Extra-Genital Screening for STDs: If You Just Check The Pee, You’ll Miss GC and CT

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University of Washington

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Disclosures

No conflicts of interest or relationships to disclose.
Outline

• Overview of the STD epidemic today
• Review of sexual history taking
• STD screening recommendations
• Rationale for extra-genital screening
• Self-testing and program implementation
Why Diagnose and Treat STIs?

- >19 million STDs in U.S. annually
- Health consequences of untreated STDs
  - Women’s reproductive health
    - Untreated chlamydia or gonorrhea may lead to pelvic inflammatory disease (PID) & other consequences
    - Leading infectious cause of infertility in the U.S.
    - Trichomoniasis, BV associated with preterm delivery, low birth weight
  - Infant mortality/morbidity
    - Neonatal herpes and congenital syphilis
  - HIV transmission: identifying people who would benefit from HIV pre-exposure prophylaxis (PrEP)
- Health care cost
  - Almost $16 billion

At Greatest Risk

• Youth=15-24 year olds
  - 2/3 CT and 1/2 GC cases

• Racial/ethnic minorities
  - STDs among highest of all racial/ethnic health disparities
  - African-Americans
    • Chlamydia: 5.8 times the rate among whites
    • GC: 12.4 times
    • Early syphilis: 5.6 times

• Men Who Have Sex with Men (MSM)
  - Accounted for 82% of syphilis cases in 2015
  - High rates of HIV co-infection (~50%)
The Current Environment

STDs at Unprecedented High in U.S.

WHY?
1. Funding cuts to public health infrastructure
   - In 2012, 52% of state and local STD programs had budget cuts
2. Increased diagnosis through enhanced screening
   - Medicaid screening rates 40% in 2001 → 55% in 2014
3. More sensitive tests and increased reporting
STD Prevention: Our Role

• A welcoming environment
• Routine sexual history and risk assessment
• Screen, appropriately
  - Appropriate anatomic sites with recommended tests
  - Alcohol, drug use, tobacco, depression, intimate partner violence
• Assure appropriate vaccination status (HPV, HBV/HAV)
• Prevention messages--condoms, HIV pre- and post-exposure prophylaxis (PrEP, PEP)
• Diagnosis and treatment
• Provide or refer (partner management/ services)
• Report cases in accordance with state and local statutory requirements; keep reports confidential
New-ish STD Guidelines Available
June 5, 2015

http://www.cdc.gov/std/
(If you) DON’T ASK,  
(They) WON’T TELL…
STD Screening: Requires asking

“Whoa—way too much information.”
Are We Doing Sexual Histories Enough?

- Fewer than half of physicians report taking a sexual history from their patients
  - 40% of MDs screened adolescents for sexual activity
  - 15-40% asked questions of adult patients about # and gender of partners and condom use

- Kaiser Family Foundation patient survey
  - 12% women were asked about STDs at a first-time Ob/Gyn visit
  - 83% patients felt STDs should be discussed at a first-time Ob/Gyn visit

We Can Do Better!

% of Providers Who Assessed STD Risk

- **Primary Care Providers**: Bull 1999
- **Private Physicians**: Tao 2003
- **Non-ID trained Physicians**: Duffus 2003
- **ID trained Physicians**: Duffus 2003
- **HIV Care Providers ongoing care**: Metsch 2004

N=417 providers
N=317 physicians
N=317 physicians
N=417 providers
N=12.7 million visits

N=208 providers
What are Barriers to Screening?
Barriers to Screening

• Patient-related barriers
  - Want frequent, convenient, affordable testing

• Provider-related barriers
  - Knowledge, Time & Comfort with Sexual Hx/Exam

• Systems barriers
  - Testing costs, insurance issues
  - Lab issues: NAATs not FDA approved
What to ask…The 5 “Ps”

- Partners
- Practices (Positions?!)
- Protection for STD
- Past history of STD
- Prevention of pregnancy

CDC guide to taking a sexual history
The 6th “P”: Prevention

• Have you been vaccinated for Hep A and Hep B?
• Have you been vaccinated for HPV?
• Are you interested in learning more about PrEP?
“Special” Populations in the Guidelines

- Pregnant women
- Adolescents & Children
- Persons in Correctional Facilities
- MSM
- Women who have sex with women (WSW)
- Transgender Men and Women
  - Screen on basis of anatomy and sexual practices
  - High HIV prevalence
    - 27.7% in all male-to-female transwomen
The Ins and Outs of Screening: CDC Recommendations
Stamp out syphilis and gonorrhea

Have you had your blood test and examination?

Go to your doctor or Dept. of Health

Bureau of Social Hygiene, 31 Stuyvesant Place, S. I.
2015 CDC Guidelines
STI Screening for Women

• Sexually active adolescents <25 years of age
  - **Annual chlamydia and gonorrhea screening**
  - Other STIs based on risk

• Women ≥25 years of age
  - STI screening and testing based on risk

• Pregnant women
  - Chlamydia and Gonorrhea (<25 years of age or at-risk)
    - Retest CT in 3rd trimester if <25 or high-risk (both GC/CT)
  - HIV
  - Syphilis serology
  - Hepatitis B sAg
  - Hepatitis C (if high risk)
  - Screen for history of genital HSV
    - Serologic screening of asymptomatic women not recommended

STI Screening in Men who Have Sex with Women (MSW)

• No routine screening in the community
  - Except HIV (USPSTF: age 15-65; CDC: age 13-64) and Hepatitis C (born between 1945-1965)

• CDC says consider screening for:
  - CT in “young men” in adolescent clinics, correctional facilities, and STD clinics or in populations with high burden of infection
  - Hepatitis B if at increased risk (endemic area, MSM, IDU, immunosuppressed)
  - Hepatitis C if born between 1945-1965, IDU, intranasal drug use, unregulated tattoo, remote blood transfusion (before 1992), hemodialysis, HIV
Extra-genital Screening: If You Just Check the Pee, You’ll Miss GC and CT…
What is “extra-genital” testing/screening?

- Testing for STDs at any body site other than genitourinary (urethral/urine/vaginal/cervix)
- Usually refers to rectal and oropharynx
- Typically for gonorrhea and/or chlamydia only
- Routinely done only for men who have sex with men (MSM)


**CDC Recommendations for STI Screening in MSM**

- **At least annually** (more often if multiple or anonymous partners, meth use, recent STI, unprotected anal intercourse)
  - HIV
  - Syphilis
  - GC/CT of all sites at risk (urethral, rectal, pharyngeal)

- **Consider:**
  - HSV serology
  - HAV, HBV→ vaccinate as appropriate
  - HCV (especially if HIV infected)
  - Anal pap?
Extra-genital Gonorrhea & Chlamydia

- Among MSM, high rates of extra-genital GC & CT
  - Pharyngeal GC: 7.9%\(^1\)
  - Rectal GC: 10.2%\(^1\)
  - Rectal CT: 14.1%\(^1\)

- The majority of infections are asymptomatic
  - 92% of pharyngeal GC & 84-86% of rectal GC\(^2\)

1. Patton, CID 2014 (SsUN data)
2. Morris, CID 2006
Their Importance

- Transmission
  - 30% of symptomatic gonococcal urethritis is attributable to oro-pharyngeal exposure

- HIV Transmission
  - Potentiate acquisition, even after controlling for sexual behaviors

- Treatment differentials
  - Pharyngeal GC
    - Ceftriaxone > Cefixime
  - Rectal CT
    - Doxy >>> Azithromycin

Proportion of infections that would NOT be identified if only urine/urethral screening is performed among gay/bisexual men

(Kent et al. *CID* 2005 updated)
Extragenital CT/GC in MSM in the STD Surveillance Network, 2010-2012

Patton, Clinical Infectious Diseases 2014
And yet, we still are not doing enough extra-genital screening!

- Of 21,994 MSM seen at 42 STD Clinics:
  - 83.9% tested for urogenital GC
  - 81.4% for urogenital CT
  - 65.9% for pharyngeal GC
  - 31.7% for pharyngeal CT
  - 50.4% for rectal GC
  - 45.9% for rectal CT
Gonococcal Urethritis


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Don’t forget the triple dip: 
**STD Screening for MSM**

- Syphilis & HIV serology
- Pharyngeal GC
- Urine GC/CT
- Rectal GC/CT

Annually for all sexually active MSM
Every 3-6 months for high-risk MSM
STDs predict future HIV Risk among MSM

Rectal GC or CT
1 in 15 MSM were diagnosed with HIV within 1 year.*

Primary or Secondary Syphilis
1 in 18 MSM were diagnosed with HIV within 1 year.**

No rectal STD or syphilis infection
1 in 53 MSM were diagnosed with HIV within 1 year.*

*STD Clinic Patients, New York City. Pathela, CID 2013:57;
**Matched STD/HIV Surveillance Data, New York City. Pathela, CID 2015:61
On a related note…

Remember that anyone diagnosed with an STI can be considered for HIV pre-exposure prophylaxis (PrEP)!
Self-testing: Turns Out Patients are Pretty Good at it! And They Prefer it.
When looking for GC or CT in a woman, what is the best sample to test?

A. First void urine
B. Endocervical swab
C. Vaginal swab
D. Patient self-collected vaginal swab
NAAT for GC/CT testing in women

- Sensitivity: vaginal > urine > cervical
- Women can self-collect vaginal swabs for NAAT
- Many women prefer vaginal swab to urine

<table>
<thead>
<tr>
<th>N=1464 women</th>
<th>Clinician-obtained</th>
<th>Patient-obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity for CT</td>
<td>97.2%</td>
<td>98.3%</td>
</tr>
<tr>
<td>Sensitivity for GC</td>
<td>96.2%</td>
<td>96.1%</td>
</tr>
</tbody>
</table>

Schachter J, STD 2005
Chernesky MA STD 2005
Chlamydia & Gonorrhea: Diagnostic Testing

- Nucleic acid amplification tests (NAAT) recommended for men & women

- Optimal specimen: first-catch urine in men and vaginal swabs in women

- NAAT optimal for rectal and pharyngeal testing; not FDA approved but commercially available & validation protocols available

- Cannot perform drug resistance testing on NAAT (need culture if concern)

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6302a1.htm?s_cid=rr6302a1_w
Extra-Genital Self-testing Program at Madison Clinic

Self-referred

Provider-referred

RN “symptom triage”

Patient Assessment Form
Self-Testing for STIs Patient Assessment

(To be completed by patient)

Congratulations! You are taking a pro-active step in caring for yourself by choosing to test yourself for bacterial sexually transmitted infections today. Please answer the following questions and complete the appropriate STI test(s) based on your answers. Instructions on how to perform self-testing are in the designated self-testing clinic restroom.

1. Do you give oral sex (that is, put your sex partners penis in your mouth)?
   - [ ] Yes
   - [ ] No

   If you answered yes, please swab your throat. Follow the instructions on the poster.

2. Do you top (where you place your penis in your sex partners rectum)?
   - [ ] Yes
   - [ ] No

3. Do you receive oral sex (place your penis in your sex partner's mouth)?
   - [ ] Yes
   - [ ] No

   If you answered yes to either 2 or 3 above, please provide a urine sample in the green topped cup.

4. Do you bottom (where you receive your sex partners penis in your rectum)?
   - [ ] Yes
   - [ ] No

   If you answered yes, please swab your rectum. Follow the instructions on the poster.

**********************************************************************************
Email aradford@uw.edu for free posters for your clinic/facility

NOW AVAILABLE IN SPANISH
## Self-testing increases rates of GC/CT screening!

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Baseline N= 1520</th>
<th>Intervention N= 1510</th>
<th>% change</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any site GC/CT</td>
<td>670 (44.1%)</td>
<td>770 (51.0%)</td>
<td>+15.0%</td>
<td>0.001</td>
</tr>
<tr>
<td>Pharyngeal GC/CT</td>
<td>444 (29.2%)</td>
<td>586 (38.8%)</td>
<td>+32.0%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Rectal GC/CT</td>
<td>390 (25.7%)</td>
<td>520 (34.4%)</td>
<td>+33.3%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Urethral GC/CT</td>
<td>510 (33.6%)</td>
<td>697 (46.2%)</td>
<td>+36.7%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>All three sites</td>
<td>243 (16.0%)</td>
<td>466 (30.9%)</td>
<td>+91.8%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Syphilis</td>
<td>962 (63.3%)</td>
<td>976 (64.6%)</td>
<td>+1.5%</td>
<td>0.456</td>
</tr>
</tbody>
</table>

Barbee JAIDS 2016
## Self-Reported Behaviors, Testing & GC/CT Positivity at Madison Clinic

<table>
<thead>
<tr>
<th>give oral sex</th>
<th>pharyngeal tests</th>
<th>pharyngeal gc+</th>
<th>pharyngeal ct+</th>
</tr>
</thead>
<tbody>
<tr>
<td>348</td>
<td>320* (92%)</td>
<td>32 (10%)</td>
<td>3 (0.9%)</td>
</tr>
</tbody>
</table>

* 2 tests rejected by lab for labeling or collection errors

<table>
<thead>
<tr>
<th>receptive anal sex</th>
<th>rectal tests</th>
<th>rectal gc+</th>
<th>rectal ct+</th>
</tr>
</thead>
<tbody>
<tr>
<td>312</td>
<td>302* (97%)</td>
<td>33 (10.9%)</td>
<td>28 (9.3%)</td>
</tr>
</tbody>
</table>

* 2 tests rejected by lab for labeling or collection errors

**Only 269 (77%) Syphilis Test Done!**
Acceptability of STI Self-testing Program Among 79 MSM Self-testers

- Overall Patient Assessment: 92.4
- Throat Poster: 84.8
- Rectal Poster: 87.3
- Supplies: 97.5

Barbee JAIDS 2016
Take-Home Messages

• STDs are at an all-time high with ever-changing epidemiology
  - Highest risk in youth, MSM, and people living with HIV

• Screen appropriately
  - Especially in young women and MSM

• Extra-genital screening in MSM is critical
  - In all orifices used in sex

• Consider self-testing programs
STD Clinical Update
October 19th, 2017
University of Minnesota

9 am – 5 pm

$150 (includes CME/CNE and lunch)

uwptc.org
uwptc@uw.edu
Want to know more about STDs? There’s an app for that.

CDC Treatment Guidelines App for Apple and Android


(Search for “STD Tx”)

Diagnostic Considerations

C. trachomatis urogenital infection in women can be diagnosed by testing first-catch urine or collecting swab specimens from the endocervix or vagina. Diagnosis of C. trachomatis urethral infection in men can be made by testing a urethral swab or first-catch urine specimen. NAATs are the most sensitive tests for these specimens and therefore are recommended for detecting C. trachomatis infection. NAATs that are FDA-cleared for use with vaginal swab specimens can be collected by a provider or self-collected by a woman in a clinical setting. Self-collected vaginal swab specimens are equivalent in sensitivity and specificity to those collected by a clinician using NAATs and women find this screening strategy highly acceptable.
Or download it like the cool kids…
Want to know more about STDs? 
*There’s another app for that.*

- **FREE app for Apple**
- Features current STD Treatment Guidelines
- News Section with latest articles/updates
- Training schedules for free CME
STD Clinical Consultation Network (STDCCN)

• Provides STD clinical consultation services within 1-3 business days, depending on urgency, to healthcare providers nationally

• Your consultation request is linked to your regional PTC’s expert faculty

• We are just a click away! www.STDCCN.org
National STD Curriculum
std.uw.edu
STD Resources

• UW STD Prevention Training Center
  www.uwptc.edu

• National Network of STD Clinical Prevention Training Centers
  www.NNPTC.org

• CDC Treatment Guidelines
  www.cdc.gov/std/treatment

• American Social Health Association (ASHA) booklets, books, handouts, the Helper
  www.ashastd.org
  (800) 230-6039
Resources

- National Coalition for Sexual Health: A Provider’s Guide
  www.ncshguide.org/providers

- CDC
  - “A guide to taking a sexual history”
    http://www.cdc.gov/std/treatment/SexualHistory.pdf
Any **Burning** Questions?

**OH, I AM SO WORTH THE RASH**
Many Thanks to…

• Jeanne Marrazzo
• Ina Park
• Christine Johnston
• Lindley Barbee
• Shireesha Dhanireddy
• Jill Kesler and Tracy Salameh
• And the many other STD warriors out there…
Questions to Ponder…

• Are you already doing extra-genital testing?
  - Are you interested?

• Are you already doing self-testing?
  - Are you interested?

• What would you need to do to make this happen in your setting?
  - Training?
  - Electronic health record standing orders?
  - Provider champion?
  - Space issues?
Epidemiology of GC and CT
Chlamydia — Rates of Reported Cases by State, United States and Outlying Areas, 2015

NOTE: The total rate of reported cases of chlamydia for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 475.3 cases per 100,000 population.
The total rate of reported cases of gonorrhea for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 122.7 cases per 100,000 population.
Chlamydia — Rates of Reported Cases by Region, United States, 2006–2015

Rate (per 100,000 population)

Year

South
Midwest
West
Northeast
Gonorrhea — Rates of Reported Cases by Region, United States, 2006–2015

**Rate (per 100,000 population)**

Year

- South
- West
- Midwest
- Northeast

CDC
Chlamydia — Rates of Reported Cases by Sex, United States, 2000–2015

Rate (per 100,000 population)

Women
Total
Men

Year

NOTE: Data collection for chlamydia began in 1984 and chlamydia was made nationally notifiable in 1995; however, chlamydia was not reportable in all 50 states and the District of Columbia until 2000. Refer to the National Notifiable Disease Surveillance System (NNDSS) website for more information: https://wwwn.cdc.gov/nndss/conditions/chlamydia-trachomatis-infection/.
Gonorrhea — Rates of Reported Cases by Sex, United States, 2006–2015
### Chlamydia — Rates of Reported Cases by Age Group and Sex, United States, 2015

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Rate (per 100,000 population)</th>
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<td>Men</td>
<td></td>
</tr>
<tr>
<td>10-14</td>
<td>11.5</td>
</tr>
<tr>
<td>15-19</td>
<td>767.6</td>
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<tr>
<td>20-24</td>
<td>1467.8</td>
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<td>25-29</td>
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<td>30-34</td>
<td>481.3</td>
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<td>35-39</td>
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<td>45-54</td>
<td>79.4</td>
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<td>55-64</td>
<td>25.4</td>
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<tr>
<td>65+</td>
<td>5.1</td>
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<tr>
<td>Total</td>
<td>305.2</td>
</tr>
<tr>
<td>Women</td>
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<tr>
<td>10-14</td>
<td>92.8</td>
</tr>
<tr>
<td>15-19</td>
<td>2994.4</td>
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<td>20-24</td>
<td>3730.3</td>
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<td>25-29</td>
<td>1619.1</td>
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<td>30-34</td>
<td>668.4</td>
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<td>326.8</td>
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<td>55-64</td>
<td>13.7</td>
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<td>65+</td>
<td>2.1</td>
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<tr>
<td>Total</td>
<td>645.5</td>
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Gonorrhea — Rates of Reported Cases by Age Group and Sex, United States, 2015

<table>
<thead>
<tr>
<th>Men</th>
<th>Rate (per 100,000 population)</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>140.9</td>
<td>107.2</td>
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<tr>
<td>10-14</td>
<td>539.1</td>
<td>442.2</td>
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<td>15-19</td>
<td>244.8</td>
<td>546.9</td>
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<td>20-24</td>
<td>448.8</td>
<td>301.7</td>
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<td>25-29</td>
<td>275.2</td>
<td>148.0</td>
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<td>30-34</td>
<td>183.1</td>
<td>79.1</td>
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<td>4.1</td>
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<td>0.6</td>
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<tr>
<td>65+</td>
<td></td>
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</tbody>
</table>
Chlamydia — Rates of Reported Cases by Race/Ethnicity, United States, 2011–2015

Rate (per 100,000 population)

Gonorrhea — Rates of Reported Cases by Race/Ethnicity, United States, 2011–2015

Rate (per 100,000 population)

- AI/AN*
- Asians
- Blacks
- Hispanics
- NHOPI*
- Whites
- Multirace

2011 2012 2013 2014 2015

* AI/AN = American Indians/Alaska Natives; NHOPI = Native Hawaiian/Other Pacific Islanders.

NOTE:
Includes 45 states reporting race/ethnicity data in Office of Management and Budget compliant format during 2011–2015.
Chlamydia — Proportion of STD Clinic Patients Testing Positive* by Age Group, Sex, and Sexual Behavior, STD Surveillance Network (SSuN), 2015

* Results based on data obtained from patients (n=125,238) attending SSuN STD clinics in 2015 in all SSuN jurisdictions, excluding Minnesota.

† MSM = Gay, bisexual, and other men who have sex with men (collectively referred to as MSM); MSW = Men who have sex with women only.
Gonorrhea — Proportion of STD Clinic Patients Testing Positive* by Age Group, Sex, and Sexual Behavior, STD Surveillance Network (SSuN), 2015

* Results based on data obtained from patients (n=124,441) attending SSuN STD clinics in 2015 in all SSuN jurisdictions, excluding Minnesota.

† MSM = Gay, bisexual, and other men who have sex with men (collectively referred to as MSM); MSW = Men who have sex with women only.
Pelvic Inflammatory Disease — Initial Visits to Physicians’ Offices Among Women Aged 15–44 Years, United States, 2006–2014

Visits (in thousands)

Year

NOTE: The relative standard errors for these estimates are 16% to 23%.

SOURCE: National Disease and Therapeutic Index, IMS Health, Integrated Promotional Services™, IMS Health Report, 1966–2014. The 2015 data were not obtained in time to include them in this report.
Should we Screen Women at Extra-genital Sites?
<table>
<thead>
<tr>
<th>Author</th>
<th>Study Population</th>
<th>Test Positivity</th>
<th>Isolated Rectal Infections</th>
<th>Screening strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunte, 2010</td>
<td>97 female STD clinic; Miami, FL</td>
<td>13.4% GC 17.5% CT</td>
<td>38% GC 6% CT</td>
<td>Report anal sex</td>
</tr>
<tr>
<td>Raychaudhuri, 2010</td>
<td>11,388 female STD Clinic; UK</td>
<td>0.5% GC</td>
<td>7% (12/180)</td>
<td>Unclear</td>
</tr>
<tr>
<td>Giannini, 2010</td>
<td>Adolescents; Retrospective; Cincinnati, OH</td>
<td>5.4% GC</td>
<td>1.9% R-GC</td>
<td>Unknown</td>
</tr>
<tr>
<td>Peters, 2011</td>
<td>4299 female STD Clinic; The Netherlands</td>
<td>0.35% R-GC</td>
<td>6.3% R-GC 3.4% R-CT</td>
<td>By sexual history</td>
</tr>
<tr>
<td>Javanbakht, 2012</td>
<td>2084 female STD Clinic; anal sex &lt; 3 months</td>
<td>19% GC 25% CT</td>
<td>All women in study</td>
<td></td>
</tr>
<tr>
<td>Barry, 2010</td>
<td>1308, women San Francisco STD Clinic</td>
<td>1.0% (increased case detected 14.8%)</td>
<td>All women receiving pelvic exams</td>
<td></td>
</tr>
<tr>
<td>Van Liere, 2014</td>
<td>1321 High Risk women Netherlands</td>
<td>4.8% CT 0.9% GC</td>
<td>14.1% CT 4.9% GC</td>
<td>All high-risk women</td>
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</tbody>
</table>
| Gratrix, 2015   | 1570 women Calgary, 1485 women Edmonton             | Calgary:  R-CT 11.7%  
Edmonton: 13.5% R-CT  | Calgary: 46.6% RCT only  
Edmonton: 17.8% RCT only | Calgary: all women getting pelvic  
Edmonton: high risk women |