Epidemiology poster session 1: STI trends

P1-S1.01 TRENDS IN CHLAMYDIA AND GONORRHOEA POSITIVITY AMONG HETEROSEXUAL MEN AND MEN WHO HAVE SEX WITH MEN (MSM) ATTENDING A LARGE URBAN SEXUAL HEALTH SERVICE IN AUSTRALIA, 2002–2009

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Background Notifications for Sexually transmitted infections cannot be used to measure changing incidence or prevalence of infection if a substantial proportion of infections are asymptomatic and screening rates are low. This analysis aimed to determine whether chlamydia positivity among heterosexual men and chlamydia and gonorrhoea positivity among men who have sex with men (MSM) have changed over time after adjusting for sexual risk.

Methods Computerised records for men attending a large sexual health clinic between 2002 and 2009 were analysed. Urethral chlamydia positivity in all men, and anal chlamydia and anal and pharyngeal gonorrhoea positivity in MSM was calculated. Logistic regression was used to assess change in positivity over time adjusting for demographic, clinical, and sexual behavioural risk factors. Testing data from the Victorian Infectious Diseases Reference Laboratory (VIDRL) was also included to supplement the MSHC data.

Results 17769 heterosexual men and 8328 MSM tested for chlamydia and 7133 MSM tested for gonorrhoea between 2002 and 2009. In heterosexual men, 7.37% (95% CI 6.99 to 7.77) were chlamydia positive with positivity increasing by 4% per year (OR 1.04, 95% CI 1.01 to 1.07) in multivariate analysis. In MSM, 3.70% (95% CI 3.30 to 4.14) had a urethral chlamydia infection and 5.36% (95% CI 4.82 to 5.96) had an anal chlamydia infection, but positivity did not change over time. In MSM, 3.05% (95% CI 2.63 to 3.53) tested positive for anal gonorrhoea and 1.83% (95% CI 1.53 to 2.18) for pharyngeal gonorrhoea. Univariate analysis found anal gonorrhoea positivity had decreased (OR 0.93; 95% CI 0.87 to 1.00), but after multivariate analysis adjusting for sexual risk there was no change. Urethral gonorrhoea cases in MSM as a percentage of all MSM tested for gonorrhoea also fell ($p<0.001$). The gonorrhoea and chlamydia infection rates in MSM from VIDRL supported our clinic findings showing significant declines in anal and pharyngeal gonorrhoea infections over time and a less marked, but also significant, decline in anal chlamydia; however only univariate analysis was possible.

Conclusions These data suggest that chlamydia prevalence in heterosexual men is rising and chlamydia and gonorrhoea prevalence among MSM is stable or declining. High STI testing rates among MSM in Australia may explain differences in STI trends between MSM and heterosexual men.

P1-S1.02 ASSESSING HETEROGENEITY IN THE INCIDENCE OF CHLAMYDIA AND GONORRHOEA IN AN URBAN CANADIAN SETTING—A POPULATION-BASED ANALYSIS

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Introduction A combination of increased testing and improved testing modalities has contributed to substantially higher incidences of chlamydia (CT) and gonorrhoea (GC) infections globally. Previous studies have noted the differing epidemiological profiles of CT and GC, resulting in different public health prevention and intervention strategies. Using a population-based perspective, this study describes recent trends, and assesses inequalities in the geographic distribution of CT and GC in a Canadian city.

Methods Analyses included all laboratory-confirmed cases of CT and GC among residents of the Winnipeg Health Region from 1996 to 2008. Annual CT and GC incidence rates were directly age-standardised to the 2000 Winnipeg Health Region population. Adjusted rate ratios (ARR) for the effect of age and gender, and 95% 95% CI, were estimated by negative binomial regression models. Generalised estimating equations (GEE) were used to correct for clustering within neighbourhood areas (n=25). Inequalities in the neighbourhood area distribution of annual CT and GC rates were measured by the Gini coefficient, with 95% CI estimated by bootstrapped samples. For regression and Gini analyses, cases were grouped into 10–19, 20–29 and 30+ age groups.

Results The age-adjusted incidence of CT increased from 198/100 000 in 1996 to 513/100 000 in 2008. During this same time period, GC increased from 62/100 000 to 89/100 000, with a peak of 133/100 000 in 2006. For females, and compared to those aged 30 or over, equally high rates of CT were observed in those 10–19 (ARR 24.2; 95% CI 18.7 to 31.4, $p<0.0001$) and 20–29 years (ARR 24.4; 95% CI 18.8–31.7, $p<0.0001$). For males, differences in rates were observed in those aged 10–19 (ARR 5.3; 95% CI 4.1 to 6.9, $p<0.0001$) and 20–29 (ARR 10.5; 95% CI 8.2 to 13.5, $p<0.0001$) years. A similar pattern was detected for GC infections. Inequality by neighbourhood area, as measured by Gini coefficients decreased over time for CT infections, regardless of age group. For GC infections, increases were observed in those 30 years or older, for both males and females.

Conclusion Since 1996, the distribution of CT incidence is suggestive of a generalised spread; while for GC the distribution has narrowed in those aged 30 or over, suggestive of concentration among core populations within this age group. CT and GC continue to display differing and dynamic epidemiological profiles.

P1-S1.03 UNDISCOVERED BURDEN OF STIs IN RUSSIA: CURRENT SYSTEM SHORTCOMINGS

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Background At the moment the major source of statistical data on STIs in Russia is the system of dermatovenerologic clinics (DVC). In accordance with Russian legislation DVCs perform periodic screening of economically active population for asymptomatic STIs disclosure and recording. We need to underline that microscopy for *Trichomonas vaginalis* and *Neisseria gonorrhoeae* is the only method involved in this screening. PCR is not approved for the program which means that there is no control over *Chlamydia trachomatis* burden. Thereby, this study was set to evaluate the screening efficacy in terms of one DVC in Moscow, Russia.

Methods This study included asymptomatic women aged 16–45 invited for periodic screening. In the DVC Gram stained smear microscopy for TV and GC was used in accordance with regulatory documents. In addition to the standard process a swab for multiplex PCR analysis (GC/CT/TV/MG) was obtained from each participant. All positive results were confirmed with monoplex PCR assays.

Results According to the official statistical report the overall quantity of people screened in this particular DVC throughout the year 2010 was 16 231. In this study samples from 1125 (6.95%) of them

were examined. PCR detected 20 (1.78%) *CT* cases; 20 (1.78%) MG; 13 (1.16%) TV; 3 (0.27%) GC, whereas microscopy showed no TV or GC positive results. That means that screening revealed no STIs in this group at all. The study showed that the majority of women screened were aged 35–44 (44.2%), p<0.05, whereby the maximum prevalence of CT was observed among 20–34-years-old women (3.5%), p<0.001, MG among 25–34-years-old women (3.3%), p<0.001. We registered no significant TV or GC prevalence distribution among the age groups. It is important to note that the overall STI burden reported by this DVC for 2010 comprised of 9 (0.05%) TV positive cases, no GC was detected among 16 231 persons screened. The data observed in this study allows us to suggest that PCR could reveal the following amounts of STIs in this group—Ct-288 (95% CI 159 to 418); Mg-288 (95% CI 159 to 418); Tv-187 (95% CI 90 to 285); Ng-43 (95% CI 0 to 92).

Conclusions The data obtained shows the inefficacy of the routine STI screening in Russia. Low sensitivity diagnostic tools prevent us from revealing huge amounts of positive results. At the same time implementation of modern methods with higher sensitivities to the ongoing system will lead to more effective STI uncovering, especially in the groups of higher risk.

P1-S1.04 THE PATTERN OF STI BURDEN IN THE CENTRAL REGION OF RUSSIA: CHLAMYDIOSIS VS TRICHOMONIASIS. WHICH ONE IS THE LEADER?

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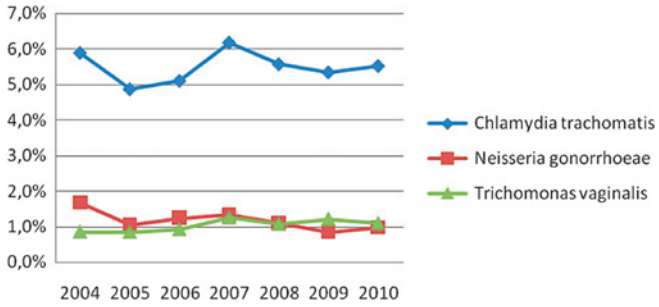
Background Infections caused by *Chlamydia trachomatis* (CT) are proved to lead to such dramatic complications as PID and infertility. That means that CT prevalence control is essential for arranging prophylactic actions. Official statistics claim trichomoniasis to be the most prevalent STI in Russia. For example, the amount of registered TV infections in 2009 was 1.8 times higher than the CT counts. Taking into consideration the absence of CT screening programs among general population along with the use of low sensitivity diagnostic tests (microscopy, DIF), it is reasonable to suppose that the real prevalence proportions are distinct from the official data. In this connection the aim of this study was to evaluate the STI prevalence pattern in a population sampling.

Methods This study included patients attending STD departments of outpatient clinics of Moscow region from 2004 to 2010. Total amount—190 975 patients. For the evaluation of the STIs prevalence correlation samples from these patients we tested simultaneously for CT, GC and TV by PCR.

Results In 2004 a total of 23 (0.86%) (95% CI 13 to 32) TV positive results were obtained; 158 (5.89%) (95% CI 133 to 182) CT positive; infection proportion was 1:6.8 (p=0.05). In 2010 a total of 577 (1.1%) (95% CI 522 to 622) TV positive results were obtained; 2886 (5.52%) (95% CI 2771 to 2980) CT positive; infection proportion was 1:5 (p=0.05). Annually this proportion did not vary dramatically and was no lower than 1:5 (p<0.05). No significant diversity in the rates of TV and GC detection was observed except for 2009, when 521 (1.22%) (95% CI 473 to 562) tested positively for TV; 364 (0.85%) (95% CI 323 to 396) for GC, infection proportion was 1:1.4 (p=0.05) see Abstract P1-S1.04 Figure 1.

Conclusions This study shows that during the period 2004–2010 in a homogenous settings CT rates detected by sensitive methods were five or more times higher than TV rates. This might be an evidence of high CT prevalence and inappropriate official statistical recording of these infections in Russia.



Abstract P1-S1.04 Figure 1 Prevalence of *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis* 2004–2010.

P1-S1.05 THE DETECTION RATE OF *CHLAMYDIA TRACHOMATIS* AND *MYCOPLASMA GENITALIUM* INFECTIONS IN STD CLINICS IN NOVOSIBIRSK, RUSSIAN FEDERATION

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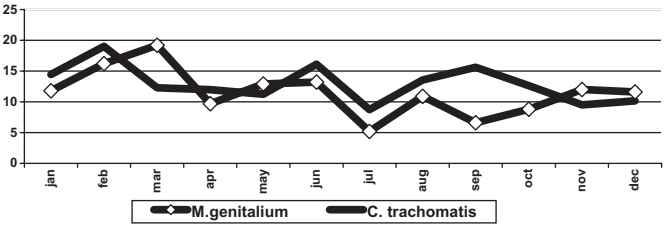
Background Currently, in Russia, the incidence of syphilis, gonorrhoea, chlamydia, trichomoniasis, urogenital herpes, and anogenital warts are officially registered. However, statistical records and reporting forms do not include mycoplasma infections (eg, *Mycoplasma genitalium*).

Methods The aim of the present study was to evaluate the detection rates of *Chlamydia trachomatis* and *M genitalium* infections in patients who had attended to STD clinics in Novosibirsk in 2009–2010. A total of 9208 and 13 006 patients were examined for *M genitalium* and *C trachomatis*, respectively, in different settings (antenatal clinics, hospitals, health centers, STI clinics). Both infections were tested in urethral and/or cervical swabs with nucleic acid amplification techniques ("Litex" and "DNA technology", Russia).

Results The detection rates of *M genitalium* and *C trachomatis* had not changed over 2009 and 2010, accounting to 12.6–12.6%, and 12.9–13.0%, respectively. Coinfection was observed in only 0.55% of examinies. However, seasonal variations showed different patterns for these two infections (Abstract P1-S1.05 figure 1). Statistical analysis by month revealed that the highest rates of *M genitalium* were reported in February and March, and the lowest ones—in July. Monthly analysis found even distribution of infection with *C trachomatis* along a year, while the lowest incidence was found in July.



Abstract P1-S1.05 Figure 1 Detection rates of *Mycoplasma genitalium* and *Chlamydia trachomatis* according to the attendance data (by month in %).

Conclusions The incidence rates of *C trachomatis* and *M genitalium* are approximately the same and account for 12–13% among men and women, equally. The combination of these infections is rare