Three ways Ukraine is using AI to improve HIV services

Roger Pebody

Ukraine's health services have been remarkably resilient in wartime, with technological innovations playing a key role in sustaining the delivery of care. At the 20th European AIDS Conference (EACS 2025) in Paris last week, Tetiana Deshko of the Alliance for Public Health outlined three key uses of artificial intelligence (AI) – 'digital humans' to answer queries and enhance access to health care; machine learning to better target the offer of HIV testing; and AI-guided analysis to help the organisation strengthen its resilience planning.

Digital humans

TWIIN is a chatbot, aimed at key populations in Ukraine, which can answer questions about sexual health, drug use and health services. In order to ensure the accuracy and appropriateness of the information given, its responses are based on a knowledge base created by the Alliance for Public Health, supplemented by ChatGPT if the conversation moves onto topics not included in the knowledge base.

Rather than relying on text, TWIIN uses 'digital humans' – interactive, animated avatars using the faces and voices of real people. Deshko says that research shows avatars to have a greater impact on health behaviours than agents that are not embodied, and that they have advantages in terms of emotional connection and cultural adaptation – in the case of TWIIN, most of the avatars are based on community health workers and service users who come from the key populations the chatbot is designed to reach.

The topics TWIIN is most often asked about include what PrEP is, where to get it and how to use it; HIV transmission routes; PEP and what to do after unprotected sex; fentanyl test strips and overdose prevention; what opioid substitution therapy is and where to get it; whether HIV can be cured; and chemsex. While the service has been promoted through bloggers, social media influencers, outreach events and NGOs, by far the most effective way of reaching users has been targeted advertising via Google and Meta.

One of the motivations for creating TWIIN was to reduce the workload and cost of human outreach workers, so that the digital service deals with some of the more basic or routine queries, allowing humans to deal with more complicated interactions. Deshko reported that in the last quarter of 2024, TWIIN reached 4702 people, which compares to an average of 1150 clients for each NGO supported by the Global Fund – the largest NGO reached 6070 clients and just under 61,000 people were reached by all the NGOs combined.

She also wants online interactions to convert into deeper engagement with health care. Users are often directed to a telehealth platform where they can order condoms, syringes, self-tests and naloxone (an antidote to opioid overdose); arrange a video call with a community health worker to be guided through the process of taking a self-test; or schedule a video consultation with a doctor.

Engagement with these services increased significantly during 2024, although Deshko did not present data directly showing that TWIIN has provided the extra referrals.

Targeting HIV testing

The 'yield' of HIV testing – the proportion of people tested who are diagnosed – is central to its efficiency. In the Alliance for Public Health's original model of outreach testing, around 1% or 2% of people tested had HIV, which increased to between 4% and 24% when it first deployed social network testing. This involves asking people who have themselves recently tested positive to encourage other people in their social network who may also be at risk of HIV infection to test – each newly diagnosed person is given coupons to pass on to their peers and financial incentives for each peer who attends.

However, the yield has been declining over time, and it varies significantly among newly diagnosed individuals – while some successfully recruit peers with undiagnosed HIV, others are unlikely to identify any new cases. In order to identify who is more likely to be in the former group, the Alliance is using machine learning – a subfield of AI in which algorithms and statistical models enable computers to make predictions based on data without explicit programming. This may mean that they can identify risk factors that health workers are not aware of, especially in a rapidly changing situation – for example, local prevalence may change if there is an influx of internally displaced people.

Last year, with the support of machine learning, 55 index cases nominated 922 peers who got a test. Of these, 52 (5.6%) were diagnosed with HIV. This compares favourably to the numbers when selection was guided by staff – 67 index cases nominated 3208 peers, of whom 137 (4.3%) were diagnosed with HIV. As AI models tend to get better over time, especially with more and more data to learn from, the hope is that the yield will continue to increase.

Strengthening resilience planning

The Alliance for Public Health is also using AI to help them work towards ISO 22301, which is an international standard for business continuity management systems – meeting its requirements means that the organisation has a structured framework to identify risks, prepare for disruptions, and maintain essential functions during crises such as cyberattacks, bombing or infrastructure failures. This means that the organisation will be able to maintain service delivery and protect the confidential data of its clients during and after a disruption.

Putting in place the plans and procedures that will allow an organisation to meet this standard is a demanding and labour-intensive process. An AI conversational agent is helping in the analysis of critical processes, dependencies and risks, and in creating custom emergency plans that align both with the specifics of the organisation and ISO requirements. Moreover, AI will predict risks before crises escalate, provide real-time decision support during incidents, and analyse past disruptions to improve best practices. Tetiana Deshko said this makes business continuity management accessible even to organisations with limited resources.

Reference

Deshko T. *AI use in HIV prevention, case finding and early treatment uptake in Eastern Europe and Central Asia*. 20th European AIDS Conference, Paris, session PS10, 2025.