reasons for visit and site of infection. Cases positive from the rectum alone were compared with cases positive from urethra, cervix, vault and urine alone or in multiple sites including the rectum. CT testing was conducted with Genprobe Aptima by the Provincial Laboratory for Public Health. Univariate analysis was completed using Chi-square or Fisher's exact test and Mann-Whitney for continuous variables. Bivariate logistic regression, adjusted for gender, was completed using significant ($P > 0.05$) at the univariate level.

Results Twenty percent of all CT cases (n = 245) were diagnosed in the rectum only; females were more likely to be diagnosed with rectal-only CT (24.6%) than males (16.6%; $P = 0.001$). No cases of rectal-only CT were found among heterosexual men; therefore regression models were completed for women and men who have sex with men (MSM). Factors associated with rectal-only CT for women included older age (AOR = 1.05, 95% CI: 1.02, 1.08), being tested at Clinic A (AOR = 3.0, 95% CI: 1.8, 5.1), and being named as a contact to an STI (AOR = 0.3, 95% CI: 0.1, 0.9). For MSM, being asymptomatic (AOR = 2.2, 95% CI: 1.2, 4.1) remained significant.

Conclusions After the switch to NAAT testing for rectal CT, additional cases of CT were found among women and MSM. Differences between clinics are likely attributable to different screening practises for women.

P3.017 CHLAMYDIA TRACHOMATIS REPEAT TESTING IN AUSTRALIA

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Background Current guidelines recommend that sexually active people aged under 25 are screened annually for Chlamydia. Those testing positive should be retested around 12 weeks later to detect re-infection. The Australian Collaboration for Chlamydia Enhanced Sentinel Surveillance (ACCESS) Laboratory Network has collected chlamydia testing data from 15 Australian public and private laboratories since 2008. This study reviews the frequency of repeat testing for C. trachomatis.

Methods Chlamydia test results and associated demographic data were extracted from participating laboratories' information systems, de-identified with a non-reversible unique code and sent to a central database using GRHANITE® software. Using the unique identifier, cases of multiple testing episodes from individuals were reviewed to determine the frequency of repeat testing.

Results 641,302 chlamydia test results were collected from 547,761 individuals during the calendar years 2008–2010; 49,655 (7.7%) were positive. Overall, 9.6% individuals had multiple testing episodes, increasing to 23.4% among those with an initially positive result. The mean number of testing episodes per individual was 1.11 (range 1–29) and mean time between repeat tests was 201 days following negative samples but 95 days after a positive sample. Among individuals who had a repeat test, for those with a negative result 19.6% of repeat tests were performed within 42 days, 42.8% within 120 days and 86.0% within 13 months. This is compared with 41.9% (≤ 42 days), 76.6% (≤ 120 days) and 96.6% (≤ 13 months) for repeat tests following an initially positive result.

Conclusion Individuals with positive test results were found to be re-tested more frequently and earlier than those with negative test results. However, less than one quarter of individuals who tested positive for chlamydia were re-tested and over 40% of these were re-tested too soon after initial diagnosis (< 6 weeks), risking a false positive test result.

P3.018 DEVELOPMENT OF A C. TRACHOMATIS-SPECIFIC COMPETITIVE PGP3 ELISA

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Background Chlamydia trachomatis (CT) DNA testing of genital samples principally from symptomatic persons provides information about active infection only, and is unlikely to represent true prevalence of current and past infection in the population. Serological tests applied to serum collections that are more representative of the general population can help understanding the pattern of the infection. We previously described an indirect immunoglobulin G (IgG) enzyme-linked immunosorbent assay (ELISA) based on the CT-specific antigen Pgp3. Sensitivity and specificity were determined using ROC curve analysis of data from 356 sera from CT-infected patients and 722 paediatric sera. The assay works particularly well in women, with a greater sensitivity (74%) than commercial assays (60%), and is suitable for use in seroprevalence studies. However, there is a need to confirm the specificity of samples reactive in the indirect Pgp3 ELISA and, to this end, we have developed a competitive Pgp3 ELISA.

Methods Purified IgG from human sera containing high titre antibody to CT was labelled with HRP and, by optimising conditions and using chequerboard titrations, an assay developed where test sera compete with labelled IgG for epitopes on the Pgp3 protein.

Results The competitive assay was optimised, then 89 sera from our CT-infected patient cohort (patients having had at least one positive CT NAAT result at least one month previously) and 91 paediatric sera were assayed by both the indirect and competitive Pgp3 ELISAs. Results by these two assays were concordant.

Conclusion A competitive ELISA based on the CT-specific Pgp3 protein has been developed, which confirms the specificity of the indirect Pgp3 ELISA.

P3.019* IS CONCURRENCY, NUMBER OF PARTNERS OR DURATION OF PARTNERSHIP THE MOST IMPORTANT FACTOR ASSOCIATED WITH CHLAMYDIA IN YOUNG AUSTRALIAN ADULTS?

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Background There is considerable discussion about which sexual behaviour variables are most strongly associated with chlamydia. We investigated this in a study conducted within a chlamydia screening trial.

Methods A consecutive sample of patients aged 16–29 attending 134 GP clinics in 54 postcodes was recruited. Patients completed a questionnaire and chlamydia test. Using random effects logit regression models we estimated (1) the *significance* of a variable's association with chlamydia (likelihood ratio test for model fit), and; (2) the *strength* of association with chlamydia (odds ratio[OR]). Number of partners in the last 12 months and partnership duration (years) were fitted as continuous variables. Each model included age, gender and a sexual behaviour variable. A multivariate model including all sexual behaviour variables was also run. All analyses accounted for intra-cluster correlation within postcode.

Results 1257 men and 3025 women participated (66–71% response rate). Chlamydia positivity was 4.6%(95% CI: 3.9–5.4); similar between men (5.2%; 95% CI: 3.9–6.4) and women (4.4%; 95% CI: 3.5–5.2). The likelihood ratio test found number of partners to be most significantly associated with chlamydia, followed by partnership duration, ≥ 1 concurrent partnerships (yes vs no), condom use (inconsistent vs consistent) and frequency of sex (daily/weekly/monthly vs less). The association was strongest for ≥ 1 concurrent partnerships (OR = 2.4; 95% CI: 1.7–3.4) followed by condom use (OR = 2.0; 95% CI: 1.3–2.9), partnership duration (OR = 0.5; 95% CI: 0.4–0.6) and number of partners (OR = 1.2; 95% CI: 1.1–1.3). Frequency of sex was not associated with chlamydia. When all variables were included in the model, condom use (OR = 2.1; 95% CI: 1.4–3.1) had the strongest association with chlamydia followed by partnership duration (OR = 0.5; 95% CI: 0.4–0.7), concurrent partnership (OR = 1.5; 95% CI: 1.0–2.3) and number of partners (OR = 1.1; 95% CI: 1.0–1.2), with the latter two highly correlated ($p < 0.01$).

Conclusion Sexual behaviour is difficult to capture accurately in questionnaires, but these results suggest that number of partners, partnership duration, concurrent partnerships and condom use are important. It is difficult to separate the effect of concurrency from number of partners.

P3.020 PREVALENCE OF GENITAL CHLAMYDIA TRACHOMATIS AND NEISSERIA GONORRHOEAE INFECTIONS AMONG ADOLESCENTS IN NORTHERN ITALY

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Background Sexually transmitted infections are widespread globally, especially among people aged 15–25. Chlamydia trachomatis is the most common sexually-acquired bacterial disease. This infection is not notified in Italy; prevalence data on population-based surveys are not available.

Methods We conducted a prevalence survey among students aged 18 or older attending high schools in the Province of Brescia, Northern Italy. A total of 3134 adolescents were offered to enter the study; overall, 1886/3134 (60.2%) participated. Each consenting student answered to a socio-behavioural questionnaire and C. trachomatis and N. gonorrhoeae were searched on first void urine samples using VERSANT® CT/GC DNA 1.0 Assay (kPCR). We present preliminary data concerning 1311 enrolled individuals attending 16 schools.

Results Overall, 63.8% (836/1311) were females and the median age was 18.4 years. Most students (91.7%) were born in Italy. 77.1% of the enrolled students declared to be sexually active (F > M, $p < 0.001$), with their first intercourse occurring at a median age of 16.0 years. About 57.0% of sexually active persons reported using condom during the last intercourse and only 26.5% (M > F, $p = 0.017$) admitted always using it. Females were found to become sexually active earlier, had more partners in the previous six months and less frequently used condoms. No case of N. gonorrhoeae infection was identified, while 8 males and 13 females were positive for C. trachomatis, with a prevalence rate among sexually active students of 2.4% (IC 95%:1.0–4.8) and 1.9% (IC 95%:1.0–3.3) respectively. The factors significantly associated with an increased risk of Chlamydial infection were the inconsistent condom use ($p = 0.029$) and a higher number of sexual partners during the previous six months ($p = 0.013$).

Conclusion A lower than expected prevalence of C. trachomatis infection was observed among sexually active adolescents in Northern Italy.

Study conducted with scientific and logistic support from Copan S.p.A. and Siemens Healthcare Diagnostic S.p.A.

P3.021 SEROEPIDEMIOLOGY TO EVALUATE CHLAMYDIA SCREENING PROGRAMMES: RESULTS FROM TWO SURVEYS OF PGP3 ANTIBODY IN RESIDUAL STORED SERUM SAMPLES IN ENGLAND

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Background There have been substantial increases in chlamydia screening among young adults in England since the introduction of the National Chlamydia Screening Programme in 2003. The impact of the programme on the incidence of chlamydia in practise is unknown. We used stored sera to investigate trends in seroprevalence for chlamydia.

Methods Unlinked, anonymous, residual serum specimens were obtained from: (1) an approximate population-based collection, the Health Protection Agency Seroepidemiology Unit (SEU), consisting of sera submitted to laboratories in England for routine investigations (n = 4,732); (2) a higher STI-risk collection, the Unlinked Anonymous Survey of Genitourinary Medicine Clinic Attendees (GUMAnon), consisting of sera from women tested for syphilis in two GUM clinics (n = 5,431). Specimens from women aged 17–24, between 1993 and 2010 (SEU) and women aged < 20–34, between 1998 and 2009 (GUMAnon) were tested using an indirect IgG ELISA for chlamydia Pgp3 antibody.

Results In the SEU samples, seroprevalence amongst 17–24 year-olds increased between 1993 and 2002 (from 17% to 21%), and decreased between 2007 and 2010 (20% to 15%). The biggest decrease was among 20–21 year-olds (21% to 9%). In the GUMAnon samples, seroprevalence was consistently higher and declined in < 20 year olds between 2002 and 2009 (48% to 38%); no notable changes were seen in older ages. Seroprevalence was generally higher among older age groups within each collection.

Conclusions Pgp3 seroprevalence reflected known epidemiology of chlamydia infection with regard to increases between 1993–2002, by age and by risk. Given this, the decline in seroprevalence in recent years, particularly in younger age groups, suggests that the increased chlamydia screening during these years is changing the epidemiology of Pgp3 antibody-inducing chlamydia infection. Further exploration of Pgp3 seroprevalence as a tool for evaluation of chlamydia screening programmes is warranted.

P3.022 CHLAMYDIA TRACHOMATIS (CT) INFECTIONS: FALSE NEGATIVE PCR-TESTING IN CRYPTIC PLASMID DELETED CT CAN BE EASILY DETECTED USING A MOMP-ANALYSING PCR

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Background Ct is globally the most common cause of sexually transmitted infections. A new variant of ct with a deletion in the cryptic plasmid has been found in Sweden, following an unexpected 25% increase in genital infections in 2006. This variant escapes routine diagnostic PCR-tests. Thus a new nuclear acid amplification test (NAAT), which uses the cryptic plasmid as well as the MOMP-gene as target area was developed. The MOMP-gene encodes a protein (OMP-1) which represents 60% of the proteins embedded in the peptidoglycans of the bacterial cell wall. The aim of this study was to define the number of cryptic plasmid-/MOMP+ patients.