Performance of self-collected penile-meatal swabs compared to urine for detection of STIs in a low resource setting with high prevalence of STIs

Johan H. Melendez, Matthew M. Hamill, Yukari C. Manabe

Johns Hopkins School of Medicine, Baltimore, Maryland.

BACKGROUND

- Despite high burden of sexually transmitted infections (STIs), testing for STIs is not routinely performed in Uganda.
- Due to lack of testing and surveillance, there is limited data on the prevalence of STIs in this setting.
- We tested self-collected penile-meatal swabs and urine for four curable STIs from symptomatic men in Kampala, Uganda.

METHODS

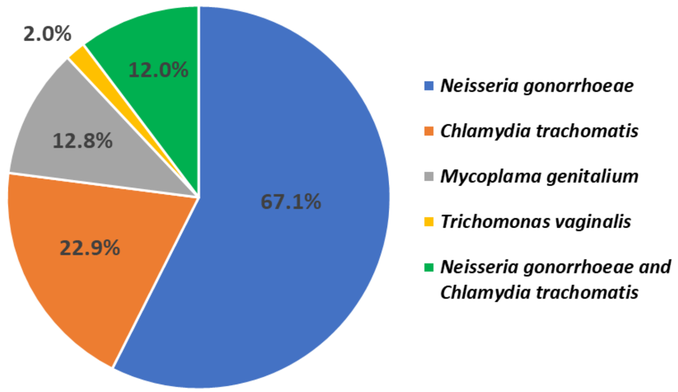
- Men with Symptomatic urethritis (n=250) were recruited at six government health centers that were part of the extended gonococcal surveillance program in Kampala, Uganda between October 2019 and November 2020 and penile-meatal swabs, urine, and blood were collected.
- Penile-meatal swabs and urine were tested for *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Mycoplasma genitalium* (MG), and *Trichomonas vaginalis* (TV) using the Aptima CT/NG, TV, and MG NAAT assays (Hologic Inc., Marlborough, MA)

RESULTS

Characteristics of study participants

	All participants (N=250) n (%)
Age median [IQR]	24.0 [22.0,32.0]
Age group	
16-20	34 (13.6)
21-24	97 (38.8)
25-34	70 (28.0)
>=35	49 (19.6)
Sexual Orientation	
Heterosexual	238 (95.2)
Homosexual/Bisexual	12 (4.8)
HIV	
Neg	200 (80.0)
Pos	50 (20.0)
Syphilis	
Neg	225 (90.0)
Pos	25 (10.0)

Prevalence of STIs



Chlamydia trachomatis

Swab \ Urine	POS	NEG
POS	51	3
NEG	3	193

Concordance: 97.6%

Neisseria gonorrhoeae

Swab \ Urine	POS	NEG
POS	163	2
NEG	3	82

Concordance: 98.0%

Mycoplasma genitalium

Swab \ Urine	POS	NEG
POS	30	1
NEG	1	218

Concordance: 99.2%

Trichomonas vaginalis

Swab \ Urine	POS	NEG
POS	4	0
NEG	1	194

Concordance: 99.5%

98.3% (97.7%,99.3%) overall agreement between self-collected penile-meatal swabs and urine for detection of STIs

CONCLUSIONS

- High prevalence of STIs in Ugandan men with urethritis.
- Self-collected penile-meatal swabs and urine are both suitable specimen types for detection of STIs by NAAT.
- Self-collected specimens offer additional flexibility for STI diagnostic testing in resource-limited settings for both individuals and public health surveillance.