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Enteric and sexually acquired pathogens in men who have sex with men with clinical proctitis

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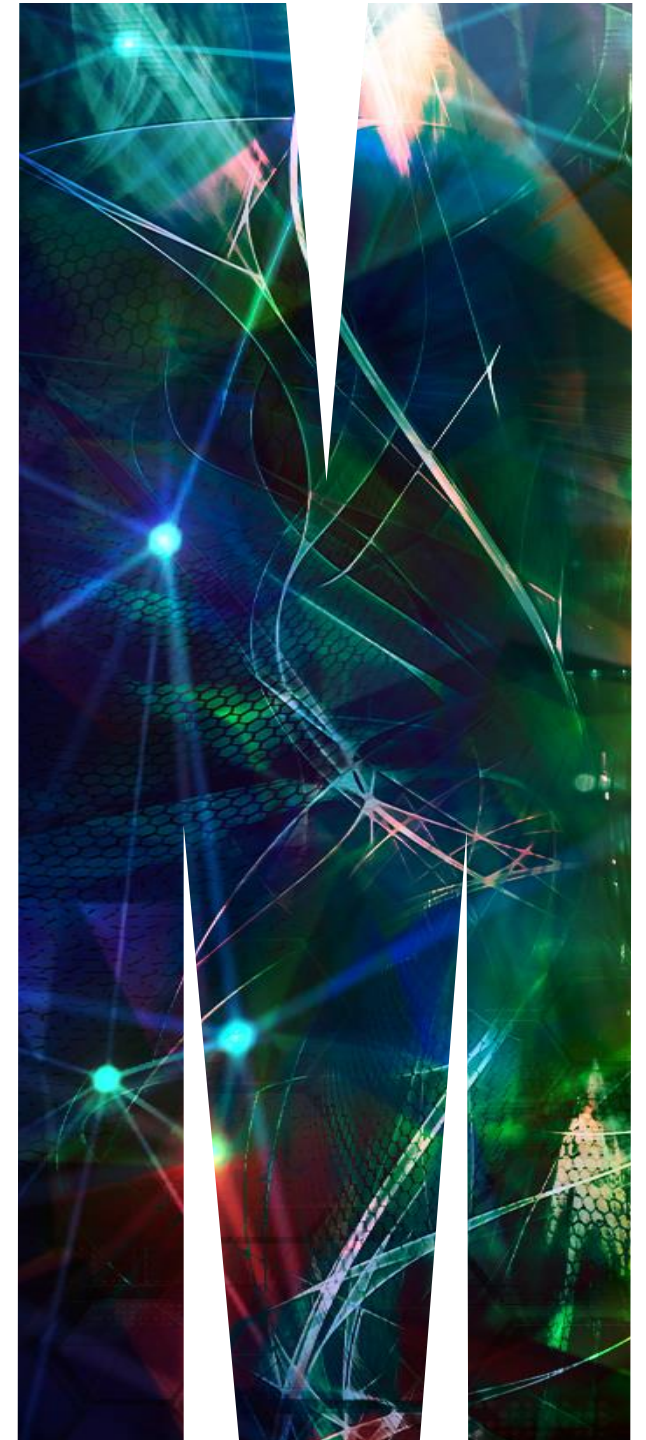
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Disclosures



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Background



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- *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are the most common causes of rectal STIs among MSM.
- Most rectal infections from chlamydia and gonorrhoea are asymptomatic; however, a proportion of cases result in symptomatic proctitis.
 - A study of 279 proctitis cases: 23% had CT detected and 12% had NG detected.¹
- Symptoms from proctitis in MSM include anorectal pain, discharge, bleeding and tenesmus.
- Past studies with sample size ranged from 26 to 279, examining no more than 10 different pathogens.¹⁻⁵



Image from freepik.



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¹Bissessor M, et al. *STD*. 2013; 40(10): 768-770.

²Quinn TC, et al. *Am J Med*. 1981;71(3):395-406.

³Quinn TC, et al. *N Engl J Med* 1983; 309(10): 576-582.

⁴Klausner JD, et al. *Clin Infect Dis* 2004; 38(2): 300-302.

⁵Laughon BE, et al. *Gastroenterol* 1988; 94(4): 984-993.

- Aimed to describe a range of sexually acquired rectal and enteric pathogens among MSM presenting with proctitis using NAAT and to compare these with asymptomatic MSM without proctitis.
- As *N. gonorrhoeae* and *C. trachomatis* are well-established causes of proctitis in MSM, we were specifically interested in elucidating the role of other pathogens, particularly *T. pallidum* and *Shigella*, given the increase in these infections among MSM since the 2010s.

- Melbourne Sexual Health Centre (MSHC)
- Men reported anorectal symptoms
 - Visual examination of the anal canal and perianal area for signs including anal discharge and ulceration.
 - Clinical diagnosis of proctitis was based on clinical criteria including symptoms (e.g. anorectal pain, anal discharge, bleeding and/or tenesmus) and signs.
 - Proctoscopy was not routinely performed in men with suspected proctitis.
 - A blind anal swab was collected by the clinician for gonorrhoea and chlamydia testing using Aptima Combo 2 (Hologic) NAAT.
 - Storage of anal specimens among patients with proctitis tested negative for NG and CT with an opt-out consent.
- Two groups of MSM were included in this study.
- Ethical approval for this study was obtained from the Alfred Hospital Ethics Committee, Melbourne, Australia (approval numbers: 271/18 and 44/19).



Two cohorts



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	Group 1: Men with proctitis	Group 2: Asymptomatic MSM
Diagnosis of proctitis	Yes	No
Study setting	Stored specimens at MSHC	A previous cross-sectional study ¹

Open Forum Infectious Diseases

BRIEF REPORT

Risk Factors for Asymptomatic Enteric Pathogen Detection Among Men Who Have Sex With Men

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Improved knowledge of factors that promote outbreaks of enteric pathogens among men who have sex with men (MSM) could enable targeted public health interventions. We detected enteric pathogens in 57 of 519 (11%) asymptomatic MSM, and we found that enteric pathogen detection was associated with both oroanal sex (rimming) and group sex.

Keywords. enteric pathogens; epidemiology; gastrointestinal disease; sexually transmitted infections.



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Two cohorts



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	Group 1: Men with proctitis	Group 2: Asymptomatic MSM
Diagnosis of proctitis	Yes	No
Study setting	Stored specimens at MSHC	A previous cross-sectional study ¹
Specimens	Stored anal specimens	Stored anal specimens
Study period	January 2017 and March 2019	November 2018 to February 2019
No. of specimens included	499	506



Laboratory testing



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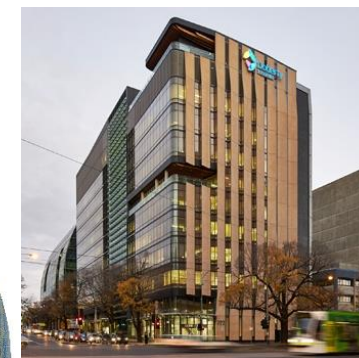


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- All laboratory testings were conducted at Microbiological Diagnostic Unit Public Health Laboratory at The Peter Doherty Institute for Infection and Immunity.
- Speedx multiplex PCR assay (Speedx Pty Ltd., Sydney, Australia)
 - HSV-1, HSV-2, Varicella Zoster Virus and *Treponema pallidum*, *Trichomonas vaginalis* and *Mycoplasma genitalium*.
- AusDiagnostics Faecal Pathogen M 16-well assay (AusDiagnostics Pty Ltd., Sydney, Australia)



Darren Lee



VIRUSES

Norovirus genotypes G.1 & G.2

Rotavirus

Astrovirus

Adenovirus groups F and G

PARASITES

Giardia duodenalis (G. lamblia)

Entamoeba histolytica

Cryptosporidium hominis & parvum

BACTERIA

Salmonella spp.

Campylobacter spp.

Shigella spp.

Shigatoxin 1 & 2

Clostridium difficile

Yersinia enterocolitica & pseudotuberculosis

Aeromonas spp.



Demographic characteristics



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- No significant difference in age, HIV status and PrEP use between the two groups.

	Men with proctitis (N=499)	Asymptomatic men (N=506)	P value [^]
Age, median (IQR)	31 (26-38)	32 (26-40)	0.079
HIV status / PrEP use			0.106
<i>HIV positive</i>	80 (16.0%)	75 (14.8%)	
<i>HIV negative taking PrEP</i>	189 (37.9%)	223 (44.1%)	
<i>HIV negative not taking PrEP</i>	234 (46.9%)	208 (41.1%)	

[^]Mann-Whitney U test was performed to compare median age; and chi-squared test was performed to compare HIV/PrEP.



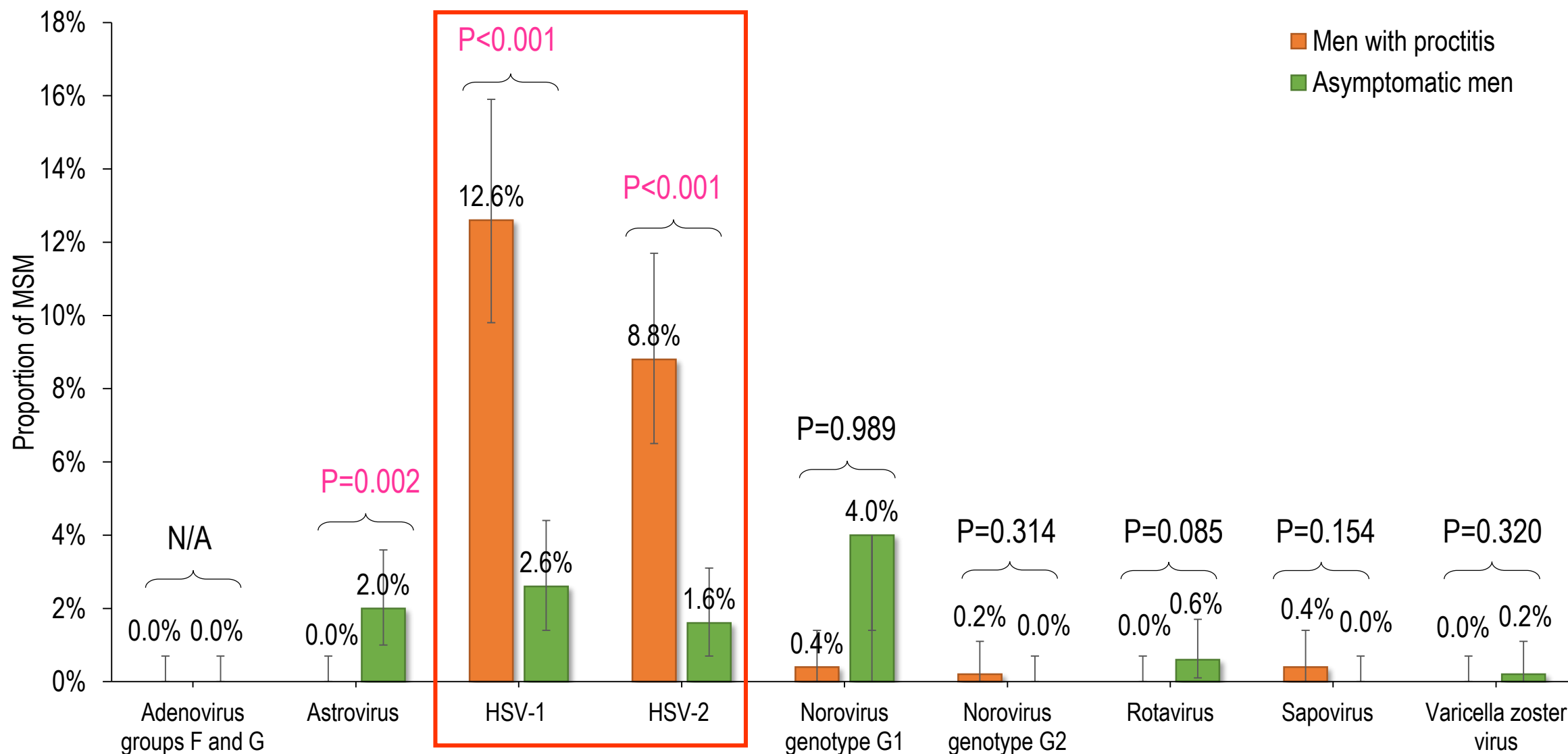
Viral infections



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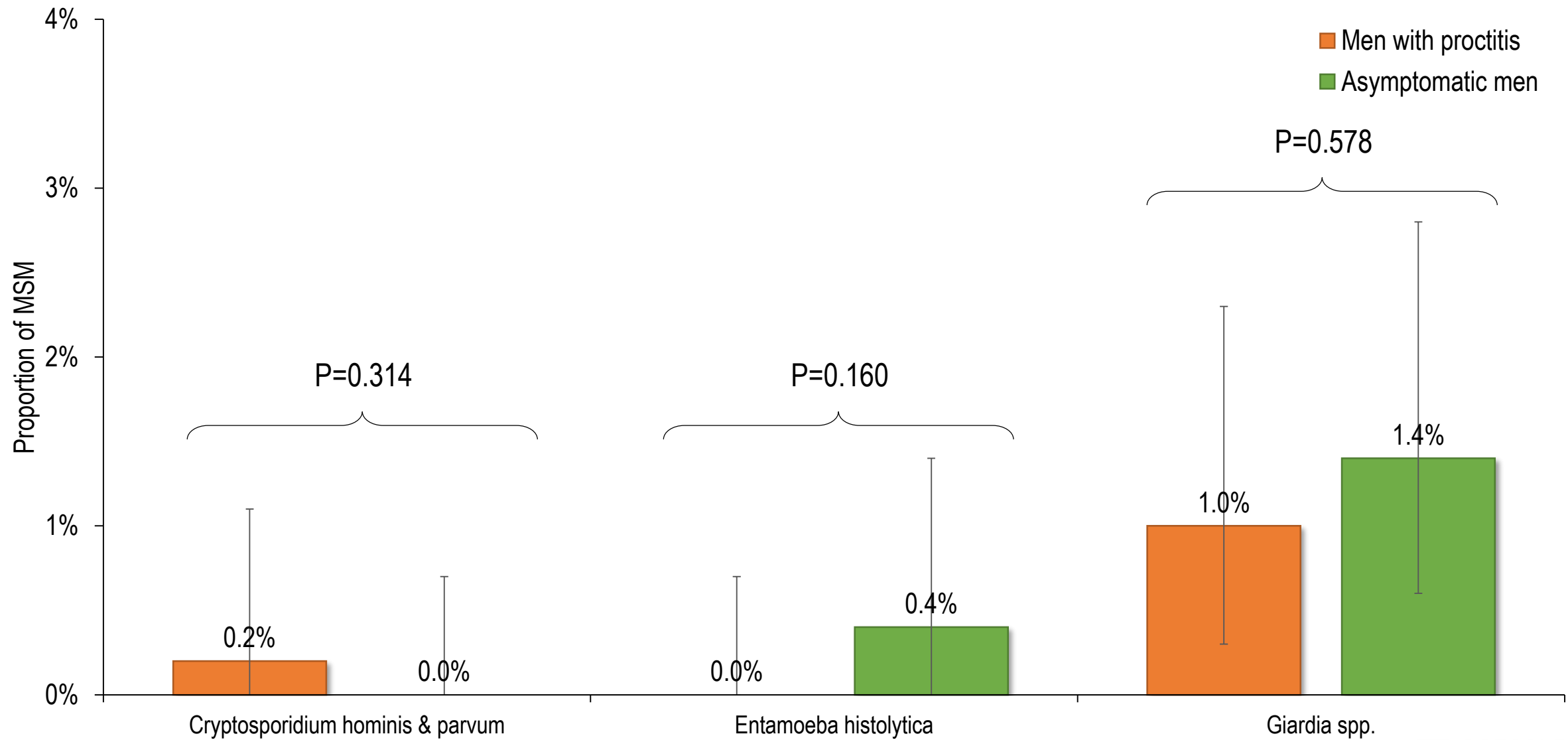


Protozoal Infections



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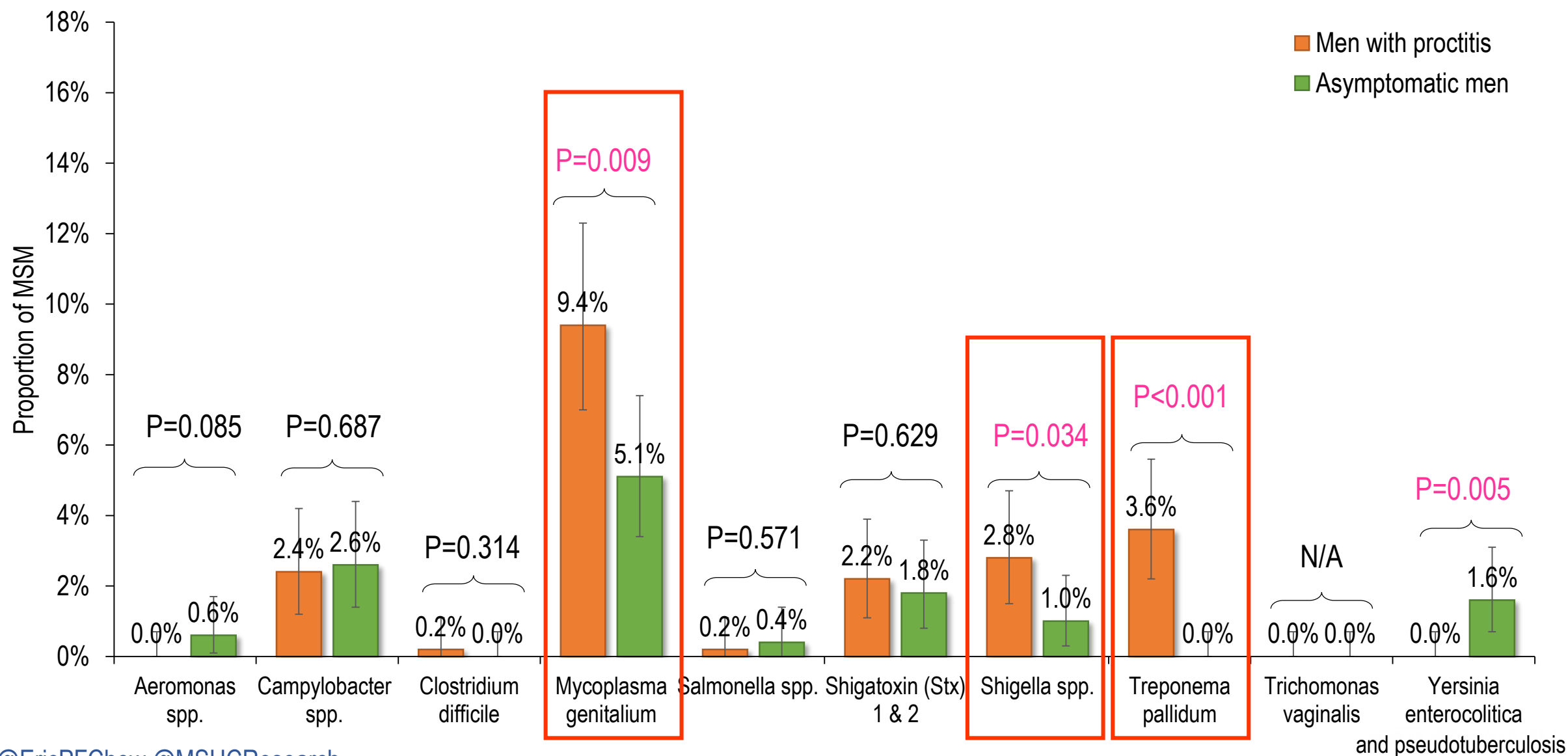
Bacterial Infections



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Men with proctitis & *Shigella* spp.



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ID	Age	HIV status	PrEP use	Anorectal pain	Anal discharge	Anal bleeding	Tenesmus	Diarrhoea	Other pathogens detected*
1	46	Positive	NA	Y	Y	Y	Y	Y	–
2	40	Negative	Y	Y	Y	Y	Y	Y	–
3	31	Negative	N	N	Y	N	N	N	–
4	23	Negative	Y	Y	Y	Y	Y	N	–
5	30	Negative	N	Y	Y	N	Y	N	–
6	69	Positive	NA	Y	Y	Y	Y	N	–
7	30	Negative	Y	N	N	N	N	N	–
8	41	Negative	Y	Y	N	Y	N	N	–
9	48	Negative	Y	Y	Y	Y	Y	N	–
10	36	Negative	Y	Y	Y	Y	Y	N	<i>C. trachomatis</i>
11	24	Negative	Y	Y	N	N	N	N	–
12	31	Negative	N	Y	Y	N	Y	Y	–
13	42	Negative	Y	Y	N	Y	N	N	–
14	39	Positive	NA	Y	N	N	N	N	HSV-1

86%

64%

57%

57%

21%



Men with proctitis & *T. pallidum*



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ID	Age	HIV status	PrEP	Anorectal pain	Anal discharge	Anal bleeding	Tenesmus	Anal signs*	Other signs	RPR titre	CLIA*	TPPA*	Diagnosis	Other pathogens detected ^
1	29	Negative	Y	Y	N	Y	N	Vesicles, ulcer	N	8	R	R	Primary	N
2	29	Negative	N	Y	N	Y	N	Tender ulcer	N	4	R	R	Primary	Mgen
3	37	Negative	Y	Y	N	Y	Y	Ulcer	N	4	R	R	Primary	N
4	25	Negative	N	Y	N	Y	Y	N	N	128	R	R	Primary*	N
5	27	Negative	N	Y	N	N	N	N	N	NR	R	R	Primary*	N
6	31	Negative	Y	Y	Y	N	Y	Ulcers	N	2	R	R	Primary	N
7	38	Negative	N	Y	N	Y	Y	Ulcers	N	16	R	R	Primary	N
8	26	Negative	N	Y	N	N	N	Ulcers	N	NR	NR	NR	Primary	Shiga toxin -1, Mgen
9	32	Negative	N	Y	Y	Y	Y	N	Penile rash	64	R	R	Secondary	Giardia
10	38	Negative	Y	Y	N	N	N	N	N	4	R	R	Primary*	N
11	30	Negative	N	Y	Y	Y	N	Ulcer	Generalised rash	128	R	R	Secondary	HSV 1
12	24	Negative	N	Y	Y	Y	N	Tender ulcer	N	2	R	R	Primary	HSV 1
13	36	Positive	NA	Y	Y	N	N	N	N	64	R	R	Primary*	N
14	39	Positive	NA	Y	N	Y	N	N	N	8	R	R	Primary*	N
15	60	Positive	NA	Y	N	N	N	Tender ulcer	N	64	R	R	Primary	N
16	29	Positive	NA	Y	Y	N	N	Ulcer	Buttock rash	>512	R	R	Secondary	N
17	24	Positive	NA	N	Y	N	Y	Vesicles	N	NR	R	R	Primary	N
18	27	Positive	NA	Y	Y	Y	Y	Tender ulcer	N	16	R	R	Primary	HSV 2

94%

44%

56%

39%

17/18 (94%) had reactive
serological tests for syphilis

Most didn't have a
concurrent rectal
pathogens



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*CLIA=chemiluminescence immunoassay; TPPA=*Treponema pallidum* Particle Agglutination; R = Reactive; NR = Non-reactive. Of the 17 men with reactive serology 16 had non-reactive serology within the previous 12 months.

Men with proctitis & *T. pallidum*



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ID	Age	HIV status	PrEP	Anorectal pain	Anal discharge	Anal bleeding	Tenesmus	Anal signs*	Other signs	RPR titre	CLIA ⁱ	TPPA ⁱ	Diagnosis [#]	Other pathogens detected [^]
4	25	Negative	N	Y	N	Y	Y	N	N	128	R	R	Primary*	N
5	27	Negative	N	Y	N	N	N	N	N	NR	R	R	Primary*	N
10	38	Negative	Y	Y	N	N	N	N	N	4	R	R	Primary*	N
13	36	Positive	NA	Y	Y	N	N	N	N	64	R	R	Primary*	N
14	39	Positive	NA	Y	N	Y	N	N	N	8	R	R	Primary*	N

5 men with anal *T. pallidum* detected but no anal ulcer visible externally



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Men with proctitis & MG ($n=47$)



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Anorectal pain
(81%)

Anal bleeding
(38%)

Anal discharge
(28%)

Tenesmus
(23%)



Limitations



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- Proctitis was a presumptive clinical diagnosis made by a sexual health clinician based on clinical findings, prior to the availability of test results.
 - No standard definition for the diagnosis of infectious proctitis.
 - Invasive rectal biopsy and proctoscopy were not performed.
- The likelihood of rectal pathogens will reflect sexual risk behaviours including condomless receptive anal sex but sexual practices data were not collected as stored samples were used.
- A substantial proportion of men with proctitis had no pathogen detected. It is uncertain whether these men had an infectious cause.



- The largest study of proctitis to date and the only study to have tested for such a broad range of potential viral, bacterial and protozoal rectal pathogens using sensitive NAAT assays.
- *T. pallidum*, *Shigella* and *M. genitalium* were each detected more frequently among men presenting with symptomatic proctitis compared with asymptomatic men
 - Earlier studies found that *T. pallidum* to be a less common cause of proctitis among MSM because dark ground microscopy was used or serology can be negative during primary syphilis.
 - Most of the men with *Shigella* associated proctitis did not report diarrhoea. This may be because MSM with *Shigella* and diarrhoea are more likely to present to health services other than a sexual health clinic.
 - Testing for *Shigella* should be considered in MSM with proctitis even where diarrhoea is absent.

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**Kit
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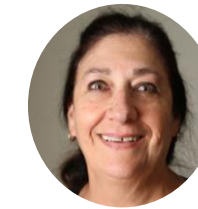
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