P3.276 *NEISSERIA GONORRHOEAE* (GC) RESISTANCE SURVEILLANCE IN SELECTED POPULATIONS OF FIVE COUNTRIES

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Background GC constitutes the second most commonly reportable disease in the United States with over 320,000 cases annually. With the emergence of drug-resistant GC in the past 40 years, treatment options have become very limited. Hence, the U.S. Department of Defense has launched a GC resistance surveillance network in 8 countries; preliminary results are reported from the United States, Djibouti, Ghana, Kenya, and Peru.
Methods Patients with urethritis, cervicitis or vaginitis symptoms were recruited at participating clinics serving military personnel and beneficiaries, civilians, and at-risk groups of men who have sex with men and female commercial sex workers. Urethral swabs were collected from men; urethral or vaginal swabs from women; diagnosis was done using culture identification, nucleic acid amplification testing, and real-time PCR. Antimicrobial susceptibility testing (AST) was conducted on GC positive isolates using real-time PCR, disc diffusion, and E-test strip methods.
Results Overall, 108 (6%) of 1,694 enrolled subjects tested positive for GC. Prevalence was found to be highest in Kenya where 33 (38%) of 86 patients were positive and was lowest in Peru where only 30 (2%) of 1,296 patients were positive. AST results were available on 66 GC positives; resistance to at least three antibiotics was observed across all overseas sites. Greatest variability in resistance was noted in Djibouti as follows: penicillin (100%), tetracycline (88%), ciprofloxacin (38%), levofloxacin (17%), cefepime (13%), and ceftriaxone (13%). High-level resistance (100%) was also noted in Ghana to ciprofloxacin, penicillin, and tetracycline.
Conclusion These findings provide evidence of emerging drug-resistant GC in several regions of the world; the resistance found against third-generation cephalosporin in Djibouti is especially noteworthy. With continuing global vigilance, GC drug resistance information will provide an important basis for the development of effective control measures, particularly among deployable forces and at-risk populations in geographical regions of military relevance.

P3.277 DIAGNOSIS AND ANTIMICROBIAL RESISTANCE OF *NEISSERIA GONORRHOEAE* IN ESTONIA

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Background The incidence of gonococcal infections in Estonia peaked in 1993 with an infection rate of 233 cases/100,000 population and declined to 16.2 cases/100,000 population in 2012. The greatest part of clinical laboratories desists from *N. gonorrhoeae* cultivation. 100% of *Neisseria gonorrhoeae* diagnosis in Estonia is made by DNA detection techniques. Different tests are in use: Rapid DNA probe GEN-PROBE PACE (*Gen-Probe Incorporated San Diego. USA*), PCR with in house made primers other commercially available STI tests.

Aims to improve laboratory diagnosis of gonorrhoe and monitoring of antimicrobial susceptibilities of *N gonorrhoeae* to investigate treatment failure and to evaluate the efficacy of currently recommended therapies.
Methods In 2007, Estonian IUSTI branch has elaborated National Guidelines for the STI management (on the base of the European STD Guidelines and Eastern European Network for Sexual and Reproductive Health) with it's second revission in 2011. For *N.gonorrhoeae* diagnosis was recommended to start with molecular test and then if positive to continue with cultural method, using disc diffusion method and E-tests for AMR. WHO reference panel *N.gonorrhoeae* was obtained from reference laboratory in Örebro, Sweden.
Results Totally 24 isolates obtained. Gonococci (14) were collected from urethral swabs of men, 8 strains were isolated from female cervical swabs, gender was unknown for 2 cases (anonymous). AMR detected in 4 isolates; 2 were strains isolated after treatment failure: one - resistant to Pen, Tetra, Cipro and susceptible to Ceftriaxone; second - resistant to Pen, Tetra, Cipro and had decreased susceptibility (resistance) to Ceftriaxone (MIC 0.25mg/L). In addition in 2 isolates MICs to Ceftriaxone were 0.38mg/L and 0.50 mg/L. AMR were detected to penicillin (12.5%), to ciprofloxacin (8.4%) and to tetracycline (8.4%).
Conclusion Gonorrhoea may become untreatable under certain circumstances and surveillance of *N. gonorrhoeae* AMR is crucial in Estonia.

P3.278 AZITHROMYCIN SUSCEPTIBILITIES IN CANADIAN *NEISSERIA GONORRHOEAE* ISOLATES (2010–2011)

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Background *Neisseria gonorrhoeae* have developed resistance to many antibiotics and current Canadian STI guidelines recommend azithromycin as part of a combination therapy for gonorrhoea.
Methods Between 2010 and 2011, *N. gonorrhoeae* strains were isolated or collected by Canadian provincial public health laboratories and submitted to the National Microbiology Laboratory (NML) (N = 2392). Isolates are submitted to the NML only when the provincial laboratories identify resistance to at least one antibiotic or if the provincial laboratories do not conduct any antimicrobial susceptibility testing. Minimum inhibitory concentrations (MICs) were determined by agar dilution and the *N. gonorrhoeae* multi-antigen sequence typing (NG-MAST) was used for molecular typing. Possible mutations in the *mtrR* gene and promoter region, the 23S rRNA (4 alleles) and L22 riboprotein genes were determined by sequencing.
Results Azithromycin resistance was 3.0% in 2010 (37/1233) and 1.1% in 2011 (13/1158) amongst all the isolates tested at NML. Forty-five azithromycin resistant isolates (MICs ranging from 2 to ≥ 256 μg/ml) were characterised. The A deletion in the *mtrR* efflux pump were identified in 37.8% (n = 17) isolates. Additional *mtrR* mutations include: A39T (28.9%, n = 13) and G45D (4.4%, n = 2). One isolate was identified with mutation D89A in the L22 riboprotein. Thirty-three isolates (73.3%) were identified with the C2599T mutation in at least 1 of the 4 alleles of the 23S rRNA. The A2143G