Background Increasing reports of Neisseria gonorrhoeae in vitro decreased susceptibility and resistance, and treatment failures with third generation cephalosporins are of major concern as these drugs are the last remaining options for effective antimicrobial therapy in many settings.

Methods The European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP), a sentinel surveillance programme funded by the European Centre for Disease Prevention and Control since 2009, monitors antimicrobial susceptibility patterns across the European Union (EU/EEA). Participating laboratories performed susceptibility testing by Etest or agar dilution breakpoint method, or sent isolates to reference laboratories in Denmark, Sweden or the United Kingdom for testing. Euro-GASP validated proficiency and result accuracy through an external quality assessment scheme.

Results In 2011, 1902 isolates from 21 countries were collected and tested. The percentage of tested isolates with decreased susceptibility to cefixime (8.0%) remained stable compared to 2010 (8.7%), but was still significantly higher than in 2009 (5.1%, p < 0.01). Isolates with decreased susceptibility to cefixime were reported from 17 countries in 2011, the same as in 2010; however three countries reported such isolates for the first time in 2011. For the first time, ten isolates with decreased susceptibility to ceftriaxone were reported from two countries. Rates of ciprofloxacin (49%) and azithromycin (5.3%) resistance remained high. Minimum inhibitory concentration of gentamicin remained low (MIC50: 4 mg/L, MIC90: 8 mg/L).

Conclusions Although the rapid increase and spread of decreased susceptibility to cefixime in 2010 has not continued, the detection of isolates with decreased susceptibility to ceftriaxone is concerning. ECDC has published a response plan which aims to strengthen surveillance of gonococcal antimicrobial susceptibility in the EU/EEA; ensure that capacity for culture and susceptibility testing is maintained; establish a system for collection and verification of data on clinical treatment failure; and to recommend public health actions at national and European level.
Background Recent reports have described increasing trends of gonorrhoea among men who have sex with men (MSM) in the United Kingdom and women in Sweden. European Union (EU/EAA) surveillance data has also shown increasing rates of gonorrhoea since 2008. We analysed surveillance data to identify the contributions of key populations to this increase.

Methods Surveillance of gonorrhoea in the EU/EAA is co-ordinated by the European Centre for Disease Prevention and Control (ECDC). Data reported to ECDC in 2008 and 2011 were compared, focusing on countries with an increasing number of gonorrhoea cases, to analyse changes among key populations.

Results In 2011, 39,179 cases of gonorrhoea were reported from 28 EU/EAA countries. Of these countries, 21 reported a median increase in the number of reported cases of 31% (interquartile range: 22–79%). Among countries reporting increasing cases, 15–24 year olds accounted for 45% of reports in 2011; males accounted for 72%; MSM for 40%. Among MSM, the largest proportion of cases was reported among 25–34 year olds (42%).

Between 2008 and 2011, the number of reported cases increased by 57%. Increases were observed among all age-groups, particularly among 25–34 year olds (61%) and those aged 45+ (78%). Reported cases increased by 51% among males compared to 30% among females. Transmission among MSMS increased by 124% since 2008 and, among MSM, the largest increase in reported cases was among those aged 45+ (192%) and 25–34 year olds (173%).

Conclusions Although reported cases of gonorrhoea increased among all age-groups and both genders between 2008 and 2011, the highest increase occurred among MSM above 25 years of age. Increasing trends may be due to increased awareness and testing, and improved reporting; increased transmission, however, is also likely. Prevention messages targeting these groups need to be reinforced.

004.1 THE INFLUENCE OF HORMONAL CONTRACEPTION AND PREGNANCY ON THE VAGINAL MICROBIOME, SEXUALLY TRANSMITTED INFECTIONS, AND CYTOKINE RESPONSES IN A COHORT OF RWANDAN SEX WORKERS


Background The effects of hormonal contraception and pregnancy on the vaginal microbiome (by molecular methods), acquisition and persistence of sexually transmitted infections (STIs), and genitourinary mucosal immunity are still largely unknown.

Methods HIV-negative, non-pregnant female sex workers (n = 397) in Kigali, Rwanda, were followed for two years. Demographic, behavioural, clinical, STI and pregnancy data were collected at regular intervals. The vaginal microbiome was cross-sectionally determined using a phylogenetic microarray (n = 174). Women with STIs were purposefully oversampled in this subsample. Inflammatory cytokines were measured in cervicovaginal fluid using Lumixin and ELISA methodology (n = 345). Hormonal exposure was defined as use of hormonal contraception (oral or injectable) or a positive urine pregnancy test. Women in the exposure groups were compared to non-pregnant women who did not use hormonal contraception. Adjustments were made for demographic data and sexual risk taking.

Results At baseline, 12% of the women used hormonal injectables, and 6% oral contraceptives (OC); 7.7% was pregnant. OC use was associated with higher HPV prevalence (aOR 3.09; 95% CI 1.42–7.72), higher Chlamydia trachomatis incidence (aOR 7.13; 95% CI 1.40–36.50), and lower syphilis prevalence (0% vs 7.2% in controls) and incidence (0% vs 1.2%). Hormonal injectables were associated with higher HSV-2 prevalence (aOR 2.08; 95% CI 1.23–3.50). Pregnancy was weakly associated with higher Trichomias vaginalis infection (aOR 1.67; 95% CI 0.97–2.88) and vaginal yeast (aOR 1.95; 95% CI 0.99–3.82) incidence. Six vaginal microbiome clusters were identified. No associations between hormonal exposure status and vaginal microbiome clusters were found; however, pregnant women had lower Gardnerella vaginalis levels. Pregnant women had higher IL-8 levels in cervicovaginal fluids than non-exposed women.

Conclusions Both hormonal contraception and pregnancy were associated with higher STI incidence. Overall, vaginal inflammation and microbiome composition were similar among groups, but pregnant women had lower Gardnerella and higher IL-8 levels.

004.2 HORMONAL CONTRACEPTION IS ASSOCIATED WITH A REDUCED RISK OF BACTERIAL VAGINOSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS


Background Microbiota of the vagina are involved in the control of sexually transmitted infections (STI) and the persistence of sexually transmitted infections (STIs) and genital tract and systemic immune response is still largely unknown. Hormonal contraception and pregnancy can influence the vaginal microbiota and STI. This study aimed to assess the association of hormonal contraception and pregnancy with STI and bacterial vaginosis (BV) in a systematic review of cohort studies. We hypothesised that hormonal contraception and pregnancy would be associated with a lower risk of STIs, specifically BV.

Methods We performed a systematic review of cohort studies including women of reproductive age. The main outcomes were STI (specifically BV) and general STI. Pooled data were obtained using random-effects models and compared with fixed-effects models. Publication bias was assessed.

Results Of the 11 studies included in the analysis, five were from the United States, four from Europe, and two from Australia. The pooled analysis of 13,597 women found that hormonal contraception and pregnancy were associated with a lower risk of STIs. Specifically, hormonal contraception was associated with a reduced risk of BV (OR 0.50; 95% CI 0.30–0.84). Pregnancy was also associated with a reduced risk of BV (OR 0.67; 95% CI 0.43–1.02). The results were robust to sensitivity analyses and publication bias was low.

Conclusions Hormonal contraception and pregnancy are associated with a reduced risk of BV. Further research is needed to understand the mechanisms underlying these associations, and to develop effective strategies to prevent STIs in this population.