

(0.55%). During 2009–2010, there are parallel trends in the detection of these two infections, but in September the reciprocal event was shown. This discrepancy may be due to the peculiarities of various microorganisms, and the clinical signs of the infection—chlamydia can cause non-gonococcal urethritis, which is the reason for examination, and mycoplasma infection is mainly symptomless. Nevertheless, a hypothesis of various patterns of infections prevalence around a year in northern countries (ie, Canada, Alaska, Scandinavia, Russia) needs further clarification. The post-holiday period (September–October) may be a crucial point in the activity of the infectious process.

#### P1-S1.06 RECTAL HEALTH: PREVALENCE OF RECTAL STIs AND ASSOCIATIONS WITH CLINICAL SIGNS AND SELF-REPORTED SYMPTOMS

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**Background** Predictors of rectal health are needed for public health programs and planning rectal microbicide clinical trials.

**Methods** From October 2006 to December 2008, 896 men and women in Los Angeles and Baltimore in a rectal health and behaviours study (UCLA IPCP U19 0606414) completed interviews and rectal sexually transmitted infections (STIs) testing including Gonorrhoea (GC), Chlamydia (CT) and high-risk human papillomavirus (HR-HPV). Rectal signs detected by High Resolution Anoscopy (HRA) and self-reports of symptoms in the past month were analysed for associations with STIs (GC (n=7), CT (n=15) and HR-HPV (n=178)), demographics and receptive anal intercourse (RAI) in the past month. Those with active haemorrhoids were excluded (n=77) from analyses of STI predictors.

**Results** **SIGNS**—Men reporting RAI (n=234) had a higher prevalence of swelling seen by HRA than men not reporting RAI (6.4% vs 1.9%; p value 0.02). Prevalence of erythema or haemorrhoids was lower among men reporting RAI (2.2% vs 6.8%; p value=0.02 and 18.3% vs 30.8%; p value<0.01 respectively). There were no differences in signs between women by RAI. More erythema and discharge were HRA detected among HIV-positive men; more HIV positive men and women than HIV negative had ulceration. **SYMPTOMS**—Significantly more RAI+ men reported symptoms (swelling, itching, burning and irritation) but there were no differences in reported symptoms among women by RAI. HIV positive men (n=218) and women (n=186) reported more symptoms (swelling, itching, discharge and burning) than HIV negative men and women; HIV positive men reported more pain and irritation than HIV negative men (n=227). **STIs**—No HRA detected signs were associated with rectal GC or CT. Bleeding (OR 5.06, 95% CI 1.09 to 23.45) and leukoplakia (OR 5.06 95% CI 1.22 to 25.66) were significantly associated with detection of HR-HPV. No symptoms were associated with GC or CT; discharge in the past month was associated with HR-HPV (OR 2.16, 95% CI 1.07 to 4.35).

**Conclusions** Lack of association between signs or symptoms and prevalent rectal STI suggests syndromic approaches may be problematic requiring laboratory testing for detection of rectal STIs. Prevalence of signs varied little by RAI practice but there was a higher prevalence of self-reported symptoms among men reporting RAI. These findings can serve as a reference for expected rates to be found in clinical trials testing rectal microbicides and interpretation of adverse events.

#### P1-S1.07 MULTIPLE BACTERIAL SEXUALLY TRANSMITTED INFECTIONS IN ONTARIO, CANADA

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**Background** In 2009, there were 33 000 reported cases of chlamydia, gonorrhoea and infectious syphilis in Ontario. These reportable bacterial sexually transmitted infections (STIs) represented approximately 48% of all reportable disease cases reported in Ontario that year. A significant amount of resources is expended on public health case and contact management of bacterial STIs. The objective of our study was to use routine surveillance data from Ontario to quantify the incidence of persons with reported multiple bacterial STIs in Ontario from 2006 to 2009 in order to inform future public health interventions.

**Methods** All bacterial STI records from 2006 to 2009 were extracted from Ontario's integrated Public Health Information System (iPHIS). Multiple STIs were defined as repeat bacterial STIs or infection with a different bacterial STI in the same individual. Repeat STIs were defined as diagnoses of chlamydia or gonorrhoea more than 28 days after the previous infection. The data were analysed using PASW 18 for Windows (SPSS Inc.).

**Results** There were almost 100 000 unique clients with at least one bacterial STI from 2006 to 2009 representing 113 097 STI cases. Approximately 24% of STI cases reported from 2006 to 2009 occurred in individuals with multiple STIs during the same time-frame. However, clients with multiple STIs accounted for only 12% of the total number of clients reporting at least one STI in this 4-year time period and clients with three or more STIs only accounted for 2.4% of all clients. The majority of clients (~60%) with multiple STIs were infected within one year of their first STI. On average clients with multiple STIs had more sexual contacts recorded for their first STI than those clients who only had one STI (1.44 contacts vs 1.33 contacts, p<0.001). There was no difference in the number of clients lost to follow-up when comparing clients with only one STI to those with multiple STIs (p>0.9).

**Conclusions** Public health resources may be well spent in case and contact management because almost 90% of individuals only have one STI reported. However, individuals who have multiple STIs account for a substantial proportion of reported bacterial STI cases in Ontario. Further work to identify additional characteristics of individuals at risk for multiple STIs would aid in informing future public health interventions aimed at these high-risk individuals.

#### P1-S1.08 PREVALENCE OF NEISSERIA GONORRHOEAE AND CHLAMYDIA TRACHOMATIS INFECTION IN MEN ATTENDING STD CLINICS IN BRAZIL

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**Introduction** The study aimed to assess the prevalence of *Neisseria gonorrhoeae* and *Chlamydia trachomatis* infections and identify demographic, behavioural and clinical factors correlated with such infections in men attending six sexually transmitted disease clinics in Brazil.

**Methods** Multicentric, cross-sectional study performed among men attending STD clinics in Brazil. The study included STD clinics in six cities distributed throughout the five geographic regions of Brazil in 2005. Patients provided 20 ml of first catch urine for testing for *N gonorrhoeae* and *C trachomatis* by DNA-PCR.

**Results** A total of 767 (92.9%) men were included in the study. The mean age was 26.5 (SD 8.3) years old. Prevalence of Chlamydia infection was 13.1% (95% CI 10.7% to 15.5%) and gonorrhoea was 18.4% (95% CI 15.7% to 21.1%). Coinfection prevalence was 4.4% (95% CI 2.95% to 5.85%) in men who sought attendance in STI clinics. Factors identified as associated with *C. trachomatis* were younger age (15–24) (OR=1.4 (95% CI 1.01 to 1.91)), present urethral discharge (OR=4.8 (95% CI 1.52 to 15.05)), genital warts (OR=3.0 (95% CI 1.49 to 5.92)) and previous history of urethral discharge (OR=2.4 (95% CI 1.11–5.18)). Variables associated with gonorrhoea were younger age (15 to 24) [OR=1.5 (95% CI 1.09–2.05)], presence of urethral discharge [OR=9.9 (95% CI 5.53–17.79)], genital warts [OR=18.3 (95% CI 8.03–41.60)] and ulcer present upon clinical examination [OR=4.9 (95% CI 1.06–22.73)]. **Conclusions**—These findings have important implications for education and prevention actions directed towards men at risk of HIV/STD. A venue-based approach to offer routine screening for young men in STD clinics should be stimulated.

**P1-S1.09 TRENDS IN THE AETIOLOGY OF SEXUALLY TRANSMITTED INFECTIONS AND HIV COINFECTIONS AMONG STI PATIENTS ATTENDING ALEXANDRA HEALTH CENTRE, JOHANNESBURG, SOUTH AFRICA (2007–2010)**

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**Objectives** To determine trends in the relative prevalence of aetiologies of urethral discharge (UDS), vaginal discharge (VDS) and genital ulcer (GUS) syndromes, and in the seroprevalence of syphilis, HSV-2 and HIV.

**Methods** Consecutive male (UDS/GUS) and female (VDS/GUS) patients were enrolled at Alexandra Health Centre, Johannesburg from January to April each year during 2007–2010. Urethral swabs (UDS), endocervical swabs/vaginal smears (VDS), genital ulcer swabs/smears (GUS) and sera (all) were collected with written informed consent. Real-time PCR assays were used to detect *Neisseria gonorrhoeae* (NG), *Chlamydia trachomatis* (CT), *Trichomonas vaginalis* (TV) and *Mycoplasma genitalium* (MG) from UDS/VDS swabs, and herpes simplex virus (HSV), *Treponema pallidum* (TP) *Haemophilus ducreyi* (HD) and *Chlamydia trachomatis* L1–3 (LGV) from ulcer swabs. Slides were stained for bacterial vaginosis/candidiasis (BV/CA, VDS) and granuloma inguinale (GI, GUS). Sera were tested for syphilis (rapid plasmin reagin, RPR; Omega Diagnostics), for HSV-2 (HerpeSelect IgG; Focus Diagnostics) and for HIV (Determine; Abbott Laboratories).  $\chi^2$  for linear trend analyses were undertaken with summary data (Prism v.2, GraphPad Software).

**Results** 928 UDS, 805 VDS and 455 GUS patients were recruited overall. Trends in the relative prevalence of most syndrome aetiologies were non-significant between 2007 and 2011—NG (UDS, 71%–79%; VDS 11%–17%), CT (UDS, 20%–25%; VDS, 27%–37%), MG (UDS, 10%–13%; VDS, 11%–14%), BV (VDS, 30%–36%), CA (VDS, 26%–31%), HSV (GUS, 53%–75%), TP (GUS, 4%–7%), HD (GUS, 0%–2%), LGV (0%–2%). There were no cases of GI. There was, however, significant decreasing trends for TV detection among UDS (4%–13%,  $p=0.003$ ) and VDS (19%–34%,  $p=0.001$ ) patients. Serologically, VDS patients had a decreasing trend in RPR seropositivity (1–8%,  $p<0.001$ ) and, importantly, HIV coinfections decreased among both UDS (29%–39%,  $p=0.011$ ) and GUS (60%–75%,  $p=0.032$ ) patients. Non-significant variations in seropositivity were observed for RPR tests among UDS (1%–3%) and GUS (4%–11%) patients, for HSV-2 among all groups (UDS, 50%–60%; VDS, 74%–84%; GUS, 81%–87%), and for HIV among VDS (48%–59%) patients.

**Conclusions** These data suggest significant decreases in the prevalence of HIV coinfection in UDS/GUS patients and of trichomoniasis as a cause of UDS/VDS. Though the HIV trends are

encouraging for men, the lack of a similar trend for women with VDS is of public health concern.

**P1-S1.10 MICROBIOLOGICAL SURVEILLANCE FOR SEXUALLY TRANSMITTED INFECTIONS IN WINDHOEK AND OSHAKATI, NAMIBIA (2007)**

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**Background** A microbiological survey was undertaken to enable review of Namibia's syndromic management-based STI treatment guidelines (1999).

**Methods** This Government-approved survey took place at Katutura Health Centre (Windhoek) and Oshakati Intermediate Hospital over 9 months in 2007. Consecutive patients with urethral discharge (UDS), vaginal discharge (VDS) and genital ulcer (GUS) syndromes gave verbal consent to provide anonymous samples for the following tests—(i) real-time PCR (RT-PCR) for *Neisseria gonorrhoeae* (NG), *Chlamydia trachomatis* (CT), *Trichomonas vaginalis* (TV), *Mycoplasma genitalium* (MG) (UDS, urethral swabs; VDS, endocervical swabs) (ii) RT-PCR detection of herpes simplex virus (HSV), *Treponema pallidum* (TP), *Haemophilus ducreyi* (HD), *Chlamydia trachomatis* L1–L3 (LGV) (ulcer swabs), (iii) Giemsa staining of ulcer smears for granuloma inguinale (GI), (iv) Gram staining of vaginal smears for Candida (CA) and bacterial vaginosis (BV), (v) NG culture and determination of ciprofloxacin and ceftriaxone minimum inhibitory concentrations (MIC) by E test (urethral swabs), and (vi) HIV ELISA (blood). All patients were provided with STI syndromic treatment, offered same-day HIV counselling and testing, and partner notification was discussed. Data analysis was performed in STATA v10 and the  $\chi^2$  test used to assess difference by survey site.

**Results** 199 UDS, 200 VDS and 199 GUS episodes were surveyed among 598 patients (293, Windhoek; 305, Oshakati). The relative prevalence of pathogens/conditions by syndrome was—(i) UDS—NG 87% (173), CT 9% (18), TV 5% (9), MG 2% (4), (ii) VDS—NG 5% (9), CT 8% (15), TV 15% (29), MG 4% (8), BV 65% (127), CA 17% (33), and (iii) GUS—HSV 49% (97), TP 3% (5), LGV 2% (2), GI 0.5% (1), HD 0% (0). Syndrome-specific HIV prevalence was 36% (62) for UDS, 29% (57) for VDS and 53% (91) for GUS. Ciprofloxacin resistance (MIC=1) was detected in 28 (24%) of 118 viable NG isolates; all isolates were deemed susceptible to ceftriaxone. Ciprofloxacin resistance was significantly higher in Oshakati compared to Windhoek (48% vs 5%,  $p<0.001$ ).

**Conclusions** The survey highlighted the importance of gonorrhoea, genital herpes, HIV-coinfection and, in Oshakati, the high prevalence of ciprofloxacin resistant NG. As a result of this survey, Namibia's STI guidelines were revised in 2008 by adding acyclovir to existing GUS treatment and replacing ciprofloxacin with oral cefixime as treatment for presumptive gonorrhoea.

**P1-S1.11 PREVALENCE OF TRICHOMONAS VAGINALIS, CHLAMYDIA AND GONORRHOEA IN WOMEN AT THE MIAMI-DADE COUNTY HEALTH DEPARTMENT STD CLINIC**

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**Background** Miami, Florida, has the highest rate of HIV diagnoses in the USA (70.3 per 100 000 people), accounting for 1218 of the 41 269