DIGITAL TECHNOLOGY AND HIV, HCV AND STI VOLUNTARY COUNSELLING AND TESTING: GOOD PRACTICE EXAMPLE FROM CROATIA

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SUMMARY

The aim of this paper is to introduce the digitalization process and its effects on better reach of the target population. Progress in the digitalization and e-health tools worldwide enables new opportunities in prevention, diagnostics and treatment for people living with HIV (PLHIV) and people in the risk of HIV infection, hepatitis C (HCV) and other sexually transmitted infections (STIs), especially in the context of the COVID-19 pandemic. The system already used for voluntary counselling and testing (VCT) at the CheckPoint Centre Zagreb run by the non-governmental organization (NGO) Croatian Association for HIV and Viral Hepatitis (CAHIV) was upgraded and adapted (due to the COVID-19 prevention epidemiological measures) and developed for implementation of the pilot project of feasibility and acceptability of home HIV self-testing (HIVST) among men who have sex with men (MSM) in Zagreb. A special feature of the HIVST mobile application enables an innovative approach in collecting clients' test result feedback. This paper presents the method of use digitalization of the VCT and HIVST activities to support and increase availability of screening testing. Described procedures of new technologies application in VCT services and preliminary results of the HIVST pilot project indicate that technology-delivered interventions can contribute and improve access and utilisation of HIV/STI prevention and care services.

Key words: voluntary counselling and testing, digital technology, HIV, sexually transmitted diseases, sexual behaviour, testing

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INTRODUCTION

Increasing development and use of different internet-based and e-health tools worldwide provide new opportunities in prevention, diagnostics and treatment for different patients including people living with HIV (PLHIV) or people at increased risk for HIV or other blood and sexually transmitted infections (STIs).

Digitalization has significant role in education on STI prevention and the promotion of sexual and reproductive health (1). Also, digital technologies are applied in the field of prevention and care of HIV infection (2, 3). Kutner et al. explored interest in disclosing HIV/syphilis self-test results through a smartphone application which participants considered a way of normalisation of testing and faster linkage to care (4).

Digitalization of education and prevention services for youth and other key populations have proven important, especially in the context of the COVID-19 pandemic (2) while there was a need of adjustment to preventive measures and lack of human resources due to shifting of healthcare workers to COVID-19 treatment and prevention.

In Croatia, there are several examples of new technologies applied in the field of HIV, hepatitis, STIs, and sexual and reproductive health – mobile applications and internet portals "Sexual Health" (5), "All about hepatitis" (6), "Risk Radar for HIV, hepatitis, STIs and TB" (7), "EmERGE" (8), and mobile application about cervical cancer prevention (9). Also, a mobile application for users of the HIV pre-exposure prophylaxis program (PrEP) is being developed. Digital health technologies allow increased coverage of key populations considering their needs in sexual health, improving the efficiency and availability of services. However, while they can complement and improve the health system, they cannot completely replace it (10). Also, a recently published systematic literature review on the use of digitalization in HIV prevention have emphasized the positive impact of implementation of health interventions through social networks and other digital technologies but pointed to the need for increased caution in protecting privacy and user's personal information (2).

The aim of this paper is to introduce the digitalization process and its effects on better reach of the target population. Thus, we presented the Croatian example of good practice in counselling and testing process using newly developed digital platform.

Digital Technology in Upgrading Work Process in the CheckPoint Centre Zagreb

We described the possible use of digital technology-based methods of voluntary counselling and testing (VCT) for HIV, hepatitis C and other STIs to improve screening testing for youth and high-risk populations. Activities were done within the community-based activities run by the CheckPoint Centre Zagreb, under the non-governmental organization (NGO) Croatian Association for HIV and Viral Hepatitis (CAHIV) (hereinafter the Centre). The technology-based intervention was used in the process of adaptation of the system already used in VCT service and during the implementation of a pilot project of self-HIV testing (HIVST) among men who have sex with men (MSM) in Zagreb (11). During the period 2019–2020, the Centre introduced a new digitalized services for additional opportunities in VCT and linkage to care. A new data management software (for recording clients' personal data and test results) has been developed and existing application, based on the protocols of Croatian VCT network which has an important role in the National Programme for HIV/AIDS Prevention (12), was upgraded.

Before the COVID-19 pandemic, the counselling process was conducted in person in the Centre. Due to the context of COVID-19 pandemic there was a need to adjust the work process within the framework of prevention and control measures. The main goal was to shorten the time interval of close contact between users and employees. Consequently, test counselling and scheduling the test appointment are conducted by telephone (or e-mail). Sample collection for laboratory molecular (PCR) testing for gonorrhoea and chlamydial infection (throat swab, rectal swab, urine), testing and providing the results of a one-minute combined rapid test for HIV and syphilis (INSTI® Multiplex HIV-1/2 syphilis antibody test) is carried out on site with the shortest possible user retention at the Centre. The results of other tests performed are provided by e-mail and additional post-counselling by phone or e-mail.

Using the digital form of the online application, the counsellor enters client's data during pre-test counselling by phone (socio-demographic characteristics, risk assessment, recommendations for test, and other preventive measures such as hepatitis B (HBV) vaccination or testing for other STIs). Upon user's arrival at the Centre, the doctor checks all entered data and test recommendation, enters the data about tests performed (samples collected), tests' results of rapid testing and if necessary, add a note/additional advice in the data form (e.g., testing on other STIs or vaccination against HBV). An e-mail with the test results and additional information about future steps, support and client's satisfaction evaluation questionnaire is automatically sent to user. The results of laboratory tests, performed in the Dr. Fran Mihaljević University Hospital for Infectious Diseases (UHID), Zagreb, Croatia, are entered in a special form within the digital online application (Fig. 1). The same procedure is used within outreach activities as well as in the pilot study "Demedicalization of HIV, HCV and STI screening in Croatia" which refers to community testing conducted by trained non-healthcare providers (lay providers). In total, from 2019 till the end of 2021, counselling and risk assessment involved 3,477 participants of whom 3,002 were tested.

Pilot Project on HIV Self-Testing with Digital Support

The existing software solution for VCT work processes at the Centre was upgraded and adapted for conducting the research "HIV testing at home – a pilot project for the City of Zagreb" aimed to investigate a new approach of community testing, the feasibility and acceptability of self-testing for HIV (HIVST) among men who have sex with men in Zagreb (13, 14). HIVST is a process in which a person self-performs HIV test – takes his/her own sample of oral fluid or blood, conducts HIV testing, and interprets the results, usually in a private setting, alone or with a trusted person (15). It is a screening test, and a confirmatory test needs to be done for final diagnosis of HIV infection. The research is conducted by the Reference Centre for Diagnosis and Treatment of HIV Infection of the UHID in collaboration with NGO CAHIV. It began in October 2020 and will last until the planned sample of 400 self-tests or by the end of 2021.

Participants were recruited through social and dating networks. The mobile application they used also provide user-friendly support tool for the testing process. This application provides an innovative approach in collecting feedback on the test result by users (13, 14).

Through the website, the user fills in a short anonymous questionnaire which checks whether the user belongs to the target group for the delivery of HIVST and collects socio-demographic and behavioural data on sexual practices (risk exposure), HIV testing history, self-reported data on STIs, and the use of PrEP. Inclusion criteria were: MSM, age ≥18 years, negative or unknown HIV status, Zagreb resident, and consent to participate. If the user does not meet the criteria for testing, a digital form is

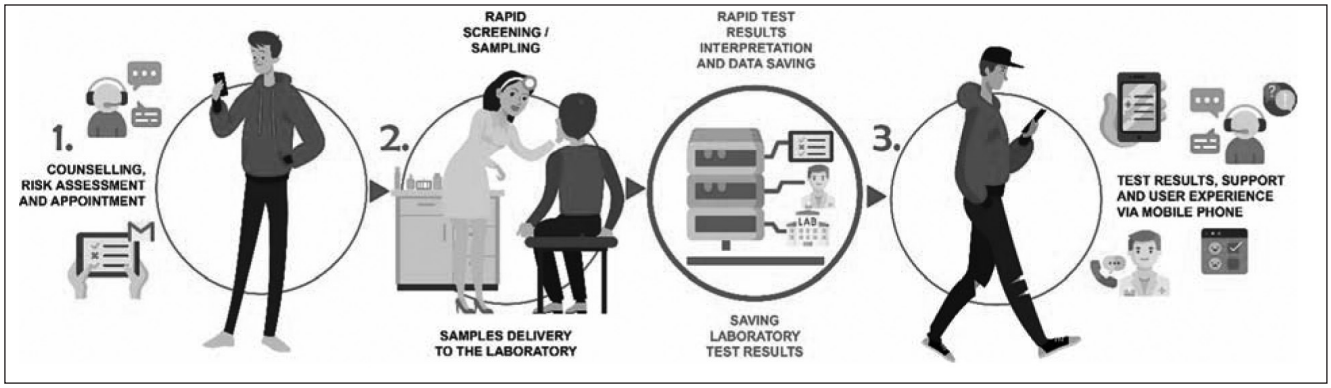

Fig. 1. *Computerized counselling and testing process at the CheckPoint Centre Zagreb.*

Source: With the permission of the author Mr Arian Dišković, HUHIV, Zagreb, Croatia

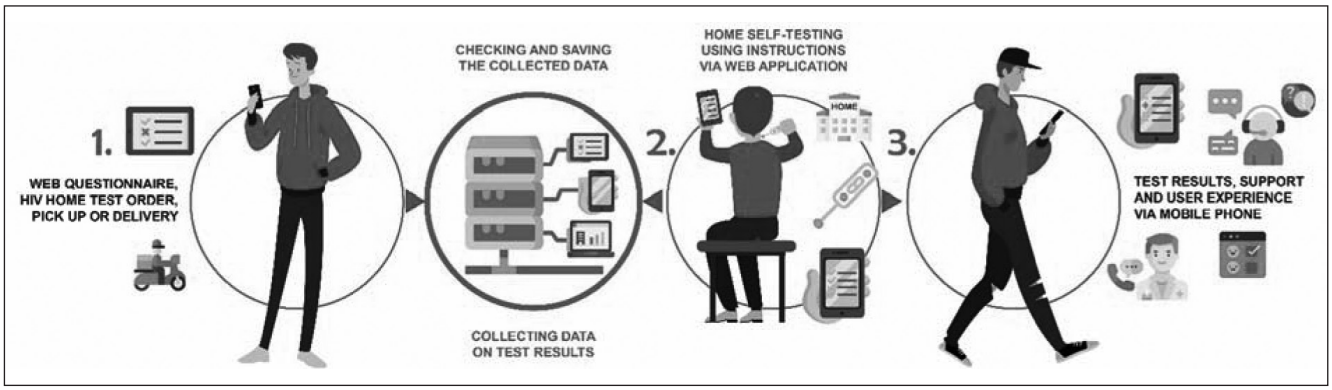

Fig. 2. *Process of a pilot project on HIV self-testing among men who have sex with men in the City of Zagreb.*
Source: With the permission of the author Mr Arian Dišković, HUHIV, Zagreb, Croatia

automatically created and saved in the system, with a notification to the user about unavailability of the service for him. If the user meets the criteria for testing, the system automatically sends an e-mail with a link to choose the preference of collecting testing kit (in person or by courier delivery to the desired address). For testing, an HIVST rapid test kit (HIV-1/2 antibody detection test Oraquick ADVANCE® test) is offered.

After the user decides on the mode of testing kit delivery, the counsellor receives information through the system, packs the test and confirms the testing in the system for that user. At this point, the user's digital form with the data collected through the questionnaire enters into a waiting status until the user provides feedback on the test result. The box contains a testing kit, code/access data and instructions for logging into the web application with information and support for proper testing and verification of test results.

The access data are the user's email address and the unique password for testing that the user has received in the package. The application leads the user step by step in accordance with the protocols of correct test performance to avoid mishandling and obtaining an unreliable result. The application offers visualization of results: several possible images of test device results (the user should choose the most similar image to his test results). Additionally, the user gets detailed explanations of the meaning of the results, the ability to download the findings and expert support contacts (Fig. 2). Web application was used as a supporting tool for the testing process with a contact of physician for counselling and help for the linkage to care (in case of reactive HIV test or any other issues). Physician arranged confirmatory testing at the UHID.

HIV Self-Testing at Home Pilot Project – Preliminary Results

During the 16-week study period, 448 males were interested in HIVST and 81 (18.1%) were included into the pilot project. Persons who were not included did not meet the inclusion criteria: MSM, ≥18 years old, negative or unknown HIV-status, resident of Zagreb, and consent for enrolment.

Median age of 81 included participants was 31 years (IQR: 27–37.5), 81.5% were gay and 18.5% were bisexual. Most of the participants had high school (38.3%) and university (29.6%) education. They had a median of 5 partners (IQR: 3–10) in the last 12 months, two thirds (65.4%) were tested for HIV previously, and none were PrEP user. Most were single (72.8%) and 23.5% were always using condoms with casual partners. More than half (53.1%) had previously STI: gonorrhoea (13.6%), chlamydia (8.6%), pubic lice (8.6%), syphilis (4.9%), ureaplasma (4.9%), and other STI (7.4%). Sixty participants (74.1%) reported back their HIV test result. Two (3.3%) reported a positive result, one had positive confirmatory test and was linked to care within 4 days, and another had negative confirmatory test (14). Users' satisfaction with HIVST was high, 96.3% of them would recommend the service to others, 98.7% would repeat the service and 94.8% recognized the service as "very simple" or "simple".

Results of self-reported client's satisfaction evaluations show their high satisfaction with the services of community-based VCT. Clients who provided feedback expressed exceptional satisfaction with testing services overall and would recommend the Centre services to others.

HIV Self-Testing

HIVST is one of the ways how to reach the first '90' of the global Joint United Nations Programme on HIV/AIDS (UNAIDS) goals by 2020 for PLHIV – that 90% of them are aware of their HIV status (15). New HIV testing approaches could help in increasing testing rates among undertested high-risk populations which are crucial in closing the testing gap and achieving new UNAIDS '95–95–95' goals. With the implementation of the HIVST pilot project, the self-testing method was used for the first time for HIV testing in Croatia (14). Therefore, we assumed that with new user-friendly HIV tests it will be feasible for HIV testing too. HIVST has proven to be a well-accepted method (74–96%) among the MSM population and younger people, especially using oral fluid tests. Several studies have shown that oral testing was reliable with a sensitivity of at least 91.7% and specificity of at least 97.9% (16). HIVST proved to be easy to implement (92–99%), for test result interpretation (97–99%), and 89% of people would recommend it to others (17, 18).

Globally, there are differences between countries regarding access to HIVST and currently 23 countries have guidelines that support the implementation of HIVST (15). HIVST has been approved by regulating bodies and is available in France, the UK, and the US, and in some other countries there are national guidelines and strategic plans that support the implementation of

HIVST or are implemented as part of pilot projects (15, 17). Following support to HIVST demonstration projects from the World Health Organization (WHO) since 2014, 2016 WHO guidelines state that HIVST should be offered as a complement to the HIV testing policy (15). Currently available data suggest that HIVST has not contributed to an increase in risky behaviour or other negative consequences, and a meta-analysis of two randomized controlled studies among MSM showed that the number of HIV tests nearly doubled (rate ratio = 1.88; 95% CI: 1.17–3.01), and HIVST also doubled likelihood of an HIV-positive diagnosis (RR = 2.02; 95% CI: 0.76–5.32) (19).

CONCLUSION

In this paper we presented digital upgrade work process in community based VCT cervices and preliminary results in using digital platforms for VCT approach in HIV self-testing implemented for the first time in Croatia. We believe that our results strongly suggest, based on the data and overall satisfaction of included participants, that the implementation of the digital approach in counselling and testing facilitates access to target groups.

However, even though we showed a good practice example in Croatia, using the digital platform for VCT to improve prevention and care of HIV infection and sexual health, it is important to strengthen activities aimed at populations with higher risk of infection (MSM, sex workers, persons who frequently change sexual partners) including access to different voluntary counselling and testing strategies.

The use of digital technologies may scale up parts of sexual health services. Digitalization increases service availability, allows a greater privacy and time savings for the users, and presents added value to face-to-face counselling and testing, particularly in geographically remoted areas, hard to reach populations, or in public health emergencies (displacements, outbreak, natural disasters, etc.).

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Conflict of Interests

None declared

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