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## Background

- Trichomonas vaginalis* (TV) is a sexually transmitted infection (STI), which is estimated to be the most common non-viral STI worldwide.
- Global estimates of TV prevalence suggest that it exceeds that of gonorrhea (NG) and chlamydia (CT) combined and yet there are no established screening, surveillance or control programs for men or women in Canada
- As many as 85% of persons infected with TV do not have any symptoms and if left untreated, infections can last for months to years.
- TV is associated with urethritis, epididymitis, vaginitis, cervicitis, PID, preterm birth, and an increased risk of HIV acquisition.
- Currently available tests for TV, including the “wet mount” currently offered at Alberta STI clinics have a reported sensitivity of 35-70%<sup>1</sup>.
- Health Canada recently approved test kits using nucleic acid tests (Gen-Probe Aptima *Trichomonas vaginalis* Assay, Gen-Probe Inc, San Diego, CA).
- No Alberta data exists on the prevalence of TV in STI Clinic attendees.

## Objectives

- To determine the prevalence and correlates of *T. vaginalis* in urogenital specimens from male and female attendees at 2 Alberta STI clinics
- To compare the test performance from different urogenital specimens in females.

## Methods

- Specimens collected from January to April, 2016 for gonorrhea (NG) and Chlamydia (CT) screening from urogenital sites among male and female attendees (>17 years old) at two Alberta STI Clinics were tested for TV.
- The Gen-Probe Aptima *Trichomonas vaginalis* Assay (Gen-Probe Inc, San Diego, CA) was used to test endocervical, vaginal and urine specimens.
- For a female sub-population, test results from endocervical and urine specimens collected on the same individuals at the same visit were compared and the proportion of discordant results was calculated.
- Binomial logistic regression was completed using IBM SPSS Statistics version 19.0 (IBM, Armonk, NY, USA).
- Ethics approval was obtained from the University of Alberta’s Health Research Ethics Board.

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### Results

- A total of 2,273 individuals were tested.
- Over one-half (53.6%; n=1,218) were males, of which 355 (29%) were men who have sex with men (MSM); all men were tested via urine samples.
- The male TV prevalence was 0.2% (n=3)
  - All male cases were asymptomatic, and heterosexual.
  - The male prevalence for CT was 5.8% and NG was 1.8%.
- The overall TV prevalence for females was 2.8% (n=29; combining endocervical/vaginal and urine results)
  - The female prevalence for CT was 5.7% and NG was 1.8%.
  - The TV prevalence among symptomatic women rose to 5.3% (21/397).
- Univariate correlates associated with TV infection among females were older median age (30y. vs. 27y.; p=0.04), Indigenous ethnicity (p<0.001), being symptomatic (p<0.001), and requiring a pelvic exam (p=0.01).

**Table 1. Female Prevalence of *T. vaginalis* by patient characteristics (Alberta STI Clinics, January to April 2016, N= 1,055).**

	n/N	%	95% CI
<b>Age</b>			
18-20	1/116	0.9	0.0-2.8
21-30	24/583	2.4	1.2-3.7
31-40	9/239	3.8	1.3-6.2
41-50	3/82	3.7	0.0-7.8
50+	2/35	5.7	0.0-13.8
<b>Ethnicity</b>			
Indigenous	12/119	10.1	4.6-15.6
Caucasian	10/736	1.4	0.5-2.2
Other	7/148	4.7	1.3-8.2
<b>Symptomatic</b>			
Yes	21/399	5.3	3.1-7.5
No	8/619	1.3	0.4-2.2
<b>Pelvic Exam</b>			
Yes	19/445	4.3	2.4-6.2
No	10/610	1.6	0.06-2.7
<b>STI Co-infections</b>			
CT co-infection	3/60	5.0	0.0-10.7
NG co-infection	2/19	10.5	0.0-25.7
<b>Clinic Location</b>			
Calgary	9/440	2.0	0.7-3.4
Edmonton	20/615	3.3	1.9-4.7

Denominators may not add up to sample size due to missing data.

### Results

- Independent correlates of infection with TV were Indigenous ethnicity (AOR=7.0 95%CI 2.9-16.9) and Other ethnicity (AOR=3.9 95%CI 1.5-10.8) vs. Caucasian, being symptomatic (AOR= 3.6 95%CI 1.6-8.3), and older age (AOR=1.0 95%CI 1.0-1.1).
- Only 6/29 (21%) female specimens positive using the Gen-Probe Aptima TV test were positive by wet mount (based on clinic criteria for wet mount: symptoms or signs of vaginal discharge).
- There was high concordance of results between urine and cervical swabs (99.2%); the three (0.8%) specimens that were negative by urine were positive by swabs (Table 2).

**Table 2. Concordance of *T. vaginalis* Results from Cervical and Urine Screening among Women.**

		Cervix		
		TV Negative	TV Positive	Total
Urine	TV Negative	364	3	367
	TV Positive	0	13	13
	Total	364	16	380

13+364/380=99.2% concordance between cervical and urine results.

## Conclusions

- Our study showed a prevalence of TV of 2.5% in female attendees at two Canadian STI Clinics, which is at the lower end of the range reported in other studies (0.3-30%), but between that of chlamydia and gonorrhea.
- No cases were identified among MSM and prevalence was very low (0.2%) in heterosexual males, all of whom were asymptomatic.
- The use of wet mount as a screening test in females would have missed more than 75% of female TV cases.

## References

- Patel, S. R., W. Wiese, S. C. Patel, C. Ohl, J. C. Byrd, and C. A. Estrada. 2000. Systematic review of diagnostic tests for vaginal trichomoniasis. *Infect. Dis. Obstet. Gynecol.* 8:248–257.