

## HIV testing programmes



### KEY POINTS

- HIV testing programmes are designed to get people who are unaware of their status, or those at risk of HIV, testing and linked to HIV prevention, treatment and care services.
- Testing pregnant women has been the great success story of the HIV response, but gaps remain in reaching men and key populations.
- New testing technologies have revolutionised the HIV response, by getting HIV tests to the community and out of the health facility.
- HIV self-testing and other innovative testing approaches can increase uptake of HIV testing among populations who do not engage with traditional health services.

Explore this page to find out more about testing [targets and progress](#), [barriers to HIV testing and uptake](#), [populations who do not test](#), [approaches](#), [rights](#) and the [future of HIV testing programmes](#).

HIV testing programmes focus on reaching people living with HIV who are unaware of their status, or those at a heightened risk of acquiring HIV, and are critical to an effective HIV response.<sup>1</sup>

HIV testing marks the first step of the '[HIV treatment cascade](#)' - that is, the route from testing and diagnosis, through to treatment access and viral suppression (when HIV levels in the body are very low). If someone is able to become and remain virally suppressed, they will be able to enjoy long-term good health and will not pass HIV on to anyone else.<sup>2</sup> This is the main aim of HIV treatment programming.

One of the great success stories of the HIV response has been increased access to HIV testing through

prevention of mother-to-child transmission services (PMTCT) – enabling millions of children to be born HIV-negative through effective testing and treatment for them and their mothers.<sup>3</sup>

Rapid tests, also known as point-of-care tests, have also revolutionised the response by enabling HIV testing to be delivered by trained lay providers in more settings, including in health clinics, workplaces and at home. However, many at-risk people still do not test for HIV. This is for a number of reasons: some may have the perception that they are at a low-risk of infection and that there is little benefit from knowing their status, others may belong to a criminalised or stigmatised group and fear being arrested, mistreated or discriminated against should they make themselves visible by getting tested. There is now a growing awareness that innovative approaches are needed to increase the numbers of people testing for HIV, particularly in areas where HIV prevalence is high.

Updated World Health Organization (WHO) guidelines now recommend HIV self-testing, which enables people to test in private, without fear. This is in addition to a broad array of other initiatives and strategies to increase demand for testing services, which it is hoped will ultimately lessen the number of people who are currently unaware of their HIV status.<sup>4</sup>

In addition, in 2018, WHO published its first Essential Diagnostics List, which lists the tests needed to diagnose common conditions and priority diseases including HIV. Tests listed for HIV include oral fluid rapid diagnostic tests and self-testing.<sup>5</sup>

## HIV testing targets and progress

HIV testing goals call for 90% of all people living with HIV to know their status by 2020, as described in the UNAIDS' 90-90-90 Fast-Track Targets. In 2017, 75% of all HIV infections were diagnosed.<sup>6 7</sup>

Globally, HIV testing levels are poorest in the Middle East and North Africa, and in West and Central Africa. In both these regions, respectively, just 50% and 48% of people living with HIV were aware of their status in 2017.<sup>8</sup>

Western Europe, Central Europe and North America are the closest to achieving 90% testing coverage, with 86% of people living with HIV aware of their status in 2016, followed by East and Southern Africa (81% in 2017), Latin America (77% in 2017), Asia and the Pacific (74% in 2017), the Caribbean (73% in 2017) and Eastern and Central Europe (73% in 2017).<sup>9</sup>

Despite gaps, the global scale-up of HIV testing has been substantial over the past decade. Between 2005 and 2015, globally the proportion of people living with HIV who were able to test rose from 12% to 60%.<sup>10</sup>

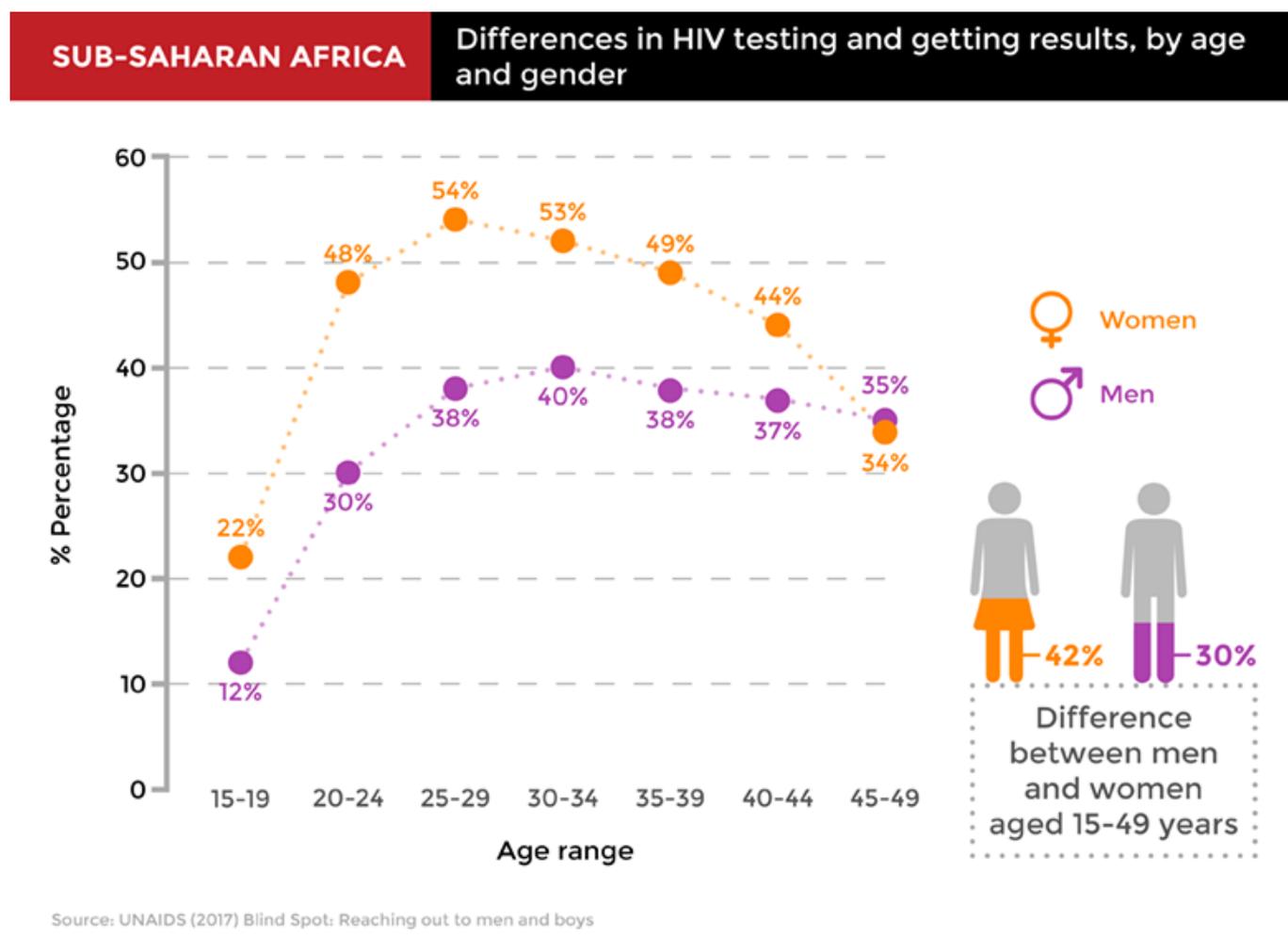
Data taken from East and Southern Africa show that knowledge of status increased two-fold between 2012 and 2016 compared to between 2007 and 2011, and fourfold in West and Central Africa over the same period.<sup>11</sup>

## Barriers to HIV testing uptake

People who are most at risk of HIV are not accessing HIV testing in high enough numbers. This is illustrated by the fact that, between 2010 and 2014, more than 600 million adults in 122 low- and middle-income countries tested for HIV, yet in the 81 countries that reported data, just 3% of tests were positive.<sup>12</sup>

Fear of stigmatisation, being badly treated by healthcare workers, or fears over HIV test confidentiality are major barriers to getting people testing. The criminalisation and stigmatisation of certain identities and behaviours such as people who are lesbian, gay, bisexual, transgender or intersex (LGBTI), people who use drugs, other men who have sex with men, people who sell sex and sexually active young people, also deter these groups from testing – for fear of identifying themselves, which may lead to coerced treatment, arrest, violence or extortion.<sup>13 14</sup>

There is also a discrepancy in testing between genders, with men less likely to test for HIV than women, across all regions.<sup>15</sup> Women who experience intimate partner violence are also less likely to seek out voluntary HIV testing and counselling than women who are living in non-violent situations.<sup>16</sup>



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A study on the factors preventing HIV testing in sub-Saharan Africa found that, although the increasingly wide availability of life-saving treatment is an incentive to test, the perceived psychological burden of living with HIV still stops people from testing. Other barriers include the direct and indirect financial cost of accessing HIV testing, and gender inequality which undermines women’s ability to choose for themselves whether or not to get tested.<sup>17</sup>

As a result, there is growing awareness that innovative approaches are needed to increase HIV testing, particularly among those populations who feel unable to come forward for regular testing.

# Which populations are not testing for HIV?

## Men

Many men who are HIV-positive continue to be undiagnosed. As a result they are more likely than women to access HIV treatment and care late, and are more likely to die of AIDS-related illnesses.<sup>18</sup>

One of the reasons for this is that, in many countries, HIV testing has mainly been made available through antenatal services. Although this has helped to significantly increase the proportion of women testing for HIV in high prevalence settings, this has had a detrimental effect on the number of men getting tested.<sup>19</sup>

In addition, harmful gender norms fuel men's general lack of engagement with health services. A number of studies have shown that some men equate their masculinity with the need to be dominant, have multiple sexual partners, not wearing condoms, and alcohol and substance abuse – behaviours which increase HIV risk. Worries around being seen as 'weak' for addressing health issues also contributes to low testing and treatment levels among men.<sup>20</sup>

In 2014, nearly 70% of adult HIV tests reported in 76 low- and middle-income countries were conducted for women.<sup>21</sup>

Across sub-Saharan Africa, men and boys living with HIV are 20% less likely than their female counterparts to be aware of their HIV status.<sup>22</sup> In some countries in the region, the knowledge gap between genders is even worse.

For example, men living with HIV in Burundi, Côte d'Ivoire, Liberia, Mozambique, Niger, Nigeria, Togo and Uganda are about a third less likely to be diagnosed than women, while men living with HIV in Congo, the Gambia, Ghana and Sierra Leone are half as likely to have been diagnosed.<sup>23</sup>

Despite antenatal services being a potential way to reach the male partners of pregnant women, partner testing is not widely implemented or, where offered, taken up. As of June 2014, only half of 58 low- and middle-income countries surveyed had policies supporting couples testing for HIV.<sup>24</sup> This is despite the fact that this approach works.

An evaluation of the Men as Partners programme in South Africa where HIV testing was offered to both pregnant women and their male partners, showed a 46% increase in men testing. Similarly, a trial in Nigeria achieved 84% HIV testing coverage among male partners of pregnant women (compared with 38% in the control group) by linking the offer of an HIV test with screening for malaria, sickle cell genotype, hepatitis B and syphilis.<sup>25</sup>

Evidence suggests that men are more likely to get tested for HIV in non-clinical settings. As a result, community-based testing, self-testing, workplace and home-based testing are all important approaches to take to enable more HIV-positive men to become aware of their status.<sup>26</sup>

## Adolescents and young people

Despite the number of adolescents (aged 10 to 19) living with HIV increasing from 1.4 million to 1.8 million between 2007 and 2017,<sup>27</sup> this age group is less likely to get tested than older people.

For example, in 19 low- and middle-income countries (mostly in sub-Saharan Africa) between 2011

and 2015, only 50% of people aged 15 to 19 years reported testing for HIV and receiving the results.<sup>28</sup> While an analysis of Demographic and Health Survey (DHS) data from across the region puts the proportion of young people (aged 15 to 24) even lower at 36.5%, with younger people within this age group less likely to test. The study found a significant correlation between young people understanding what HIV is and how it can be prevented, and whether they had ever tested for it.<sup>29</sup> It is estimated that only 36% of young men and 30% of young women (aged 15 to 24) globally have comprehensive and correct knowledge of how HIV is transmitted, suggesting they may be unaware of their personal HIV risk.<sup>30</sup>

In 2015, across the WHO Africa Region 5, it was estimated that fewer than one in every five adolescent girls aged 15 to 19 were aware of their HIV status.<sup>31</sup>

Other challenges include testing services that are unwelcoming or inappropriate for younger people, HIV-related stigma, age-related stigma and discrimination from healthcare workers, and problematic parental consent laws that limit young people's ability to access HIV testing and other healthcare services on their own.<sup>32</sup>

In 2017, 73% of countries reporting data for UNAIDS prevented adolescents from getting tested for HIV unless they had the consent of their parent or guardian. Of the countries that require consent, around a third require it for under-18s, a fifth require it for under 16s, and a fifth require it for under 14s.<sup>33</sup>

#### Reaching young people in East Africa

The Sustainable East Africa Research in Community Health (SEARCH) programme tracked 77,774 young people (aged 15 to 24) from 16 rural Kenyan and Ugandan communities for two years. In response to young people's identified needs, HIV tests happened annually at participants' homes and social events, where testing took place for hypertension and diabetes, as well as HIV. All of those testing positive for HIV were immediately linked to care and offered treatment, and participants received transportation vouchers, appointment reminders and flexible hours.<sup>34</sup>

After two years of community-based HIV testing and treatment, 93.4% of those testing positive were on antiretroviral treatment, of whom 89.5% had achieved viral suppression. Overall, HIV viral suppression nearly doubled, from 44.7% to 80.2%.<sup>35</sup>

#### Key affected populations

Although countries are increasingly including people most affected by HIV – such as people who use drugs, sex workers, people who are LGBTI or men who have sex with men (sometimes referred to as key populations) – in their national HIV testing guidelines, services remain limited in most settings.<sup>36</sup>

The People Living with HIV Stigma Index indicates that members of key populations commonly experience disapproval, rejection and below-standard services in healthcare settings, and this stigma and discrimination deters them from learning their HIV status.<sup>37</sup> This is echoed by findings of the 2014 Global Men's Health and Rights Study among men who have sex with men which found that only half (50%) of those surveyed reported HIV testing to be easily accessible, with experiences or fear of

homophobia cited as a reason for its inaccessibility.<sup>38</sup>

In addition, punitive laws and practices that criminalise behaviours such as sex work, same sex practices and drug use, discourage people living with and most affected by HIV to access HIV testing for fear of coerced treatment, arrest, violence, punishment and incarceration.<sup>39</sup> For example, a study in Bangkok, Thailand among people who use drugs found one in four (25%) avoided healthcare due to the fear of compulsory treatment.<sup>40</sup>

Other studies from Asia and the Pacific suggest criminalised and marginalised people are avoiding testing. Data reported by UNAIDS suggests around 53% of female sex workers who are living with HIV in the region are unaware of their status, and 47% of gay men and other men who have sex with men who are HIV-positive are also undiagnosed.<sup>41</sup>

In Kenya, Malawi and South Africa, only 37% of HIV positive gay men and other men who have sex with men who were subsequently screened for HIV already knew they were living with HIV. In Mozambique, this figure was below 10%. In Papua New Guinea, less than one in four (24%) transgender women, gay men and other men who have sex with men living with HIV are aware of their HIV status. In China, around half of sexually active gay men and other men who have sex men who reported recently having sex without a condom said they had ever taken an HIV test.<sup>42</sup>

## Delivering HIV testing programmes

Traditionally, HIV testing has been carried out in a health facility using a voluntary counselling and testing (VCT) approach, in which someone actively seeks HIV testing and receives counselling before and after the test is carried out. However, the need to increase the proportion of people living with HIV who know their status has seen new testing approaches being adopted that do not rely on people recognising their own risk and coming forward on their own to learn their status, as well as providing more means for people who do know their risk to get tested.<sup>43</sup>

### Good practice in HIV testing programmes

Improving the quality and efficiency of HIV testing services can be achieved through programming good practices, some of which are discussed below.

#### *Integration*

Integrating HIV testing with other health services, particularly those for tuberculosis (TB), sexually transmitted infections (STIs) and other sexual reproductive health services (SRH) can increase people's ability to access and take up HIV testing.<sup>44</sup> As a result, a move towards greater integration of these services has been seen over the last decade. The rate of HIV testing among people with TB has increased 18-fold since 2004. Coverage is highest in Africa, where 86% of all TB patients document an HIV test result, but this varies between countries.<sup>45</sup>

However, gaps still remain; globally, as of 2017, only 60% of registered TB patients had a documented HIV test.<sup>46</sup> In 2013, International Planned Parenthood Federation assessed the integration of SRH and HIV services in 49 countries. It found that, whilst SRH and HIV services were being integrated, there was a strong need for better coordination between programmes, improved health provider training and strengthened supply systems.<sup>47</sup> In addition, a 2017 study found that integration of SRH and HIV at the policy level remains surprisingly weak.<sup>48</sup>

### *Task sharing*

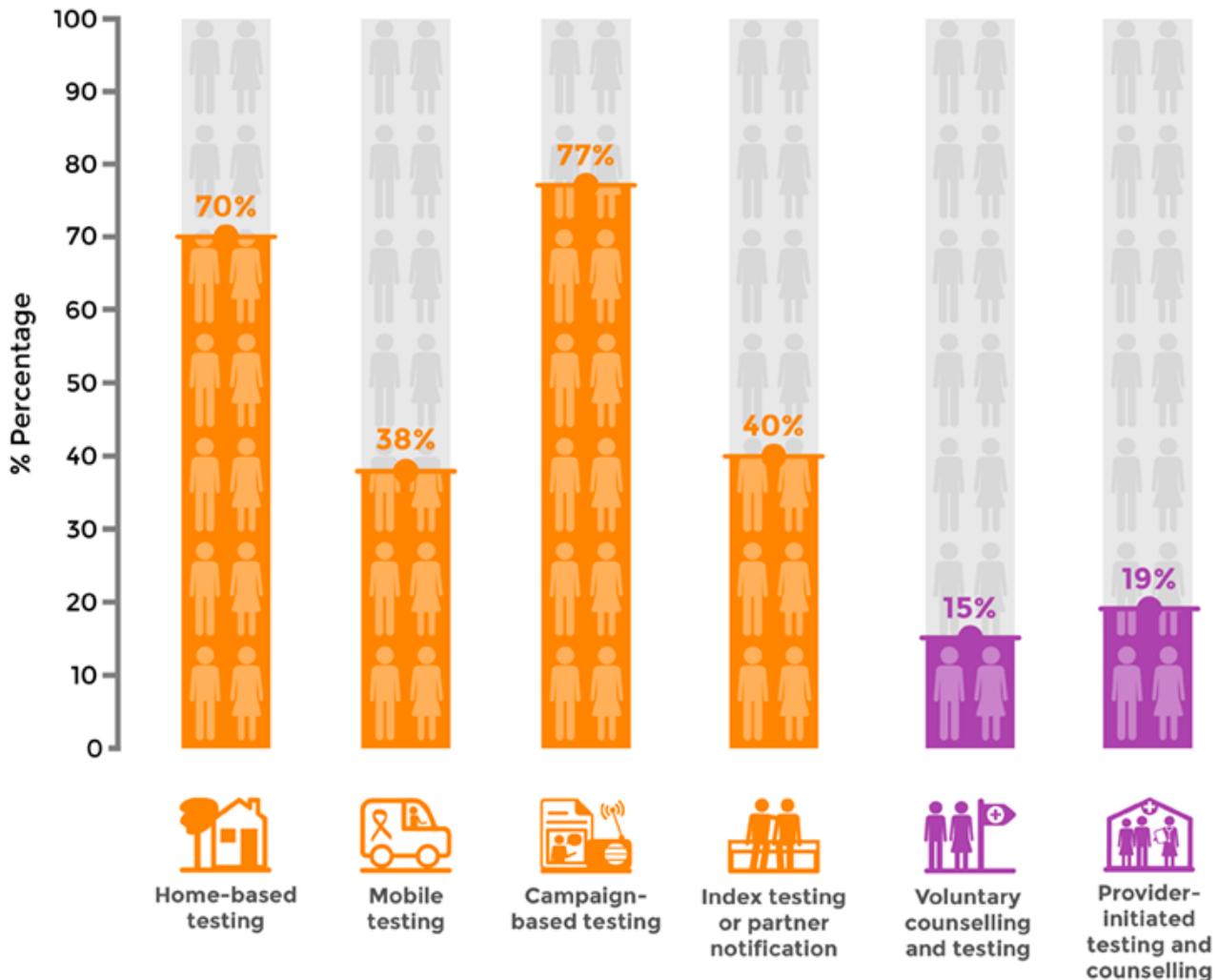
While integration is important for reaching those who may not consider testing, other approaches are also important. This includes task shifting within the health sector – where tasks are redistributed between cadres of healthcare workers. Community healthworkers, or trained lay providers, are people from within a community who need far less training than doctors but can deliver healthcare services when other human resources are limited. Much research has been conducted showing that community healthworkers increase uptake of healthcare services, reduce inequalities, provide a high quality of services and improve overall health outcomes.<sup>49</sup>

### *Decentralisation*

HIV testing can also be shifted out of health facilities and away from healthcare providers into places where people gather day to day, such as workplaces, schools, and places of worship.<sup>50</sup> Decentralised programmes can decrease travel time to hospitals and overcrowding, which may increase uptake of HIV testing. Although these types of programmes are useful, some people still prefer the anonymity of testing outside the community.<sup>51</sup>

## Approaches to HIV testing programmes

Broadly speaking, there are five main approaches to delivering HIV testing programmes: facility-based, in the community, via self-testing, partner testing and index testing.



● Community-based HIV counselling and testing ● Facility-based HIV counselling and testing

\*Coverage is defined as the total number of people tested/total number of people in the target population.

Source: UNAIDS (2017) Blind Spot: Reaching out to men and boys

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## Facility testing

Examples of facility-based HIV testing include:

- Stand-alone HIV voluntary counselling and testing (VCT) centres
- HIV drop-in clinics
- Provider-initiated testing and counselling
- HIV testing offered in primary care settings such as general health clinics
- HIV testing offered as part of ante- and postnatal care
- HIV testing integrated with screening for tuberculosis (TB)
- HIV testing integrated with screening for sexually transmitted infections (STIs)
- HIV testing integrated with opioid substitution treatment (OST) and needle and syringe exchange programmes (NSPs).

While drop-in and client-initiated programmes were certainly the norm for testing in the past, and in the pre-antiretroviral treatment era, proactive, rights-based, provider-initiated testing and counselling is growing - where people are offered an HIV test which they can actively 'opt out' of or decline after being given information and counselling about it.[52](#)

A study comparing voluntary testing with opt-out testing in the USA found 65.9% of people who were offered an HIV test accepted it, compared to 38% for opt-in patients.[53](#)

## Prevention of mother-to-child transmission (PMTCT) services

Prevention of mother-to-child transmission (PMTCT) services, which integrate HIV testing, treatment and care with ante- and postnatal services have enabled millions of women to test for HIV. As of 2013 (when the last statistic exists) an estimated 46% of pregnant women tested for HIV as part of PMTCT services globally.[54](#)

Although there are huge variations between regions and countries, current coverage levels mean the majority of pregnant women are still not accessing HIV testing through this route. To close this gap, increasingly, PMTCT services are adopting provider-initiated HIV testing.[55](#)

Despite a move towards provider-initiated HIV testing in PMTCT services, the final decision as to whether or not to test must always be voluntary. Studies suggest that coercion and insufficient counselling around HIV testing for pregnant women result in women being less likely to learn the result of their test. Consequently they will be less likely to initiate the treatment they need to improve their health and prevent them from transmitting HIV to their baby.[56](#) The provision of confidential testing is also important to protect women who wish to be tested through PMTCT services but are afraid of their partner finding out without having proper information and counselling.[57](#)

## Community testing

Examples of these types of programmes include:

- Mobile clinics/vans
- Door-to-door outreach
- Home-based testing
- Event-based testing
- Campaigns
- Workplace testing.

Strategies to increase demand for HIV testing services often utilise peer outreach and include door-to-door testing, where HIV testing is systematically offered to people in their homes, particularly in areas where HIV prevalence is high. It also includes mobile testing in various community settings, including in places where people socialise, live and work, as well as in churches, schools and universities.[58](#) [59](#)

The development of rapid diagnostic testing has enabled HIV testing to be conducted in these various settings.[60](#)

Healthworkers will also go into communities and enrol people to test for HIV through referral or voucher schemes. Community-based testing is extremely flexible as it can be conducted outside of

normal health clinic hours, also referred to as 'moonlight testing'.

Community-based testing has been found to increase rates of people testing for HIV, especially among people who have not tested for HIV before and among key populations.<sup>61</sup>

A 2018 evidence review of six randomised community-based HIV testing trials, some within generalised HIV epidemics and some within concentrated epidemics, found community-based testing to increase the overall uptake of HIV testing to 37% compared to 5.8% of people going to facilities to test.

It also improved access to treatment services from 0.3 to 25%, and increased the rate of first-time HIV testing from 9 to 11.8%. When combined with other behaviour change interventions, such as information about how to protect yourself from HIV, community-based testing was also found to increase the social acceptability of HIV testing by 6%, decrease the proportion of people having multiple sex partners by 55%, lower casual sex by 45%, increase knowledge about HIV (83.2 vs 28.9%), improve positive attitudes towards people living with HIV (73 vs 34.3%), and increase the use of condoms (28 vs 12.3%).<sup>62</sup>

Special health events, whereby people get tested in their local area for a number of things, sometimes as part of a wider social event, has also been shown to be a successful community-based approach. For example, the Sustainable East Africa Research in Community Health (SEARCH) programme integrated HIV testing and treatment into annual health screenings for multiple conditions including hypertension, diabetes, and tuberculosis in 32 rural communities in Uganda and Kenya. After three years, testing and treatment increased significantly, leading to the death rate among people living with HIV reducing by 21%, compared to communities where the intervention was not introduced.<sup>63</sup>

The use of peers to encourage HIV testing has been particularly effective with people from criminalised and highly stigmatised populations, who may mistrust healthcare providers. For example, a study of 2,705 female sex workers in Bengaluru, India, between 2008 and 2012, found participants were more likely to visit health clinics regularly to test for HIV and other STIs after being approached by a peer outreach worker.<sup>64</sup> Similarly, a 2017 evidence review of seven HIV testing studies from Asia, Africa, South America, North America and Western Europe relating to men who have sex with men found HIV testing rates were significantly higher in peer-led interventions.<sup>65</sup>

#### Increasing the number of men who have sex with men and transgender women testing for HIV in Thailand

In 2015, the LINKAGES project introduced a number of innovative approaches to its community-based testing in order to improve HIV testing, care and treatment services for gay men, other men who have sex with men and transgender women in four Thai provinces with high HIV prevalence.

People were paid to act as peer mobilisers and asked to recruit and refer their friends and sexual partners for rapid HIV testing at community-led drop-in HIV service delivery centres. People who tested positive received an immediate CD4 count test to establish their stage of HIV infection and were referred for immediate treatment, with ongoing support and follow-up by community-based supporters and case managers. People who tested negative but were at high risk of infection were offered free pre-exposure prophylaxis, and contacted regularly for repeat

## HIV testing.

Data from the first nine months of the project in Chiang Mai indicated it had led to significantly higher rates of HIV testing uptake compared with traditional group-based outreach (77% vs 31%). A relatively small number of motivated peer mobilisers contributed significantly to the project's reach as 115 peer motivators successfully recruited 608 new clients. Clients reached via this method were more likely to receive an HIV test (94%) than those reached with traditional 'hot-spot' recruitment (54%). In addition, among clients who tested positive for HIV, those reached via social network recruitment were more likely to initiate treatment (77% compared with 38%).<sup>66</sup>

## Self-testing

In 2016, WHO updated its HIV testing guidelines to include self-testing.<sup>67</sup> The update was made following the results of a systematic review, which found that self-testing increases the number of people getting tested and the frequency they go for tests, resulting in more people with previously undiagnosed HIV becoming aware of their status.<sup>68 69</sup>

Because self-testing is discreet and convenient, it may be particularly appealing for people who fear HIV-related or behaviour-related stigma and discrimination in healthcare settings, as well as those who could benefit from more frequent testing or who live in places where health facilities are inaccessible.<sup>70 71</sup>

There are a number of concerns relating to self-testing, namely that those who test positive without counselling support may be more likely to feel depressed and unable to cope with their result and may be less likely to access care.<sup>72</sup>

However, WHO's systematic evidence review mentioned above found social harm such as suicide did not increase as a result of self-testing, although it identified limited information on linkages to care.<sup>73</sup>

A total of 59 countries had HIV self-testing policies in place as of 2018 and 53 more were developing policies. Despite this, only 28 countries offered self-testing in 2018, although this is a considerable increase from the 13 that offered it in 2017. Around two-thirds of these countries have upper middle- or high-income status such as Australia, Brazil, France, Moldova, the UK, and the USA, despite the need being greater in low- and middle-income countries.<sup>74</sup>

In 2015, the Unitaid Self-Testing Africa (STAR) Initiative began the largest evaluation of HIV self-testing. By November 2018, it had distributed 2.3 million HIV self-test kits in East and southern Africa. The greatest number of kits was distributed in South Africa, followed by Zimbabwe, Malawi, Zambia, eSwatini and Lesotho. HIV testing has increased as a result of this work, and more men, young people and first-time testers are aware of their status. Between 2015 and 2017, around 628,700 self-testing kits were distributed in Malawi, Zambia and Zimbabwe. Close to half of all people using the kits in the three countries were men; one-third or more were young (aged 16 to 24), and between 14% and 27% had not previously tested for HIV.<sup>75</sup>

The STAR Initiative uses various approaches. These include distributing self-testing kits in health clinics for people to take home and giving them to women attending antenatal clinics to give to their partner. They have also been made available in workplaces and schools and in places where most at-

risk people can be found, such as places where people inject drugs or sell sex. To date, there have been no incidents of suicide or self-harm as a result of the STAR Initiative.[76](#)

As of 2018, three other UNITAID-funded projects were expanding access to self-testing in partnership with STAR: the ATLAS project in West Africa; the MTV Staying Alive awareness raising campaign in South Africa and Côte d'Ivoire, and the Fiotec ImPreP project in Brazil, Mexico and Peru.[77](#)

PopART, another programme that is implementing self-testing, released data from a 3-month campaign in which HIV self-tests were distributed door-to-door in a high prevalence setting in Zambia. This was found to have increased awareness of HIV status, particularly among men and young adults (aged 16 to 29).[78](#)

#### Reaching men with self-testing through PMTCT services

A pilot study in Kisumu, Kenya provided multiple HIV self-tests to pregnant women and women who had given birth, to distribute to their partners or to test with them. It found that 90.8% of male partners in the self-testing group tested for HIV compared to 51.7% of partners who were invited to clinics to test.

Couples testing was also more likely in the self-test group than the comparison group (75.4% vs 33.2%). No participants reported intimate partner violence due to HIV testing.[79](#)

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### Partner testing

It is estimated that up to half of people living with HIV who are in ongoing relationships have HIV-negative partners (known as serodiscordant relationships). Yet many people living with HIV may be unaware of their status or, if they are aware, they may not feel they are able to negotiate safer sex or disclose their status. Consequently, a significant number of new infections occur within serodiscordant

couples.<sup>80</sup> Couples HIV testing and counselling seeks to address this issue. Often, but not exclusively, partner testing is conducted through the provision of PMTCT services at antenatal clinics in which the male partners of pregnant women are also offered an HIV test.<sup>81</sup>

The Healthy Beginning Initiative uses prayers sessions, baby showers, and baby welcoming parties to reach new mothers and fathers with HIV testing. In Nigeria, where men tend not to attend antenatal clinics, the programme resulted in 57% of men reached testing for HIV, exceeding rates from previous studies, which averaged male partner testing rates of between 20% and 40%.<sup>82</sup>

Evidence suggests that people in couples who test together and can mutually disclose their status in an environment where support is provided are more likely than those testing alone to adopt behaviour to protect their partner.<sup>83</sup>

Couples testing has also been shown to reduce risk behaviour. For example, a study in Lilongwe, Malawi found, in serodiscordant partnerships where the women had tested HIV-positive after couples testing, safer sex behaviours (defined as abstinence or consistent condom use) increased by 75%.<sup>84</sup>

### *Assisted partner notification*

In 2016, WHO began recommending assisted voluntary partner notification as a way to increase the number of people testing for HIV.<sup>85</sup> HIV partner notification is a voluntary process whereby trained healthcare workers, including lay providers, ask people diagnosed with HIV about their sexual partners or injecting partners, and with their consent, offer these partners voluntary counselling and testing.<sup>86</sup>

WHO's guidance update came after a systematic evidence review found more partners of people living with HIV came forward for HIV testing when notified by a healthcare provider of their possible exposure to the virus, compared to 'passive referral' programmes, which put the onus on the person with HIV to notify sexual or injecting partners and encourage them to test. The review found assisted notification also resulted in higher proportions of partners being diagnosed with HIV and linked to treatment services.<sup>87</sup>

In some settings, medical secrecy laws may prohibit HIV partner notification. In other contexts, restrictive laws and policies may put people living with HIV and their partners at risk of stigmatisation, discrimination, criminalisation and punitive actions. This has been a concern raised against the use of partner assisted notification, especially in situations where gender-based and intimate violence and other forms of gender inequality are high. However, WHO's evidence review found low levels of social harm following passive or assisted HIV partner notification.<sup>88 89</sup>

### *Index case finding*

Taking the concept of partner notification one step further, index case finding makes HIV testing and counselling available to all family members of someone testing positive for HIV, including children and other household members, as well as sexual and injecting partners. This approach helps to offer mutual support within a household, which can encourage people to access prevention, treatment and care services, as well as improve adherence and retention in treatment.

Malawi introduced index case finding in six districts in June 2016. People attending antiretroviral treatment clinics are encouraged to bring their family members for HIV testing during family testing days. Within 13 months of index case finding being introduced, around 25,500 adults and children

had taken an HIV test, 22% of whom tested HIV-positive. This is a much higher rate of new HIV diagnoses than Malawi's national average of 4%.<sup>90</sup>

### Incentivising for testing

There is evidence that incentivising people, including with monetary incentives, for HIV and STI testing can lead to higher rates of uptake. In rural districts in Malawi, the retrieval of test results was on average 43% higher among participants in a study who were offered door-to-door HIV testing and who received a voucher for up to US \$3 when they went to a clinic to collect their results.

For every additional dollar of incentive provided, there was an increase of 9%. Similarly at an urban clinic in the USA, monetary incentives of US \$5 and US \$10 increased test acceptance rates by 12% and nearly 13%, respectively.<sup>91</sup>

## HIV testing and rights

A rights-based approach that rejects coercion and stigmatisation is essential to successful HIV testing. For this reason, WHO and UNAIDS do not recommend mandatory, compulsory or coerced HIV testing of individuals on public health grounds. Despite this, forced testing of key populations (including prisoners and migrants) is used in some countries, including in clinics. This is particularly an issue in East and southern Africa, Asia and the Pacific, Eastern Europe and Central Asia, and the Middle East and North Africa.<sup>92</sup>

The public health benefits of HIV testing must always outweigh the potential harm or risk. Moreover, the main reasons for testing must always be to both benefit the individuals being tested and to improve health outcomes at the population level.<sup>93</sup>

To this end, programme approaches must adhere to WHO's '5 Cs' of HIV testing, namely:

- **Consent:** HIV testing should always be voluntary, never mandatory, or performed under coercion. A person should be informed about what's involved in an HIV test and their right to decline.
- **Confidentiality:** Results of an HIV test should not be disclosed to any other party without the explicit consent of the person being tested. Although confidentiality must be respected, healthcare workers can help support newly diagnosed individuals with information and advice on how to tell others.
- **Counselling:** All HIV tests must also be conducted with pre- and post-test counselling depending on the results of the test – with anyone being tested having the ability to ask questions in private should they request it. In the context of self-testing, counselling can be provided in a number of ways, through leaflets, online information, etc.
- **Correct test results:** High-quality testing equipment should be used to ensure people receive a correct diagnosis. In the case of rapid testing, including self-testing, all reactive (positive) test results should be confirmed with further testing.
- **Connection:** All testers should be linked to HIV prevention, treatment and care services, and should be appropriately followed-up.<sup>94</sup>

In addition to the 5 Cs, supportive policies are essential for successful and effective HIV testing programmes. This includes prohibiting mandatory or coercive HIV testing or partner notification practices and revising laws and policies that stigmatise, criminalise and discriminate against people from key population groups and people with HIV.<sup>95</sup>

## The future of HIV testing programmes: bridging the gap

In recent years, the 'Undetectable = Untransmittable' (U=U) Campaign has grown out of the evidence that, if someone living with HIV achieves viral suppression and their HIV becomes undetectable, the virus will be untransmittable to anyone else. For many people living with HIV and their partners, this is a message of freedom and hope. It provides an unprecedented opportunity to improve the lives of people living with HIV, challenge HIV stigma, encourage people to start and stay on treatment for their health and to prevent them from passing it on to partners.<sup>96</sup>

But the journey to viral suppression begins with HIV testing. Without further expansion of HIV testing and treatment services, this hugely positive development for people living with HIV, and the massive potential it holds for public health, will not be realised.

Innovative strategies for HIV testing must continue to expand and grow. Steps such as WHO's recommendation for self-testing and assisted partner notification services are important moves forward, as are increases in testing programmes that combine a wide range of approaches and tools to meet the specific needs of the populations they intend to serve.

The success in integrating HIV testing into antenatal and other sexual and reproductive health services has seen increases in the number of women testing. As men continue to lag behind in testing, programmes that look to integrate HIV testing with services that are specific to men must also be considered.

Greater efforts are also needed to improve access to HIV testing among adolescents where HIV incidence is high and among key populations in all settings.<sup>97</sup> For example, Uganda's recent decision to allow HIV testing for 12-year-olds and above without parental consent has been important for young people to learn their HIV status and start treatment.<sup>98</sup>

The successes of community-based testing and peer outreach have been shown to be huge assets in expanding the reach and uptake of testing services, particularly for those most affected by HIV. Investments that strengthen these communities will be essential to further realise the promise of decentralised testing and open up the care continuum to all those who need it.<sup>99</sup>

*Photo credit: Photo by WHO/Unitaid/Eric Gauss. Photos are used for illustrative purposes. They do not imply any health status or behaviour on the part of the people in the photo*

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