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Paper Poster Session

STI due to *Chlamydia trachomatis* and *Neisseria gonorrhoeae*

Determination of (extra)genital *Chlamydia trachomatis* bacterial loads and comparison between women, heterosexual men and men who have sex with men

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Background: *Chlamydia trachomatis* (CT) is the most common sexually transmitted infection (STI) worldwide with a rising prevalence. Most infections are initially asymptomatic but can lead to severe complications if left untreated. Several studies investigated the association between CT load and direct morbidity but none have compared CT load between different STI risk groups at various anatomic locations. To expand the understanding of the impact of CT load, to inform care optimization, we here compare the (extra)genital CT load between women, heterosexual men and men who have sex with men (MSM) and explore associated determinants.

Material/methods: This cross-sectional study includes 1658 samples from CT positive patients attending our outpatient STI clinic (Limburg, 2010-2014). Samples include self-collected vaginal swabs (women), first-void urine (heterosexual men and MSM), self-collected anorectal swabs (women and MSM), and nurse-taken oropharyngeal swabs (women and MSM). Determination of the bacterial load was based on the PCR cycle threshold (Ct) value using NAAT (Cobas Amplicor until 2012 and Cobas 4800 afterwards, Roche Diagnostics), where lower Ct values indicate higher CT loads. Linear regression analyses were used to assess differences in CT load between the three target groups. Associated determinants evaluated were age, HIV, *Neisseria gonorrhoea* (NG), concurrent CT infections at other anatomic locations, anal sex, number of partners (past six months) and being a swinger.

Results: Oropharyngeal and anorectal Ct values did not differ ($p > 0.05$) between MSM and women (Table 1). Urine Ct values in MSM were lower than in heterosexual men, indicating higher CT bacterial loads in MSM. Determinants associated with genital Ct values were NG (women; cervicovaginal), HIV co-infection (MSM; urine) and age (all target groups), indicating higher bacterial loads when co-infection is present and with younger age. Anorectal Ct value was associated with anal sex, indicating that the CT load in women and in MSM is higher when anal sex was reported.

Table 1. Preliminary results.

MSM		Heterosexual men				Women			
N	Mean Ct	N	Mean Ct	Δ	95%-CI	N	Mean Ct	Δ	95%-CI

	samples	(SD)	samples	(SD)			samples	(SD)		
Oropharyngeal	12	35.7 (3.7)					14	36.6 (2.8)	1,0	-1.7 – 3.6
Anorectal	140	33.0 (3.8)					159	33.9 (4.1)	0.9	0.0 – 1.8
Urine	79	33.7 (3.2)	500	32.7 (3.1)	-1.0*	-1,8 – -0.3				
Cervicovaginal							747	30.8 (4.0)		

*P<0.05

Conclusions: Urine CT loads differ between MSM and heterosexual men. Co-infections with HIV and NG, and younger age may increase CT genital loads. Extragenital load is similar in women and in MSM while anorectal CT load is increased when anal sex is reported. This underpins the needs for CT testing. Further exploration is needed whether the associated determinants could be indicators for more targeted testing, i.e. testing targeted to risk groups and anatomic sites.