HIV Self-testing Combined with Internet Counselling: A Low Threshold Strategy to Increase Diagnoses of HIV-infections

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Abstract—**The proportion of undiagnosed HIV infections in the Netherlands is substantial. Increasing the HIV test uptake is important to improve individual health outcomes and reduce further spread of HIV. Self-tests for HIV have become available. Self-tests allow individuals to test at the privacy of their home, without involvement of any health care professional or laboratory, and may help to increase HIV test uptake. However, there are many concerns with respect to test quality, test procedures, and medical follow up. This project aims to develop and evaluate a service that offers high quality HIV self-tests in combination with internet pre- and post-test counseling to individuals at high risk for HIV. The usage of the service, its effectiveness in identifying unrecognized HIV infections and their follow-up in care, perceived usability and acceptability, and cost effectiveness will be evaluated.**

Keywords-HIV; screening; self-test; online counseling.

I. BACKGROUND

HIV infections remain a major public health issue in Western countries [1]. The most important risk groups for HIV are men who have sex with men (MSM) and migrants from HIV-endemic countries [2-5]. Recent estimations indicate that 40% of 21,500 HIV-infected individuals in the Netherlands do not know their HIV status [6]. Earlier diagnosis of these individuals will lead to timely treatment which improves the prognosis and assists in controlling the HIV epidemic [7,8].

The need for increasing the uptake of HIV testing did not elude commercial medical entrepreneurs in developing self-test packages for HIV. In recent years the availability of such tests has increased. These tests are bought and performed by a consumer, usually at home without the involvement of medical staff or a laboratory. For some individuals HIV self-tests appear to be a convenient alternative for testing as they enable them to overcome several barriers related to HIV testing.

However, several concerns regarding the quality and effect of the self-testing procedures have been raised. The accuracy of many of the currently available HIV self-tests is not proven, and there are concerns related to the correct application of the test, the follow-up trajectory for those who test positive, and the loss of counseling opportunities for HIV positives and negatives. Further, by choosing to only test for one infection (e.g., HIV) one looses the more inclusive approach currently used in the Netherlands to screen for a broad spectrum of sexually transmitted infections (STI) in each screening contact. Therefore, health care providers are reluctant to promote the usage of self-tests despite the increasing number of outlets offering such tests.

Nevertheless, the quality and robustness of self-tests for HIV are continuously improving. Recently, a highly reliable HIV rapid test has become available that uses oral fluid instead of blood, making it easier for self-use by consumers. In potential, the availability of such a low-threshold testing method can help us in the long run in increasing HIV test uptake. The proper integration of such self-testing options within the health services is certainly worth examining.

II. AIM

The project aims to develop and evaluate a service that provides reliable HIV self-tests using oral fluid in combination with an Internet counseling strategy to individuals at risk for HIV, especially MSM and migrants from HIV endemic countries.

III. METHODS

Following strategies of human-centered design and business modeling, a website and logistic infrastructure will be developed that inform individuals about HIV self-testing, enable individuals to purchase an HIV self-test online, and offer user-friendly instructions, pre- and post-test counseling and low-threshold contact options with health care professionals. The website will contain an online triage system using an interactive intake questionnaire and risk assessment algorithm that will enable us to distinguish between those at risk for HIV and those not at risk for whom testing is not necessary.

Those not at risk for HIV will be discouraged from using the self-testing service; those at risk for HIV will be encouraged to test for HIV. The STI-clinic and general practitioner (GP) will be referred to as the preferred locations for testing considering their inclusive testing for multiple STIs. Those who indicate that they do not want to involve their GP or STI clinic, will have the possibility to order an HIV self-test. With the test, they will receive a code to access an elaborated pre-test trajectory including step-by-step instructions and counseling. Interactive movies and information modules will be used, and low-threshold contact

options with health care professionals will be offered (e.g., using Skype, telephone, or web cam). After testing, a post-test counseling procedure will be offered online for both positives and negatives. For individuals who test positive, a follow-up procedure will be setup in order to motivate them to access regular health care as soon as possible for confirmation testing and referral to an HIV outpatient clinic.

The project will start with a pilot phase of three months in the beginning of 2013 in which the service is offered on a relatively small scale (i.e., without campaign activities) to identify and solve potential technical or logistical difficulties that might arise. Early users of the service will be interviewed about their experiences to further improve the service. After successfully completing the pilot phase, a media campaign targeted at high risk groups for HIV (e.g., MSM, migrants) will be launched nationally. A total of 2,000 tests are estimated to be sold within a 12-month period. We aim to reach an HIV prevalence of newly diagnosed individuals of 2.5-5% (n=50-100 individuals).

IV. EVALUATION

The evaluation will focus on the following outcome measures:

- The proportion of individuals at risk for HIV among those who completed the intake questionnaire, and their characteristics and reasons for preferring to test via an HIV self-test.

- The frequency of use of the website's features and functions (e.g., ordered tests, logins to the website's counseling program), the duration of use (e.g., per web session, and online module), the registered number of contacts with health care professionals during the project, an overview of the feedback of users and stakeholders during the project; the feasibility, and perceived usability and acceptability of the testing and online counseling procedures as measured both qualitatively and quantitatively.

- The proportion of individuals belonging to the HIV risk groups that use an HIV self-test, the HIV prevalence among these individuals and their determinants; the number of individuals that show up for confirmation testing, the time from testing positive via a self-test to confirmation testing, the proportion of confirmed positive test results, the number

of individuals that are referred to the hospital, and the moment of diagnosis in their infection (using CD4 cell counts and viral load measurements).

- The cost-effectiveness of the proposed testing strategy.

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