



# HIV/AIDS

30 November 2020

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## Key facts

- HIV continues to be a major global public health issue, having claimed almost 33 million lives so far. However, with increasing 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.
- There were an estimated 38.0 million people living with HIV at the end of 2019.
- As a result of concerted international efforts to respond to HIV, coverage of services has been steadily increasing. In 2019, 68% of adults and 53% of children living with HIV globally were receiving lifelong antiretroviral therapy (ART).
- A great majority (85%) of pregnant and breastfeeding women living with HIV also received ART, which not only protects their health, but also ensures prevention of HIV transmission to their newborns.
- At the end of 2019, an estimated 81% of people living with HIV knew their status. 67% were receiving antiretroviral therapy (ART) and 59% had achieved suppression of the HIV virus with no risk of infecting others; about 30 million adolescent boys and men in East and Southern Africa had received VMMC services.
- By June 2020, 26 million people were accessing antiretroviral therapy, marking a 2.4% increase from an estimate of 25.4 million at the end of 2019. By comparison, treatment coverage increased by an estimated 4.8% between January and June of 2019.
- The number of new people starting treatment is far below expectation due to the reduction in HIV-testing and treatment initiation and ARV disruptions that occurred during the COVID-19 pandemic. By end 2020, testing and treatment rates showed steady but variable recovery.
- Nevertheless, between 2000 and 2019, new HIV infections fell by 39% and HIV-related deaths fell by 51%, with 15.3 million lives saved due to ART. This achievement was the result of great efforts by national HIV programmes supported by civil society and international development partners.
- But success has been variable by region, country and population; However, not everyone is able to access HIV testing, treatment and care. Notably, the 2018 Super-Fast-Track targets for reducing new paediatric HIV infections to 40 000 was not achieved. Given prior to the COVID-19 pandemic, reduction of new infections and deaths had plateaued; global 90/90/90 targets for 2020 are at risk

of being will be missed unless rapid action is taken.

- Due to gaps in HIV services, 690 000 people died from HIV-related causes in 2019 and 1.7 million people were newly infected.
- To reach the new proposed global 95/95/95 targets, we will need to redouble our efforts to avoid the worst-case scenario a half million excess deaths in Sub Saharan Africa, increasing HIV infections due to HIV service disruptions during COVID-19, and the slowing public health response to HIV.
- Interventions will need to focus on the populations left-behind: Key population groups and their sexual partners accounted for over 6620% of all new HIV infections globally among the age group 15-49 years in 2019. In eastern European and central Asia, Asia and the Pacific, western and central Europe, and north America, and the Middle East and north Africa, these groups accounted for over 95% of new HIV infections in each of these regions.
- WHO defines key populations as people in populations who are at increased HIV risk in all countries and regions. Key populations include: men who have sex with men; people who inject drugs; people in prisons and other closed settings; sex workers and their clients; and transgender people.
- Increased HIV vulnerability is often associated with legal and social factors, which increases exposure to risk situations and creates barriers to accessing effective, quality and affordable HIV prevention, testing and treatment services. Prioritising key populations in the HIV response with appropriate interventions would have the biggest impact on the epidemic and reduce new infections.
- In addition, given their life circumstances, a range of other populations may be particularly vulnerable, and at increased risk of HIV infection, such as adolescent girls and young women in southern and eastern Africa and indigenous peoples in some communities.
- Over two thirds of all people living with HIV live in the WHO African Region (25.7 million). While HIV is prevalent among the general population in this region, an increasing number of new infections occur among key population groups.
- HIV can be diagnosed through rapid diagnostic tests that can provide same-day results. HIV self-tests are increasingly available and provide an effective and acceptable alternative way to increase access to people who are not reached for HIV testing through facility-based services. Rapid test and self-tests have greatly facilitated diagnosis and linkage with treatment and care.
- There is no cure for HIV infection. However, effective prevention interventions are available: preventing mother-to-child-transmission, male and female condom use, harm reduction interventions, pre-exposure prophylaxis, post exposure prophylaxis, voluntary medical male circumcision (VMMC) and antiretroviral drugs (ARVs) which can control the virus and help prevent onward transmission to other people.
- Science is moving at a fast pace, and there have been two people who have achieved a 'functional cure' by undergoing a bone marrow transplant for cancer with re-infusion of new CD4 T cells that are unable to be infected with HIV. However, a neither a cure nor a vaccine is available to treat and protect all people currently living with or at risk of HIV.

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The human immunodeficiency virus (HIV) targets the immune system and weakens people's defense against many infections and some types of cancer. As the virus destroys and impairs

the function of immune cells, infected individuals gradually become immunodeficient. Immune function is typically measured by CD4 cell count.

Immunodeficiency results in increased susceptibility to a wide range of infections, cancers and other diseases that people with healthy immune systems can fight off.

The most advanced stage of HIV infection is acquired immunodeficiency syndrome (AIDS), which can take many years to develop if not treated, depending on the individual. AIDS is defined by the development of certain cancers, infections or other severe long term clinical manifestations.

## Signs and symptoms

The symptoms of HIV vary depending on the stage of infection. Though people living with HIV tend to be most infectious in the first few months after being infected, many are unaware of their status until the later stages. In the first few weeks after initial infection people may experience no symptoms or an influenza-like illness including fever, headache, rash or sore throat.

As the infection progressively weakens the immune system, they can develop other signs and symptoms, such as swollen lymph nodes, weight loss, fever, diarrhoea and cough. Without treatment, they could also develop severe illnesses such as tuberculosis (TB), cryptococcal meningitis, severe bacterial infections, and cancers such as lymphomas and Kaposi's sarcoma.

## Transmission

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

It is important to note that people with HIV who are taking ART and are virally suppressed do 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 with HIV but also to prevent HIV transmission.

## Risk factors

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

- having unprotected anal or vaginal sex;
- having another sexually transmitted infection (STI) such as syphilis, herpes, chlamydia, gonorrhoea and bacterial vaginosis;

- sharing contaminated needles, syringes and other injecting equipment and drug solutions when injecting drugs;
- receiving unsafe injections, blood transfusions and tissue transplantation, and medical procedures that involve unsterile cutting or piercing; and
- experiencing 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 care. People can also use HIV self-tests to test themselves. However, no single test can provide a full HIV diagnosis; confirmatory testing is required, conducted by a qualified and trained health or community worker at a community centre or clinic. HIV infection can be detected with great accuracy using WHO prequalified tests within a nationally approved testing strategy.

Most widely-used HIV diagnostic tests detect antibodies produced by the 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 experience the so-called “window” period – when HIV antibodies haven’t been produced in high enough levels to be detected by standard tests and when they may have had no signs of HIV infection, but also when they may transmit HIV to others. After infection, an individual may transmit HIV transmission to a sexual or drug-sharing partner or for pregnant women to their infant during pregnancy or the breastfeeding period.

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. Notably, once a person diagnosed with HIV and has started treatment they should not be retested.

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, serological 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 becoming available to perform this test at the point of care and enable same-day results, which will accelerate appropriate linkage with treatment and care.

## HIV testing services

HIV testing should be voluntary and the right to decline testing should be recognized. Mandatory or coerced testing by a health care provider or authority, or by a partner or family member is not acceptable as it undermines good public health practice and infringes on human rights.

New technologies to help people test themselves are being introduced, with many countries implementing self-testing as an additional option to encourage HIV diagnosis. HIV self-testing is a process whereby a person who wants to know his or her HIV status collects a specimen, performs a test, and interprets the test results in private or with someone they trust. HIV self-testing does not provide a definitive HIV-positive diagnosis, but it should be used as an initial test to be followed by confirmatory testing by a health worker. Many countries are now using innovative approaches to develop and support HIV self-testing using digital platforms and on line support for help with the testing procedure and linkage to services

The sexual partners and drug-injecting partners of people diagnosed with HIV infection have an increased probability of also being HIV-positive. WHO recommends voluntary assisted HIV partner notification services as a simple and effective way to reach these partners – many of whom are undiagnosed and unaware of their HIV exposure and may welcome support and an opportunity to test for HIV. Partner services can be highly acceptable and effective but should always be provided in a way that respects the choices of the people being offered these services. It must always be voluntary and support and options provided to avoid any potential social harms.

All HIV testing services must follow the WHO-recommended principles known as the “5 Cs”:

- **informed Consent**
- **Confidentiality**
- **Counselling**
- **Correct test results**
- **Connection (linkage to care, treatment and other services).**

## **Prevention**

Individuals can reduce the risk of HIV infection by limiting exposure to risk factors. Key approaches for HIV prevention, which are often used in combination, are listed below.

### **Male and female condom use**

Correct and consistent use of male and female condoms during vaginal or anal penetration can protect against the spread of STIs, including HIV. Evidence shows that male latex condoms when used consistently have an 85% or greater protective effect against HIV and other STIs.

## **Testing and counselling for HIV and STIs**

Testing for HIV and other STIs is strongly advised for all people exposed to any of the risk factors. This enables people to learn of their own HIV status and access necessary prevention and treatment services without delay. WHO also recommends offering testing for partners or couples. Additionally, WHO recommends voluntary assisted partner notification approaches, in which people with HIV receive support to inform their partners either on their own, or with the help of health care providers. Programmes that offer support for testing people in social networks can also be an effective and acceptable approach for some populations.

## **Testing and counselling, linkages to tuberculosis (TB) care**

TB is the most common illness among people living with HIV. Fatal if undetected or untreated, TB is the leading cause of death among people with HIV, responsible for nearly 1 in 3 HIV-associated deaths.

Early detection of TB and prompt linkage to TB treatment and ART can prevent these deaths. TB screening should be offered routinely at HIV care services, and routine HIV testing should be offered to all patients with presumptive and diagnosed TB. TB preventive therapy should be offered to all people living with HIV who do not have active TB. Individuals who are diagnosed with HIV and active TB should urgently start effective TB treatment (including for multidrug-resistant TB) and ART.

## **Voluntary medical male circumcision (VMMC)**

Medical male circumcision reduces the risk of heterosexually acquired HIV infection in men by approximately 50% including in 'real world' settings where scale up occurred alongside the increasing coverage of ART with its secondary prevention effect. In 2020, WHO updated the 2007 recommendation for VMMC to continue as an additional prevention intervention among males age 15 years and older. This is a key intervention of a combination prevention strategy in settings with high HIV prevalence, particularly countries in eastern and southern Africa. VMMC also reduces the risk of other sexually transmitted infections. At the end of 2019, 27 million adolescent boys and men in eastern and southern Africa had been provided with a package of services. Over 15 million VMMCs were performed between 2016 and 2019. The service package, includes education on safer sex and condom use, offer of HIV testing, management of sexually transmitted infections including links to treatment as needed, and the surgical procedure. VMMC is regarded as a good point of contact between men and adolescent boys and

health services, which they often do not seek out; and other services such as hypertension screening are offered in some settings.

## **Use of ARVs for prevention**

### **Secondary prevention benefits of ART**

Several studies confirmed that if an HIV-positive person is taking ART and is virally suppressed they do not transmit HIV to their uninfected sexual partners WHO recommended that all people living with HIV should be offered ART with the main aim of saving lives and contributing to reducing HIV transmission.

### **Pre-exposure prophylaxis (PrEP) for HIV-negative partner**

Oral PrEP of HIV is the daily use of ARVs by HIV-negative people to block the acquisition of HIV. More than 10 randomized controlled studies have demonstrated the effectiveness of PrEP in reducing HIV transmission among a range of populations, including serodiscordant heterosexual couples (where one partner is infected and the other is not), men who have sex with men, transgender women, high-risk heterosexual couples, and people who inject drugs.

WHO recommends PrEP as a prevention choice for people at substantial risk of HIV infection as part of a combination of prevention approaches. WHO has also expanded these recommendations to HIV-negative women who are pregnant or breastfeeding. For men who have sex with men “event driven” PrEP is also an effective PrEP option. This is taking two pills sex between two and 24 hours in before sex; then, a third pill 24 hours after the first two pills, and a fourth pill 48 hours after the first two pills. This is often known as the 2+1+1. Long acting PrEP products including an injection and a vaginal ring show promise and WHO will continue to review the data on these for future guidance.

### **Post-exposure prophylaxis for HIV (PEP)**

PEP is the use of ARVs within 72 hours of exposure to HIV to prevent infection. PEP includes counselling, first aid care, HIV testing, and administration of a 28-day course of ARV drugs with follow-up care. WHO recommends PEP use for both occupational and non-occupational exposures, and for adults and children.

## **Harm reduction for people who inject and use drugs**

People who inject drugs can take precautions against becoming infected with HIV by using sterile injecting equipment (including needles and syringes) for each injection, and not sharing drug-

using equipment and drug solutions. Treatment of drug dependence, in particular, opioid substitution therapy for people dependent on opioids, also helps to reduce the risk of HIV transmission and supports adherence to HIV treatment. A comprehensive package of HIV prevention and treatment interventions for people who inject drugs includes:

- needle and syringe programmes;
- opioid substitution therapy for people dependent on opioids, and other evidence-based drug dependence treatment;
- HIV testing and counselling;
- HIV treatment and care;
- risk-reduction information and education, and provision of naloxone to prevent opioid overdose;
- access to condoms; and
- management of STIs, TB and viral hepatitis.

## Elimination of mother-to-child transmission of HIV

The transmission of HIV from an HIV-positive mother to her child during pregnancy, labour, delivery or breastfeeding is called vertical or mother-to-child transmission (MTCT). In the absence of any interventions during these stages, rates of HIV transmission from mother-to-child can be between 15% and 45%. The risk of MTCT can almost be eliminated if both the mother and her baby are provided with ARV drugs as early as possible in pregnancy and during the period of breastfeeding.

WHO recommends lifelong ART for all people living with HIV, regardless of their CD4 count and the clinical stage of disease; this includes pregnant and breastfeeding women. In 2019, 85% of the estimated 1.3 million pregnant women living with HIV globally received ARV drugs to prevent transmission to their children. A growing number of countries and territories are achieving very low rates of MTCT, with some formally validated for elimination of MTCT of HIV as a public health problem (Anguilla, Antigua and Barbuda, Armenia, Belarus, Bermuda, Cayman Islands, Cuba, Malaysia, Maldives, Montserrat, Saint Kitts and Nevis, and Thailand). Several countries with a high burden of HIV infection are also progressing along the path to elimination.

## Treatment

HIV can be suppressed by treatment regimens composed by a combination of 3 or more ARV drugs. Current ART does not cure HIV infection but highly suppresses viral replication within a person's body and allows an individual's immune system recovery to strengthen and regain the capacity to fight off infections.

Since 2016, WHO recommended that all people living with HIV be provided with lifelong ART, including children, adolescents and adults, and pregnant and breastfeeding women, regardless of clinical status or CD4 cell count.

By June 2020, 185 countries had already adopted this 'treat all' recommendation, covering 99%



of all people living with HIV globally. In addition to ‘treat all’, WHO also recommend a rapid ART initiation to all people living with HIV, including offer ART on the same day of diagnosis among those who are ready to start treatment. By mid-2020, 70 low-and middle-income countries reported that they have adopted this policy, and approximately half of them reported country-wide implementation.

- WHO updated its HIV treatment guidelines in 2018 and 2019 to reflect the latest scientific advances.

The current HIV treatment guidelines include new ARV options with better tolerability, higher efficacy, and lower rates of treatment discontinuation when compared with previous recommended medicines. In 2019, WHO recommended the use of dolutegravir-based or low-dose efavirenz for first-line therapy. DTG should also be used in 2<sup>nd</sup> line therapy, if not used in 1<sup>st</sup> line and darunavir/ritonavir is recommended as the anchor drug in third- line or an alternative option second-line therapy.

By June 2020, transition to dolutegravir had been implemented in 100 low- and middle-income countries and is expected to improve the durability of the treatment and the quality of care for people living with HIV. Despite improvements, limited options remain for infants and young children. For this reason, WHO and partners are coordinating efforts to enable a faster and more effective development and introduction of age-appropriate paediatric formulations of new ARV drugs.

In addition, one third of people living with HIV present to care with advanced disease, usually with severe clinical symptoms, low CD4 cell counts, and at high risk of developing serious illness and death. To reduce this risk, WHO recommends that these individuals receive a “package of care” that includes screening tests and drug prophylaxis for the most common serious infections that can cause severe morbidity and death, such as TB and cryptococcal meningitis, in addition to rapid ART initiation.

Globally, 25.4 million people living with HIV were receiving ART in 2019. This equates to a global ART coverage rate of 67%. However, more efforts are needed to scale up treatment, particularly for children and adolescents. Only 53% of children were receiving ART at the end of 2019.

### **Addressing structural barriers for key populations to improve access to testing and treatment:**

A set of enabling interventions will help address structural barriers to services for key populations and others:

- **Review and revision of laws, policies and practices including the decriminalization of behaviours**

such as sex work, drug use, sexual preference or gender identity

- **Antidiscrimination and protective laws to address stigma and discrimination**
- **Available, accessible and acceptable health services for key populations**
- **Enhanced community empowerment**
- **Addressing violence against people from key populations**

Expanding access to treatment is at the heart of a set of targets for 2020, which aims to bring the world back on track to end the AIDS epidemic by 2030.

## WHO response

The Sixty-Ninth World Health Assembly endorsed a new “Global health sector strategy on HIV for 2016–2021”. The strategy includes five strategic directions that guide priority actions by countries and by WHO over six years.

The strategic directions are:

- **Information for focused action (know your epidemic and response)**
- **Interventions for impact (covering the range of services needed)**
- **Delivering for equity (covering the populations in need of services)**
- **Financing for sustainability (covering the costs of services)**
- **Innovation for acceleration (looking towards the future).**

WHO is a cosponsor of the Joint United Nations Programme on AIDS (UNAIDS). Within UNAIDS, WHO leads activities on HIV treatment and care, and HIV and TB coinfection, and jointly coordinates the work on elimination of MTCT of HIV with UNICEF.

- [Global health sector strategy on HIV, 2016-2021](#)