Comparison of male and female users of the Internet for STD testing using self-obtained samples: Perception, prevalence, and risk factors

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ABSTRACT

Objectives: To measure how gender differences influence the use of the Internet for home-collected genital samples for detection of STDs, to ascertain how users view Internet recruited testing, and to determine STD prevalence and behavioral risk factors for the participants. Methods: An Internet website, www.iwantthekit.org, has been in use for women since 2004; over 800 participants have mailed vaginal samples for testing. Samples were tested for chlamydia and gonorrhea using nucleic acid amplification tests. Recruitment of males began in 2006, along with trichomonas testing. Participants requested kits for home collection of urogenital samples via the Internet or calling a toll-free phone number. Self-obtained vaginal swabs (SOV) were collected by females and both urine and penile swabs were collected by males. Participants submitted questionnaires for demographics, perceptions of use, and sexual risk history. Results: From September 2006 - February 2007, 231 requests from males and 480 from females were received. Males submitted 13.9% of requested kits and females returned 34.2%. From a total of 822 females since 2004, prevalence observed was: chlamydia, 9.1%; gonorrhea, 1.2%; and trichomonas (n=158), 8.9%. In women 15-19 yr, the chlamydia prevalence was 16.9%. Multivariate analysis indicated Black race, age <25 yr, using birth control, non-consensual sex (protective) and multiple partners were all significantly associated with chlamydia infection. Of females, 96.0% rated collection of SOV easy/very easy, 98.2% rated instructions easy/very easy, and 93.5% would use the Internet method of SOV again. For males, Internet recruited self-collected penile swabs and urines have shown a chlamydia prevalence of 31.3%, with good agreement between urine and penile swabs; no gonorrhea or trichomonas were detected. All but one male collected both urine and penile swabs. Median age was 23 yr. Prevalence by age indicated 15-24 yr males had the highest prevalence (33.3%). By race, 62.1% were Black (prevalence, 33.3%) and 34.5% were White (prevalence, 20%) (p=ns). Of infected men, 100% did not always use condoms vs. 65% of uninfected (p=0.053). Previous history for STDs was 25%; 17.9% for chlamydia. Multiple partners were reported by 82.1%, new partner by 60.7%, anal sex by 32.1% and oral sex by 100%. Of infected men, only 1 reported any symptoms. By questionnaire, 79.3% of men preferred to self-collection, 89.7% believed the method was safe, 86.2% would use the Internet method again; 55.2% preferred urine or penile sample vs. physician swab (31.0%). Over 95% of infected male and female participants were treated. Conclusions: Recruitment of participants to perform home sampling for STDs was feasible via the Internet. Males did not seek self-collected STD screening with the same frequency as females. A high prevalence of chlamydia was detected in both sexes and treatment of infected individuals was effective. Self-obtained vaginal and penile swabs collected outside of clinic settings may open new horizons for diagnosis and control of STDs. More study of self-collected penile swabs is required.

OBJECTIVES

• To measure how gender differences influence the use of the Internet for home-collected genital samples
• To ascertain the program perception of participants recruited via the Internet to submit genital samples for STD testing
• To measure STD prevalence and behavioral risk factors of participants
• To measure opinions of the participants about home screening

METHODS - Use of the Kit

• Website: www.iwantthekit.org
• Program: women 2004; men began Sept 2006
• Kits: consent form, swab, instructions, questionnaire, contact form, return mailer
• Kits mailed home after email/phone requests
• Vaginal swabs mailed in a dry state
• Tested by NAATs; two different positive NAAT results required to call a sample positive
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RESULTS - Use of the Female Kit

Vaginal swabs:
Requested by Internet email: 95.2%, Phone: 4.8%
Total received: 930 kits since July 2004
Since Sept, 2006: female 851 kits mailed (30.4% returned);

Of 930 tested through July 13, 2007
• 86 (9.3%) CT positive*
• 13 (1.4%) GC positive*
  *(6 co-infected w/ CT and GC)

Of 259 tested for Trichomonas since Sept:
• 20 (7.7%) positive**
  ** (1 co-infected w/ CT and GC)

RESULTS - Use of the Female Kit (N=930)

Confirmed Treated
• CT: 81/86 (94.2%)
• GC: 13/13 (100%)
• Tric 20/20 (100%)

Median age of female submitters was 23 yr
Positives: median age 20 yr (range 15-45 yr)
Negatives: median age 24 yr (range 14-63) (p < 0.0001)

Mean Age first sex:
• positives: 15 yr
• negatives: 15.6 yr (p = 0.01)

Female CT Prevalence: Results by Race (N = 930*)
Female CT Prevalence: Results by Age (N = 930*)

Female Logistic Regression of Demographics & Risk Factors (N = 930)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Univariate</th>
<th>Multivariate*</th>
<th>C.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Race vs. White</td>
<td>OR 3.7</td>
<td>3.4</td>
<td>(1.5, 7.4)</td>
</tr>
<tr>
<td>All others vs. White</td>
<td>OR 2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age &lt;25 yr. vs. &gt;25 yr.</td>
<td>OR 3.6</td>
<td>3.2</td>
<td>(1.8, 5.8)</td>
</tr>
<tr>
<td>Anal sex</td>
<td>OR 0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-consensual sex</td>
<td>OR 0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple partners</td>
<td>OR 1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hx GC</td>
<td>OR 2.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Variables: Race, Age, Multiple partners, New partners, Prior CT, Prior GC, Oral/anal sex, Birth control, Non-consensual sex. Hosmer – Lemeshow Goodness of fit test = 0.46

Female Symptoms Results (N=930)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Prevalence</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal discharge</td>
<td>47.1%</td>
<td>.02</td>
</tr>
<tr>
<td>Lower abdominal pain</td>
<td>17.2%</td>
<td>.27</td>
</tr>
<tr>
<td>Pain during urination</td>
<td>6.0%</td>
<td>.16</td>
</tr>
<tr>
<td>Pain during intercourse</td>
<td>15.5%</td>
<td>.33</td>
</tr>
<tr>
<td>Abnormal vaginal bleeding</td>
<td>7.3%</td>
<td>.08</td>
</tr>
<tr>
<td>Any symptoms</td>
<td>62.3%</td>
<td></td>
</tr>
<tr>
<td>No symptoms</td>
<td>37.7%</td>
<td></td>
</tr>
<tr>
<td>Any 2 symptoms CT+ 48.4% vs. CT</td>
<td>34.0%</td>
<td>.03</td>
</tr>
</tbody>
</table>

Female Questionnaire Results: Preference for Sample Type (N=911)

Female Questionnaire Results: Self Collection

Female Questionnaire Results: Vaginal Collection
Female Questionnaire Results: Preference for Receiving Results

CONCLUSIONS: Female Kit Use

Female Internet use supported the concept of an educational STD website that could encourage home sampling.

Most collection kits were email requested.

High prevalence of chlamydia and trichomonas.

High level of sexual risk; treatment possible.

Women rated Internet screening easy to very easy; would use again, but 30.4% returned kits.

The Internet recruitment method may help screen women who otherwise would not get tested for chlamydia and other STDs.

Methods: Males

Men testing recently added (urine and penile swab)

GenProbe transport media used for both

Urine collected on Copan Uriswab "sponge stick"

Penile swab is Copan "flocked swab"

All men except two submitted both urine and penile swab (acceptability good for self penile swabs)

GenProbe APTIMA Combo 2 used for CT and GC

GenProbe ASR Trichomonas test used for Tric

Results: Males

Men returned 19.2% of 391 requested kits; all but 2 submitted the penile swab along with urine

Good agreement between urine and penile swabs

2 penile swabs positive/urine negative for CT

Others in agreement

Median age: 23 yr (range 16-63 yr)

Prevalence (N = 77)

CT: 20.8%

GC: 0.0%

Trichomonas: 1.3%
Self Collection

Male Questionnaire Results: Home collection

Male Questionnaire Results Preference for Sample Type

Conclusions: Males

Males requested kits at a lower rate than females; males returned kits less frequently.
A higher prevalence of Chlamydia was detected than in females; penile swabs performed well.
Males stated they preferred self-collection, reported high sexual risk, would use the Internet method again.
More study of Internet recruited and self-collected penile swabs is needed.