rate of PID following gonorrhoea infection. This analysis compares the rate of hospitalisation for PID following a diagnosis of gonorrhoea to the rate following a chlamydia diagnosis.

Method All women, aged 15–45 years, in New South Wales (NSW), with a diagnosis of chlamydia or gonorrhoea between 1/7/2000 and 31/12/2008 were followed for up to one year after diagnosis for hospitalisations for PID. The incidence rates of PID hospitalisation among women with a chlamydia or gonorrhoea diagnosis were compared to the whole of the NSW population using standardised incidence ratios (SIRs). Poisson regression was used to compare the rates of PID hospitalisation after adjusting for age, diagnosis date, socioeconomic group, area of residence and prior births.

Results There were 38379 women with a chlamydia diagnosis. During 35014 person years of follow-up (PYFU), 485 were hospitalised for PID; incidence rate (IR) 13.8 per 1000 PYFU (95% CI 12.6–15.1). Among 1023 women with a gonorrhoea diagnosis, during 895 PYFU 45 were hospitalised for PID; (IR 50.3 per 1000 PYFU, 95% CI 35.6–65.0). Compared to the age-equivalent NSW female population, the incidence of PID hospitalisation was 27.0 (95% CI 24.4–29.8) times greater among women who had a chlamydia diagnosis in the year prior to hospitalisation and 95.8 (95% CI 64.2–137.6) times greater among women with a gonorrhoea diagnosis. Younger age, diagnosis prior to 2005, socioeconomic disadvantage and prior births were also associated with an increased rate of PID hospitalisation.

Conclusion Hospitalisation rates for PID were over 3 times greater in women diagnosed with gonorrhoea than chlamydia, and rates in both were substantially higher than in the general female population. Our results suggest that gonorrhoea causes more serious reproductive health sequelae than chlamydia.

P3.011 DRY SWAB EVALUATION BY ROCHE 4800 CT/NG AND THE PRESTO-PLUS: CROSS-SECTIONAL STUDY OF GENITAL, RECTAL AND PHARYNGEAL CHLAMYDIA AND GONORRHOEA INFECTION IN WOMEN IN RURAL SOUTH AFRICA

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Backgound Epidemiological data, required to inform the design and implementation of control programmes, in relation to genital Chlamydia and Gonorrhoea in rural Africa, are limited. There are no data on the prevalence of rectal or pharyngeal infections among women. We evaluate the use of dry swabs by Roche 4800 CT/NG and the PRESTO-PLUS to determine the prevalence in three anatomic locations of chlamydial and gonococcal infections in African women.

Methods Cross-sectional study of 604 women visiting 25 randomly selected primary healthcare (PHC) facilities. Participants were recruited between November 2011 and February 2012. Setting: PHC facilities across rural Mopani District in Limpopo Province, South Africa. Participants: Women aged 18–49 years who reported at least one sex act in the past 6 months were eligible. A questionnaire was administered and physical examination conducted. Vaginal, anorectal and oropharyngeal swabs were tested for Chlamydia trachomatis and Neisseria gonorrhoeae.

Results 480 (including 5 times 4 controls) samples have been tested by both assays at this moment, the others are in progress. Overall prevalence of either infection was 20%. Prevalence of genital chlamydia was 13% and gonorrhoea 5%; rectal chlamydial infection was diagnosed in 4% and gonococcal in 2% of women. Clear geographical differences were observed in the CT and NG prevalances. Roche and PRESTO-PLUS had similar prevalences with slightly higher prevalances found by PRESTO-PLUS, however not all 604 samples have been tested, and discrepancy analyses will be performed in the upcoming 2–3 months.

Conclusion Dry swab collection seems a reliable method of sampling without majot prevalence differences between Roche and PRESTO-PLUS. Genital and rectal, but not pharyngeal, chlamydia and gonorrhoea infections are highly prevalent and frequently asymptomatic in women in rural South Africa. Young women attending healthcare facilities for antenatal care or family planning should be prioritised in control efforts.

P3.012 HOW ROBUST ARE THE DESCRIPTIONS OF CHLAMYDIA NATURAL HISTORY USED IN ECONOMIC EVALUATIONS OF CONTROL STRATEGIES?

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Background The decision to implement a Chlamydia screening programme is based on a detailed assessment of its projected impact and cost-effectiveness. In the absence of evidence from randomised controlled trials, transmission dynamic models are crucial to this process. However these models are highly sensitive to the representation of the infection. We review the evidence used to inform the model parameters highlighting their strengths and limitations.

Methods Published economic analyses of chlamydia screening interventions were identified following a systematic search of the literature. Only transmission dynamic models were included as they represent the gold standard. Parameters describing chlamydia infection were extracted and the variability across the studies assessed. The data used to inform each parameter was sourced and critically evaluated.

Results Eleven studies were included in this review, all evaluating chlamydia screening programme designs in developed countries. Many key natural history parameters are based on sparse historical data and there is wide variation in the values used across the models. For example,

- The per act transmission probability ranging from 3.75% to 15.3%.
- The modelled duration of asymptomatic infection was between 180–370 days in women and 40–200 days in men.
- Only one paper includes a period of protective immunity following infection.
- Only 2 studies consider the role of reinfection in the development of complications
- However, there is a general consensus in the proportion of people that are asymptomatic; between 70–75% of women and 25–50% of men.

Conclusion We highlight the variability in descriptions of the natural history and emphasise the importance of using contemporary data to inform modelling studies. A clear consensus on the appropriate representation of the natural history is needed, with estimates continuously updated using new evidence.

P3.013 THE ROLE OF CHLAMYDIA IN PELVIC INFLAMMATORY DISEASE AND ECTOPIC PREGNANCY

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Background The risk of Pelvic Inflammatory Disease (PID) and Ectopic Pregnancy (EP) from Chlamydia are crucial in estimating the cost-effectiveness of screening, but they remain poorly understood.
Methods We use evidence from RCTs of screening and controlled observational studies to estimate the risk of PID following Chlamydia and the probability PID would be prevented by annual testing. The studies are synthesised using a model that allows for the possibility that the rate of developing PID is higher in the period soon after infection. We examine the role of Chlamydia and PID in EP using prospective evidence from the Lund study, evidence on the incidence and cumulative incidence of PID and EP in England, and retrospective evidence from case control studies. We assess the consistency of the data under different sets of assumptions about the severity of undiagnosed and non-hospital referred PID.
Results If the risk of PID due to Chlamydia is constant over time then the probability that an untreated Chlamydia episode causes clinical PID is estimated to be about 15%, and there is approximately a 60% chance that annual testing would prevent an associated PID in a woman who becomes infected. If the PID rate is assumed to be higher for 1–3 months the respective figures are 16% and 50%. We estimate that between a third and a half of EPs are caused by PID. Of these, around a third are due to Chlamydia though estimates are highly uncertain. Our comparison of different data sources suggests that undiagnosed PID carries some risk of EP.
Conclusions Our findings support a public health strategy that (a) identifies women with Chlamydia as soon after infection as possible i.e. to get tested on change of sexual partner; (b) has a low threshold for diagnosing and treating women with pelvic pain or suspected PID.

P3.014 THE IMPORTANCE OF AGE IN THE ROLE OF CHLAMYDIA IN THE ETIOLOGY OF PELVIC INFLAMMATORY DISEASE

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Background Although the importance of age in the prevalence of Chlamydia is well recognised, its importance in the relationship between Chlamydia and pelvic inflammatory disease (PID) has received little attention in epidemiology.
Methods We generate and compare several sets of estimates of the population attributable fraction (PAF) of PID due to chlamydia by age-group using a number of data sources. Estimates are obtained using data from case-control studies and Chlamydia population prevalence in England. A second set of estimates is obtained from data on the incidence of PID, the incidence of Chlamydia, and the risk that a Chlamydia infection causes PID. We estimate the incidence of all-cause PID by age in England from routine data sources, and evidence on the proportion of PID episodes that are diagnosed. We synthesise these data with data from the control arm of the POPI trial. We estimate Chlamydia incidence by age in a multi-parameter evidence synthesis of studies of Chlamydia incidence, prevalence, and duration of infection. Finally we estimate the risk of PID following Chlamydia from a statistical synthesis of randomised controlled trials using a multistate model. A third estimate of the PAF is obtained for the POPI trial population.
Results Prospective estimates of the PAF fall from 50% (15%, 100%) in women aged 16–19 to 20% (6%, 49%) in women aged 35–44, and estimates from retrospective data drop from 34%(17%,55%) to 6% (2%, 14%). Changes with age groups are most likely due to changes in the aetiology of PID, but part of the effect would be explained if the risk of PID due to CT, or proportion of PIDs that are diagnosed, increases with age.
Conclusions The PAF of PID due to Chlamydia reduces dramatically with age. More attention needs to be given to age when designing and reporting results from epidemiological studies.

P3.015 ESTIMATING THE POPULATION PREVALENCE OF CHLAMYDIA IN EUROPE: SYSTEMATIC REVIEW AND META-ANALYSIS

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Background Accurate information about the prevalence of Chlamydia trachomatis infections is needed to assess prevention and control measures at national and regional level.
Methods Systematic review up to August 2012 of population-based cross-sectional studies that estimated chlamydia prevalence in high income countries, focussing on EU/EEA Member States. Data were extracted about study findings; the risk of bias was assessed and meta-analysis was performed where appropriate. Meta-regression was used to examine the relationship between chlamydia prevalence estimates and study response rates.
Results 25 population-based studies were included from 10 EU/EEA countries and 14 studies from 6 other high income countries. Four EU/EEA Member States reported on nationally representative surveys of sexually experienced adults ≤ 26 years, with response rates from 52–71%. Chlamydia point prevalence estimates in 18–24 year olds (3 studies) ranged from 3.0–4.7% in women and from 2.4–4.7% in men. Chlamydia prevalence estimates in EU/EEA countries and other high income countries were statistically consistent. The combined estimate from 5 studies in 18–26 year olds in Europe and the USA was 4.3% (95% CI 3.7, 5.0%) in women and 3.6% (95% CI 2.9, 4.3%) in men. In most studies there was either a high risk of selection bias in the methods used or insufficient information to judge. Estimates of chlamydia prevalence were inversely associated with response rate ($p = 0.005$ in women, 0.011 in men).
Conclusions Selection bias in chlamydia prevalence surveys is likely, with over-estimation of prevalence being more likely than under-estimation. Cross-sectional surveys with lower response rates are associated with higher estimates of chlamydia prevalence. In studies with low response rates the percentage of chlamydia positive tests should not be interpreted as an estimate of population prevalence. Applying standards for the reporting of prevalence surveys might help to improve consistency in future.

P3.016 PREVALENCE AND CORRELATES OF RECTAL-ONLY CHLAMYDIA INFECTION AT TWO CANADIAN STI CLINICS

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Background In July 2012, two Alberta Sexually Transmitted Infection (STI) Clinics changed their testing platform for rectal chlamydia (CT) from cell culture to nucleic acid amplification testing (NAAT). A significant increase in the proportion of rectal-only CT cases occurred after the introduction of NAAT (1.9%; n = 25 pre-NAAT vs. 20.1%; n = 245 post-NAAT, $P < 0.001$). We sought to examine the characteristics of rectal-only CT cases.
Methods All CT cases seen at two Alberta STI clinics between July 20 and December 31, 2012 were extracted from the provincial STI database. Variables included were demographics, clinical history,