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.

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.

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.

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.

Methods Between 2009 to 2012 we analysed probes of 11250 individuals (patients and controls) processing the ProbeTecET® test (BD, USA). Of these 407 showed a positive result and were treated according to current guidelines. 33 patients tested negative, however, reported a persistence of discomfort such as burning sensations in the urethra, urethral discharge and occasionally conjunctivitis. These patients were additionally tested with the GenoQuick® CT (HAIN Lifescience, Germany), which specifically and simultaneously detects both, the MOMP-gene and the cryptic plasmide. Material was taken from urethral, cervical, rectal, pharyngeal, conjunctival smears and from the Douglas-space.

Results All 33 patients tested positive when processing the Geno-Quick® CT. Thus 7.5% of infected patients were only identified processing an additional detection set.

Conclusion In our centre 7.5% of ct infected patients were tested "false negative" when only the cryptic plasmide was analysed. These 33 patients were identified processing a more sensitive test system and subsequently were treated.

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Background Young patients with repeat infections of Chlamydia trachomatis(Ct) are a key population for prevention as they indicate ongoing risk for spread and complications in women. We estimated the hidden key population, i.e. missed repeat testers and repeat positives, to effectively focus screening strategies.

Methods Data covered all youngsters (16–29 years,n = 42,894) in Eastern South-Limburg, the Netherlands (2006–2010) including all their genital Ct tests by any care provider. Using logistic regression, determinants (age, sex, socio-economic status (SES)) for not having a repeat test (in positives) and for having a positive repeat test (in repeated testers) were evaluated. Using Geographic-Information-Systems and spatial statistics (SaTScan purely spatial Poisson model, Bivariate Local Moran`s I), spatial clusters and correlations with SES of repeat (positive) tests were evaluated.

Results Overall 10,044 (23.4%) youngsters were tested of whom 944(9.4%) were positive. Of positives, 423(44.8%) had no repeat test (more often older, ORperyear 0.96 95% CI 0.92–1.00, and male, OR2.26 95% CI 1.69–3.02). Of repeat testers, 111(21.3%) were repeat positive. Spatial clusters were found in four municipalities(3 low SES) and low SES correlated with repeat positive tests. We estimate that 230 repeat positives (0.5% of total youngsters) are missed in care. These include 90 (21.3% of 423) who were lost in care for repeat testing follow-up and 140 repeat positives in the 32,850 youngsters who were never tested before (assuming 2.0% positivity and 21.3% repeat positivity). Overall, an estimated 67.4%(230/(230+111)) of all repeat positive patients is thereby missed in current care.

Conclusion Two-thirds of repeat positive patients are hidden to current care, some (–40%) because they missed a repeat test and others (–60%) because they are never tested. As they comprise a central but small part of the total young population, control strategies targeting this key population should be highly acuminated.

Geo-spatial analysis, which pointed to low SES high prevalence areas informs more effective Ct control.

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Background The common asymptomatic nature of Chlamydia infections and consequential PIDs plus the delayed appearance of any damaging effect thereof on the reproductive tract hamper timely interventions for individuals prone to complications. In infertile women, Chlamydia antibodies in serum relate to tubal pathology and lower conception rates. The current 'proof of principle study' aimed to assess whether Chlamydia antibodies are detectable in easier, non-invasive vaginal mucosa samples, and if these could predict the risk for complications.

Patients and Method We compared outcomes of Chlamydia antibody tests in serum and vaginal swabs in two groups: (a) 77 women attending a fertility clinic, of whom 25 tested positive for anti-chlamydia IgG in serum and (b) 107 women visiting an STI centre, including 30 Chlamydia PCR-positive subjects. The presence of IgG/IgA antibodies was compared (Kappa-test) and determinants investigated (regression).

Results In women in the STI clinic, active Chlamydia infections were linked to both IgG and IgA antibodies in serum (p < 0.001) and IgA in vaginal mucosa (p < 0.001), but not IgG in mucosa; mucosa-IgA correlated with IgG in serum (p = 0.001). In women in the fertility clinic, IgG in vaginal mucosal material had a stronger correlation with IgG in serum (p = 0.02) than IgA in mucosa (p = 0.06). Women with tubal pathology or Chlamydia history more commonly had IgG in serum and IgA in vaginal mucosa (both p < 0.001), whereas this link was weaker for mucosa-IgG (p = 0.03); for tubal pathology alone mucosa-IgA had a higher Kappa than serum-IgG (0.41 versus 0.36).

Discussion Chlamydia IgG/IgA are detectable in vaginal mucosal material. IgG antibodies in serum had stronger associations with current or past Chlamydia infections. However, IgA antibodies in vaginal mucosa also showed associations with (past) infection and complications. IgA presence in vaginal mucosa might indicate an on-going hidden Chlamydia infection in the upper genital tract, and warrants further epidemiological studies.

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Chlamydia trachomatis (CT) infection spreads in Europe and in USA, and tendencies analysis shows an increase in the epidemic since last 10 years. In France, in 2006, a national survey carried out by phone and using a home-based sampling showed that CT