket expenses.

Some 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 in high burden countries for HIV – often do not have access to adequate and friendly health services.

In many settings, STI services are often neglected and underfunded. These problems lead to difficulties in providing testing for asymptomatic infections, insufficient number of trained personnel, limited laboratory capacity and inadequate supplies of appropriate medicines.

WHO response

Our work is currently guided by the Global health sector strategy on HIV, Hepatitis and Sexually Transmitted Infections, 2022–2030. Within this framework, WHO:

- **develops global targets, norms and standards for STI prevention, testing and treatment;**
- **supports the estimation and economic burden of STIs and the strengthening of STI surveillance;**
- **globally monitors AMR to gonorrhoea; and**
- **leads the setting of the global research agenda on STIs, including the development of diagnostic tests, vaccines and additional drugs for gonorrhoea and syphilis.**

As part of its mission, WHO supports countries to:

- **develop national strategic plans and guidelines;**
- **create an encouraging environment allowing individuals to discuss STIs, adopt safer sexual practices, and seek treatment;**
- **scale-up primary prevention (condom availability and use, etc.);**
- **increase integration of STI services within primary healthcare services;**
- **increase accessibility of people-centred quality STI care;**
- **facilitate adoption of point-of-care tests;**
- **enhance and scale-up health intervention for impact, such as hepatitis B and HPV vaccination, syphilis screening in priority populations;**
- **strengthen capacity to monitoring STIs trends; and**
- **monitor and respond to AMR in gonorrhoea.**

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Key facts

- HIV remains a major global public health issue, having claimed an estimated 42.3 million lives to date. Transmission is ongoing in all countries globally.
- There were an estimated 39.9 million people living with HIV at the end of 2023, 65% of whom are in the WHO African Region.
- In 2023, an estimated 630 000 people died from HIV-related causes and an estimated 1.3 million people acquired HIV.
- There is no cure for HIV infection. However, with access to effective HIV prevention, diagnosis, treatment and care, including for opportunistic infections, HIV infection has become a manageable chronic health condition, enabling people living with HIV to lead long and healthy lives.
- WHO, the Global Fund and UNAIDS all have global HIV strategies that are aligned with the SDG target 3.3 of ending the HIV epidemic by 2030.
- By 2025, 95% of all people living with HIV should have a diagnosis, 95% of whom should be taking lifesaving antiretroviral treatment, and 95% of people living with HIV on treatment should achieve a suppressed viral load for the benefit of the person's health and for reducing onward HIV transmission. In 2023, these percentages were 86%, 89%, and 93% respectively.
- In 2023, of all people living with HIV, 86% knew their status, 77% were receiving antiretroviral therapy and 72% had suppressed viral loads.

Overview

Human immunodeficiency virus (HIV) is a virus that attacks the body's immune system. Acquired immunodeficiency syndrome (AIDS) occurs at the most advanced stage of infection.

HIV targets the body's white blood cells, weakening the immune system. This makes it easier to get sick with diseases like tuberculosis, infections and some cancers.

HIV is spread from the body fluids of an infected person, including blood, breast milk, semen and vaginal fluids. It is not spread by kisses, hugs or sharing food. It can also spread from a mother to her baby.

HIV can be prevented and treated with antiretroviral therapy (ART). Untreated HIV can progress to AIDS, often after many years.

WHO now defines Advanced HIV Disease (AHD) as CD4 cell count less than 200 cells/mm3 or WHO stage 3 or 4 in adults and adolescents. All children younger than 5 years of age living with HIV are considered to have advanced HIV disease.

Signs and symptoms

The symptoms of HIV vary depending on the stage of infection.

HIV spreads more easily in the first few months after a person is infected, but many are unaware of their status until the later stages. In the first few weeks after being infected people may not experience symptoms. Others may have an influenza-like illness including:

- fever
- headache
- rash
- sore throat.

The infection progressively weakens the immune system. This can cause other signs and symptoms:

- swollen lymph nodes
- weight loss
- fever
- diarrhoea
- cough.

Without treatment, people living with HIV infection can also develop severe illnesses:

- tuberculosis (TB)
- cryptococcal meningitis
- severe bacterial infections
- cancers such as lymphomas and Kaposi's sarcoma.

HIV causes other infections to get worse, such as hepatitis C, hepatitis B and mpox.

Transmission

HIV can be transmitted via the exchange of body fluids from people living with HIV, including blood, breast milk, semen, and vaginal secretions. HIV can also be transmitted to a child during pregnancy and delivery. People cannot become infected with HIV through ordinary day-to-day contact such as kissing, hugging, shaking hands, or sharing personal objects, food or water.

People living with HIV who are taking ART and have an undetectable viral load will not transmit HIV to their sexual partners. Early access to ART and support to remain on treatment is therefore critical not only to improve the health of people living with HIV but also to prevent HIV transmission.

Risk factors

Behaviours and conditions that put people at greater risk of contracting HIV include:

- having anal or vaginal sex without a condom;
- having another sexually transmitted infection (STI) such as syphilis, herpes, chlamydia, gonorrhoea and bacterial vaginosis;
- harmful use of alcohol or drugs in the context of sexual behaviour;
- sharing contaminated needles, syringes and other injecting equipment, or drug solutions when injecting drugs;
- receiving unsafe injections, blood transfusions, or tissue transplantation; and
- medical procedures that involve unsterile cutting or piercing; or accidental needle stick injuries, including among health workers.

Diagnosis

HIV can be diagnosed through rapid diagnostic tests that provide same-day results. This greatly facilitates early diagnosis and linkage with treatment and prevention. People can also use HIV self-tests to test themselves. However, no single test can provide a full HIV positive diagnosis; confirmatory testing is required, conducted by a qualified and

trained health worker or community worker. HIV infection can be detected with great accuracy using WHO prequalified tests within a nationally approved testing strategy and algorithm.

Most widely used HIV diagnostic tests detect antibodies produced by a person as part of their immune response to fight HIV. In most cases, people develop antibodies to HIV within 28 days of infection. During this time, people are in the so-called "window period" when they have low levels of antibodies which cannot be detected by many rapid tests, but they may still transmit HIV to others. People who have had a recent high-risk exposure and test negative can have a further test after 28 days.

Following a positive diagnosis, people should be retested before they are enrolled in treatment and care to rule out any potential testing or reporting error. While testing for adolescents and adults has been made simple and efficient, this is not the case for babies born to HIV-positive mothers. For children less than 18 months of age, rapid antibody testing is not sufficient to identify HIV infection – virological testing must be provided as early as birth or at 6 weeks of age. New technologies are now available to perform this test at the point of care and enable same-day results, which will accelerate appropriate linkage with treatment and care.

Prevention

HIV is a preventable disease. Reduce the risk of HIV infection by:

- using a male or female condom during sex
- being tested for HIV and sexually transmitted infections
- having a voluntary medical male circumcision
- using harm reduction services for people who inject and use drugs.

Doctors may suggest medicines and medical devices to help prevent HIV infection, including:

- antiretroviral drugs (ARVs), including oral Pre-Exposure Prophylaxis (PrEP) and long acting products
- dapivirine vaginal rings
- injectable long acting cabotegravir.

ARVs can also be used to prevent mothers from passing HIV to their children.

People taking antiretroviral therapy (ART) and who have no evidence of virus in the blood will not pass HIV to their sexual partners. Access to testing and ART is an important part of preventing HIV.

Antiretroviral drugs given to people without HIV can prevent infection

When given before possible exposures to HIV it is called pre-exposure prophylaxis (PrEP) and when given after an exposure it is called post-exposure prophylaxis (PEP). People can use PrEP or PEP when the risk of contracting HIV is high; people should seek advice from a clinician when thinking about using PrEP or PEP.

Treatment

There is no cure for HIV infection. It is treated with antiretroviral drugs, which stop the virus from replicating in the body.

Current antiretroviral therapy (ART) does not cure HIV infection but allows a person's immune system to get stronger. This helps them to fight other infections.

Currently, ART must be taken every day for the rest of a person's life.

ART lowers the amount of the virus in a person's body. This stops symptoms and allows people to live full and healthy lives. People living with HIV who are taking ART and who have no evidence of virus in the blood will not spread the virus to their sexual partners.

Pregnant women with HIV should have access to, and take, ART as soon as possible. This protects the health of the mother and will help prevent HIV transmission to the fetus before birth, or through breast milk.

Advanced HIV disease remains a persistent problem in the HIV response. WHO is supporting countries to implement the advanced HIV disease package of care to reduce illness and death. Newer HIV medicines and short course treatments for opportunistic infections like cryptococcal meningitis are being developed that may change the way people take ART and prevention medicines, including access to injectable formulations, in the future.

More information on HIV treatments

WHO response

Global health sector strategies on HIV, viral hepatitis, and sexually transmitted infections for the period 2022–2030 (GHSSs) guide strategic responses to achieve the goals of ending AIDS, viral hepatitis B and C, and sexually transmitted infections by 2030.

WHO's Global HIV, Hepatitis and STIs Programmes recommend shared and disease-specific country actions supported by WHO and partners. They consider the epidemiological, technological, and contextual shifts of previous years, foster learning, and create opportunities to leverage innovation and new knowledge.

WHO's programmes call to reach the people most affected and most at risk for each disease, and to address inequities. Under a framework of universal health coverage and

primary health care, WHO’s programmes contribute to achieving the goals of the 2030 Agenda for Sustainable Development.