

Performance of Self-collected penile swabs for the detection of *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, and *Mycoplasma genitalium*



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WORLD 2015
STI & HIV CONGRESS

BRISBANE AUSTRALIA
13 - 16 SEPTEMBER
www.worldsti2015.com

Disclosures

- **I have received funding for research grants and have been a lecturer for Becton Dickinson, Gen-Probe/Hologic, Abbott Molecular Diagnostics, Siemens Health Care Diagnostics, Sekisui, and Cepheid**

Background

- **Clinician-collected urethral swabs are used for culture of gonorrhea (NG) in males and for detection of chlamydia (CT) and NG by NAATs**
- **We hypothesized self-collected penile-meatal swabs would perform as well as urethral swabs for detection of CT, NG, trichomonas (TV) and mycoplasma (MG) and that they would be acceptable to males**

Methods

- **Men having urethral swabs obtained for NG culture in the STD clinic volunteered to collect penile-meatal swabs**
- **Urethral swabs and paired penile-meatal swabs were placed into separate transport media for testing by NAATS**
- **NAATs were performed for CT, NG, TV, and MG for urethral and penile-meatal swab pairs**
- **Acceptability questionnaires were given**
- **Gram Stain & culture results for GC determined**

Results

Race: 93.6% Black

Symptoms: 62.5% Symptomatic

Age (years)

17-20	8.4%
21-30	48.8%
31-40	16.2%
41-50	9.3%
>50	15.8%

PN last 90 days:

1	50%
2-4	38%
5-9	3.4%

Condom Use: Never: 13.

Results

Of 203 paired urethral/penile-meatal swabs:

- **CT: 32 penile positive (15.8%)
31 urethral positive (15.3%)**
- **NG: 29 penile positives (14.3%)
27 urethral positives (13.3%)**
- **TV: 23 penile positives (11.3%)
20 urethral positives (9.9%)**
- **MG: 24 penile were positive (11.8%)
29 urethral were positive (14.3%)**

Results

Table 1. *Chlamydia trachomatis*,

	Urethral Positive	Urethral Negative
Penile Positive	30	2
Penile Negative	1	170

Sensitivity: 96.8%

Specificity: 98.8%

PPV: 93.8%

NPV: 99.4%

Results

Table 2. *Neisseria gonorrhoeae*

	Urethral Positive	Urethral Negative
Penile Positive	27	2
Penile Negative	0	174

Sensitivity: 100% **Specificity: 98.9%**

PPV: 93.1% **NPV: 100%**

Of the 29 urethral/penile NG NAAT positives, 25 were positive by Gram Stain and 21 were positive by culture.

Results

Table 3. *Trichomonas vaginalis*

	Urethral Positive	Urethral Negative
Penile Positive	17	6
Penile Negative	3	177

Sensitivity: 85.0%
Specificity: 96.8%
PPV: 73.9%
NPV: 98.3%

Results

Table 4. *Mycoplasma genitalium*

	Urethral Positive	Urethral Negative
Penile Positive	23	1
Penile Negative	6	173

Sensitivity: 79.3%

Specificity: 99.4%

PPV: 95.3%

NPV: 96.6%

Results

- **There were no significant statistical differences in accuracy between self-collected penile swabs and clinician-collected urethral swabs for NAATs**
- **p=0.625 for CT**
- **p=0.248 for NG**
- **p=0.344 for TV**
- **p=0.070 for MG**

Acceptability (n = 199)

- 100% of men preferred penile-meatal swabs for diagnosis of STIs

Survey Question					
Ease Of Use	Very Easy	Easy	OK	Hard	Very Hard
	58.1%	32%	7.9%	0%	0%
Pay for OTC home test	\$10	\$20	\$30	\$40	\$≥50
	69.4%	15.7%	6.0%	1.5%	5.4%
Pay for Mail-in sample kit	\$10	\$20	\$30	\$40	\$≥50
	68.0%	17.2%	6.4%	1.0%	5.4%

Conclusions

- **Penile-meatal swabs appeared to be as accurate as urethral swabs for CT, NG, TV and MG detection**
- **Preference for self-collection over urethral swabs was 100%**
- **Such self-collected swabs could expedite express visits in STD clinics**
- **They show promise as a method of utilizing one sample for multiple STIs**

Acknowledgements Co-Authors

- **Laura Dize**
- **Mathilda Barnes**
- **Perry Barnes**
- **Yu-Hsiang Hsieh**
- **Della Duncan**
- **Vince Marsigila**

