

# Acceptability of self-collecting oropharyngeal swabs for sexually transmissible infection testing among men and women

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**Abstract.** In 2016, the rate of USA gonorrhoea and chlamydia cases increased by 18.6% and 6.9% respectively. Most people infected are asymptomatic and are not treated immediately, which negatively affects sexually transmissible infection (STI)/HIV rates. Men and women were asked to provide self-collected oropharyngeal specimens for STI testing ( $n = 79$ ). Over 75% reported the collection of the swab was ‘easy’ or ‘very easy’ to use; 90% were willing to test for STIs at home in the future. Self-collecting oropharyngeal swabs for STI testing is acceptable among men and women. Future research should test the effect of self-collecting pharyngeal swabs on STI testing behaviours and results.

**Additional keywords:** chlamydia, gonorrhoea, screening, self-test.

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## Introduction

In 2016, the rate of reported USA gonorrhoea and chlamydia cases increased by 18.6% and 6.9% respectively.<sup>1,2</sup> Gonorrhoea cases have increased by 75.2% since 2009.<sup>2</sup> Most people infected with these pathogens are asymptomatic and do not always seek medical attention,<sup>2,3</sup> therefore, many individuals are untreated and this can negatively affect sexually transmissible infection (STI) and HIV rates.<sup>2,4–6</sup> Managing oropharyngeal infections is crucial to preventing drug-resistant gonorrhoea.<sup>5,7,8</sup>

While oropharyngeal screening is recommended annually for sexually active men who have sex with men (MSM)<sup>9</sup> and more often for MSM using PrEP,<sup>10</sup> some patients are improperly screened due to stigma, discomfort discussing sexual behaviours with providers, and provider knowledge and discomfort.<sup>11–13</sup> Routine screening for oropharyngeal infections is not recommended for men and women in the general population.<sup>9</sup> Self-collected swabs could circumvent barriers to STI detection; however, the US Food and Drug Administration (FDA) does not approve nucleic acid amplification tests (NAATs) for oropharyngeal screening,

requiring laboratories to validate screening tools for NAATs on oropharyngeal specimens before use. Therefore, this study explores the acceptability of self-collecting pharyngeal swabs for STI testing among men and women as part of a larger goal to validate the effectiveness of testing patient-collected swabs compared with clinician-collected swabs for gonorrhoea and chlamydia.

## Methods

Men and women aged  $\geq 18$  years who were seen for routine clinical visits at Johns Hopkins University Bartlett Speciality Clinic and the Baltimore City Health Department (BCHD) STD clinics were asked if they would provide oropharyngeal specimens for STI testing. Upon providing oral informed consent, clinicians used a Copan FLOQswab® (Copan Flock Technologies, Brescia, Italy) to collect a specimen first. Participants were then given a Copan FLOQswab kit®, instructions on how to self-collect a pharyngeal specimen and were asked to self-swab their throat and complete a brief survey. Clinicians observed participants self-collecting swabs for technique and accuracy. Volunteers were given a US\$10 gift

**Table 1. Characteristics and attitudes towards providing self-collected swabs for the detection of sexually transmissible infections (STIs, n = 69)**

	n (%)
Age (years)	
18–24	10 (14.5)
25–29	13 (18.8)
30–39	16 (23.2)
40–49	9 (13.0)
≥50	21 (30.4)
Condom use for oral sex in the past 3 months	
Always	7 (10.1)
Most of the time	21 (30.4)
Sometimes	22 (31.9)
Never	18 (26.1)
How would you rate your past STI testing experience?	
Very satisfied	18 (26.1)
Satisfied	34 (49.3)
Neutral	16 (23.2)
Not satisfied	1 (1.4)
How would you rate the ease of using the collection swab for your throat? <sup>A</sup>	
Very easy to use	23 (33.3)
Easy to use	30 (43.5)
Neutral	11 (15.9)
Hard to use	3 (4.3)
Very hard to use	1 (1.4)
How would you rate being able to understand the collection instructions? <sup>A</sup>	
Very easy to understand	36 (52.3)
Easy to understand	30 (43.5)
Neutral	2 (2.9)
Hard to understand	0 (0)
Very hard to understand	0 (0)
In the future, would you be willing to test for STIs at home using a device you could use to test yourself? <sup>A</sup>	
Yes	64 (92.8)
No	2 (2.9)
Not sure	2 (2.9)
Which type of specimen would you prefer to self-collect for STI testing?	
Penile swab	32 (46.4)
Urine	47 (68.1)
Rectal swab	9 (13.0)
Throat swab	33 (47.8)
Vaginal swab	12 (17.4)
Would you be willing to self-collect a blood sample from a finger stick for HIV and/or syphilis testing?	
Yes	63 (91.3)
No	3 (4.3)
Not sure	3 (4.3)
Would you prefer to test yourself for an STI at home, or would you prefer that a healthcare provider collect and perform your test?	
Prefer self-testing	45 (65.2)
Prefer healthcare provider	17 (24.6)
No preference	6 (8.7)
Not sure	1 (1.4)

**Table 1. (continued)**

	n (%)
Would you be willing to take a medication that could prevent you from contracting an STI such as syphilis?	
Yes	46 (66.7)
No	7 (10.1)
Maybe	11 (15.9)
Don't know	5 (7.2)

<sup>A</sup>Due to missing responses, some totals are less than 69.

card. Both specimens were tested at Johns Hopkins University International STD Research Laboratory. Gonorrhoea and chlamydia tests were performed on the Hologic Panther System® (Hologic, Inc., Marlborough, MA, USA) using the Hologic Aptima Combo 2 Assay® (Hologic, Inc., Marlborough, MA, USA). Study procedures and research ethics were approved by the Johns Hopkins School of Medicine’s Institutional Review Board and the BCHD.

**Results**

Seventy-nine men and women provided self-collected oropharyngeal swabs. Two (2.5%) were positive for gonorrhoea; one was positive for chlamydia. Results from self-collected and clinician-collected swabs were 100% congruent. Sixty-nine participants provided survey responses (87.3% response rate). A total of 14.5% of respondents were aged 18–24 years, 18.8% were aged 25–29 years, 23.2% were aged 30–39 years and 30.4% were aged ≥50 years. Eighteen (26.1%) reported never using condoms for oral sex in the past 3 months. Over 75% of respondents reported collection of the swab was ‘easy to use’ or ‘very easy to use’. More than half (52.3%) reported that the collection instructions were very easy to understand and ~65% noted that they preferred self-testing for STIs at home (Table 1).

**Discussion**

Most men and women reported inconsistent condom use for oral sex and rated self-collecting throat swabs as ‘easy’ or ‘very easy’ to use. Most also indicated their willingness to self-screen for STIs at home. Self-collecting oropharyngeal swabs for STI testing is acceptable among men and women. Other studies have found similar results.<sup>14,15</sup> Additionally, self-collected swabs are as accurate as clinician-collected swabs. Providing patients with self-collection pharyngeal swabs could increase screening for asymptomatic individuals, test more people who are reluctant to visit a clinic and reduce healthcare costs.<sup>14,16</sup> Some programs use self-sampling kits for STI testing through mail-in collection kits.<sup>17–19</sup> Future research should explore sexual practices with male, female and transgender partners, and test the relative effect of self-collecting pharyngeal swabs on STI testing behaviours and results among men and women.

**Conflicts of interest**

The authors declare that they have no conflicts of interest.

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