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POLICY BRIEF

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Virtual interventions in response to HIV, sexually transmitted infections and viral hepatitis

Innovate—Implement—Integrate

This policy brief is a result of ongoing collaboration between the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO) on innovations in HIV testing services and virtual interventions.

The development of this document was led by the UNAIDS Regional Support Team, Asia and Pacific and the WHO global HIV, hepatitis and STI programmes. Taoufik Bakkali and Salil Panakadan from UNAIDS and Rachel Baggaley, Muhammad Shahid Jamil and Cheryl Johnson under the leadership of Meg Doherty from WHO coordinated the development of this policy brief. Purvi Shah, Regional Consultant, UNAIDS and WHO, contributed to the development of this policy brief and wrote the draft. This brief was developed in collaboration with Benjamin Eveslage from FHI 360 and adapts content from FHI 360's ***Going Online*** framework and set of approaches.

Members of the WHO differentiated HIV testing services technical working group provided guidance and supported external review.

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Background

Virtual and online channels have become increasingly common over the past decade, changing the way people connect with each other and access health-related information and services. In 2021, about 60% of people worldwide were connected online, and 54% of these used social media.[1] Many people, including those from key populations, use social media platforms and dating apps to find partners online because they find them private and convenient.

Over the past two years, the COVID-19 pandemic has presented new barriers to in-person and facility-based health services, highlighting the importance of virtual channels to support access to health services.

Many HIV programmes have introduced online and phone-based interventions to connect people to appropriate services. Interventions include simple client self-assessment, appointment-booking systems, phone-based information and counselling services, ordering of HIV self-test kits, and virtual consultations with providers.

During the COVID-19 pandemic, there has been greater use of HIV self-test kits and online distribution models. Routine adherence support for pre-exposure prophylaxis (PrEP) and antiretroviral therapy has expanded to include online and phone-based support, supplemented with home delivery and multimonth dispensing.

Programmes are looking for innovative ways to support service continuity and reach people who do not access traditional services. Virtual interventions are an important way to support such efforts. Programmes can design flexible self-care pathways for clients to access services for HIV, sexually transmitted infections, tuberculosis (TB), viral hepatitis and other diseases, with the ability to offer virtual support. This helps to conserve health system resources and decreases the need for client travel and in-person contacts.

Virtual interventions should complement and enhance existing health system functions through mechanisms such as accelerated exchange of information, reach and improved access to services, but they do not replace the fundamental components needed by health systems such as the health workforce, financing, leadership and governance, and access to essential medicines.

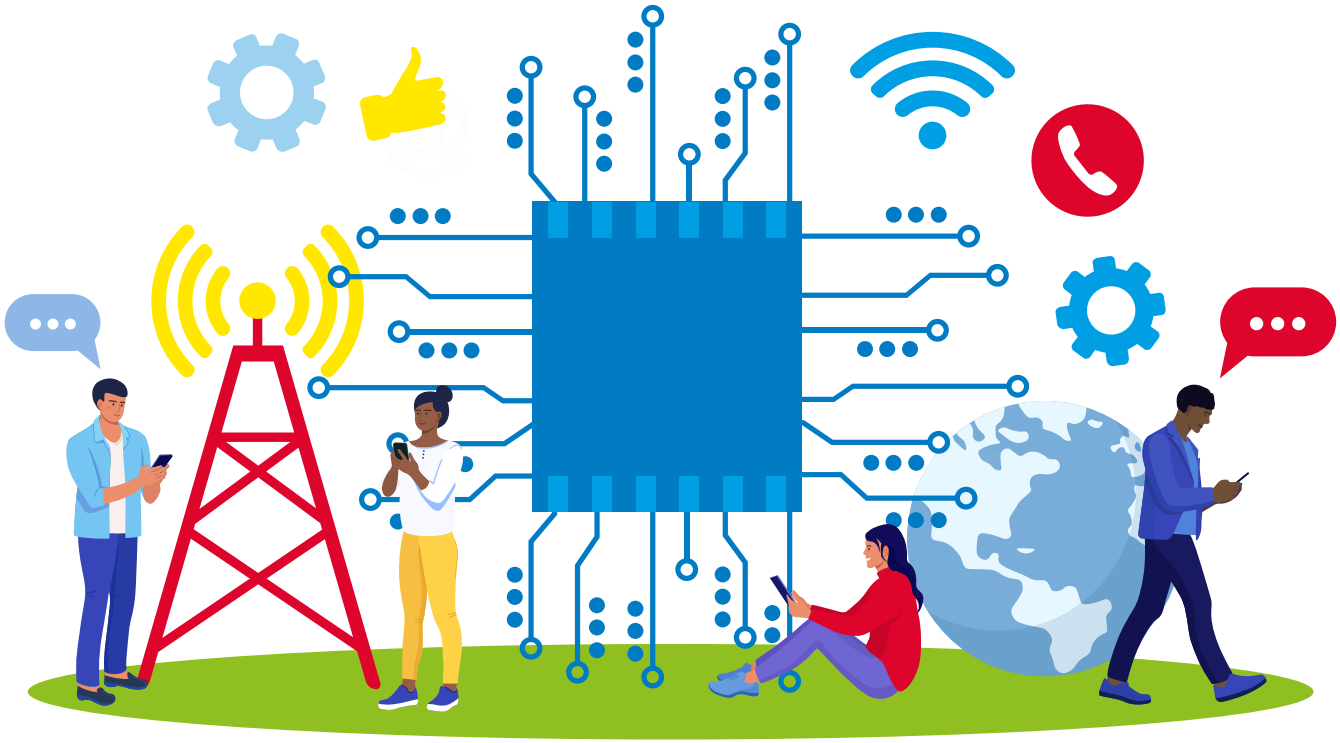
An understanding of which health system challenges can realistically be addressed by digital technologies and an assessment of the ecosystem's ability to absorb such digital interventions are needed to inform investments in digital health. Adoption of the recommendations in this brief should not exclude or replace the provision of good-quality non-digital services in places where there is no access to digital technologies, or the technologies are not acceptable or affordable for people from the priority populations.[2]

1 Special report: digital 2021—your ultimate guide to the evolving digital world. London: We Are Social; 2020 (https://wearesocial.com/digital-2021).
2 WHO guideline: recommendations on digital health interventions for health systems strengthening. Geneva: World Health Organization; 2019 (https://apps.who.int/iris/bitstream/handle/10665/311941/9789241550505-eng.pdf?ua=1).

This brief provides guidance for countries developing and implementing comprehensive virtual intervention services. It is complementary to a more detailed guide on planning and budgeting.[3]

This brief aims to:

- Support programmes and governments to identify relevant virtual interventions to accelerate progress towards meeting global HIV goals, including the 95–95–95 targets by 2025, and sexually transmitted infection and viral hepatitis goals from the global health sector strategies.[4,5]
- Provide directions to programmes and governments in planning, adapting and implementing safe and effective virtual service delivery during COVID-19 restrictions and learn from these for future implementation.
- Provide guiding principles and an adaptable framework for virtual interventions to enable stakeholders to prioritize approaches and activities based on the country context and needs.
- Help programmes identify technical assistance needs for approaches they would like to plan and implement.



3 Virtual HIV interventions: a budgeting and programming aid. Washington, DC and Geneva: FHI 360, Global HIV Prevention Coalition and Joint United Nations Programme on HIV/AIDS; 2022 (https://hivpreventioncoalition.unaids.org/resource/3332/).

4 Global health sector strategy on sexually transmitted infections 2016–2021. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/handle/10665/246296/WHO-RHR-16.09-eng.pdf?sequence=1).

5 Global health sector strategy on viral hepatitis 2016–2021. Geneva: World Health Organization; 2016 (https://apps.who.int/iris/bitstream/handle/10665/246177/WHO-HIV-2016.06-eng.pdf?sequence=1&isAllowed=y).

What are virtual interventions?

Virtual interventions for programmes use virtual channels to create demand for services, and to reach and engage clients in services. Virtual interventions include simple phone-based options such as voice calls and messaging, which can be used in settings where internet access is low but mobile phone use is high. Internet-based options such as messenger apps, social media apps, online marketing and advertising platforms, smartphone apps and websites are more applicable in settings with good internet access and coverage, and where focus populations have access to smartphones.

Virtual interventions enable clients to access services virtually, and anonymously if preferred, without the need to visit a facility or provider. Virtual interventions can improve efficiencies within health systems and facilities by freeing up provider time and allowing them to focus on people who need greater attention, such as those with symptoms. For clients, this can address long waiting times at facilities, improve convenience and confidentiality, and reduce opportunity costs associated with visiting facilities.

Virtual case management (also known as targeted client communication) is a virtual intervention used to manage people living with HIV or other conditions.[6] This typically involves the use of virtual tools to support clients in their journeys and engagement with the health system after diagnosis. Virtual case management can support differentiated service delivery models such as community- or home-based services, including antiretroviral therapy and PrEP initiation and refills, virtual consultations and support, automated or provider-led client reminders, and chatbots.

The field of virtual interventions is rapidly emerging and evolving. Available evidence and experiences highlight the potential of virtual interventions to support services for HIV and sexually transmitted infections. A systematic review of interactive virtual interventions showed a positive effect on HIV knowledge and prevention behaviours compared with minimal interventions (e.g. waiting lists, leaflets), and interactive virtual or digital interventions were at least as effective as fact-to-face interventions.[7] Another systematic review showed that eHealth interventions increased HIV testing and retesting among men who have sex with men.[8] Further systematic reviews show mHealth HIV testing interventions increase testing uptake among men who have sex with men and other higher-risk populations,[9] and mHealth interventions improved antiretroviral therapy adherence among people with HIV in Asia.[10] Additionally, virtual interventions may reach people who do not otherwise access services and can help implement other interventions such as distribution of HIV self-tests and self-sampling (see Case study 1). Implementation research and documentation of experiences are needed to understand optimal implementation approaches and platforms and community preferences.

6 Classification of digital health interventions v1.0. Geneva: World Health Organization; 2018 (http://apps.who.int/iris/bitstream/handle/10665/260480/WHO-RHR-18.06-eng.pdf;jsessionid=0156412EB9F07193D4C4B389C73ACEBB?sequence=1).
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8 Long HN, Bach XT, Luis ECR, et al. A systematic review of eHealth interventions addressing HIV/STI prevention among men who have sex with men. AIDS Behav. 2019;23(9):2253–2272.
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Case study 1

Virtual platforms to promote self-care approaches and distribution of HIV self-tests to priority populations

The use of social media platforms and dating apps to reach people with health services is becoming increasingly common. Many countries and programmes now use online and digital platforms to promote self-care approaches and HIV self-testing distribution. During the COVID-19 pandemic, virtual service delivery, distribution of self-tests and PrEP and antiretroviral therapy refills, online consultations and virtual case management have facilitated continuity of essential services for people from priority populations.

Some programmes co-package HIV self-testing with other self-care options, such as condoms and COVID-19 prevention packages (e.g. masks, sanitizers). An example is the LoveYourself SelfCare initiative in the Philippines.

SelfCare was officially launched in October 2020 as the first unassisted self-testing service in the Philippines. SelfCare is designed for people who would like to know their HIV status quickly, safely and securely in their own homes, thus addressing issues of privacy and convenience. Clients can visit the SelfCare Facebook page and follow the online prompts to order self-tests. Instructions on use, pricing and shipping are provided.

Results from implementation between January 2021 and April 2022 focusing on men who have sex with men and transgender people show that 11 139 people expressed interest in getting a HIV self-testing kit. A total of 5279 kits were delivered, 1804 clients reported their results, and 146 (8.09%) clients tested positive for HIV.

LoveYourself has also implemented other innovative virtual approaches, including a virtual chatbot (Enzo), hybrid PrEP initiation (PrEPPY), telemedicine through online consultations (iCON), a mobile laboratory (acXess), express delivery of commodities such as condoms, lubricants and antiretroviral medicines (Xpress), and community-based mental health services (Flourish). These virtual platforms provide services without clients having to visit facilities.

Figure 1.

SelfCare initiative from LoveYourself

Source: LoveYourself, Philippines.

Why should programmes go virtual?

Virtual interventions can help programmes accelerate progress towards achieving national goals by:

- Expanding outreach efforts and services for populations that otherwise remain unreached through traditional in-person services.
- Connecting with the growing number of people who use the internet and prefer to access services using virtual channels.
- Focusing promotion and demand-creation efforts on people who may benefit from them (e.g. with adverts on social media or dating apps) or are already seeking services online (e.g. with search engine adverts).
- Providing new options that better meet the preferences of people for fast, convenient and affordable virtual services and support without stigma and discrimination.
- Improving efficiency of service delivery and conserving clinic capacity by reducing unnecessary clinic visits for people who can receive check-ups and consultations virtually.
- Mitigating COVID-19 service disruptions and other potential health emergencies that may limit the ability of programmes to offer uninterrupted in-person outreach and service delivery.

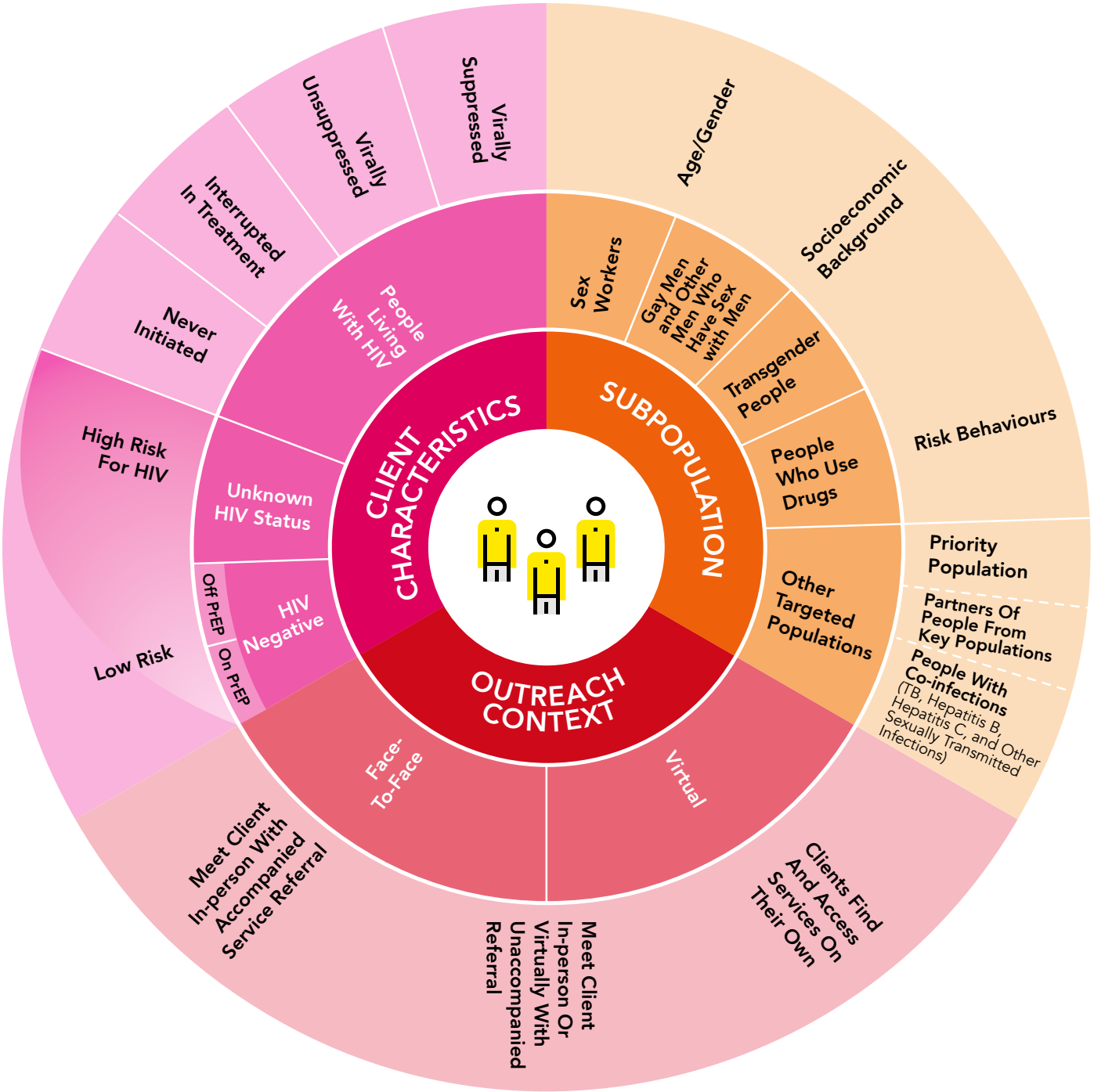
Who can benefit from virtual interventions?

Virtual interventions can be offered to people from a range of populations, including people at risk for HIV, sexually transmitted infections and viral hepatitis (Figure 2). Virtual interventions may also be attractive to people who prefer more privacy, anonymity or convenience, and for people already using virtual channels to socialize, find health information, or connect and meet people for dating, sex, sex work or drug use. Depending on the country context, epidemiology and gaps, priority populations for virtual interventions may include:

- People who have undiagnosed HIV, are worried about getting HIV, or are at risk of HIV or other conditions such as viral hepatitis, sexually transmitted infections or TB.
- Key populations (including young people from key populations and their partners), such as men who have sex with men, sex workers, transgender people, and people who inject drugs.
- People living with HIV, PrEP clients, partners of people living with HIV, and other context-specific priority populations such as adolescent girls and young women, migrants and truckers.

Figure 2.

Segmenting target audiences to support differentiated virtual HIV service delivery



Source: Virtual HIV interventions: a budgeting and programming aid. Washington, DC and Geneva: FHI 360, Global HIV Prevention Coalition and Joint United Nations Programme on HIV/AIDS; 2022 (https://hivpreventioncoalition.unaids.org/resource/3332/).

Framework for adopting and implementing virtual interventions

World Health Organization (WHO) guidance on digital interventions for health systems strengthening provides overarching recommendations for evidence-based interventions to improve health systems and address challenges along the pathway to universal health care.[11]

The example framework presented in this brief addresses several health system implementation layers including coverage, demand, accessibility and accountability (Figure 3). The framework guides adoption and implementation of virtual interventions by programmes. The framework represents client engagement steps across the cascade of service delivery, with potential virtual intervention approaches that can support each of the cascade steps. Virtual intervention approaches for each step must be adapted according to the local context, epidemiology, technology, policy environment and community preferences. It uses an implementation cycle that consists of planning, reaching and engaging, and monitoring and improving.

Further information on these approaches, including security and privacy considerations and budgeting guidance, is available.[12]

Plan

To plan effective virtual interventions, programmes should take steps to identify potential priority populations that can be reached virtually and will benefit from virtual interventions. Virtual intervention approaches and strategies can then be designed based on the needs and preferences of these populations. The following approaches can be used to inform the planning process:

- **Rapid online surveys** such as short programmatic (non-research) surveys can help programmes, policy-makers and implementers better understand population segments that use online platforms and can benefit from virtual services for HIV, sexually transmitted infections and viral hepatitis. They also increase understanding of risk behaviour-related service needs, technology use, social media interests, service access history, and preferences for accessing services.
- **Social media mapping** enables programmes to conduct online searches, find and list online spaces where people meet virtually (e.g. social media groups, pages, group chats), and identify potential social media influencers (popular people on social media) who can reach users to promote services and generate demand.

11 WHO guideline: recommendations on digital health interventions for health systems strengthening. Geneva: World Health Organization; 2019 (https://apps.who.int/iris/bitstream/handle/10665/311941/9789241550505-eng.pdf?ua=1).
12 Virtual HIV interventions: a budgeting and programming aid. Washington, DC and Geneva: FHI 360, Global HIV Prevention Coalition and Joint United Nations Programme on HIV/AIDS; 2022 (https://hivpreventioncoalition.unaids.org/resource/3332/).

- **Density mapping** of dating app users within a certain geography enables geo-mapping and identification of the most frequented locations (virtual hotspots). This can help outreach workers reach populations when they are most active.
- **Estimating the size** of the potential online audience based on the number of active users on online platforms is important for planning the scale of online outreach, resources needed and promotion efforts.
- **Audience segmentation** refers to subdividing populations based on typology, risk behaviours, health-seeking behaviours and current health status. Segmenting online populations can help programmes match tailored communication campaigns or service delivery pathways to meet users' needs and preferences.
- **Community advisory groups** represent the community and help programmes engage and learn from new population segments that they aim to reach and engage. Many countries and programmes have existing community advisory groups that can be leveraged for virtual interventions.

Reach

Based on findings from the planning phase and identification of priority populations that may benefit from virtual interventions and potential platforms, programmes can start to create demand and raise awareness about services and support engagement in these services. This is often done through social media and other online and virtual channels used by people from the priority populations.

It is important that any virtual demand-creation approaches and content address the preferences and interests of people from priority populations; provide culturally appropriate, accurate and evidence-based information; and dispel myths.

The most promising approaches that can be adapted and implemented to reach target audiences include the following:

- **Social network outreach:** train existing or new outreach staff to conduct virtual outreach to people from priority populations with services such as one-to-one chats on online or virtual platforms about prevention, testing, treatment and retention. Trained staff can contact peers or online networks and link them to services. Untrained community members can also be mobilized to encourage social contacts to access services.
- **Social influencer outreach:** engage influential, credible, well-connected individuals, community leaders or celebrities as partners in virtual outreach and extend programme reach into new online networks. Influencers include macro-influencers such as celebrities and nano-influencers with smaller reach. Influencers may be engaged by the programme in different ways, depending on the objectives and available resources.
- **Social profile outreach:** use online advertising across social media, dating apps, websites and search engines with increasing precision of reaching the right populations based on demographics, interests and content of online activity.

Engage

Once reached, interested clients can be supported virtually using tailored, client-centred approaches to help them access services. Services may be fully virtual (e.g. distribution of self-testing kits, online ordering and delivery, virtual support), or they

may allow virtual referral and navigation to facilities (e.g. for confirmatory testing after HIV self-testing or initiation of PrEP or antiretroviral therapy). These approaches can be particularly useful to link people to services, such as post-exposure prophylaxis (PEP), needle–syringe services, opioid substitution therapy, HIV testing, identification and referral of people with symptoms of sexually transmitted infections or HIV, contraception, mental health services, and support for people experiencing violence, and to support the client's journey from initiation of antiretroviral therapy to achieving viral suppression.

Approaches that can be adapted and implemented to engage people in services include the following:

- **Virtual case management** is an individual relationship between a case manager and a client. The case manager helps the client achieve goals along the service cascade. Case managers focus on supporting their clients to initiate and sustain antiretroviral therapy or PrEP, including refills, and assist and track clients as they access services across a range of providers, including doctor consultations, telehealth and viral load suppression.
- **Home-based services** can reduce client visits to facilities and the need for face-to-face interaction with health-care providers. This can include prevention services (e.g. PrEP refills), testing services (e.g. HIV self-testing with home delivery or pick-up from collection points, pharmacies or vending machines), and treatment services (e.g. antiretroviral therapy refills). Combination services can also be considered for greater efficiency, such as offering prevention packages with condoms, lubricants, self-tests and self-collection kits.
- **Chatbots (bots)** are computer programs that simulate natural human conversation. Users communicate with a chatbot via the chat interface or by voice as if talking to a real person. Programmes can use chatbots to support engagement with services, including information and awareness, demand creation and referral to services.

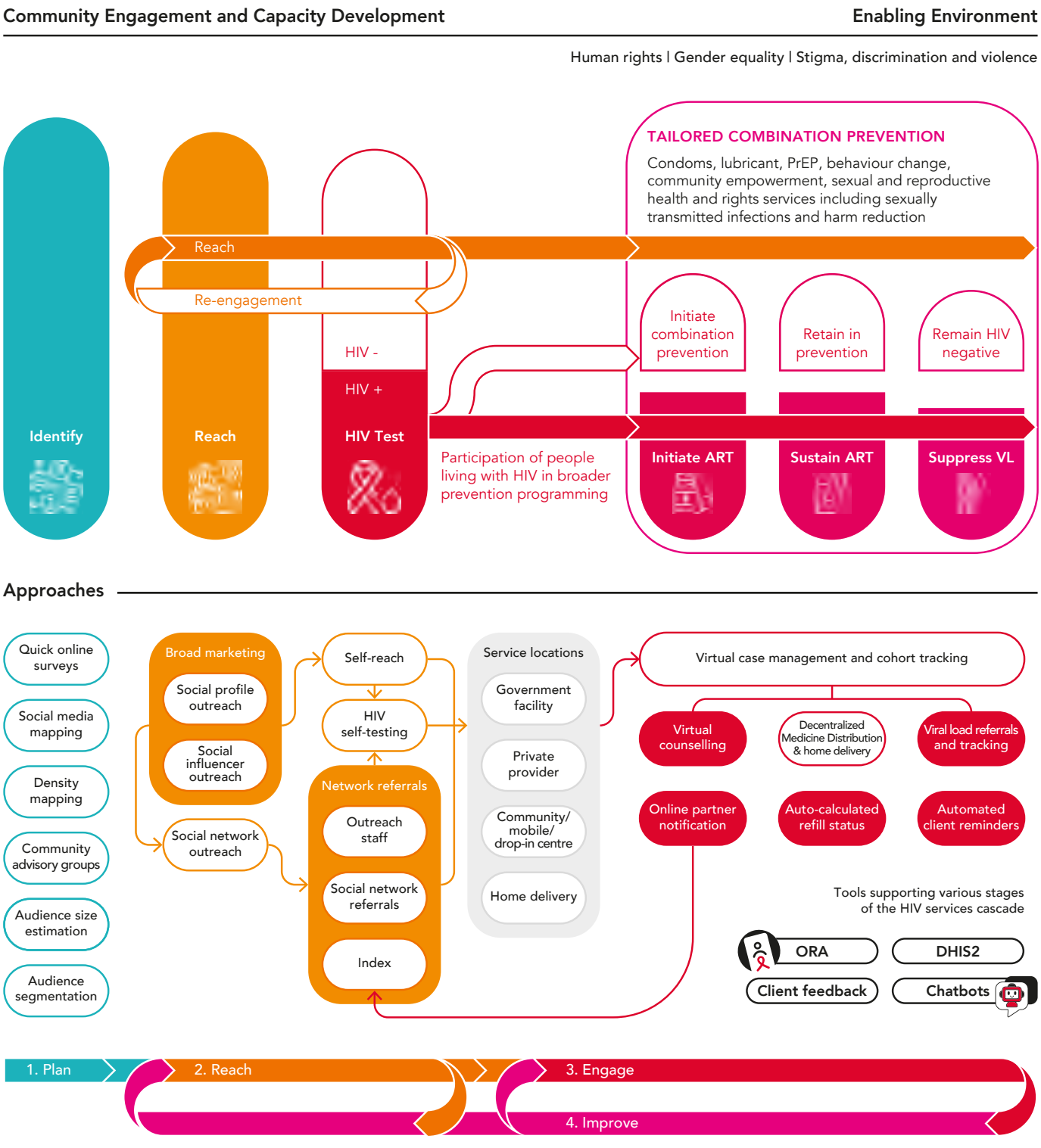
Improve

It is important to review the success of virtual interventions in reaching people from priority populations, engaging with them and improving access to services. Programmes can adapt approaches to improve and reach their objectives. The following approaches can be implemented to enable programmes to track, monitor and manage virtual outreach and virtual case management services:

- **Web and phone apps** can be developed so that clients can easily make reservations for health services using a smartphone, tablet or laptop. These tools may also provide clinic and programme staff with functions for monitoring, tracking and reporting the current status of the client.
- **Existing programme tools** can be adapted to distinguish when support or service delivery results from virtual outreach or is delivered via virtual channels. For example, client intake forms at facilities can be adapted to include an option for virtual referrals, or existing data systems can be adapted to track clients on antiretroviral therapy or PrEP.
- Programmes can establish **electronic client feedback systems** to collect suggestions for improvement and feedback directly from clients who have been reached or engaged by the programme virtually.

Figure 3.

Framework for virtual intervention approaches across the HIV cascade



ART antiretroviral therapy **DHIS2** District Health Information Software 2 **ORA** Online Reservation and Case Management App

Source: Virtual HIV interventions: a budgeting and programming aid. Washington, DC and Geneva: FHI 360, Global HIV Prevention Coalition, and Joint United Nations Programme on HIV/AIDS; 2022 (https://hivpreventioncoalition.unaids.org/resource/3332/).

Implementation steps

Programmes need to view virtual interventions as an integral part of service delivery and ensure resources and expertise to support their implementation. Technical assistance to national programmes, staff and health-care providers can be provided by WHO, the Joint United Nations Programme on HIV/AIDS (UNAIDS) and other local and international partners to adapt and operationalize approaches based on the country context, priority populations and service delivery objectives.

The following steps may guide programmes in implementing virtual interventions:

1. Hold a **community and stakeholder consultation** to understand the needs and preferences of the priority population to access services virtually.
2. Conduct **situational analysis and plan** virtual intervention models to map and engage populations based on their context and requirement (e.g. internet or phone-based).
3. **Define and segment priority populations** to be reached through virtual interventions and establish mechanisms for their ongoing engagement in the programme.
4. **Design interventions** that meet the priority population's preferences based on segmentation, including virtual outreach, service delivery models, referral pathways, follow-up, and reporting mechanisms that may help in smooth transition of clients across the cascade.
5. Develop a **budget** for the planned virtual interventions.[13]
6. Develop and **generate demand** for services and **raise awareness** among populations based on segmentation. This may be outsourced to external partners in the absence of capacity within programmes.
7. Procure **devices** such as tablets or smartphones and mobile data for outreach and case management teams as needed.
8. Develop **job aids and standard operating procedures** for staff responsible for implementing virtual interventions.
9. **Train** implementers on virtual approaches, such as online outreach workers, peers, virtual case managers and service providers.
10. **Implement** the planned interventions. Consider a **phased approach** starting in selected districts or populations, and then scale up to increase coverage and service delivery options as experience grows.
11. Provide **ongoing supportive supervision** to teams implementing virtual interventions on new approaches, security and safety or technology-related updates.
12. **Monitor and review** outcomes regularly to see whether programmes are achieving their objectives. Document any challenges, adverse events and client feedback. Routinely share results of virtual interventions with partners, communities and stakeholders to support programme adaptations, scale-up and national adoption. Plan course corrections to improve performance by lessons learnt for future scale-up and implementation.

See the *Digital implementation investment guide* for more guidance.[14]

13 Virtual HIV interventions: a budgeting and programming aid. Washington, DC and Geneva: FHI 360, Global HIV Prevention Coalition and Joint United Nations Programme on HIV/AIDS; 2022 (https://hivpreventioncoalition.unaids.org/resource/3332/).

14 Digital implementation investment guide: integrating digital interventions into health programmes. Geneva: World Health Organization; 2020 (https://apps.who.int/iris/handle/10665/334306).

Considerations for successful implementation of virtual interventions

Virtual intervention is an emerging and rapidly evolving area. This policy brief provides overarching principles and a framework for implementation of virtual interventions. It is expected, however, that new experiences and lessons will readily accumulate over time. Programmes need to remain flexible and continue to adapt service delivery, approaches and models based on their own and others' experiences. The following considerations can support successful implementation of virtual interventions:

- Virtual interventions are meant to **supplement existing services**, including facility- and community-based services. Clients should be able to choose their preferred service options. Virtual approaches should not be implemented only as a cost-saving measure but rather as an additional approach for clients to access services. These interventions need to be integrated and adapted to use any platforms that already exist to ensure sustainably and avoid duplication.
- As for any service delivery approach, **community engagement and participation** in virtual interventions planning and development are essential to ensure suitability of services for priority populations.
- Virtual implementation can greatly increase coverage of services with relatively fewer resources, but it may not lead to a similar uptake of services. This is often due to gaps in targeting and follow-up mechanisms. This is not unusual and should not deter implementation and offering of virtual service delivery options. With time and experience, it is expected that services will be focused appropriately, thus increasing uptake. Offering a **choice** to clients in service delivery options may also increase uptake.
- Turnover or attrition of trained staff and service providers is very common and can often slow down progress. This should be anticipated, and **ongoing online capacity-building** of staff should be budgeted for and provided. Care should be taken to avoid loss of skilled specialists or providers. It is important to appropriately remunerate staff and providers delivering services virtually.
- Ensuring the **safety and security** of client data and confidentiality of staff who also work as peers is important. Adequate guidance and mechanisms should be provided to ensure this.
- **Implementation costs** vary between countries and should be budgeted based on the gaps that need to be filled with virtual interventions—for example, a country with high internet costs might plan to use phone and SMS interventions instead of virtual platforms (see Case study 2).

Case study 2

Virtual interventions for HIV programmes can be implemented in a range of settings as an affordable and impactful approach

Between 2017 and 2021, FHI 360 implemented an online outreach and online reservation application (ORA) platform in Mali, Nepal and Thailand. In each country, a unique set of activities adapted to the local context, needs and resources was implemented to support community HIV outreach by online outreach workers, based on popular social media applications and internet coverage in each country. The interventions included online demand creation such as periodic paid advertisements and online influencer promotions through social media.

The interventions were effective in reaching people from priority populations. More than two-thirds (69%) of clients who booked appointments through ORA were first-time testers (47% in Mali, 81% in Nepal; no data for Thailand). HIV positivity was higher compared with traditional outreach (6.3% versus 4.4% in Thailand, 10.1% versus 3.6% in Nepal, 15.6% versus 11.2% in Mali).

Online outreach through ORA contributed to the overall prevention, testing and case-finding goals in all three countries. In Thailand, between July 2017 and March 2021, online outreach accounted for 10% of all people reached by the programme, 11% of all people tested for HIV, and 15% of all people who tested positive for HIV.

In Nepal, between October 2018 and March 2021, online outreach accounted for 9% of all people reached, 4% of all people tested for HIV, and 11% of all people who tested positive for HIV.

In Mali (which had a smaller online outreach team), between May 2020 and March 2021, online outreach accounted for 1% of all people tested and 2% of people who tested positive for HIV.

Overall monthly programme costs for online outreach increased after introduction of ORA, but the cost per client diagnosed with HIV decreased. ORA streamlined the journey from online outreach to offline service uptake with automated SMS appointment reminders for clients and follow-up by outreach staff if appointments were missed.

In Nepal, the cost per person sensitized was halved from US$ 8 to US$ 4 after ORA implementation, and the cost per HIV diagnosis dropped from US$ 1864 to US$ 914. In Mali, the cost per HIV diagnosis decreased from US$ 1060 to US$ 827 after ORA implementation. In Thailand, the cost was US$ 38 per person reached through ORA, US$ 41 per test conducted, and US$ 652 per HIV diagnosis.

These experiences from diverse settings demonstrate that demand creation and HIV service delivery through virtual platforms are feasible, affordable and potentially impactful. This model can effectively reach people who do not routinely access traditional services and remain untested or undiagnosed. These lessons can inform implementation in other settings.

Figure 4.

Outreach worker in Nepal conducting virtual outreach

Source: EpiC Nepal, FHI 360.

Safety and security

To be effective and ethical, virtual interventions must be built on trust. This can be achieved through strong community engagement, careful attention to protecting service users and providers, and maintaining confidentiality as clients access information and services through a variety of virtual channels.

Many people think of online platforms as being more anonymous and confidential than face-to-face communication. Some people connecting through social media or messaging apps create new virtual identities for communication with service providers. Virtual outreach may be better suited for people who are more willing to connect online or from the privacy of their phone or computer.

Virtual and mobile platforms have become increasingly sophisticated in data collection and use, but assumptions about their anonymity may not be warranted. Programme staff and beneficiaries may be unaware of how online platforms can monitor and use data and how other users can cause harm. Additionally, the scale and centralization of data collection from online outreach may lead to data security vulnerabilities that have the potential for harm if there is a breach or if client data are handled improperly. Programmes should ensure data security, client safety and privacy policies in their country when considering the use of virtual and mobile platforms for outreach and service delivery.

Programmes need to consider community-specific risks by engaging community members and tailoring this vision and framework to the country context and audience. The safety and privacy of beneficiaries and staff, and maintaining their trust, are critically important for all programmes. As such, virtual and mobile platforms require new safeguards and heightened awareness.

Additional safety and security guidance can be found in *Secure use of mobile devices and apps*.[15]

Contact UNAIDS or WHO for support on virtual interventions.

15 Secure use of mobile devices and apps: a guide for HIV programs providing virtual client support. Washington, DC: FHI 360; 2021 (https://www.fhi360.org/sites/default/files/media/documents/resource-secure-mobile-devices-apps.pdf).

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