

# Rapid Uptake of Testing for Chlamydia, Gonorrhea, and HIV From an Online Platform, April–October 2020

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The Baltimore City Health Department (Baltimore, MD) promoted IWantTheKit for chlamydia, gonorrhea, and HIV testing to city residents and clinic patients when COVID-19 restricted in-person clinic services. From April to October 2020, monthly online IWantTheKit orders increased by 645%. A high prevalence of chlamydia and gonorrhea was detected, and 96% of users who tested positive for chlamydia and gonorrhea were successfully contacted for treatment. Uptake by Baltimore City Health Department priority populations and excellent treatment linkage demonstrated how a public health–academic partnership successfully addressed a service gap during the pandemic. (*Am J Public Health*. 2022;112(7):985–989. <https://doi.org/10.2105/AJPH.2022.306835>)

**R**ates of most reportable sexually transmitted infections (STIs) rose in 2019 for the sixth consecutive year. At the onset of the COVID-19 pandemic, sexual health services faced reduced capacity owing to social-distancing restrictions and redeployment to COVID-19 efforts. A public health–academic partnership was formed between the Baltimore City Health Department (Baltimore, MD) and IWantTheKit (IWTK), a Johns Hopkins University online public health program, to expand availability of at-home testing for chlamydia, gonorrhea, and HIV during the COVID-19 pandemic.

## INTERVENTION AND IMPLEMENTATION

In response to limited in-person visits at the Baltimore City Health Department (BCHD) sexual health clinics in Maryland during the COVID-19 pandemic, BCHD

launched telemedicine protocols, developed promotional material, used electronic result reporting, and referred sexual health clinic patients to IWTK for STI (i.e., chlamydia, gonorrhea, and HIV) testing (Figure A, available as a supplement to the online version of this article at <http://www.ajph.org>). IWTK, an online public health program founded in 2004, provides free and confidential mail-in STI testing to residents of Maryland, Alaska, and Arizona.<sup>1,2</sup> Users order kits online, mail home-collected specimens for chlamydia and gonorrhea testing, and obtain results on the IWTK Web site, which are also sent to the user's preselected clinic for treatment, if positive. The home collection testing kit consisted of (1) swabs (based on user request) for collection of penile or vaginal, rectal, or oropharyngeal specimens for detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae*; (2) instructions for self-collection of specimens; and (3) a

preaddressed, postage-paid mailer to return specimens to the laboratory. The HIV home-testing kit included the US Food and Drug Administration–approved OraQuick kit (Orasure Technologies, Bethlehem, PA), instructions for use, information on posttest counseling, and resources for linkage to HIV prevention and treatment services at BCHD sexual health clinics and throughout Maryland. Testing for *C. trachomatis* and *N. gonorrhoeae* was performed using the Food and Drug Administration–cleared Aptima Combo 2 *C. trachomatis* and *N. gonorrhoeae* assays (Hologic, San Diego, CA) in a laboratory at Johns Hopkins University, which was certified by Clinical Laboratory Improvement Amendments and the College of American Pathologists.

## PLACE, TIME, AND PERSONS

In this report, we focus on IWTK users with Baltimore City zip codes and the

subset of IWTK users who preselected BCHD sexual health clinics for treatment. The 2 BCHD sexual health clinics typically serve a predominantly Black, male, heterosexual population younger than 35 years. Before the COVID-19 pandemic began, the clinics offered walk-in testing and treatment of STIs, HIV, and hepatitis C, as well as HIV preexposure prophylaxis. In March 2020, in-person visits were limited to appointment-only management of syphilis, newly diagnosed HIV, and urgent HIV primary care issues; all other interactions were via telehealth. BCHD promoted IWTK testing to sexual health clinic clients with information provided over the telephone and broadly to city residents via BCHD's social media program. We defined data collected from April through October 2020 as during COVID-19 and data collected from September 2019 through March 2020 as before COVID-19. We compared these 2 data sets.

## PURPOSE

Rates of STIs are rising steeply in the United States. In 2019, the Centers for Disease Control and Prevention (CDC) reported 1.8 million cases of *C. trachomatis* and 616 392 cases of *N. gonorrhoeae*.<sup>3</sup> Early in the COVID-19 pandemic, many sexual health clinics were limited, as the public health workforce was redeployed to assist with the COVID-19 response.<sup>4,5</sup> This reduction in service reduced opportunities for STI or HIV testing, diagnosis, and partner services. To fill this gap, innovative STI and HIV testing approaches that did not require in-person visits were necessary. Ordering home collection kits online is a convenient, private, safe, and cost-effective approach to STI testing<sup>6</sup>; minimizes COVID-19 exposure; and was recommended by the CDC during the

pandemic.<sup>7</sup> Besides IWTK, other programs provide online ordering for STI testing using home-collected samples<sup>2,8</sup>; these offerings expanded during the pandemic.<sup>9-11</sup>

## EVALUATION AND ADVERSE EFFECTS

During the analysis period, Baltimore City residents placed 1670 IWTK orders; users' demographic details are presented in Table 1. Before COVID-19, Baltimore residents requested an average of 29.7 STI testing kits per month, increasing to 221.3 ( $P < .001$ ) during COVID-19 (Figure B, available as a supplement to the online version of this article at <http://www.ajph.org>). Overall, there was a 645% increase in the monthly average of IWTK testing kits requested during compared with before COVID-19. Average monthly HIV test kit orders increased from 22.6 before COVID-19 to 146.3 during COVID-19 (Welch test;  $P < .001$ ). BCHD's staff and Web site referred 75% of the users to IWTK; friends or partners, social media, and other providers or student health centers referred the remaining users. During COVID-19, Black- and male-identifying users increased significantly, along with users younger than 17 years and aged 55 years or older (Table 1). Overall, 67.2% (131/195) and 62.0% (915/1475) of users returned testing kits before and during COVID-19, respectively. These figures are consistent with the historical return rates for IWTK.<sup>1</sup>

During COVID-19, IWTK performed 1326 *C. trachomatis* and *N. gonorrhoeae* tests from Baltimore City residents. Of these, 2.3% and 5.8% were positive for *C. trachomatis* and *N. gonorrhoeae*, respectively, representing an increased positivity rate during compared with

before COVID-19 (Table 2). During COVID-19, rectal samples had the highest combined positivity rate for *C. trachomatis* and *N. gonorrhoeae* (12.4%), followed by genital (8.0%) and oropharyngeal samples (3.2%).

We reviewed BCHD's electronic medical records for documentation of treatment linkage for the subset of IWTK users who preselected BCHD sexual health clinics as their treatment clinic (BCHD-IWTK users; Table A, available as a supplement to the online version of this article at <http://www.ajph.org>). Before COVID-19 compared with during COVID-19, Black- and male-identifying BCHD-IWTK users increased. Treatment of *C. trachomatis*- or *N. gonorrhoeae*-positive BCHD-IWTK users increased from 75% (6/8) before COVID-19 to 96% (98/102) during COVID-19; 87% (85/98) were managed via telemedicine, 9% (9/98) reported they had received treatment elsewhere, and 4% (4/98) received treatment in person at the BCHD sexual health clinics (data not shown). Such improvements resulted from streamlining referral for testing and treatment verification processes.

This evaluation has several limitations. IWTK did not collect gender of sex partners and Hispanic ethnicity data during the analysis period. To provide the lowest barrier service, IWTK did not collect symptom data; we were unable to measure the effect of symptoms on IWTK use. We were unable to verify the proportion of *C. trachomatis*- or *N. gonorrhoeae*-positive users prescribed antibiotics who collected and completed their medication or whether user-initiated partner notification took place following a positive IWTK *C. trachomatis* or *N. gonorrhoeae* result. The reduction of clinic staff during COVID-19 prevented the recording of the total number of patients BCHD referred to IWTK; therefore, we

**TABLE 1— Demographics of IWantTheKit Users Requesting CT/NG and HIV Testing Kits: Baltimore, MD, September 2019–March 2020 and April 2020–October 2020**

Characteristic	Group A: All Users (n = 1670)		Group B: Users Ordering CT/NG Kits Only <sup>a</sup> (n = 627)		Group C: Users Ordering CT/NG and HIV Testing Kits <sup>a</sup> (n = 1043)	
	Pre-COVID-19 <sup>b</sup> (n = 195), No. (%)	During COVID-19 <sup>b</sup> (n = 1475), No. (%)	Pre-COVID-19 (n = 125), No. (%)	During COVID-19 <sup>c</sup> (n = 502), No. (%)	Pre-COVID-19 <sup>d</sup> (n = 70), No. (%)	During COVID-19 (n = 973), No. (%)
<b>Age, y</b>						
≤ 17	0	10 (0.7)	0	10 (2.0)	0	0
18–24	66 (33.8)	440 (29.8)	35 (28.0)	151 (30.1)	31 (44.3)	289 (29.7)
25–34	91 (46.7)	724 (49.1)	62 (49.6)	237 (47.2)	29 (41.4)	487 (50.1)
35–44	29 (14.9)	186 (12.6)	22 (17.6)	61 (12.2)	7 (10.0)	125 (12.8)
45–54	9 (4.6)	66 (4.5)	6 (4.8)	23 (4.6)	3 (4.3)	43 (4.4)
≥ 55	0	49 (3.3)	0	20 (4.0)	0	29 (3.0)
<i>P</i> <sup>e</sup>	.039		.051		.11	
<b>Gender identity</b>						
Female	108 (55.4)	625 (42.4)	60 (48.0)	199 (39.6)	48 (68.6)	426 (43.8)
Male	85 (43.6)	815 (55.3)	63 (50.4)	293 (58.4)	22 (31.4)	522 (53.6)
Other	2 (1.0)	35 (2.4)	2 (1.6)	10 (2.0)	0	25 (2.6)
<i>P</i>	.002		.26		< .001	
<b>Race</b>						
Alaska Native/Native American	0	9 (0.6)	0	1 (0.2)	0	8 (0.8)
Asian/Pacific Islander	17 (8.7)	52 (3.5)	10 (8.0)	13 (2.6)	7 (10.0)	39 (4.0)
Black	72 (36.9)	1036 (70.2)	47 (37.6)	356 (70.9)	25 (35.7)	680 (69.9)
Multiracial	20 (10.3)	91 (6.2)	13 (10.4)	26 (5.2)	7 (10.0)	65 (6.7)
White	78 (40.0)	232 (15.7)	50 (40.0)	85 (16.9)	28 (40.0)	147 (15.1)
Unknown	8 (4.1)	55 (3.7)	5 (4.0)	21 (4.2)	3 (4.3)	34 (3.5)
<i>P</i>	< .001		< .001		< .001	

Note. CT = *Chlamydia trachomatis*; NG = *Neisseria gonorrhoeae*. We performed the Fisher exact test for all comparisons. We performed all statistical analyses using Stata/IC version 15 (StataCorp, College Station, TX).

<sup>a</sup>Users could order swabs only, HIV test only, or a combination.

<sup>b</sup>Before COVID-19 = September 2019–March 2020; during COVID-19 = April–October 2020.

<sup>c</sup>One user ordering sexually transmitted infections kits only during COVID-19 had missing age and race information.

<sup>d</sup>HIV test kits became available in January 2020, before COVID-19.

<sup>e</sup>The category of ≤ 17 y in group C was not included in the comparison because of zero count.

were unable to examine the cascade from referral to successful ordering. Additionally, the proportion of individuals who requested HIV home-testing kits who performed the test, positivity rate, or whether they sought linkage to care was unknown. Further research is needed on cost effectiveness and reasons kits go unreturned to mitigate cost and missed testing opportunities. Lastly, syphilis testing was not provided during

the analysis period; laboratory-based validations are ongoing to establish this.

### SUSTAINABILITY

The CDC’s Ending the HIV Epidemic initiative<sup>12</sup> funded the development of the IWTK–BCHD partnership in 2019 to increase access to *C. trachomatis*, *N. gonorrhoeae*, and HIV testing and continues to support its expansion.

The continued success of this partnership, however, depends on future CDC and other funding sources. Ability to bill testing costs to insurance or Medicaid would support sustainability of this public health program. The BCHD sexual health clinic IWTK referral protocols initially catalyzed the pandemic-driven increase in IWTK orders, but the majority of the current IWTK users are from non-BCHD referrals, suggesting the

**TABLE 2— Chlamydia and Gonorrhea Tests and Positivity Rates for IWantTheKit Users, Before and During COVID-19: Baltimore, MD, September 2019–March 2020 and April 2020–October 2020**

	Genital		Rectal		Oropharyngeal <sup>a</sup>	
	Female	Male	Female	Male	Female	Male
<b>Before COVID-19<sup>b</sup></b>						
CT/NG tests, No.	60/60	29/29	17/17	17/17	50/50	27/27
CT positives, No. (%)	1 (1.7)	0 (0)	2 (11.8)	0 (0)	0 (0)	0 (0)
NG positives, No. (%)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
<b>During COVID-19<sup>b</sup></b>						
CT/NG tests, No.	320/320	422/422	89/89	209/209	117/117	169/169
CT positives, No. (%)	18 (5.6)	28 (6.6)	4 (4.5)	19 (9.1)	2 (1.7)	1 (0.6)
NG positives, No. (%)	5 (1.6)	8 (1.9)	2 (2.2)	12 (5.7)	0 (0)	6 (3.6)

Note. CT = *Chlamydia trachomatis*; NG = *Neisseria gonorrhoeae*.

<sup>a</sup>Early in the pandemic, the swab supply was extremely limited; therefore, oropharyngeal test ordering was temporarily suspended in September 2020 and restarted in April 2021.

<sup>b</sup>Before COVID-19 = September 2019–March 2020; during COVID-19 = April–October 2020.

success of promotion strategies beyond sexual health clinic users.

## PUBLIC HEALTH SIGNIFICANCE

Home collection for mail-in *C. trachomatis* and *N. gonorrhoeae* and HIV home testing, in conjunction with results management for sexual health clinic clients, provided an alternative for Baltimore City residents during COVID-19. The majority of IWTK users during COVID-19 were male, Black, and aged 24 to 35 years, demonstrating that this public health–academic partnership reached BChD’s priority populations. The successful expansion of IWTK in Baltimore supports mail-in testing as an important adjunctive tool to provide access when in-person testing is not feasible. Additional innovations in STI service delivery are required to better meet the needs of diverse populations, including readily accessible self-collection drop boxes to improve convenience and mitigate mail-based delays. At-home, mail-in testing partially filled a pandemic-imposed gap in STI

testing and promises to be part of the service landscape during and after the COVID-19 pandemic. [AJPH](#)

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## CONTRIBUTORS

J. H. Melendez collected the data and performed the analysis. J. H. Melendez and E. A. Gilliams are co-first authors. J. H. Melendez, E. A. Gilliams, and M. M. Hamill conceptualized and designed the analysis and wrote the article. E. A. Gilliams conducted the chart review. T. Yu and S. L. Williford performed data analysis and revised the article.

G. S. Armington and B. Silver coordinated data collection. A. Huebner facilitated the implementation of the public health–academic partnership initiative. A. Huebner, C. A. Gaydos, and Y. C. Manabe critically reviewed the article. C. A. Gaydos and Y. C. Manabe provided intellectual content.

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## CONFLICTS OF INTEREST

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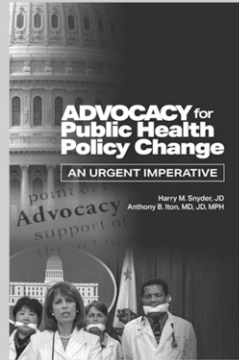
## HUMAN PARTICIPANT PROTECTION

These analyses were approved by the Johns Hopkins University institutional review board (JHU IRB00259766, JHU IRB00276721).

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