

Original Paper

# Factors Associated With Intention to Use Internet-Based Testing for Sexually Transmitted Infections Among Men Who Have Sex With Men

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## Abstract

**Background:** Internet-based testing programs are being increasingly used to reduce testing barriers for individuals at higher risk of infection, yet the population impact and potential for exacerbation of existing health inequities of these programs are not well understood.

**Objective:** We used a large online sample of men who have sex with men (MSM) in Canada to measure acceptability of Internet-based testing and perceived advantages and disadvantages of this testing approach.

**Methods:** We asked participants of the 2011/2012 Sex Now Survey (a serial online survey of gay and bisexual men in Canada) whether they intended to use Internet-based testing and their perceived benefits and disadvantages of use. We examined whether intention to use was associated with explanatory variables spanning (A) sociodemographics, (B) Internet and technology usage, (C) sexually transmitted infections (STI)/ human immunodeficiency virus (HIV) and risk, and (D) health care access and testing, using multivariable logistic regression (variable selection using Bayesian information criterion).

**Results:** Overall, intention to use was high (5678/7938, 71.53%) among participants with little variation by participant characteristics. In our final model, we retained the variables related to (B) Internet and technology usage: use of Internet to cruise for sex partners (adjusted odds ratio [AOR] 1.46, 95% CI 1.25-1.70), use of Internet to search for sexual health information (AOR 1.36, 95% CI 1.23-1.51), and mobile phone usage (AOR 1.19, 95% CI 1.13-1.24). We also retained the variables for (D) health care access and testing: not “out” to primary care provider (AOR 1.24, 95% CI 1.10-1.41), delayed/avoided testing due to privacy concerns (AOR 1.77, 95% CI 1.49-2.11), and delayed/avoided testing due to access issues (AOR 1.65, 95% CI 1.40-1.95). Finally, we retained the variable being HIV positive (AOR 0.56, 95% CI 0.46-0.68) or HIV status unknown (AOR 0.89, 95% CI 0.77-1.01), age <30 years (AOR 1.41, 95% CI 1.22-1.62), and identifying as bisexual (AOR 1.18, 95% CI 1.04-1.34) or straight/other (AOR 0.67, 95% CI 0.50-0.90). The greatest perceived benefits of Internet-based testing were privacy (2249/8388, 26.81%), general convenience (1701/8388, 20.28%), and being able to test at any time (1048/8388, 12.49%). The greatest perceived drawbacks

were the inability to see a doctor or nurse (1507/8388, 17.97%), wanting to talk to someone about results (1430/8388, 17.97%), not wanting online results (1084/8388, 12.92%), and low trust (973/8388, 11.60%).

**Conclusions:** The high and wide-ranging intention to use that we observed suggests Internet-based testing has the potential to reach into all subgroups of MSM and may be particularly appealing to those facing current barriers to accessing STI/HIV testing and who are more comfortable with technology. These findings will be used to inform the promotion and further evaluation of an Internet-based testing program currently under development in British Columbia, Canada.

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## KEYWORDS

homosexuality; male; Internet; testing; human immunodeficiency virus; sexually transmitted infection; health equity; patient acceptance of health care

## Introduction

Public health agencies are increasingly turning to the Internet for the delivery of sexual health services in order to reduce barriers to access and reach people at heightened risk of sexually transmitted infections (STI) [1-3]. Internet-based testing reflects a recent and fundamental shift in delivery of testing services, from provider-mediated to patient-centered testing [4-6], with the aim of reducing barriers to accessing traditional testing services (such as needing to travel to a clinic or waiting for an appointment, or privacy and confidentiality concerns). Internet-based testing programs typically involve requesting a home self-collection kit or downloading a test requisition and presenting it to a specimen collection site, then receiving results online or by phone. The scope of public programs varies widely, from state or country-wide programs for chlamydia screening [7-9], to more local programs that offer one or more STI/human immunodeficiency virus (HIV) tests and may be targeted to a specific population such as gay, bisexual, and other men who have sex with men (MSM) [10,11].

The evidence of the impact of Internet-based testing programs is beginning to accumulate, primarily for population-based chlamydia screening programs [8,12,13]. However, substantial knowledge gaps remain regarding the impact of these services at a population level, such as the reach and diffusion of programs within populations at higher risk for STI/HIV [14]. An important concern with the introduction of new health technologies is that uptake may be concentrated among individuals who already have good access to health services (often correlated with socioeconomic status) and not among individuals who need it most [15,16]. For example, if the uptake of Internet testing programs is highest among individuals who already have adequate access to testing, these programs may run the risk of reinforcing rather than reducing health inequities if not accessed by individuals currently facing barriers to testing. The alluring promise of, but widespread lack of delivery by, online technologies to expand health and health access to larger portions of the population, particularly the more marginalized, is a topic of concern [17-21]. This concept applies not just to, but within, marginalized populations such as MSM where both sexual risk, disease prevalence, and appropriate access to health care are unevenly distributed [22].

Internet-based interventions are widely recognized as a valuable tool for promoting sexual health among MSM [23]. MSM have a high burden of STIs and HIV in Canada, as well as in most

industrialized countries. MSM comprise approximately 50% of all incident HIV and prevalent infections in Canada [24] with high rates of other STIs including ongoing syphilis outbreaks in several provinces and countries with comparable STI epidemiology [25]. MSM are also likely to turn to the Internet to look for sexual health information or support, and finding sex partners through sex-seeking websites is widespread, including by men at greater sexual risk of infection [23,26]. Studies of Internet-based testing programs have demonstrated that significant numbers of MSM use these services [16,18]. However, few studies assessing the reach or broader acceptability of Internet-based testing among MSM have been published [4]. Studies have examined the willingness of MSM to access anonymous home HIV testing as part of online research [27] and the acceptability of other online interventions such as partner notification [28-31]; overall, acceptability is high with small but significant differences across subgroups. Factors associated with acceptability or uptake of Internet-based sexual health services (in males, MSM or youth) include income [32], age [31,32], ethnicity [27,31], education [31], substance use [32,33], HIV status [27,29,33], prior STI [29,33], risk sex [27,31,33-35], perceived risk of HIV [34], and health seeking behavior [36]. Men living in rural areas may be more likely to find sex partners online and be willing to participate in online interventions [36-38]. There is little discussion of potential harms of online sexual health interventions in general or for MSM in particular. The main concerns relate to their inaccessibility by people with no or limited Internet access (the so-called “first-level” digital divide) or by people who have less facility with using the Internet (the “second-level” digital divide) [39]. Recently, Rosser et al emphasized the importance of considering how different age groups of MSM approach technology and use the Internet in the design of Internet-based sexual health services [40]; however, the impact of technology use on acceptability of online services is largely unknown.

The British Columbia (BC) Centre for Disease Control is developing a program, GetCheckedOnline, for Internet-based testing for STIs and HIV and is planning a targeted promotion of the service to MSM in the Vancouver area. The program has been developed through focus groups with MSM and youth who have indicated high acceptability of the service [41,42] and if successful, the intent is to expand the program on a broader geographic scale. The primary objective of this study was to assess the acceptability of Internet-based testing in a national sample of MSM (based on intention to use) and

associated characteristics. In so doing, we aimed to assess acceptability and potential reach of Internet-based testing among MSM with varying sociodemographic characteristics, with greater reported risk of infection for STI and HIV, and facing existing barriers to testing access. A secondary objective of the study was to describe the perceived advantages and disadvantages of Internet-based testing. By identifying factors associated with intention to use and perceptions of Internet-based testing prior to implementation of the program, we will then be better positioned to further refine the service, target its promotion to particular subgroups, and develop strategies to promote acceptance and adoption of the service [43].

## Methods

### Survey

Sex Now is a national online survey of gay and bisexual men, administered every 12–18 months in Canada [44]. Sex Now content is developed iteratively by a panel of gay men's health researchers, with the aim of responding to evolving needs of the community. Face validity of the questionnaire is ensured through focus groups, interviews, and pilot testing by local gay men. Standard survey domains include relationships, sexual styles, sexual behaviors, sexual health, anti-gay or discriminatory experiences (especially in workplace), substance use, sexual health knowledge, Internet experience, health care access, community participation, mental health issues, and sociodemographics. Questions are available in both French and English.

Participants from the 2011–12 cycle were recruited through dating/sex-seeking websites (6356/8388, 75.8%), gay/bisexual community-based organizations (833/8388, 10.0%), and word-of-mouth (729/8388, 8.7%). The survey is described as a survey of “sex between men” and relies on self-selection. Responses were collected from August 26, 2011, to February 21, 2012. To limit multiple entries, submissions were restricted to one response per Internet Protocol address, and data were rigorously examined to screen out multiple or suspect submissions.

A subset of questions relevant to the BC Internet-based STI/HIV testing model were added to the 2011–12 questionnaire for the purposes of the present study. The following question domains were added: barriers to clinic-based testing; acceptability of Internet-based testing; perceived benefits, risks, and barriers of Internet-testing; and potential factors influencing uptake of Internet-based testing including privacy concerns, use of health services, and use of technology. We used the concept of intention or willingness to use the technology, which is an established metric for measuring acceptance of technology and considered predictive of actual use in theoretical models of technology acceptance [43,45]. As we were also interested in informing strategies for acceptance and adoption, we considered diffusions of innovations theory [46,47] and use of online/mobile technologies to potentially be important predictors of intention to use Internet-based testing among MSM, based on evidence emerging from recent analyses of online sex-seeking behavior [40]. Due to a lack of established metrics to measure these latter

concepts, we constructed questions that were validated through the process described above. For all variable definitions, see [Multimedia Appendix 1](#).

### Measures

The primary outcome of interest was intention to use Internet-based STI/HIV testing, measured through a 5-point Likert scale response to the following question: “Suppose you could get tested by printing out an order form from a website that you could take to a lab, then get your results online. How likely is it that you would use this service? [Very likely, likely, unlikely, very unlikely, would never use this service; with ‘not applicable’ option]”. Participants were also asked to identify a single greatest perceived benefit and drawback of the aforementioned service from a pre-determined list. Response options were determined based on expert knowledge of local STI clinical services and literature describing other Internet-based STI testing models.

### Analysis

The sample was restricted to participants residing in Canada (8388/8497, 98.72%), of which 94.64% (7938/8388) completed the question on intention to use Internet-based testing. All respondents were male. Thirty-eight explanatory variables were selected from the questionnaire *a priori* based on the literature review described above and were grouped into four broad groups of interest: (A) sociodemographics (14 variables), (B) Internet and technology usage (6 variables), (C) STI/HIV and risk (8 variables), and (D) health care access and testing (10 variables).

To achieve the primary objective of identifying characteristics correlated with intention to use Internet-based STI/HIV testing, we first explored the distribution of responses (5-point Likert scale) across all 38 explanatory variables. Logistic regression was then used to model associations between all explanatory variables and this outcome (dichotomized: very likely/likely versus unlikely/very unlikely/never; those who chose “not applicable” were excluded). A full multivariable model was fit with all 38 explanatory variables, and a final model was selected using Bayesian information criterion (BIC), which is comparable to Akaike information criterion (AIC) but imposes stricter penalties for inclusion of additional explanatory variables (ie, generates a more parsimonious model) [48]. Correlation between explanatory variables was examined, and the covariate considered most relevant to the research question was included in multivariable models for highly collinear sets.

Age groups (less than 30 years, 30 years of age and older) and sexual orientation (gay, bisexual) were identified *a priori* as subgroups of interest and hence were included in all multivariable models. We hypothesized that other explanatory variables would differ across these subgroups and explored statistical interactions between explanatory variables and age and sexual orientation. Each variable was entered into two bivariable models, including age and sexual orientation respectively. First-level multiplicative interaction terms were added, and interaction terms that were statistically significant at  $P < .10$  were carried forward in analysis. Stepwise regression was used to select interaction terms for inclusion in the full

multivariable model, such that all remaining interaction terms were significant at  $P < .15$  [49].

To achieve the secondary objective, perceived benefits and drawbacks of the service were summarized using descriptive statistics for the total sample, and among men who delayed or avoided STI or HIV testing in the past 12 months (STI testing only if HIV positive).

All analysis was completed using R version 2.15.2. BIC model selection was performed using the stepAIC function in MASS package version 7.3-22 [50].

### Ethics Approval

The survey protocol was approved by the independent Research Ethics Board of the Community-Based Research Centre and also by the Behavioural Research Ethics Board at the University of British Columbia.

## Results

### Summary of Sample

Characteristics of the sample are shown in [Multimedia Appendix 2](#). The average age was 43 years (range 13–84 years), and 64.50% (5410/8388) self-identified as gay and 32.42% (2719/8388) as bisexual. Further, 57.13% (4792/8388) had completed a college or university degree, and 71.46% (5994/8388) reported annual incomes  $\geq$  Canadian \$30K. The sample was predominantly urban (4897/8388, 58.38%), though a significant proportion resided in suburban (2214/8388, 26.39%) or rural/remote (1245/8388, 14.84%) settings. Respondents included residents of all ten Canadian provinces and all three territories, with the distribution generally representative of total regional populations with the exception of British Columbia (greater proportion) and Quebec (smaller proportion) [51]. Respondents represent 71.61% (1173/1638) of the forward sortation areas (first three characters of the postal code) of Canada [52]. Most men reported being “out” about their sexuality generally (5295/8388, 63.13%), but fewer were out at work (3881/8388, 46.27%), and fewer still spent most of their free time with other gay men (1867/8388, 22.26%).

### Intention to Use Internet-Based STI/HIV Testing

Of the total sample, 71.53% (5678/7938) indicated that they were likely (2422/7938, 30.51%) or very likely (3256/7938, 41.02%) to use Internet-based STI/HIV testing. Across the full 5-point response scale, intention to use Internet-based testing was right-skewed towards very likely to use, with little variation across subgroups (data not shown). Dichotomized intention to use Internet-based testing was similarly high across nearly all covariates examined, generally ranging 67–77%, with few exceptions: Latino men (88/109, 80.7%), very early purchasers of new technology (270/338, 79.9%), those not at all satisfied with health care services (290/361, 80.3%), and those who

delayed or avoided testing in the past 12 months for privacy concerns (944/1128, 83.69%), access issues (1021/1225, 83.35%), or distance from clinic (357/429, 83.2%) (see [Multimedia Appendix 2](#)). Intention to use Internet-based testing was lower than 67% in only two subgroups: HIV-positive men (263/476, 55.3%) and regular users of party drugs (105/159, 66.0%).

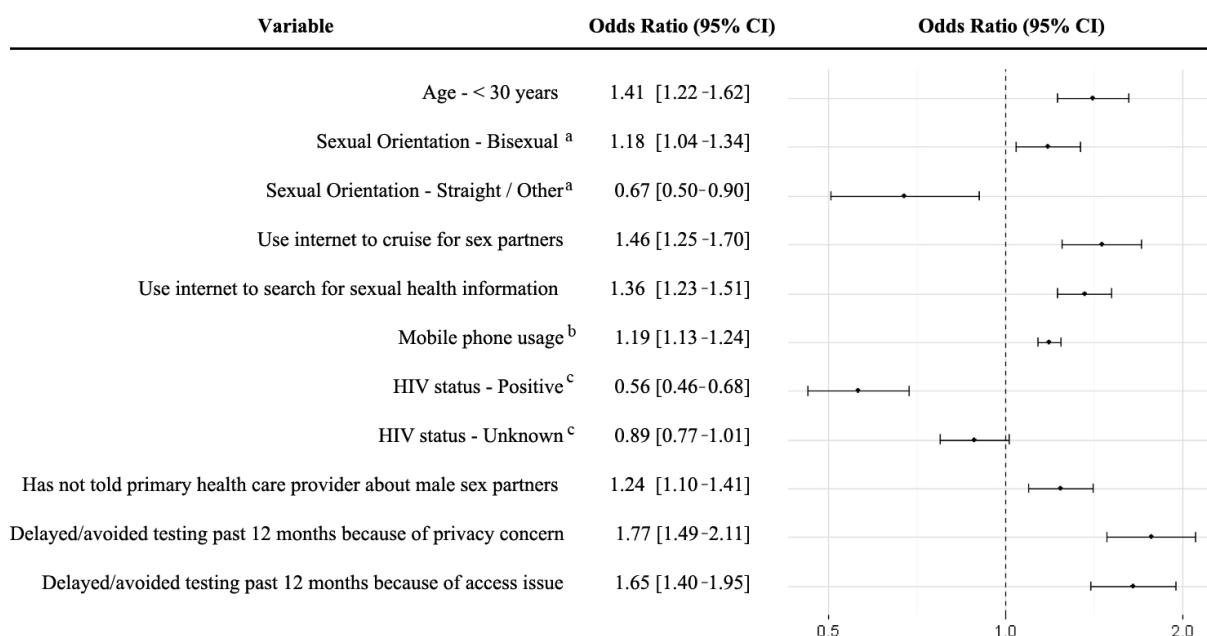
Crude and adjusted odds ratios (AOR) are shown in [Multimedia Appendix 2](#). In the full model, the following explanatory variables retained statistical ( $P < .05$ ) associations with greater intention to use Internet-based testing: group A (3/14 variables), age  $< 30$  years, eastern provinces, less “out” about sexuality at work; group B (4/6 variables), use of Internet to cruise for sex partners, use of Internet to search for sexual health information, greater mobile phone usage, and early uptake of new technology; group C (2/8 variables), unprotected anal intercourse with unknown/discordant HIV status partner, and HIV negative status; group D (4/10 variables), last medical appointment  $> 6$  months ago or never, poorer satisfaction with health care services available, delayed/avoided testing because of privacy concern, and delayed/avoided testing because of access issue. Four interaction terms with age and nine with sexual orientation were included in the full multivariable model, as shown in [Multimedia Appendix 3](#).

The final model, as selected by BIC, is shown in [Figure 1](#). Notably, of the nine variables positively associated with greater intention to use Internet-based testing in the final BIC model, three correspond to group B, Internet and technology usage: use Internet to cruise for sex partners (AOR 1.46, 95% CI 1.25–1.70), use Internet to search for sexual health information (AOR 1.36, 95% CI 1.23–1.51), and mobile phone usage (AOR 1.19, 95% CI 1.13–1.24). Three variables corresponded to group D, health care access: not “out” to primary health care provider (AOR 1.24, 95% CI 1.10–1.41), delayed/avoided testing due to privacy concerns (AOR 1.77, 95% CI 1.49–2.11), and delayed/avoided testing due to access issues (AOR 1.65, 95% CI 1.40–1.95). No interaction terms were selected into the final BIC model.

### Perceived Benefits and Drawbacks of Service

The most frequent perceived benefits of the BC Internet-based STI/HIV testing program were greater privacy (2249/8388, 26.81%), convenience in general (1701/8388, 20.28%) and specifically, ability to get tested whenever (1048/8388, 12.49%). The greatest perceived drawbacks were the inability to see a doctor or nurse (1507/8388, 17.97%), wanting to talk to someone about results (1430/8388, 17.05%), not wanting results online (1084/8388, 12.92%), and low trust in the service generally (973/8388, 11.60%). The particular benefits and drawbacks perceived by survey respondents showed very little variation in sensitivity analyses (see [Tables 1](#) and [2](#)).

**Figure 1.** Correlates of intention to use Internet-based sexually transmitted infection testing selected by Bayesian Information Criterion in a survey sample of Canadian gay and bisexual men (N=7938). <sup>a</sup>Referent group Sexual Orientation - Gay; <sup>b</sup>Mobile phone usage measured on 3-point continuous scale; <sup>c</sup>Referent group HIV status - negative.



**Table 1.** Greatest perceived benefit to Internet-based STI and HIV testing among the survey sample of Canadian gay and bisexual men.

Benefit <sup>a</sup>	Total (N=8388)	Among those who intend to use service (n=5678)	Among those delaying/avoiding testing <sup>b</sup> (n=4947)
	n (%)	n (%)	n (%)
Greater privacy	2249 (26.81)	1834 (32.30)	1551 (31.35)
Convenient	1701 (20.28)	1340 (23.60)	920 (18.60)
Get tested whenever	1048 (12.49)	755 (13.30)	596 (12.05)
No nurse/doctor	823 (9.81)	669 (11.78)	553 (11.18)
Save time	618 (7.37)	484 (8.52)	323 (6.53)
No waiting for app't	448 (5.34)	301 (5.30)	249 (5.03)
No worry about running into someone you know	245 (2.92)	166 (2.92)	185 (3.74)
Other <sup>c</sup>	56 (0.67)	18 (0.32)	36 (0.73)
No particular benefit	1200 (14.31)	111 (1.95)	534 (10.79)

<sup>a</sup>Respondents were asked to choose one *greatest* benefit.

<sup>b</sup>Defined as those who reported no STI test in the last 12 months, OR any delay in testing in the last 12 months (for HIV-positive respondents); or no STI test AND no HIV test in the last 12 months, OR any delay in testing in the last 12 months (for HIV-negative/unknown status respondents).

<sup>c</sup>Not specified.

**Table 2.** Greatest perceived drawback to Internet-based STI and HIV testing among the survey sample of Canadian gay and bisexual men.

Drawback <sup>a</sup>	Total (N=8388)	Among those who do not intend to use service (n=2260)	Among those delaying/avoiding testing <sup>b</sup> (n=4947)
	n (%)	n (%)	n (%)
Wouldn't see doctor/nurse	1507 (17.97)	451 (19.96)	735 (14.86)
Want to talk to someone about results	1430 (17.05)	384 (16.99)	799 (16.15)
Don't want results online	1084 (12.92)	407 (18.01)	652 (13.18)
Low trust in service	973 (11.60)	340 (15.04)	590 (11.93)
No printer	169 (2.01)	43 (1.90)	118 (2.39)
Other <sup>c</sup>	159 (1.90)	67 (2.96)	100 (2.02)
No particular drawback	3066 (36.55)	568 (25.13)	1953 (39.48)

<sup>a</sup>Respondents were asked to choose one greatest drawback.

<sup>b</sup>Defined as those who reported no STI test in the last 12 months, OR any delay in testing in the last 12 months (for HIV-positive respondents); or no STI test AND no HIV test in the last 12 months, OR any delay in testing in the last 12 months (for HIV-negative/unknown status respondents).

<sup>c</sup>Not specified.

## Discussion

### Principal Findings

Overall, we found that intention to use Internet-based testing for HIV and STI is high (5678/7938, 71.53%) and wide-ranging within this large online sample of gay and bisexual men in Canada, with little variation by participant characteristics. Our study suggests that Internet-based testing has the potential to reach nearly all subgroups of gay and bisexual men, including men at risk of STIs and HIV (as intention was 74.46% [1770/2377] among men reporting unprotected anal intercourse with an unknown or serodiscordant partner, and 73.70% [283/384] among men reporting an STI or hepatitis C diagnosis, in the past year) and facing current barriers to accessing testing (72.90% [2930/4019] among men not tested for HIV in the past year, and 83.2% [357/429] to 83.69% [944/1128] among men reporting delaying or avoiding testing in the past year because of privacy concerns, access issues, or distance to testing services).

On multivariable analysis, men who reported current barriers to accessing appropriate health care and STI/HIV testing were more likely to intend to use Internet-based testing (3/10 variables retained in the final model). In our sample, a large proportion of participants (4217/8388, 50.27%) reported not having disclosed to their primary health care provider that they were sexually active with men. Not being “out” to a primary care provider has been associated with undiagnosed HIV infection and less frequent rates of HIV testing [53,54]; we found greater intention to use Internet-based testing in this group, which may help to bridge this gap. Intent to use Internet-based testing was also more likely among the small but important proportion of participants in our sample who reported delaying or avoiding testing in the past 12 months because of privacy concerns (1140/8388, 13.59%) or because of access issues such as not knowing where to get a test or needing to wait for an appointment (1243/8388, 14.82%).

Men who identified as HIV positive (667/8388, 7.95% of our sample) demonstrated less intention to use Internet-based testing,

which we postulate is related to adequate STI testing access through routine care, which confirms previous qualitative findings from our group [41], or a greater appeal of Internet-based testing for HIV testing among HIV negative men. However, men whose HIV status was unknown (1966/8388, 23.44%) also demonstrated less intention to use Internet-based testing after adjustment for other characteristics, which is concerning as this is a population of MSM who are not currently engaged in HIV testing. Unlike other studies, we did not observe an association with behavioral measures such as sexual risk or substance use, after adjusting for covariates [27,29,31,33,34,36]. Encouragingly, we did not find that sociodemographic variables such as ethnicity, income, education, and residence were influential on intention to use Internet-based testing, which differs from previously published studies in this field [27,31,32,37,38,40]. Within this large online sample of gay and bisexual men, Internet-based testing programs such as GetCheckedOnline may not exacerbate existing health inequities along these sociodemographic lines.

One reason for these differences may be that the characteristics of MSM that we considered allowed for better explanation of the variability in intention to use Internet-based testing. In addition to variables related to facing current barriers to access appropriate health care, we found variables related to Internet and technology use were most influential in our final model (3/6 retained): use of the Internet to cruise for sex partners or to search for health information, and mobile phone usage. Internet sex-seeking has long been a primary motivation for developing Internet-based sexual health interventions [55]; that a majority of MSM look for sex partners online underscores the importance of the Internet as a health service delivery venue (7430/8388, 88.58% in our online sample and typically over 50% of MSM in venue-based samples [56]). Given that use of the Internet to search for health information and use of mobile phones for more than phone calls were also associated with intention to use, our findings suggest that ease and facility with online technologies may be an important influence on uptake of Internet-based testing (ie, the “second-level” digital divide) [39]. This appears independent of the influence of age, which

may be related to greater acceptability of online services by persons born in the era of digital technology compared to older persons [40]. While we found a consistent and significant gradient between diffusion of innovations and intention to use in our full model, this was not retained in the final model.

As hypothesized, we found that age and sexual orientation were influential on intention to use Internet-based testing and retained in the final model (greater intention among men <30 years; compared to gay men, bisexual men were more likely and straight/other men were less likely to intend to use Internet-based testing). The association with intention to use Internet-based testing varied across subgroups of men by age and sexual orientation. Notwithstanding the primary conclusion from our results—that intention to use Internet testing is high across varying subgroups of men—the statistical interactions described here suggest that where more nuanced decisions regarding service promotion and delivery are required, program planners must attend to the potentially different (sometimes opposite) intentions and needs of subgroups of gay and bisexual men, particularly those related to sexual orientation and identity.

The perceived benefits and drawbacks identified by Canadian gay and bisexual men in this study did not significantly differ in sensitivity analyses, and overall, men perceived more benefits than drawbacks: the percentages identifying no particular benefit or drawback were 14.31% (1200/8388) and 36.55% (3066/8388) respectively. The most common perceived benefits were greater privacy, convenience in general, and specifically, being able to test at any time; the most common perceived drawbacks were not seeing a doctor or nurse, not being able to talk to someone about the results, not wanting results online, or low trust in the service. These were also the most common perceived benefits and drawbacks from earlier focus groups focused on the GetCheckedOnline program model [41].

### Limitations

Our study had a number of limitations. These findings are not generalizable to all gay, bisexual, and other men who have sex with men in Canada, due to the online nature of this convenience sample, recruited primarily from sex-seeking websites.

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### Conflicts of Interest

None declared.

### Multimedia Appendix 1

Definitions of all explanatory variables.

[[PDF File \(Adobe PDF File\), 126KB - jmir\\_v15i11e254\\_app1.pdf](#) ]

## Multimedia Appendix 2

Characteristics of survey sample of Canadian gay and bisexual men and intention to use Internet-based testing by key variables, across the four domain groups (N=8388).

[[PDF File \(Adobe PDF File\), 138KB - jmir\\_v15i11e254\\_app2.pdf](#)]

## Multimedia Appendix 3

Interactions between explanatory variables with age and sexual orientation in the full model.

[[PDF File \(Adobe PDF File\), 106KB - jmir\\_v15i11e254\\_app3.pdf](#)]

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## Abbreviations

**AIC:** Akaike information criterion

**AOR:** adjusted odds ratio

**BIC:** Bayesian information criterion

**HIV:** human immunodeficiency virus

**MSM:** men who have sex with men

**STI:** sexually transmitted infection

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**Appendix 1.**

Table: Definitions of all explanatory variables

**A. Socio-demographic variables (n=14)**

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
Age	Age at time of survey, years	<30; ≥30 years	Categorical
Sexual orientation	“How do you see yourself...?”	Gay (homosexual); Bi (bisexual); Straight (heterosexual); Other (last 2 categories grouped for analysis)	Categorical
Gender of sex partners	“Sex in the last 12 months...”	No sex at all; sex with men only; sex with women only; sex with both men and women (last 2 categories grouped for analysis)	Categorical
Marital/partnership status	“Are you currently...?”	Single; married to a man; partnered with a man (preceding 2 categories grouped for analysis); married to a woman; partnered with a woman (preceding 2 categories grouped for analysis); separated, divorced from a man; separated, divorced from a woman (preceding 2 categories grouped with ‘single’ for analysis); other	Categorical
Living situation	“What is your living situation?”	Shared occupancy; sole owner/occupant; dormitory; couch surfing, home minding; no permanent address; other (last 4 categories grouped for analysis)	Categorical
Education	“What is the highest level of education that you have completed?”	Some high school; high school; some college/university (preceding 3 categories grouped for analysis); college; university; doctorate, PhD, MD, etc. (last 3 categories grouped for analysis)	Categorical
Ethnicity	“How do you describe yourself to other guys?”	African; Asian; Caribbean; Caucasian; First Nation; Inuit; Métis (preceding 3 categories grouped as ‘Aboriginal’ for analysis); Latino/Hispanic; Middle Eastern; Pacific Islander; South Asian; Mixed; Other (all ethnicities other than Caucasian, Asian, Aboriginal, and Latino grouped for analysis due to small	Categorical

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
		sample size)	
Income	“What was your income in the last year?”	Under \$10,000; \$10,000-19,000; etc. to \$99,999; \$100,000+ (categorized as <\$30K, \$30-79K, ≥\$80K for analysis)	Categorical
Province	“Where do you live?”	Listing of all 10 provinces; territories; outside Canada (territories, Saskatchewan, and Manitoba grouped for analysis; New Brunswick, Newfoundland and Labrador, Prince Edward Island, and Nova Scotia grouped as ‘Atlantic’; outside Canada excluded from analysis)	Categorical
Environment	“What best describes your environment?”	Urban; suburban; rural; remote (preceding 2 categories grouped for analysis); other (excluded from analysis)	Categorical
Stage of “coming out” about sexuality with other guys	“How old were you when you ‘came out’ about your sexuality with other guys?” [with option: “never have come out about my sexuality”]	Those who selected “never have come out about my sexuality” labelled “has never ‘come out’” for analysis	Categorical
“In general people in the area where I live are accepting of gay/bi men.”	-	Definitely agree; somewhat agree; somewhat disagree; definitely disagree	Categorical
“Out” about sexuality at work	“How ‘out’ are you about your sexuality in your work environment (main income)?”	Everyone knows; some know (preceding 2 categories grouped as ‘at least some know’ for analysis); most don’t know; no one knows (preceding 2 categories grouped as ‘at least some know’ for analysis); not applicable, not working, retired	Categorical
% of free time spent with other gay men	“How much of your free time do you usually spend hanging-out with other gay men?”	Little; 25%; 50%; 75%; most (last 3 categories grouped as ‘50% or more’ for analysis)	Categorical

### B. Internet and technology variables (n=6)

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
Use internet to...	“In the last 12 months, have you used the	Cruise for sex partners; Meet a potential boyfriend;	Categorical

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
	internet to... ?”	Search for sexual health information	
Internet usage scale	“How often do you use the following internet sites or services?”	1-point each (cumulative) for regular/daily use of: Facebook; Twitter; Skype; Wikipedia; YouTube; Netflix; iTunes; Amazon	Continuous (8-point scale)
Mobile phone usage scale	“Do you use your cell phone for any of the following?”	1-point each (cumulative) for: Texting; surf the internet; use apps to navigate, entertain, play games, etc.	Continuous (3-point scale)
Uptake of new technology	“When do you usually buy new tech products after they become available (computer games, smart phone, 3D TV, etc.)?”	Amongst the first to own; early purchaser; when I see others have it; wait for the improved version; when almost everyone else has it	Categorical

### C. Sexual risk variables (n=8)

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
Sexually active with guys other than primary partner	“What are you into at the moment?”	Not sexually active; sex with primary partner only (preceding 2 categories grouped for analysis); hooking-up; dating; sex with my primary partner plus other guys; sex buddies; group sex; other (last 6 categories grouped for analysis)	Categorical
Number of sex partners, last 12 months	“In total, how many guys have you had sex with in the last 12 months?”	Numerical response; categorized <i>a priori</i> as: 0-1; 2-5; 6-10; 11-20; ≥21	Categorical
Sex in last 12 months perceived to be risky for HIV	“In the last 12 months, have you had any sex that you thought might have risked HIV transmission?”	Yes; no; not sure	Categorical
UAI with partner of unknown/discordant HIV status, last 12 months	“How many guys whose HIV status was unknown to you have you fucked without condoms?”; “How many guys whose HIV status was unknown to you have fucked you without condoms?”; “How many guys whose HIV status	none; 1; 2-5; 6-9; 10-19; 20+ (any response 1 or greater to any of the three questions was categorized as “yes” for analysis)	Categorical

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
	was opposite yours have you fucked or have fucked you without condoms?"		
STI or HCV diagnosis, last 12 months	"Have you been diagnosed with any of the following?" [last 12 months]	Syphilis; gonorrhea; Chlamydia; herpes; genital warts; hepatitis C (HCV) (any response to these STI categorized as "yes" for analysis)	Categorical
HIV status	"What was your latest HIV test result?"	HIV-positive; HIV-negative; I've never had an HIV test (or result)	Categorical
Binge drinking	"How often do you consume more than 5 drinks in one sitting (beer, wine, and spirits)?"	Never; occasionally (preceding 2 categories grouped for analysis); some weekends; most weekends; some days and most weekends; most days (last 4 categories grouped for analysis)	Categorical
Party drug use	"How often have you used the following...?"	Cocaine; crystal; "E" ecstasy; "G" GHB; "K" ketamine (any 'regular' or 'daily' response to any one of these substances categorized as "yes" for analysis)	Categorical

#### D. Health care access variables (n=10)

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
Routine medical care location	"Where do you usually get routine medical care?"	Family physician; walk-in medical clinic; emergency center (hospital); no routine care available; other	Categorical
Last medical appointment	"When was your last medical appointment?"	Within 6 months; 6 months – 1 year; 1-2 years; over 2 years ago; I've never had a medical appointment (last 4 categories grouped for analysis)	Categorical
Satisfaction with health care services available	"How satisfied are you with the health care services available to you?"	Very satisfied; satisfied; not very satisfied; not at all satisfied	Categorical
Told primary healthcare provider about being sexually active with men	"Have you told your primary health care provider that you have sex with other men?"	Yes; no; not sure (last 2 categories grouped for analysis)	Categorical
Ever dropped a provider because of anti-gay attitude	"Have you ever dropped a care provider due to his/her attitude (homonegative, sexist, anti-gay)?"	Yes; no; not sure (last 2 categories grouped for analysis)	Categorical

<b>Variable</b>	<b>Definition / Wording in questionnaire</b>	<b>Levels / Categories</b>	<b>Variable type (in analysis)</b>
STI/HIV test in last 12 months	"Have you been tested within the past 12 months?"	STI testing (yes/no); HIV testing (yes/no)	Categorical
Delayed/avoided testing in past 12 months because of...	"Have any of the following caused you to delay, avoid, or skip testing within the past 12 months?"	Didn't know where to go; needed an appointment; wait was too long; clinic wasn't open when I could test (preceding 4 categories grouped as 'access issues' for analysis); clinic was too far away; didn't want to see a doctor or nurse; couldn't get anonymous testing (preceding 2 categories grouped as 'privacy concern' for analysis); don't like needles; other; none of above (last 3 categories not used in analysis)	Categorical

**Appendix 2.**

Table: Characteristics of survey sample of Canadian gay and bisexual men and intention to use Internet-based testing by key variables, across four domain groups: **A)** socio-demographics; **B)** Internet and technology usage; **C)** STI/HIV and risk; and **D)** health care access (N=8388)

**A. Sociodemographics**

Characteristic	Level	n (%), or median (IQR)	% intend to use service	UOR (95% CI) N=7938	Full Model <sup>a</sup> AOR (95% CI) N=7873
Age	≥30 years	6520 (77.7)	69.0	REF	b
	<30 years	1868 (22.3)	80.0	<b>1.80 (1.58-2.04)</b>	
Sexual orientation	Gay	5410 (64.5)	70.1	REF	c
	Bisexual	2719 (32.4)	74.8	<b>1.26 (1.14-1.41)</b>	
	Straight/Other	259 (3.1)	66.9	0.86 (0.65-1.14)	
Gender of sex partners	Men only	5955 (71.0)	70.8	REF	d
	Women (any degree)	2018 (24.1)	73.7	<b>1.15 (1.03-1.30)</b>	
	No sex	415 (4.9)	70.6	0.99 (0.78-1.25)	
Marital/partnership status	Single	4223 (50.3)	72.0	REF	d
	Partnered to man	2216 (26.4)	68.3	<b>0.84 (0.75-0.94)</b>	
	Partnered to woman	1805 (21.5)	74.4	1.13 (1.00-1.29)	
	Other	144 (1.7)	72.1	1.01 (0.68-1.49)	
Living situation	Sole occupant	3701 (44.1)	70.3	REF	REF
	Shared occupancy	4350 (51.9)	72.1	1.09 (0.99-1.21)	0.99 (0.88-1.1)
	No permanent residence	337 (4.0)	77.7	<b>1.48 (1.12-1.94)</b>	1.18 (0.87-1.6)
Education	College/university degree	4792 (57.1)	70.5	REF	REF
	High school/some college	3596 (42.9)	73.0	<b>1.13 (1.02-1.25)</b>	1.11 (0.99-1.24)
Ethnicity	Caucasian	7313 (87.2)	71.4	REF	REF
	Asian	212 (2.5)	70.8	0.97 (0.71-1.32)	0.75 (0.53-1.04)
	Aboriginal	169 (2.0)	71.7	1.02 (0.71-1.45)	0.93 (0.63-1.35)
	Latino	112 (1.3)	80.7	<b>1.68 (1.04-2.71)</b>	1.60 (0.96-2.66)
	Other	582 (6.9)	71.6	1.01 (0.83-1.23)	0.85 (0.69-1.05)
Annual Income	<\$30K	2394 (28.5)	72.4	REF	REF
	\$30-79K	4155 (49.5)	71.1	0.94 (0.83-1.05)	1.10 (0.92-1.32)
	≥\$80K	1839 (21.9)	71.4	0.95 (0.83-1.09)	0.98 (0.78-1.23)
Province of residence	Prairies/Territories	654 (7.8)	67.4	REF	REF
	British Columbia	1805 (21.5)	69.4	1.10 (0.90-1.34)	1.19 (0.97-1.48)
	Alberta	1065 (12.7)	74.5	<b>1.41 (1.14-1.76)</b>	<b>1.27 (1.01-1.60)</b>
	Ontario	3368 (40.2)	71.6	<b>1.22 (1.02-1.47)</b>	<b>1.24 (1.02-1.51)</b>

Characteristic	Level	n (%), or median (IQR)	% intend to use service	UOR (95% CI) N=7938	Full Model <sup>a</sup> AOR (95% CI) N=7873
	Quebec	1049 (12.5)	72.0	1.25 (1.00-1.55)	<b>1.36 (1.08-1.73)</b>
	Atlantic	447 (5.3)	77.0	<b>1.62 (1.22-2.14)</b>	<b>1.57 (1.17-2.11)</b>
Living environment <sup>e</sup>	Urban	4897 (58.4)	70.7	REF	b
	Suburban	2214 (26.4)	73.9	<b>1.17 (1.04-1.31)</b>	
	Rural/remote	1245 (14.8)	70.2	0.98 (0.85-1.12)	
Stage of "coming out"	Already "out"	5295 (63.1)	70.1	REF	REF
	Has never "come out"	3093 (36.9)	74.0	<b>1.21 (1.10-1.34)</b>	1.05 (0.89-1.25)
"In general, people in the area where I live are accepting of gay/bi men."	Definitely agree	2358 (28.1)	69.0	REF	REF
	Somewhat agree	4005 (47.7)	71.8	<b>1.14 (1.02-1.28)</b>	1.00 (0.88-1.14)
	Somewhat disagree	1293 (15.4)	76.1	<b>1.43 (1.22-1.67)</b>	1.17 (0.97-1.40)
	Definitely disagree	732 (8.7)	70.0	1.05 (0.87-1.26)	0.81 (0.64-1.01)
"Out" about sexuality at work	At least some know	3881 (46.3)	69.0	REF	b
	Few or no people know	3690 (44.0)	75.1	<b>1.35 (1.22-1.5)</b>	
	Not applicable	817 (9.7)	66.7	0.9 (0.76-1.06)	
% of free time spent with other gay men	50% or more	1867 (22.3)	70.5	REF	REF
	<50%	6521 (77.7)	71.8	1.06 (0.95-1.20)	0.99 (0.87-1.14)

## B. Internet and technology use

Characteristic	Level	n (%), or median (IQR)	% intend to use service	UOR (95% CI) N=7938	Full Model <sup>a</sup> AOR (95% CI) N=7873
Use Internet to cruise for sex partners	No	958 (11.4)	63.5	REF	REF
	Yes	7430 (88.6)	72.5	<b>1.51 (1.31-1.76)</b>	<b>1.39 (1.15-1.68)</b>
Use Internet to meet potential boyfriend	No	4227 (50.4)	69.5	REF	REF
	Yes	4161 (49.6)	73.5	<b>1.22 (1.1-1.34)</b>	1.06 (0.95-1.18)
Use Internet to search for sexual health information	No	2968 (35.4)	66.1	REF	b
	Yes	5420 (64.6)	74.5	<b>1.5 (1.36-1.66)</b>	
Internet usage scale (0-8 continuous scale)		2 (0, 3)		<b>1.12 (1.09-1.15)</b>	1.03 (0.99-1.07)
Mobile phone usage scale (0-3 continuous scale)		2 (1, 3)		<b>1.26 (1.21-1.32)</b>	<b>1.14 (1.08-1.20)</b>
Uptake of new technology (eg, smart phone)	Wait for everyone else	3312 (39.5)	66.0	REF	b
	Wait for improved version	2962 (35.3)	73.8	<b>1.45 (1.3-1.62)</b>	

	Buy it when others have it	594 (7.1)	74.3	<b>1.49 (1.22-1.83)</b>	
	Early purchaser	1166 (13.9)	77.3	<b>1.75 (1.49-2.05)</b>	
	Amongst the first to own	354 (4.2)	79.9	<b>2.05 (1.55-2.70)</b>	

**C. STI/HIV and risk**

Characteristic	Level	n (%), or median (IQR)	% intend to use service	UOR (95% CI) N=7938	Full Model <sup>a</sup> AOR (95% CI) N=7873
Sexually active with guys other than primary partner	No	1685 (20.1)	66.6	REF	REF
	Yes	6703 (79.9)	72.7	<b>1.33 (1.18-1.5)</b>	1.14 (0.89-1.33)
Number of sex partners, last 12 months <sup>e</sup>	0-1	1592 (19)	69.3	REF	REF
	2-5	2829 (33.7)	71.9	1.14 (0.99-1.31)	0.94 (0.80-1.11)
	6-10	1566 (18.7)	73.2	<b>1.21 (1.03-1.42)</b>	0.99 (0.81-1.20)
	11-20	1157 (13.8)	74.0	<b>1.26 (1.06-1.50)</b>	1.04 (0.83-1.29)
	≥21	1204 (14.4)	69.3	1.00 (0.85-1.19)	0.86 (0.69-1.07)
Sex in last 12 months perceived to be risk for HIV	No	5719 (68.2)	70.3	REF	REF
	Yes	1793 (21.4)	73.7	<b>1.18 (1.05-1.34)</b>	0.98 (0.83-1.14)
	Not sure	876 (10.4)	75.1	<b>1.27 (1.08-1.50)</b>	1.08 (0.89-1.30)
UAI with partner of unknown or discordant HIV status, last 12 mo	No	5871 (70.0)	70.3	REF	REF
	Yes	2517 (30.0)	74.5	<b>1.23 (1.11-1.37)</b>	<b>1.2 (1.04-1.38)</b>
STI or HCV diagnosis, last 12 mo	No	7974 (95.1)	71.4	REF	REF
	Yes	414 (4.9)	73.7	1.12 (0.89-1.41)	1.05 (0.81-1.35)
HIV status	Negative	5755 (68.6)	72.4	REF	<sup>c</sup>
	Positive	667 (8.0)	55.3	<b>0.47 (0.39-0.57)</b>	
	Never tested	1966 (23.4)	73.1	1.03 (0.92-1.16)	
Binge drinking (>5 drinks in one sitting)	Never or occasional	5901 (70.4)	70.5	REF	REF
	Some weekends or more often	2487 (29.6)	74.0	<b>1.19 (1.07-1.33)</b>	1.04 (0.93-1.17)
Party drug use (cocaine, crystal, ecstasy, GHB, or ketamine)	Never or occasional	8215 (97.9)	71.6	REF	<sup>b</sup>
	Regular or daily	173 (2.1)	66.0	0.77 (0.55-1.07)	

**D. Health care access**

Characteristic	Level	n (%), or median (IQR)	% intend to use service	UOR (95% CI) N=7938	Full Model <sup>a</sup> AOR (95% CI) N=7873
Routine medical	Family physician	6291 (75)	70.5	REF	<sup>c</sup>

Characteristic	Level	n (%), or median (IQR)	% intend to use service	UOR (95% CI) N=7938	Full Model <sup>a</sup> AOR (95% CI) N=7873
care location	Walk-in clinic	1614 (19.2)	75.1	<b>1.27 (1.11-1.44)</b>	
	Emergency room/hospital	139 (1.7)	68.4	0.91 (0.63-1.31)	
	No routine medical care available	217 (2.6)	77.1	<b>1.41 (1.02-1.96)</b>	
	Other	127 (1.5)	69.1	0.94 (0.62-1.41)	
Last medical appointment	Within past 6 months	5243 (62.5)	69.6	REF	<sup>b</sup>
	>6 months ago or never	3145 (37.5)	74.7	<b>1.29 (1.17-1.43)</b>	
Satisfaction with health care services available	Very satisfied	3143 (37.5)	67.0	REF	<sup>b</sup>
	Satisfied	3666 (43.7)	72.6	<b>1.31 (1.17-1.45)</b>	
	Not very satisfied	1205 (14.4)	76.7	<b>1.62 (1.39-1.90)</b>	
	Not satisfied at all	374 (4.5)	80.3	<b>2.01 (1.53-2.63)</b>	
Told primary health care provider about being sexually active with men	"Out" to provider	4171 (49.7)	68.1	REF	<sup>c</sup>
	Not "out" or unsure	4217 (50.3)	74.9	<b>1.40 (1.27-1.54)</b>	
Ever dropped a provider because of anti-gay attitude	No	7491 (89.3)	71.6	REF	REF
	Yes	897 (10.7)	70.7	0.96 (0.82-1.12)	1.02 (0.86-1.22)
STI test	Within past 12 months	4074 (48.6)	70.3	REF	<sup>b</sup>
	>12 months ago or never	4314 (51.4)	72.7	<b>1.13 (1.02-1.24)</b>	
HIV test	Within past 12 months	4093 (48.8)	70.1	REF	REF
	>12 months ago or never	4295 (51.2)	72.9	<b>1.15 (1.04-1.26)</b>	1.17 (0.97-1.40)
Delayed/avoided testing in past 12 months because of privacy concern	No	7248 (86.4)	69.5	REF	REF
	Yes	1140 (13.6)	83.7	<b>2.25 (1.91-2.66)</b>	<b>1.61 (1.34-1.93)</b>
Delayed/avoided testing in past 12 months because of access issue	No	7145 (85.2)	69.4	REF	REF
	Yes	1243 (14.8)	83.3	<b>2.21 (1.88-2.59)</b>	<b>1.6 (1.33-1.91)</b>
Delayed/avoided testing in past 12 months because too far from clinic	No	7952 (94.8)	70.9	REF	REF
	Yes	436 (5.2)	83.2	<b>2.04 (1.58-2.64)</b>	1.09 (0.82-1.45)

**Notes:**

<sup>a</sup> n=450 respondents who indicated “not applicable” to outcome (intention to use Internet-based testing) were excluded from regression models.

<sup>b</sup> Interaction between variable and sexual orientation (AOR stratified by sexual orientation presented separately in Table 2).

<sup>c</sup> Interaction between variable and age (AOR stratified by age presented separately in Table 2).

<sup>d</sup> Variable not included in multivariable model due to collinearity with covariates.

<sup>e</sup> Excluding non-applicable or blank responses (n=29 for living environment; n=36 for number of sex partners).

**Appendix 3.**

Table: Interactions between explanatory variables with age and sexual orientation in the full model

**A. Interactions with age (<30, ≥30)**

Characteristic	Level	UOR (95% CI) N=7938	Age < 30 years <sup>a</sup> AOR (95% CI) N=1794	Age ≥ 30 years <sup>a</sup> AOR (95% CI) N=6079
Sexual orientation	Gay	REF	REF	REF
	Bisexual	<b>1.26 (1.14-1.41)</b>	1.33 (0.6-2.98)	<b>1.94 (1.23-3.08)</b>
	Straight/Other	0.86 (0.65-1.14)	0.55 (0.08-3.85)	0.34 (0.10-1.10)
HIV status	Negative	REF	REF	REF
	Positive	<b>0.47 (0.39-0.57)</b>	1.18 (0.37-3.8)	<b>0.56 (0.45-0.71)</b>
	Never tested	1.03 (0.92-1.16)	1.37 (0.82-2.29)	<b>0.69 (0.58-0.82)</b>
Routine medical care location	Family physician	REF	REF	REF
	Walk-in clinic	<b>1.27 (1.11-1.44)</b>	0.93 (0.57-1.51)	0.85 (0.71-1.01)
	Emergency room/hospital	0.91 (0.63-1.31)	0.33 (0.09-1.25)	0.91 (0.57-1.47)
	No routine medical care available	<b>1.41 (1.02-1.96)</b>	1.49 (0.44-5.08)	<b>0.63 (0.41-0.97)</b>
	Other	0.94 (0.62-1.41)	0.62 (0.13-2.89)	1.12 (0.68-1.83)

**B. Interactions with sexual orientation (gay, bisexual)**

Characteristic	Level	UOR (95% CI) N=7938	Gay Men <sup>a</sup> AOR (95% CI) N=5066	Bisexual Men <sup>a</sup> AOR (95% CI) N=2574
Age	≥30 years	REF	REF	REF
	<30 years	<b>1.80 (1.58-2.04)</b>	<b>1.53 (1.17-1.99)</b>	1.05 (0.57-1.92)
Living environment <sup>b</sup>	Urban	REF	REF	REF
	Suburban	<b>1.17 (1.04-1.31)</b>	1.08 (0.92-1.27)	0.87 (0.57-1.34)
	Rural/remote	0.98 (0.85-1.12)	1.07 (0.88-1.31)	0.82 (0.49-1.37)
"Out" about sexuality at work	At least some know	REF	REF	REF
	Few or no people know	<b>1.35 (1.22-1.5)</b>	<b>1.32 (1.11-1.58)</b>	0.87 (0.49-1.54)
	Not applicable	0.90 (0.76-1.06)	1.18 (0.94-1.48)	0.78 (0.37-1.63)
Use Internet to search for sexual health information	No	REF	REF	REF
	Yes	<b>1.5 (1.36-1.66)</b>	<b>1.25 (1.09-1.44)</b>	<b>1.61 (1.11-2.34)</b>
Uptake of new technology (eg, smart phone)	Wait for everyone else	REF	REF	REF
	Wait for improved version	<b>1.45 (1.3-1.62)</b>	<b>1.19 (1.03-1.39)</b>	1.28 (0.85-1.94)

Characteristic	Level	UOR (95% CI) N=7938	Gay Men <sup>a</sup> AOR (95% CI) N=5066	Bisexual Men <sup>a</sup> AOR (95% CI) N=2574
	Buy it when others have it	<b>1.49 (1.22-1.83)</b>	<b>1.39 (1.06-1.84)</b>	0.95 (0.46-1.96)
	Early purchaser	<b>1.75 (1.49-2.05)</b>	<b>1.44 (1.16-1.79)</b>	1.18 (0.66-2.11)
	Amongst the first to own	<b>2.05 (1.55-2.7)</b>	<b>1.79 (1.25-2.55)</b>	2.07 (0.74-5.82)
Party drug use (cocaine, crystal, ecstasy, GHB, or ketamine)	Never or occasional	REF	REF	REF
	Regular or daily	0.77 (0.55-1.07)	1.05 (0.68-1.64)	0.40 (0.12-1.4)
Last medical appointment	Within past 6 months	REF	REF	REF
	>6 months ago or never	<b>1.29 (1.17-1.43)</b>	<b>1.18 (1.02-1.36)</b>	0.98 (0.67-1.45)
Satisfaction with health care services available	Very satisfied	REF	REF	REF
	Satisfied	<b>1.31 (1.17-1.45)</b>	1.11 (0.97-1.29)	1.17 (0.79-1.74)
	Not very satisfied	<b>1.62 (1.39-1.9)</b>	1.15 (0.93-1.42)	1.80 (1.00-3.24)
	Not satisfied at all	<b>2.01 (1.53-2.63)</b>	<b>1.81 (1.24-2.63)</b>	1.41 (0.53-3.77)
STI test	Within past 12 months	REF	REF	REF
	>12 months ago or never	<b>1.13 (1.02-1.24)</b>	1.07 (0.88-1.3)	0.81 (0.52-1.26)

**Notes:**

<sup>a</sup> Stratified odds ratios presented for variables with statistically significant ( $p<0.15$ ) first-level interactions with sexual orientation or age. n=450 respondents who indicated “not applicable” to outcome (intention to use Internet-based testing) were excluded from regression models.

<sup>b</sup> Excluding non-applicable or blank responses (n=29 for living environment).