KEY POINTS:

- HIV prevention programmes are interventions that aim to halt the transmission of HIV.
- HIV prevention programmes usually focus on preventing the transmission of HIV through a complementary combination of behavioural, biomedical and structural strategies.
- Despite the progress made by prevention programmes across the globe, the decline in new HIV infections among adults has slowed in the past decade which indicates the need for increased funding and scale up of services.
- For maximum impact, HIV preventions programmes need to be targeted at high prevalence regions or 'hot spots', and also meet the needs of high-risk groups.

Explore this page to find out more about combination prevention, intervention approaches and the future of prevention strategies to meet Fast Track Targets.

HIV prevention programmes are interventions that aim to halt the transmission of HIV. They are implemented to either protect an individual and their community, or are rolled out as public health policies.

Initially, HIV prevention programmes focused primarily on preventing the sexual transmission of HIV through behaviour change. For a number of years, the ABC approach - "Abstinence, Be faithful, Use a Condom" - was used in response to the growing epidemic in sub-Saharan Africa.

However, by the mid-2000s, it became evident that effective HIV prevention needs to take into account underlying socio-cultural, economic, political, legal and other contextual factors. As the complex nature of the global HIV epidemic has become clear, forms of 'combination prevention' have largely replaced ABC-type approaches.
While some countries have achieved impressive declines in new HIV infections among adults in the past decade, many others have not made measurable progress, and others have experienced worrying increases in new HIV infections. As a result, the decline in new HIV infections among adults has slowed in the past decade and remained unchanged in recent years. Between 2010 and 2015, the annual number of new infections among adults (15+) remained static at an estimated 1.9 million.

In order to end the HIV epidemic as a public health threat, in 2014 UNAIDS set ambitious worldwide targets to reduce annual new infections to below 500,000 by 2020 – a 75% reduction from 2010 – and to 200,000 by 2030. This is known as the UNAIDS Fast-Track Strategy. However, with new infections in 2015 almost four-times the 2020 target, progress is off track.

**Combination prevention**

Effective HIV prevention programmes require a combination of behavioural, biomedical and structural interventions

Combination prevention advocates for a holistic approach whereby HIV prevention is not a single intervention (such as condom distribution) but the simultaneous use of complementary behavioural, biomedical and structural prevention strategies.

Combination prevention programmes consider factors specific to each setting, such as levels of infrastructure, local culture and traditions as well as populations most affected by HIV. They can be implemented at the individual, community and population levels.

UNAIDS has called for combined approaches to HIV prevention to be scaled-up, to reinvigorate the global response and make a sustained impact on global HIV incidence rates.

UNAIDS defines combination prevention as:

rights-based, evidence-informed, and community-owned
programmes that use a mix of biomedical, behavioural, and structural interventions, prioritised to meet the current HIV prevention needs of particular individuals and communities, so as to have the greatest sustained impact on reducing new infections. 9

All combination prevention programmes require a strong community empowerment element and specific efforts to address legal and policy barriers, as well as the strengthening of health and social protection systems, plus actions to address gender inequality and stigma and discrimination.10

For example:

Young people in high prevalence countries need more than condoms and behaviour change communications. They also require comprehensive sexuality education and access to effective HIV and sexual and reproductive health services without economic barriers, such as prohibitive costs, or structural barriers, such as parental consent laws.11

A combination package for men who have sex with men should include easy access to condoms, lubricant and PrEP, as well as efforts to address homophobia.12

A package for people who inject drugs should feature comprehensive harm reduction services, including needle and syringe programmes (NSPs) and opioid substitution therapy (OST).13

However, few countries have consistently applied a combination HIV prevention approach to programming.

'Know your epidemic, know your response'

Before deciding on a package of HIV prevention interventions for a specific HIV epidemic, a clear and evidence-informed picture of that epidemic is needed.

Known as the ‘know your epidemic, know your response’ approach, this is the starting point for combination prevention programming, and is comprised of a series of exercises to help categorise an epidemic (such as whether it is ‘generalised’ – i.e. within the general population – or ‘concentrated’ within certain groups within the population, often referred to as ‘key affected populations’). This involves looking at factors such as modes of HIV transmission, key affected populations and key epidemiological trends (such as the number of new HIV infections among young people).14 15

The planning process that programmers and policy makers are recommended to follow is described below:

A planning process that is inclusive and based on evidence

Ensure the participation of all relevant stakeholders, including government officials, cultural leaders, civil society organisations, donors, and most importantly, individuals and communities affected by HIV and AIDS.

Identify modes of transmission and the most affected populations
Understand how HIV is spread in an epidemic. Identify the most common modes of transmission, and the most affected populations.

Identify geographic variations in HIV prevalence

Identify geographic difference in HIV prevalence, such as urban vs rural areas.

Know the size of key affected populations

Ensure that the appropriate tools are available to collect, monitor and evaluate data about key populations.

Identify and understand structural factors that might fuel HIV prevalence

Analyse social, legal, economic and cultural drivers of HIV prevalence. For example, punitive laws or gender inequalities.

Upon completion of the ‘know your epidemic, know your response’ planning process, a combined package of coordinated biomedical, behavioural and structural HIV prevention interventions can be developed and implemented.16

CASE STUDY: Know your epidemic: Planning HIV responses for cities

Data from 30 countries that conducted nationally representative household-based population surveys found HIV prevalence among adults (15–49 years) living in urban areas was significantly higher than among those living in rural areas. Even in countries that are still predominantly rural, cities are often home to disproportionate numbers of people living with HIV. For example, urban areas account for only 18% of Ethiopia’s population but for almost 60% of people living with HIV nationally.17

In response, UNAIDS and UN-Habitat began championing renewed efforts for an urban health approach that serves the evolving needs of cities and the people who live and work within them as a way of improving HIV prevention rates.18

In December 2014, more than 190 urban leaders pledged to take swift, concrete action to Fast Track their local AIDS responses. They include very large cities in the Global South, such as Bangkok, Lagos, Mumbai and Santiago, smaller cities such as Blantyre, Jamaica and N’Djamena, suburbs and communities in several countries, including Côte d’Ivoire, Cameroun, Zambia and Senegal, and European and North American cities, such as Amsterdam, Athens, Atlanta, Bucharest, Denver, Geneva and San Francisco.19

Behavioural interventions
Behavioural interventions seek to reduce the risk of HIV transmission by addressing risky behaviours. As such, behaviour change communication forms a basic component of combination prevention.20

Effective behaviour interventions offer an inclusive way to address the cultural contexts within which risk behaviours occur, and of stimulating uptake of HIV prevention services (often referred to as ‘demand generation’). These programmes often feature intensive approaches involving a combination of activities to address multiple outcomes, including knowledge, risk perception, norms, skills, sexual behaviours and HIV service demand.21

A behavioural intervention may aim to reduce the number of sexual partners individuals have; improve treatment adherence among people living with HIV; increase the use of clean needles among people who inject drugs; or increase the consistent and correct use of condoms. To date, these types of interventions have proved the most successful.22

Examples of behavioural interventions include:

- information provision (such as sex education)
- counselling and other forms of psycho-social support
- safe infant feeding guidelines
- stigma and discrimination reduction programmes
- cash transfer programmes.23

Multi-media, school-based and broader community mobilisation activities complement the delivery of biomedical HIV services such as condom distribution, voluntary medical male circumcision (VMMC) and HIV testing (see following section).24

Large-scale multi-channel programmes that achieved high coverage and measurable effects on attitudes, condom use and uptake of HIV testing services included the LoveLife multi-media campaign in South Africa, Zimbabwe’s national behaviour change programme, and the multi-country One Love campaign in southern Africa.25

Similarly, The SHARE project in Rakai, Uganda, achieved reductions in new HIV infections and intimate partner violence and increases in disclosure of HIV status through the addition of a community-level mobilisation intervention to change attitudes, social norms and behaviours.26
It has also been shown that school-based sex education is an effective strategy for reducing HIV-related risk. Students who receive school-based sex education interventions - particularly rights-based, sex positive approaches - have been found to have significantly greater HIV knowledge and are more likely to use condoms, have fewer sexual partners and delay the age at which they start having sex (often referred to as 'sexual debut').

However, despite these successes, a systematic implementation of behaviour and social change communication and demand generation has not taken place in many countries. On the contrary, there has been a worrying pattern of deprioritisation and discontinuation of these programmes in recent years.

As a result, most young people lack the knowledge required to protect themselves from HIV. For example, in sub-Saharan Africa in 2015, only 36% of young men and 30% of young women correctly identified ways of preventing the sexual transmission of HIV and rejected major misconceptions about HIV transmission. In 23 countries outside of sub-Saharan Africa, just 13.8% of young men and 13.6% of young women had correct and comprehensive knowledge about HIV.

There has been little progress on partner reduction in sub-Saharan Africa. Population-based surveys show that the proportion of adults (aged 15–49 years) with multiple sexual partners in the 12 months prior to the survey declined slightly among women but increased slightly among men.

Furthermore, many countries continue to invest in programmes that promote abstinence and faithfulness, and these interventions fail to deliver significant reductions in numbers of sexual partners, age at sexual debut and teenage pregnancy.

Biomedical interventions

Biomedical interventions use a mix of clinical and medical approaches to reduce HIV transmission. One example of a biomedical intervention - male circumcision - is a simple medical procedure that has been shown to reduce the risk of HIV transmission by up to 60% during unprotected heterosexual sex.

In order to be effective, biomedical interventions are rarely implemented independently and are often used in conjunction with behavioural interventions. For example, when a man is circumcised, he will often be tested for HIV and receive counselling and education about condom use and safer sex.
Examples of biomedical interventions include:

- male and female condoms
- sex and reproductive health services
- voluntary medical male circumcision
- antiretroviral drugs for the prevention of mother-to-child transmission, pre-exposure prophylaxis, post-exposure prophylaxis and treatment as prevention
- HIV testing and counselling
- testing and treatment of sexually transmitted infections
- needle and syringe programmes
- opioid substitution therapy
- blood screening.

### CASE STUDY: Condoms

Condoms are at the centre of a combination HIV prevention approach; they are also cost-effective tools for preventing other sexually transmitted infections and unintended pregnancies. An estimated 45 million HIV infections have been averted through condom use globally between 1990 and 2015.

Yet there is stagnation of international and domestic funds for condom procurement and programming. As a result, progress in the provision and use of condoms has largely stalled; in 2015, the gap in sub-Saharan Africa alone was more than 3 billion male condoms a year, over 50% of the estimated need.

In addition, inconsistent condom use is widespread within many populations and locations in greatest need, including challenges for women to negotiate condom use. There is also insufficient availability of lubricants and female condoms.

The challenge ahead is to invest in, and scale up, a new generation of evidence-based condom programmes, which are comprehensive in that they include demand creation, community mobilisation, supply chain management, planning, programme management, monitoring and evaluation. Comprehensive condom programmes should also include the public and private sectors and use social marketing (known as a ‘total market approach’).

Other gaps in biomedical prevention interventions include:

Although voluntary medical male circumcision (VMMC) has been rapidly expanded — reaching almost 11.7 million men in 14 priority countries in just a few years — the annual numbers of circumcisions performed within eight of these countries declined in 2015 compared to 2014. The annual number of VMMCs must nearly double between 2015 and 2020 to reach the Fast Track target.

Key harm reduction services are unavailable in most countries. For example, 43% of countries with documented injecting drug use do not have needle and syringe exchange programmes in place.

The promise of one of the newest tools in the HIV prevention arsenal — pre-exposure prophylaxis (PrEP), whereby someone at heightened risk of acquiring HIV takes antiretroviral drugs (ARVs) before possible exposure to the virus to greatly reduce the likelihood of transmission — is only just beginning to be seen as a handful of countries move forward from successful demonstration projects to full regulatory approval and programme rollout. Currently, PrEP coverage is just 5% of
UNAIDS’ 2020 coverage target.\(^{42}\)

Treatment as prevention: Strong adherence to antiretroviral treatment (ART) can reduce the level of HIV in someone’s body to such a level that they are able to lead healthy life and are unlikely to transmit the virus on to someone else (this is known as ‘viral suppression’). When large proportions of people living with HIV within a community are on treatment, it has been shown to have a preventive effect within that community.\(^{43}\)

The preventive effect of treatment has been heralded as a game-changer within the global response to HIV. However, the impact of treatment-as-prevention (TasP) remains limited due to the fact that, as of 2015, 40% of people living with HIV did not know their HIV status and 62% of people living with HIV were not virally suppressed.\(^{44}\)

As new biomedical tools such as PrEP and TasP are rolled out, effective social-behavioural and structural programmes are needed to help maximise their effectiveness, for example by educating key affected populations about their disproportionate vulnerability to HIV, thereby creating demand for PrEP.\(^{45}\)

**Structural interventions**

Structural interventions seek to address underlying factors that make individuals or groups vulnerable to HIV infection. These can be social, economic, political or environmental.

For many people, the simple fact that 90% of the world's HIV infections occur in developing countries is evidence that social, economic and political structures drive risk behaviours and shape vulnerability.\(^{46}\)

HIV-related vulnerabilities are fuelled by inequalities and prejudices entrenched within the legal, social and economic structures of society.\(^{47}\)
For example, laws that criminalise same-sex relationships often hinder men who have sex with men from accessing condoms. A woman’s subordinate status can affect her ability to negotiate condom use while a lack of infrastructure such as transport, prevents many people from accessing health clinics. By successfully addressing these structural barriers, individuals are empowered and able to access HIV prevention services.48

Empowering women and girls, young people and key populations with the agency to claim their rights, receive a quality education, enjoy healthy lives and take measures to protect themselves from HIV is a requisite component of combination HIV prevention.49

Yet structural interventions are much more difficult to implement because they attempt to deal with deep-rooted socio-economic issues such as poverty, gender inequality and social marginalisation. They can also be reliant on the cooperation of governments to achieve law or policy reforms.

UNAIDS flags the following structural issues as creating gaps in HIV prevention:

- Gender inequalities, including gender-based violence, exacerbate women and girls’ vulnerability to HIV and block their access to HIV services.
- Third-party authorisation requirements remain an important barrier to uptake of HIV and sexual and reproductive health services among adolescents and young people.
- Key populations face specific challenges and barriers, including violence and violations of their human rights, with women in key populations particularly affected.
- Homophobia is a barrier to HIV services for gay men and other men who have sex with men.
- Criminalisation and stigmatisation of same-sex relationships, cross-dressing, sex work and drug-use block HIV prevention services and increase risky behaviours.
- Stigma and discrimination related to HIV and towards key populations in healthcare settings undermine access to HIV prevention and other health services.50

To address these issues, the following key structural interventions are recommended by UNAIDS:

- Strengthen legislation, law enforcement and programmes to end intimate partner violence.
- Increase girls’ access to secondary education.
- Use cash transfers to empower women economically, to keep them in school and to enable them to make healthy partner choices.
- Remove third-party authorisation requirements and other barriers to women and young people’s access to HIV and sexual and reproductive health services.
- Decriminalise same-sex relationships, cross-dressing, sex work and drug possession and use for personal consumption.
- Bring to scale community empowerment and other programmes that have been proven to reduce stigma, discrimination and marginalisation, including in health care settings.


A public health approach to fast-tracking combination prevention

Models show that to reduce HIV infections to meet UNAIDS’ Fast Track targets requires a combination of primary prevention interventions alongside increases in treatment to achieve higher viral suppression among people living with HIV.51 Indeed, UNAIDS’ Fast Track Strategy sets out targets for the percentage of people testing for HIV, the percentage on ART and the percentage
who are virally suppressed (90-90-90 for 2020 and 95-95-95 by 2030).\textsuperscript{52}

Crucially, these interventions must be targeted at high prevalence regions or ‘hot spots’ and meet the needs of high-risk groups.\textsuperscript{53} To this end, UNAIDS recommends the following ‘five pillars’ of HIV prevention:\textsuperscript{54}

1. Combination prevention, including comprehensive sexuality education, economic empowerment and access to sexual and reproductive health services for young women and adolescent girls and their male partners in high-prevalence locations.

2. Evidence-informed and human rights-based prevention programmes for key populations, including dedicated services and community mobilisation and empowerment.

3. Strengthened national condom programmes, including procurement, distribution, social marketing, private-sector sales and demand creation.

4. VMMC in priority countries that have high levels of HIV prevalence and low levels of male circumcision, as part of wider sexual and reproductive health service provision for boys and men.

5. PreP for population groups at higher risk of HIV infection.

Evidence suggests that people-centred, combination approaches work. For example, between 2010 and 2013 the Global Fund to Fight AIDS, Malaria and Tuberculosis (the Global Fund) funded a combination prevention programme in Mexico for men who have sex with men. Research on the programme’s impact revealed a 7.5% increase in HIV testing for every additional year individuals were exposed to the programme, an increase in awareness of HIV status among people who were HIV positive of 6.6%; a 6.4% increase in people living with HIV on treatment; and an 8% reduction in the perception of stigma and discrimination from healthcare personnel.\textsuperscript{55}

Similarly, a study from South Africa has suggested that PrEP, together with test and treat programmes could reduce HIV transmission among sex workers and their clients by 40% over a 10-year period.\textsuperscript{56}

The UNAIDS Fast-Track strategy identifies a number of ways to increase the effectiveness of combination prevention efforts, a few of which are discussed below.

### Increasing political and financial commitment

Getting the support of political leaders, religious leaders and other influential figures in society can help to raise awareness of, and strengthen global political commitment to, HIV prevention. However, this must be followed by strengthened financial commitment. \textsuperscript{57}

Indeed, investments in HIV prevention have slightly increased over time in a number of countries. However, more rapid increases in expenditures for HIV treatment translate to a declining trend in the percentage of total resources dedicated to prevention services. As a result, around 20% of total global HIV spending has gone on prevention in recent years.\textsuperscript{58}

Between from 2012 and 2014, HIV prevention services accounted for 20–23% of the total resources provided by PEPFAR, the largest international donor of effective prevention. If expenditures for the prevention of mother-to-child transmission and voluntary HIV testing and counselling are excluded, the prevention share was 13–16% of the total, with just 4% of this allocated for services that focus on key populations.\textsuperscript{59}

A preliminary analysis conducted by the Global Fund Secretariat for UNAIDS 2016 Prevention GAP Report indicates that about 14% of Global Fund expenditure in 2014 went on primary prevention.\textsuperscript{60}

Domestic spending on prevention is also lacking. A 2015 analysis of four countries from different
regions, and with different epidemic patterns, found that funding of effective and focused primary prevention was insufficient—6% in Brazil, 4% in Cameroon, 15% in Myanmar and 10% in South Africa.61

Perhaps most significantly, despite UNAIDS’ urge to increase spending on HIV prevention for key populations in low- and middle-income countries, less than 2% of total HIV resources in 2015, or around 9% of the resources for prevention, were allocated to these groups. The majority of resources for services focused on key populations come from international donors, with exceptions such as Brazil, Mexico and a few countries in Asia and the Pacific.62

In June 2016, to address this funding gap, PEPFAR announced a special key populations investment fund of US$ 100 million. However, this does not address the need for sustainable, country-owned financing sources for those groups most affected by HIV.63

The 2016 Political Declaration on HIV and AIDS signed by UN member states committed to providing adequate financial resources for HIV prevention that constitute no less than 25% of total global spending for the HIV response.64

Using new tools and technology

Over the past decade, a number of new HIV prevention tools have emerged that increase the effectiveness of these services. For example, even in low-income countries, mobile phone ownership and internet access have grown considerably and have changed how people interact and receive information.65 These interventions are often described as ‘mobile health’ or ‘m-health’ interventions.

Taking advantage of this shift, Young Africa Live enables young people to talk about topics that affect their daily lives including sex, HIV, rape and gender issues, as well as where to get tested for HIV. The platform now has 1.8 million users across South Africa and is expanding to Tanzania and Kenya.66

CASE STUDY: M-health in Lesotho

An m-health intervention has been introduced in some rural parts of Lesotho to help people with tuberculosis (TB) who are diagnosed with HIV adhere to ART. The Start TB patients on ART and Retain on Treatment (START) programme implemented real-time adherence support through the use of SMS text messages.67

Facility-based village health workers were trained to log patient information and text message preferences into a mobile application. Through the app, patients then received automated, coded medication and appointment reminders on their mobile phones at their preferred time and frequency. Village health workers also supported treatment if required.

Between April 2013 and August 2015, this system successfully delivered 39,528 messages to 835 individuals, including 633 patients and 202 treatment supporters. Uptake of the SMS intervention was high, with 92.1% of 713 eligible patients choosing to receive SMS messages. The intervention improved the quality of health communication between patients, treatment supporters, and providers and it was found to be a low-tech, user-friendly intervention, which was acceptable to patients and healthcare providers. However, HIV-related stigma and technical challenges were still identified as potential barriers to adherence.68
Achieving full coverage

Implementing long-term, combination prevention programmes that genuinely meet the needs of people most affected by HIV and that are of sufficient scale, coupled with more people living with HIV being viral suppressed, is key to reducing the number of new HIV infections occurring each year.

Powerful prevention tools exist and it is down to international and domestic responses to use these interventions in combination, targeted at the people who need them most. Quickening the pace for essential HIV combination prevention and treatment approaches will limit the epidemic to more manageable levels and enable countries to move towards eliminating HIV as a public health threat.69

Yet HIV prevention coverage remains fragmented. The scale-up of services to prevent mother-to-child transmission of HIV has not been matched in other key prevention areas, especially when it comes to financing and implementing programmes for key affected populations, leaving sizeable gaps in services.70

Individual countries have shown that prevention programmes can be brought to scale within a few years. For example, South Africa built the world’s largest condom programme in just a few years and doubled the amount of condoms distributed per male, per year in at least seven of nine provinces. Similarly, Mozambique has increased the number of VMMCs performed from just 100 in 2009 to almost 200,000 in 2015, and India has shown how approaches that engage beneficiaries in their design and implementation can result in a marked decrease in new infections.71

If the response is too slow, the annual rate of new HIV infections will remain static, or worse, begin to increase and the epidemic will continue to grow. If this happens, the world faces a heavy human and financial toll.72

Tools and resources:

IPPF (2016) 'Putting sexuality back into Comprehensive Sexuality Education - tips for delivering sex-positive workshops for young people'[pdf]

5. UNAIDS (2014) 'Fast Track Strategy'[pdf]
14. UNAIDS (2012, 15 May) '30th Meeting of the UNAIDS Programme Coordinating Board'
15. UNAIDS (2007) 'Practical Guidelines for Intensifying HIV Prevention'
17. UNAIDS (18, September 2015) 'Press release: UN-Habitat and UNAIDS call for renewed efforts to address HIV in urban areas' (Accessed 30/3/2017)
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27. UNAIDS (2016) 'Prevention Gap Report'[pdf]
28. IPPF (2016) 'Putting sexuality back into Comprehensive Sexuality Education'[pdf]
32. UNAIDS (2016) 'Prevention Gap Report'[pdf]
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42. UNAIDS (2016) 'Prevention Gap Report'[pdf]
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63. UNAIDS (2016) 'Prevention Gap Report' [pdf]
64. UNAIDS (2016) 'Prevention Gap Report' [pdf]
66. Social Tech Guide (2014) 'Young Africa Live'
70. UNAIDS (2016) 'Prevention Gap Report' [pdf]

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