

**P1-S1.33** **TIMING OF PROGRESSION OF CHLAMYDIA TRACHOMATIS INFECTION TO PELVIC INFLAMMATORY DISEASE - A MATHEMATICAL MODELLING STUDY**

doi:10.1136/sextrans-2011-050108.33

<sup>1</sup>S A Herzog, <sup>1</sup>C L Althaus, <sup>1</sup>J C M Heijne, <sup>2</sup>P Oakeshott, <sup>2</sup>S Kerry, <sup>3</sup>P Hay. <sup>1</sup>University of Bern, Bern, Switzerland; <sup>2</sup>University of London, London, UK; <sup>3</sup>St George's Hospital, London, UK

**Background** Screening programmes aim to detect and treat asymptomatic *Chlamydia trachomatis* (chlamydia) infections to prevent ongoing transmission and reduce the incidence of pelvic inflammatory disease (PID). The timing of development of PID after chlamydia infection might affect the potential impact of screening to interrupt ascending infection. We used mathematical models to study three hypothetical processes for the timing of progression from chlamydia infection to PID and determine which was most consistent with empirical data.

**Methods** We used data from the Prevention of Pelvic Infection (POPI) randomised controlled trial (RCT) that was designed to examine the effect of chlamydia screening on PID incidence over a follow-up period of 1 year. We developed a compartmental model that simulates the RCT results in a Susceptible-Infected-Susceptible framework and tracks the number of PID episodes in the screened and control groups. The model is fitted to the incidence of 1.9% in the absence of screening (POPI control group) and predicts PID rates when screening is implemented. The hypothesised processes were—PID develops at the beginning of an infection with chlamydia; PID can develop throughout the course of a chlamydia infection at a constant rate; and PID happens at the end of chlamydia infection before spontaneous clearance. We predicted the incidence of PID with each process and compared these with the observed cumulative incidence of 1.3% (95% CI 0.7 to 2.1%) in the POPI screened group. We took into account baseline chlamydia prevalence, screening uptake during the RCT, duration of infection and treatment failure.

**Results** The mathematical models suggested that the process by which PID develops during the course of a chlamydia infection was closest to the observed cumulative incidence in the screened group, but the process with PID at the end of chlamydia infection was also compatible with the empirical data. The process where PID develops at the very beginning of a chlamydia infection predicted a higher incidence of PID in the screened than the control group. Our model also allowed us to estimate the proportion of chlamydia infections that develops PID and the reduction in PID incidence due to long-term screening.

**Conclusion** This study suggests that the development of PID can happen during or, possibly, at the end of a chlamydia infection. This implies that screening for chlamydia might have a direct effect on PID prevention by interrupting ascending infection.

**P1-S1.34** **FIRST REPORT OF THE SWEDISH NEW VARIANT OF CHLAMYDIA TRACHOMATIS (nvCT) IN RUSSIA**

doi:10.1136/sextrans-2011-050108.34

<sup>1</sup>E Shipitsyna, <sup>2</sup>M Unemo, <sup>2</sup>R Hadad, <sup>1</sup>O Ryzhkova, <sup>1</sup>A Savicheva, <sup>3</sup>M Domeika. <sup>1</sup>D.O. Ott Research Institute of Obstetrics and Gynaecology, Russian Federation; <sup>2</sup>Swedish Reference Laboratory for Pathogenic Neisseria, Orebro, Sweden; <sup>3</sup>Uppsala University, Sweden

**Background** The new variant of *Chlamydia trachomatis* (nvCT), first reported in Sweden in late 2006, has so far rarely been reported outside the Nordic countries. However, knowledge of the presence of nvCT beyond these countries is limited due to the few recent studies, many laboratories still cannot detect nvCT, and the ones that can detect nvCT do mainly not distinguish it from wild type

CT. The aims were to i) investigate the presence of nvCT in St. Petersburg, the largest city of the Northwest of Russia and in close proximity to Sweden, and ii) assess nucleic acid amplification tests (NAATs) used in Russia to diagnose *C trachomatis* infections for their ability to identify nvCT.

**Methods** June–December 2010, consecutive samples (cervical swabs from females and urethral swabs from males) found positive for *C trachomatis* during routine testing with commercial PCR assays able to detect nvCT were collected. For nvCT detection, DNA was isolated using NucliSens easyMAG (bioMérieux) or QIAamp DNA mini kit (Qiagen), and analysed with an international real-time nvCT-specific PCR. *C trachomatis* NAATs currently used in Russia was also examined regarding their ability to detect nvCT DNA.

**Results** During the study period, 9517 samples were submitted from patients of gynaecological, urological and STI clinics for *C trachomatis* testing. Of these samples, 275 (2.9%) from 198 females and 75 males were positive for *C trachomatis*. The mean age of the patients was 26.4 years (range 19–51 years). nvCT was detected in one sample (0.4%), which was obtained from a 23-year-old Russian woman. Genotyping using variable number of tandem repeats (VNTR) typing showed that the nvCT was indistinguishable to the previously typed nvCT samples from the Nordic countries (type 8.7.1). Six NAATs, which are used in the majority of laboratories in Russia performing *C trachomatis* diagnostics, were assessed for the ability to detect nvCT (Abstract P1-S1.34 table 1). All evaluated assays, with exception of the Lytech PCR, tested positive with nvCT DNA. **Conclusions** This study is the first report of an nvCT case in Russia, and in general in Eastern Europe, and that evaluates most *C trachomatis* NAATs currently used in Russia for the ability to detect nvCT. Although the prevalence of nvCT is still considered low outside Northern Europe, wider geographic spread of nvCT cannot be excluded, and therefore regular monitoring and participation in external quality assessments of diagnostic methods in use are necessary.

**Abstract P1-S1.34 Table 1 Nucleic acid amplification tests (NAATs) developed and used in Russia for the detection of *Chlamydia trachomatis* and their ability to detect nvCT**

NAAT (Manufacturer, City)	Gene target(s)	Able to detect nvCT?
Conventional PCR (DNA-Technology, Moscow)	Cryptic plasmid	Yes
Real-time PCR (DNA-Technology, Moscow)	16S rRNA gene	Yes
Conventional PCR (Central Research Institute of Epidemiology, Moscow)	Cryptic plasmid	Yes
Real-time PCR (Central Research Institute of Epidemiology, Moscow)	Cryptic plasmid	Yes
Conventional PCR (Lytech, Moscow)	Cryptic plasmid	No
Real-time PCR (Vector-Best, Novosibirsk)	Cryptic plasmid and <i>gyrA</i> gene	Yes

**P1-S1.35** **DECLINING POSITIVITY AMONG 15–24-YEAR-OLDS SCREENED FOR CHLAMYDIA IN ENGLAND - A SIGN OF FALLING PREVALENCE OR A SYMPTOM OF CHANGING UPTAKE?**

doi:10.1136/sextrans-2011-050108.35

<sup>1</sup>S C Woodhall, <sup>2</sup>C H Mercer, <sup>1</sup>K Soldan. <sup>1</sup>Health Protection Agency, London, UK; <sup>2</sup>University College London, London, UK

**Background** The number of tests performed as part of the National Chlamydia Screening Programme (NCSPP) has increased since the start of the programme in 2003 and the positivity has declined. We explored the extent to which available data can be used to adjust for changes in who is being screened in order to estimate any changes in the population prevalence up to 2010.