Editorial

Global HIV/AIDS Strategies (2026-2031): Testing, Treatment, Prevention, and Living with HIV in Pakistan

Nasreen Inayat Bughio

Human Immunodeficiency Virus (HIV) is a retrovirus that attacks/destroys human infection-fighting CD4 immune cells, making it difficult for the body to fight off opportunistic infections and some cancers. If left untreated, HIV infection could lead towards Acquired Immunodeficiency Syndrome (AIDS), the most advanced stage, in 10-15 years[1,2]. The only way to know your HIV status is to get tested. Currently, there is no effective cure for HIV; once someone gets HIV, they have it for life. However, today, Anti-Retroviral Therapy (ART) allows HIV-positive persons to live long, healthy lives, and prevents transmission. According to the WHO, an estimated 41 million people were living with HIV in 2024, worldwide, with around 1.3 million new infections per year; and about 630,000 people have died from AIDS-related illnesses, equating to one person every minute worldwide[3]. In developing countries such as Pakistan, key challenges persist, including lack of HIV/AIDS awareness; unsafe medical practices, social stigma/ discrimination; limited access to testing, treatment, prevention, and care; funding uncertainties; and ongoing epidemics[4].

GLOBAL STRATEGIES AND DEVELOPMENTS FOR HIV/AIDS

In recent years, significant scientific advancements have transformed HIV/AIDS from a fatal illness into a chronic, manageable condition, with a normal life expectancy. Recently, the global initiative, "global hiv/ aids strategy 2026–2031," has centered its focus on ending the HIV/AIDS epidemic by making key services like testing, treatment, prevention and response to outbreaks more accessible to affected populations, and integrating care into broader health systems. Current development in the key services (1) testing & diagnosis, (2) treatment, (3) prevention, and (4) response are as follows:

1. HIV TESTING AND DIAGNOSIS

People with risky behaviours must get tested regularly. HIV testing confirms your HIV status: positive or negative. Early diagnosis keeps you and your partner healthy; reduces HIV/AIDS-related morbidity and mortality, and is essential for effective treatment and prevention of HIV transmission.

HIV Testing/Diagnostic Tests: HIV can be diagnosed via blood, saliva or bodily fluids. There are three types of Reliable, Accurate, Sensitive/ Specific HIV Diagnostic tests available:

1. **Antibody-only Tests: These immunoassays** detect antibodies produced by the human immune system against HIV-1 and HIV-2 (types of HIV), using blood from a vein. These rapid tests have an extended window period of 23 to 90 days after HIV exposure
2. **Antigen/Antibody Combination Tests:** These immunoassays are used to look for both HIV antigen p24 and antibodies. The window period for these tests is 18 to 45 days after HIV exposure. Antigens are foreign particles/parts of HIV that activate the human immune system, which produces antibodies.
3. **Nucleic Acid Tests (Viral Load-only):** These highly sensitive tests detect HIV RNA (genetic material) only. The window period of these tests is 10 to 33 days after HIV exposure.

If an initial test is reactive, supplemental testing is performed to differentiate between HIV-1 and HIV-2 and to confirm the diagnosis. Research efforts in 2026 are focusing on making testing simple, accessible, and routine through various avenues, including online self-testing programs, vending machines, and expanded telehealth options. According to CDC USA 2025, when detecting HIV, the combination of tests 1-3 is almost 100% effective[5,6].

Advancements in HIV testing focus on accessibility, speed, and accuracy:

- **Rapid and At-Home Testing:** Expanding diagnostic capabilities with quick results and privacy.
- **Viral Load Monitoring at Point-of-Care:** Enabling effective monitoring of treatment and early detection of drug resistance outside traditional laboratories.
- **Early Detection:** Utilizing advanced PCR-based diagnostics to detect HIV sooner than antibody-based tests.
- **Molecular Surveillance Techniques:** Employing advanced methods to monitor HIV prevalence and types.
- **Accessibility to Testing:** Integrating online ordering, vending machines, and digital health tools to reach hard-to-reach populations[6].

2. TREATMENT

HIV treatment ART uses effective medicines (pills or injections) to control the virus, making it a manageable chronic condition.

Antiretroviral Therapy (ART) - ART is a combination of medications used to treat HIV. It works by stopping HIV from reproducing, reducing HIV levels, and

Medical Consultant & Policy Analyst / Research Scientist - Federal Government of Canada, Canada
Correspondence: bughion@yahoo.com
doi: 10.22442/jlumhs.2025.01450

keeping the immune system healthy. ART can be taken as a daily pill or as a shot once every two months[2].

Undetectable = Untransmittable (U=U) - When taken as prescribed, ART reduces the amount of HIV in the blood (viral load) to a very low level (viral suppression), usually within six months. This viral load can become so low (undetectable) that standard laboratory tests cannot find it. People with HIV on ART who maintain an undetectable viral load can live long, healthy lives and will not transmit HIV to their HIV-negative partners through sex, meaning individuals with an undetectable viral load cannot transmit HIV to others sexually. Programs like the Ryan White HIV/AIDS Program have shown high rates of viral suppression (86%) in the U.S[2].

Long-Acting Injectables: A significant focus in 2026 is the availability and increasing use of long-acting injectable medications, such as lenacapavir, for treatment and prevention. These injectables require less frequent administration compared to daily oral pills, significantly improving convenience and adherence for patients. For example, lenacapavir only requires twice-yearly administration and has shown over 99% effectiveness in trials.

Role of ART in HIV Mother-to-Child Transmission - ART is crucial in preventing HIV mother-to-child transmission (MTCT), drastically cutting the risk to under 1% when taken daily by the pregnant person and given as prophylaxis (4-6 weeks after birth) to the infant. Art reduces, not eliminates, breastfeeding risk, so formula feeding is preferred where safe, to prevent transmission entirely[2,3,5,7].

Focus on Drug Resistance: The World Health Organization (WHO) has introduced the Integrated Drug Resistance Action Framework for HIV, Hepatitis B and C, and STIs (2026–2030).

3. PREVENTION

HIV prevention means protecting yourself, protecting others, and preventing mother-to-child transmission. Prevention can be acquired via (i) Behavioral/Barrier techniques, including the Correct use of condoms; avoiding sharing needles, syringes, medical and drug injection equipment, and Safer Sex Practices. (ii) Treatment/Medical Options including PrEP (Pre-Exposure Prophylaxis): Daily medicine for HIV-negative people at high risk; PEP (Post-Exposure Prophylaxis): Medicine taken within 72 hours after a possible exposure to prevent infection; ART: People with HIV taking ART cannot transmit the virus sexually (U=U); Voluntary Male Circumcision. (iii) Testing and Education - Get Tested: Regular HIV and STI testing to know the status; Partner Support: Encourage partners with HIV to take their medicine; For Pregnancy & Parenthood: Perinatal Prevention: HIV-positive parents should take medicine during pregnancy and childbirth; PrEP for Partners: Consider PrEP if you have HIV and are planning a pregnancy with a partner[8,9].

HIV Treatment as Prevention (TasP): TasP is a highly effective strategy where people with HIV take antiretroviral therapy (ART) to achieve an undetectable viral load. This approach both keeps the individual with HIV healthy and prevents new infections[10].

4. RESPONSE

The strategy also involves the capacity to respond quickly to potential HIV outbreaks to get vital prevention and treatment services to people who need them efficiently.

LIVING WITH HIV (2026) - STRATEGIES AND CHALLENGES IN PAKISTAN

Today, Pakistan is experiencing one of the fastest-growing HIV epidemics in the WHO Eastern Mediterranean Region, with new infections rising by 200% between 2010 and 2024[11]. HIV, once confined to high-risk populations only[1,4] is now spreading fast into the general population, including infants, children, adolescents and young adults, spouses of HIV-infected persons, and high-risk workers. Such frequent HIV outbreaks are primarily linked to poor awareness of the public and negligence/unawareness of the medical community; high-risk behavior in adolescent and young adults, unsafe medical practices such as injection sharing, HIV-contaminated dialysis and surgical equipment; unregulated medical facilities, contaminated blood supply; poor blood screening, and stigma. The actual burden of HIV/AIDS is not known because properly planned, accurate epidemiological studies are hardly performed (lack of surveillance)in the rural/urban general population. Effective treatment ART is widely available at the National HIV ART Treatment Centres, free of cost; however, only a small number of HIV-diagnosed persons receive treatment, and even fewer achieve viral suppression (U=U/TasP). Hence, the virus continues to spread uncontrollably in the general population of Pakistan[11].

The World Health Organization (WHO)[12] and UNAIDS[13] have called for immediate public health sector interventions to bring urgent reforms in areas including HIV screening/testing/diagnosis, treatment, and prevention. To curb HIV epidemics in Pakistan, there is an urgent need to: (i) Implement stringent regulations related to public health and safety in medical facilities and implement mandatory blood HIV screening for donors/patients and pregnant mothers nationwide; (ii) Launch HIV/AIDS awareness campaigns in academic facilities, general public; training programs for medical community, high-risk workers, to reduce stigma and promote HIV testing services; (iii)Develop and implement comprehensive national health policies.

In conclusion, the HIV/AIDS global strategy 2026 initiative has centered its focus on key Action Areas such as Global Epidemics, Testing, Treatment, and Prevention. HIV testing should be integrated at all levels in the healthcare system to facilitate early detection and to stop the spread of HIV in the general population. Today, Pakistan is facing an increase in

HIV cases. Unfortunately, despite significant scientific advancements, the true burden of HIV/AIDS remains unknown primarily due to a poor surveillance system, lack of interest and lack of motivation. Joint global interventions are needed Urgent interventions through policy changes, reforms in testing, treatment, and prevention programs, are required to control the fast transmission of HIV in the general population in Pakistan. This editorial is dedicated to the memory of the late Asst. Prof. Dr. Majid Ali Soomro, LUMHS, Jamshoro.

REFERENCES

1. Bughio N. HIV Infection in Sindh, Pakistan: Outbreaks, Challenges, and Recommendations. J Liaquat Univ Med Health Sci. 2024; 23(02):
2. NIH. HIV Overview-HIV and AIDS: The Basics. NIH Fact Sheets. HIVinfo NIH Gov. May 28, 2025. Available from: https://hivinfo.nih.gov/understanding-hiv/fact-sheets/hiv-and-aids-basics.
3. UNAIDS. UNAIDS FACT SHEET 2025. Global HIV Statistics. UNAIDS. 2025. Available from: https://www.unaids.org/sites/default/files/2025-07/2025_Global_HIV_Factsheet_ en.pdf.
4. Basit A, Saifullah M, Baig U, Ameer A, Basil AM. Unprecedented rise in human immunodeficiency virus cases in Pakistan: A public health emergency. World J Clin Infect Dis. 2025 August 20; 14(2): 109220.
5. CDC. HIV Testing Essentials. CDC USA. August 2025. Available from: https://www.cdc. gov/stophivtogether/hiv-testing/talk-testing.html#print.
6. NIH. HIV Treatment: The Basics. HIVinfo NIH Gov. January 14, 2025. Available from: https://hivinfo.nih.gov/understanding-hiv/fact-sheets/hiv-treatment-basics
7. NIH. HIV and Pregnancy: Preventing transmission of HIV during pregnancy and childbirth. HIVinfo NIH Gov. Oct 6, 2025. Available from: https://hivinfo.nih.gov/understanding-hiv/fact-sheets/preventing-perinatal-transmission-hiv-during-pregnancy-and-childbirth.
8. NIH. HIV Prevention: The basics of HIV prevention. HIVinfo NIH Gov. April 9, 2025. Available from: https://hivinfo.nih.gov/understanding-hiv/fact-sheets/basics-hiv-prevention
9. HIV-HEP Policy Institute. CDC's Division of HIV Prevention - Essential Functions. HIV-HEP Pol Inst. July 2, 2025. Available from: https://hivhep.org/testimony-comments-letters/cdcs-division-of-hiv-prevention-essential-functions-2/.
10. HIV.Gov. HIV Treatment as Prevention. HIV Gov. September 18 2025. Available from: https://www.hiv.gov/tasp.
11. Zubair A, Ali M, Wdidi S, Alkheaide AQ, Santacroce L. Unveiling the dynamics: understanding the current scenario and drivers of HIV epidemiology in Pakistan. Retrovirology. 2025;22(5):12. doi: 10.1186/s12977-025-00668-z.
12. Organization WH. HIV infections rise in Pakistan; WHO and UNAIDS call to action. World Health Org. December 1, 2025. Available from: https://www.emro.who.int/pak/pakistan-news/hiv-infections-rise-in-pakistan-who-and-unaids-call-to-action.html#:~:text=1%20 December%202025%2C%20Islamabad%2C%20Pakistan%20%E2%80%93%20On,in%202010%20to%2048%20000%20in%202024.
13. UNAIDS. Responding to the HIV outbreak in Larkana. UNAIDS. June 11, 2019. Available from: https://www.unaids.org/en/resources/presscentre/featurestories/2019/june/20190611_larnaka_outbreak.