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UNAIDS Explainer

# UNDETECTABLE = UNTRANSMITTABLE
## Public Health and HIV Viral Load Suppression

**Key Actions for Programme Managers**

1. Scale up comprehensive responses, including testing, access to quality treatment and retention in care.
2. Increase efforts to ensure that accessible, affordable and stigma-free testing and treatment, including better access to viral load testing, is available to all people living with HIV.
3. Address stigma, discrimination and unjust criminalization that violates human rights and deters people living with HIV from accessing HIV prevention, treatment and care services.
4. Raise awareness and promote the knowledge that undetectable = untransmittable.

Twenty years of evidence demonstrates that HIV treatment is highly effective in reducing the transmission of HIV. People living with HIV on antiretroviral therapy who have an undetectable level of HIV in their blood have a negligible risk of transmitting HIV sexually.

Three large studies of sexual HIV transmission among thousands of couples, one partner of which was living with HIV and the other was not, were undertaken between 2007 and 2016. In those studies, there was not a single case of sexual transmission of HIV from a virally suppressed person living with HIV to their HIV-negative partner *(1-3)*. Hence, in addition to enabling people living with HIV to stay healthy and have a lifespan similar to people not living with HIV, antiretroviral medicines now provide an opportunity for people living with HIV who have an undetectable viral load to have sex without a condom with effectively no risk of passing HIV on to their partner. Globally, 47% [35–58%] of people living HIV are virally suppressed *(4)*.

The primary purpose of antiretroviral therapy is to keep people living with HIV in good health. For most people living with HIV, antiretroviral medicines can reduce the amount of HIV in the blood to levels that are undetectable by standard laboratory tests. With the right choice of antiretroviral medicines, viral levels will decline over several months to undetectable levels and allow the immune system to begin to recover.

Access to antiretroviral therapy is transformative for people living with HIV. It enables people to regain their quality of life, return to work and enjoy a future with hope. For many people living with HIV, the news that they can no longer transmit HIV sexually is life-changing. In addition to being able to choose to have sex without a condom, many people living

with HIV who are virally suppressed feel liberated from the stigma associated with living with the virus. The awareness that they can no longer transmit HIV sexually can provide people living with HIV with a strong sense of being agents of prevention in their approach to new or existing relationships.

### Undetectable = Untransmittable Programme Support

There is no definitive answer as to how long a person needs to be taking antiretroviral medicines before they become virally suppressed and have essentially zero risk of transmitting HIV. Even when a person is taking medicines regularly, he or she will not necessarily have durable HIV suppression *(5)*. A person can only know whether he or she is virally suppressed by taking a viral load test.

Efforts to reduce a person's viral load to undetectable levels, and prevent onward transmission of the virus, must be tailored to the individual, taking into account factors such as the duration of viral suppression, adherence to the antiretroviral medicines, the desire to stop using condoms and the desire to become pregnant.



Deciding on a strategy with a health-care provider also provides an opportunity to reinforce and support adherence to antiretroviral medicines, ensure regular returns for health checks and provide sexual and reproductive health advice.

One in three of the new HIV infections in the HPTN 052 study to see whether a person living with HIV with an undetectable viral load could transit HIV to a partner *(1,2)* were the result of an HIV-negative partner acquiring HIV from someone other than their own virally suppressed partner. HIV-negative partners of people living with HIV who are virally suppressed should consider continuing to use condoms as well as pre-exposure prophylaxis (PrEP) if they have sex with people other than their partner.

### The Future

Approximately 1.6 million adults became newly infected with HIV in 2017 *(4)*. Many of those new infections were transmitted by people who did not know their HIV status, were not on treatment or who had started antiretroviral therapy but had not yet become virally suppressed or had poor adherence to their treatment *(5–8)*. In addition to their primary goal of keeping people living with HIV in good health, antiretroviral therapy and maintaining an undetectable viral load are important prevention tools within the combination prevention framework. Other prevention tools include male and female condoms, voluntary medical male circumcision, PrEP, post-exposure prophylaxis and harm reduction services for people who inject drugs, along with behaviour and structural changes.

As important as treatment and primary prevention, systemic changes are required to scale up essential health services for all and to retain people in care for life. Approximately 940 000 people died of AIDS-related illnesses in 2017 *(4)*, some of whom will have started antiretroviral therapy but were unable to continue. Many of those deaths occurred among people who did not seek medical attention until they became very ill, and when they did seek medical attention the health system may have been unable to respond, owing to staff shortages, poor laboratory services or lack of medicines. Despite the remarkable scale-up of antiretroviral therapy, as many as one third of people living with HIV do not start treatment until they are so ill that they have a CD4 count of less than 200 cells/ mm3 and are considered to have AIDS *(8)*.

### Key Messages

1. UNAIDS endorses the concept of undetectable = untransmittable. There is a strong scientific consensus that people living with HIV who are taking effective antiretroviral therapy and whose level of HIV is suppressed to undetectable levels will not transmit HIV sexually.
2. There is knowledge and recognition that undetectable = untransmittable can respond to stigma and motivate efforts to become virally suppressed and continue follow-up care.
3. Globally, there needs to be better access to viral load assays at affordable prices, combined with effective laboratory systems and robust health services. Stronger efforts should be put in place to ensure that all people living with HIV have access to treatment as soon as they are diagnosed.

4. The UNAIDS Fast-Track approach and the 2016 United Nations General Assembly Political Declaration on Ending AIDS lay out recommendations that address the primary prevention and structural changes required to reach everyone affected and to provide accessible and affordable treatment for all people living with HIV.

5. Male and female condoms and other combination prevention strategies remain a key part of the HIV response as primary prevention tools. Stronger condom programming is essential to ensure sexual and reproductive health in general.

## Viral Load Facts

- Viral load is the term used to describe the amount of HIV in a person's blood.
- The higher the viral load, the quicker a person's immune system will be damaged, increasing their chances of catching infections that the body would normally fight off very easily.
- When a person living with HIV is taking effective antiretroviral therapy, the viral load becomes so low that it is undetectable (less than 50 copies per millilitre of blood).
- A person with an undetectable viral load has no chance of passing on HIV.
- Viral load levels should be monitored regularly to be sure that the HIV medicines are working.

## REFERENCES


1. Cohen MS, Chen YQ, McCauley M, et al. Prevention of HIV-1 infection with early antiretroviral therapy. N. Engl. J. Med. 2011;365:493–505.

2. Rodger AJ, Cambiano V, Bruun T, et al. Sexual activity without condoms and risk of HIV transmission in serodifferent couples when the HIV-positive partner is using suppressive antiretroviral therapy. JAMA. 2016;316:171–181.

3. Grulich A, et al. HIV transmission in male serodiscordant couples in Australia, Thailand and Brazil. 2015 Conference on Retroviruses and Opportunistic Infections (CROI), Seattle, USA, 2015.

4. UNAIDS 2018 estimates and special analysis.

5. Bluma G, Brenner MR, Routy J-P, Moisi D, Michel Ntemgwa CM, et al. High rates of forward transmission events after acute/early HIV-1 infection. J. Infect. Dis. 2007;195(7):951–959.

6. Robineau O, Frange P, Barin F, Cazein F, Girard P-M, Chaix M-L, et al. Combining the estimated date of HIV infection with a phylogenetic cluster study to better understand HIV spread: application in a Paris neighbourhood. PLoS ONE. 2015;10(8):e0135367.

7. de Oliveira T, Kharsany ABM, Gräf T, Cawood C, Khanyile D, Grobler A, et al. Transmission networks and risk of HIV infection in KwaZulu-Natal, South Africa: a communitywide phylogenetic study. The Lancet HIV. 2017;4(1):e41–e50.

8. Auld A, Shiraishi R, Oboho I, et al. Trends in prevalence of advanced HIV disease at antiretroviral therapy enrollment—10 countries, 2004–2015. MMWR. 2017;66(21):558–563.

# Cervical cancer and HIV — two diseases, one response

*01 October 2018*

Cervical cancer—an illness that can be prevented by vaccination against the human papillomavirus (HPV) and that is curable if detected and treated early—is developed by more than 500 000 women each year, half of whom die of the disease. If cervical cancer prevention, screening and treatment efforts are not urgently scaled up, it is projected that this number could double by 2035.

Cervical cancer is an AIDS-defining illness, since women living with HIV who become infected with HPV are more likely to develop pre-invasive lesions that can, if left untreated, quickly progress to invasive cancer—women living with HIV are four to five times more likely to develop invasive cervical cancer. HPV infection has been found to significantly increase the risk of HIV transmission for both men and women.



Thanks to HIV treatment, many more women living with HIV are living long and healthy lives, but it is imperative that women living with HIV do not succumb to other illnesses, including cervical cancer. "It makes no sense to save a woman's life from AIDS, only to let her die from treatable or preventable cancer," President George W. Bush, whose George W. Bush Institute is leading efforts to end AIDS and cervical cancer, said in October 2015.

Nine out of 10 women who die from cervical cancer live in low- and middle-income countries. Given that the burden of HIV is primarily felt in low- and middle-income countries, and particularly by adolescent girls and young women, responding to both cervical cancer and HIV together in those countries is vital. Unfortunately, however, most low- and middle-income countries with a high prevalence of HIV have limited programmes for cervical cancer prevention and control.

There is a growing awareness of the need to maximize synergies between the AIDS response and efforts to prevent, diagnose and treat cervical cancer through HPV vaccination, education, screening and treatment. Likewise, existing HIV programmes can play a strategic role in expanding cervical cancer prevention services.

Reducing deaths from cervical cancer requires a wide-ranging approach that includes the following:

- Health education, including age-appropriate comprehensive sexuality education.
- HPV vaccination for adolescent girls.
- Screening all women at risk of developing cervical cancer. Screening programmes should include HIV counselling, testing and treatment, as well as other sexual and reproductive health services and treatment of precancerous cervical lesions and invasive and advanced cervical cancer.
- Ensuring access to palliative care, when needed.

"All women living with HIV need access to information on HPV and should be offered cervical cancer screening and treatment if necessary," said Michel Sidibé, Executive Director of UNAIDS.

In May 2018, the United States President's Emergency Plan for AIDS Relief, the George W. Bush Institute and UNAIDS launched a joint effort through a US$ 30 million partnership to accelerate efforts in eight sub-Saharan African countries to ensure that women and girls living with HIV are a priority in national cervical cancer prevention and control programmes.

"Thanks to the generosity of the American people, the United States President's Emergency Plan for AIDS Relief has saved the lives of millions of HIV-positive women around the world," said Deborah Birx, United States Global AIDS Coordinator and Special Representative for Global Health Diplomacy, at the launch of the partnership in May 2018. "We must ensure these same women—mothers, daughters, aunts and grandmothers—who are living with HIV and thriving do not succumb to cervical cancer."

# Report back on the 22nd International AIDS Conference

**Dr. HO Chi-hin, Billy (Senior Medical Officer)**
**Special Preventive Programme, Department of Health**

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Over 18,000 participants from all over the world attended the 22nd International AIDS Conference (AIDS 2018) held between 23 and 27 July this year in Amsterdam, Netherlands. Around Hong Kong participants from ACA, Hospital Authority, private sector, academic institutions, and non-governmental organisations (NGOs) had attended the Conference.

### *Breaking Barriers, Building Bridges*

This year, the conference committee has chosen "**Breaking Barriers, Building Bridges**" as the theme of the event, drawing attention to the need of rights-based approaches to more effectively reach key populations, including in Eastern Europe, Central Asia and the North-African/Middle Eastern regions where epidemics are growing. It also called for action to reach those who still lack access to comprehensive treatment, prevention, care and support services, to strengthen commitment to HIV research evidence-based interventions, and to overcome injustice caused by violence to or exclusion of some populations based on gender, class, race, nationality, age, geographic location, sexual orientation and HIV status.

The five days covered a wide range of topics, from HIV prevention and treatment, stigma and discrimination, to harm reduction strategies. Other topics like pre-exposure prophylaxis (PrEP), HIV self-testing, prevention cascade, access to HIV services by different populations, harm reduction strategies for injecting drug users were also actively discussed.

### *Where are we now?*

Despite the remarkable scale up of antiretroviral therapy, according to UNAIDS estimation, there was still 1.7 million new infections among adults in 2016, with a decline of only 11% since 2010. In 2015-2016, it was estimated that there were more than 36 million people living with HIV worldwide. Although a few countries have achieved marked declines in new HIV infections among adults, most others have not made significant progress. More than 35 million people have died of AIDS-related causes.

Regarding access to antiretroviral therapy (ART), the number of people receiving ART rose from 680,000 in 2000 to 20.9 million in 2017, not restricted to people living in high-income countries. Robust funding, primarily at the outset from international donors, enabled rapid introduction and expansion of treatment programmes. Efficiency and effectiveness of HIV treatment service delivery have also improved.

However, there is still unfinished tasks raised in the meeting agenda as existing HIV tools and strategies are far from complete, notably in Eastern Europe and central Asian countries. The coming demographic wave, as children become adolescents and young adults, threatens major expansions of the epidemic. Some speakers in the Conference voiced out that failure to build on existing prevention and treatment coverage gains may result in a rebound of the HIV epidemic in the coming years. Allowing the pandemic to rebound after achieving such remarkable progress thus far would not only increase the human and financial costs of HIV, but would potentially demoralise the global health field and diminish support for similarly ambitious global health undertakings.

### *Issues highlighted*

From the perspective of public health, several issues that may shed lights on our future HIV response discussed during the Conference were identified:

1. Pre-exposure prophylaxis (PrEP) - Despite research revealed the efficacy of PrEP to prevent new infections, the pace of global PrEP roll-out has been unsatisfactory. The slow progress to implement PrEP was partly due to financial concerns. Paradoxically, low- or middle-income countries like Thailand could be well supported by funding for generic drugs, competing public health priorities exist for certain developed countries like UK. Community advocacy and publicity to address the controversies on PrEP is crucial before a successful and effective PrEP programme could be launched. More data from pilot studies and experiences of implementation is being collected, especially in relation to the setting of delivery, adherence, safety, level of risk compensation and overall prevention effectiveness.

2. HIV self-testing – Upon issuance of WHO guidelines for self-testing in 2016, many countries/regions have launched a lot of innovative programmes to deliver self-testing. The responses were encouraging and studies showed increases in testing uptake rate among hard-to-reach populations, not confined to MSM. With the approval of more self-test kits for sale in market, it is anticipated that the HIV testing rate of at risk people may further improve, with the realistic prospects of reaching and sustaining the first 90 in the HIV treatment cascade.

3. Long term care of people living with HIV (PLHIV) - PLHIV were shown to be more likely to suffer from mental health illnesses and other non-communicable diseases (NCDs). Factors such as mental/neurological disorders, alcohol use, substance abuse, childhood sexual abuse, intimate partner violence, etc. were inter-related and could interact synergistically, negatively impacting HIV-related behaviors, health and well-being of PLHIV. Despite HIV itself is treatable with the advent of ART, side effects of the medications and HIV-mediated inflammation could also predispose PLHIV to some NCDs and cancers. Screening for NCD and cancer risk factors and prompt intervention should be considered for prevention of co-morbidities.

### *Observations*

Hong Kong has a supportive environment for HIV and there is no criminalization of vulnerable populations. Prevention and treatment are largely available and easily accessible. However, we are facing similar albeit not identical difficulties as other developed countries regarding the control of HIV/AIDS epidemics. The sharing of the evidence and practice by experts from different countries in the Conference have shed lights on the possible ways and directions ahead.

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