



Rapid Uptake of Home-Based HIV Self-testing During Social Distancing for SARS-CoV2 Infection in Oregon

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Abstract

We implemented a pilot home HIV self-testing program one week after a stay-home order for SARS-CoV2 was enacted in Oregon. We advertised the program on a geospatial networking app and community partner websites targeting men who have sex with men; nine percent of web visits resulted in an order. Over 70% of the kits initially allotted to the program were ordered in the first 24 h of launch. One-third of participants had never tested for HIV. We found enthusiasm for discreet, free, home-based testing and uncovered an unmet need for HIV testing as clinical and outreach programs shuttered in Oregon.

Keywords HIV · Self-testing · Geospatial networking apps · SARS-CoV2

Introduction

Men who have sex with men (MSM) continue to comprise the greatest proportion of new HIV infections in the United States and in Oregon [1]. HIV testing is a critical intervention toward ending the HIV epidemic among MSM. Testing is the first step to status-neutral HIV prevention comprised of pre- and post-exposure prophylaxis for those who test HIV-negative; anti-retroviral treatment and viral suppression for those who test positive; and, testing and treatment for sexually transmitted infections (STIs) for all [2]. However, MSM may not test for HIV with a frequency commensurate with their risk [3]. For example, in 2017, 31% of sexually active MSM residing in the Portland, Oregon metro area had not tested in the prior year [4]. Barriers to HIV testing include the stigma of requesting HIV testing; lack of knowledge of testing services; the low density of accessible HIV prevention services; concerns around confidentiality and trust; high perceived cost and low perceived benefit of testing; experiences of racism, homophobia, and other

biases within healthcare settings; and, lack of provider cultural competence and comfort working with diverse racial, ethnic, sexual and gender identities [5–7]. For young, gender diverse, Black and Latinx MSM, these barriers may be further amplified.

The implementation of SARS-CoV2 mitigation strategies, while necessary to slow the spread of SARS-CoV2, present an additional barrier to HIV testing access. HIV testing in both clinical and non-clinical outreach settings has decreased [8]. While social distancing guidelines recommend against new sexual partnerships, it is implausible to expect complete cessation of sexual contact with non-household members. As a way to maintain social and sexual connectedness during this time, the use of geospatial networking applications (henceforth referred to as “apps”) may be increasing [8]. Public health agencies must find alternative ways to provide HIV testing while social distancing measures are in effect. Apps represent an opportunity to provide that service [9].

In fact, the American Men’s Internet Survey (AMIS) found that 22% of MSM who use apps had never tested for HIV [9]. In addition, 77% of MSM who use apps wanted social or sexual networking apps to add a feature that would allow them to order an HIV home test from the app. Among men who had never tested for HIV, 83% desired this feature. In a recent randomized trial among MSM, access to home HIV self-testing increased the frequency of HIV testing and identified more new HIV infections compared to the control group, and, through participant distribution of tests to social and sexual contacts, diagnosed HIV in participants’ social

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and sexual networks [10]. Home-based HIV testing, thus, has the potential to increase engagement in status-neutral HIV prevention.

In the present study, we present Oregon's experience implementing a statewide pilot home HIV self-testing program. In 2016, less than 5% of insured Oregonians had tested for HIV and less than 40% of all Oregonians reported that they were ever tested for HIV [11]. Given these low testing rates, increasing HIV testing became a key priority in our plan to end new HIV infections in Oregon. Barriers to HIV testing vary widely across Oregon's urban and rural geographies. Therefore, we sought to employ a web-based HIV self-testing program advertised on apps and other digital media designed to be accessible across Oregon. We learned of the development of a new national program, with a strong connection to apps, that was intended to be implemented at the jurisdictional level. Oregon was the first state to participate in the pilot of this program.

Methods

In partnership with Building Healthy Online Communities (BHOC), on March 31, 2020, one week after a stay-home order was issued in Oregon [12], we launched a pilot of a free, mail-order, home HIV testing program targeted to MSM. We advertised the program website, takemehome.co, through banner advertisements on Grindr, a geospatial sexual networking app, and posts on community HIV prevention partner Facebook and Instagram pages and websites. The conversion rates (orders/visit) for the first 223 orders were high: 7% for Grindr (152/2116), 15% (42/284) for direct search, 11% (8/74) for Facebook, and 25% (21/84) for community HIV prevention partner websites. The overall conversion rate was 9% (223/2559).

Eligible participants were ≥ 18 years old and had not tested for HIV in the prior year. Participants could order up to two OraQuick HIV tests (OraSure Technologies, Bethlehem, PA) at one time to share with a sexual or social network member or save for testing at a later date. We collected age, race/ethnicity, sex assigned at birth, current gender identity, number of sexual partners in the prior year, and timing of most recent HIV test at the time of order placement. Participants could provide short written feedback at the time of order placement or through a follow-up email.

In this analysis, we present descriptive statistics of demographic characteristics, risk, and testing information and summarize participant feedback. We used STATA 16.1 (StataCorp, College Station, TX) for all analyses.

Results

Within 24 h of the launch, we received orders for 109 (73%) of the 150 kits initially allotted to the program. We subsequently increased our kit allotment by an additional 324 tests and allowed only one kit per order. From March 31 through May 31, 233 individuals assigned male at birth ordered 248 kits. Fifty-one (22%) of 233 participants lived in rural or frontier zip codes.

From March 31 through April 3, the data system did not capture the participant-reported demographic, risk, and testing information at the time of order placement. The error in data capture was fixed immediately after its discovery, but we were unable to retrieve the data that was not recorded properly. Therefore, we present these measures for the latter 149 (64%) of 233 participants who ordered kits from April 4 through May 31 (Table 1). The median age was 32 years (interquartile range [IQR]: 25–40 years; mean: 34 years, standard deviation [SD]: 12 years). Most individuals identified as men and 34% of the 110 participants who reported their race/ethnicity were people of color. The median number of partners reported in the prior year was 1 (IQR 1–3, range: 1–186; mean: 7, SD: 24). One-third had never tested for HIV and only 2% had ever used a home test in the past.

There were key themes to the feedback we received (Table 1). First, participants expressed appreciation for free testing. Second, they reported that the home-testing program was easy, convenient, and discreet. Third, the testing felt safe. For one participant, that safety was avoiding the embarrassment and nervousness of going to a healthcare facility for testing. For another, it was using the home-testing program instead of going to a healthcare facility where they might risk exposure to SARS-CoV2. Finally, up-to-date HIV testing results were important to two participants who reported being sexually active during the stay-home order.

Discussion

We implemented a pilot home-based HIV testing program to increase access to HIV testing separate from the SARS-CoV2 pandemic; however, its launch coincided with rising SARS-CoV2 cases and the stay-home order in Oregon. We observed rapid uptake of this HIV self-testing service, thus revealing enthusiasm for discreet, free, home-based testing and uncovering an unmet need for HIV testing as clinical and outreach programs shuttered. One-third of program participants had never tested before, a proportion greater than that found in a prior survey of MSM who use apps

Table 1 Characteristics of clients assigned male at birth who have sex with men who ordered home HIV test kits through takemehome.co, March 31 through May 31, 2020, Oregon

	Clients (n = 149)
Age, median (IQR; range); mean (SD)	32 (25–40; 18–67); 34 (12)
Sex-gender	
Assigned male at birth	149 (100)
Gender identity	
Man	142 (95)
Transgender man	1 (< 1)
Transgender woman	2 (1)
Agender, non-binary, genderqueer	4 (3)
Race/ethnicity (n = 110) ^a	
White	69 (63)
Latino/a/x	19 (17)
Black	4 (4)
Asian	8 (7)
Pacific Islander	3 (3)
Native American	3 (3)
Multiracial	4 (4)
Number of partners in prior year, median (IQR; range); mean (SD)	1 (1–3; 1–186); 7 (24)
Never tested for HIV	51 (34)
Ever tested at home	3 (2)
Select client feedback	“Thanks for the free test” “Very easy and convenient” “Easy to use and feel safe” “I’ve always been too embarrassed and nervous to go in and get a test. You guys made it so easy and private” “I like how discreet it was and the fact you don’t have to wait in a waiting room just do it from the comfort of your own home” “As a person who is nervous to go into the hospital right now, I appreciate this service so much” “I’ve just really opened myself back up with this COVID thing going on, really happy about this, I can keep my profile updated” “Being sexually active with the current pandemic, this means a lot to me”

IQR interquartile range, SD standard deviation

^aPercentages may not sum to 100 due to rounding

and in a trial of home HIV self-testing [9, 10]. For almost all, participation in the pilot program was their first introduction to home HIV self-testing.

Program participants represented key demographics of MSM affected by HIV in Oregon [1, 4]: a quarter of our sample was less than 25 years of age; 34% were people of color (25% of Oregon’s population is comprised of people of color) with 17% identifying as Latinx (13% of the Oregon population is Latinx), 4% identifying as Black (2% of the Oregon population is Black) and 3% identifying as Native American (1.2% of the Oregon population is Native American); and, 25% had more than three sexual partners in the prior year. A goal of our statewide home testing program was to reach MSM outside of Oregon’s urban areas; over one-fifth of program participants lived in rural/frontier areas with poorer access to HIV testing [11]. Our pilot testing

program was advertised on, and most orders originated from, a single app. Diversification of the apps and websites on which we advertise self-testing may allow us to reach more young, gender diverse, Black, Indigenous, Latinx, and rural MSM in addition to more sexually active MSM.

Based on the feedback provided by participants, home self-testing appears to ameliorate several barriers to accessing an HIV test. First, testing was free to avoid concerns related to cost and insurance coverage. However, public health agencies must find a way to sustain access to free testing, particularly at a time when STD/HIV programs may be underfunded as health departments dedicate substantial resources to responding to the SARS-CoV2 epidemic. Options include prioritizing grant and state/county general funds for home testing programs; billing insurance for HIV tests for those with insurance while continuing to provide

free testing for uninsured participants; and/or, allowing participants to donate tests to another participant (a pay-it-forward model). As federal funds account for a substantial source of state and local health department funding for HIV prevention, funders should allow for maximum flexibility in how dollars can be spent for home testing initiatives. Restrictive caps on use of funds and excessively burdensome data reporting requirements should be avoided.

Second, testing was “easy” and “convenient.” It did not require participants to take a day off from work or put other responsibilities on hold for an appointment at a healthcare setting. Third, proximity to local HIV testing resources is less crucial, particularly in rural and frontier areas, when a test can be delivered to one’s door. Fourth, testing can be performed in the safety and privacy of one’s home without fear of judgment or discrimination based on race, ethnicity, sexual and gender identity, and sexual practices. In fact, healthcare providers may judge sexual activity with non-household members quite harshly during stay-home orders. Finally, home HIV testing allowed participants to test without risking exposure to SARS-CoV2 infection in a healthcare setting.

While our data are limited in that they represent a single state experience and, due to technical issues, 64% of the individuals who ordered kits, this pilot program suggests that at-home HIV testing can address existing gaps and barriers in testing in many areas of the United States both in the presence and absence of social distancing measures. In the coming months, we plan to expand the sexual health services offered by our home self-testing program to include the ability to order multiple HIV tests for distribution to social and sexual contacts and the option for comprehensive STI testing, hepatitis C screening, and labs for pre-exposure prophylaxis.

Author Contributions TWM conceived the study, had full access to the data, analyzed and interpreted the data, and wrote the manuscript. JH acquired the data and had full access to the data. JG and JH contributed to the interpretation of the data. JF assisted with study conception. All authors revised the manuscript for critical intellectual content, agree to be accountable for the integrity of the work, and approved the final manuscript.

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Compliance with Ethical Standards

Conflict of interest There are no conflicts of interest to declare.

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