

# **P5.102 ANTIMICROBIAL SUSCEPTIBILITY OF NEISSERIA GONORRHOEAE IN NANJING, CHINA, 2011–2012**

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**Background** A study of gonococcal transmission from men to their female contacts has been under investigation at the STD clinic in Nanjing, China since April 2011. Men with symptomatic urethral discharge presenting for diagnosis and management have been screened for gonococcal infection and *Neisseria gonorrhoeae* strains isolated. Monitoring antimicrobial resistance (AMR) of *N. gonorrhoeae* is crucial for guiding effective treatment. Here, we report the results of antimicrobial susceptibility testing of these gonococcal strains between April 2011 and 2012.

**Methods** We determined minimum inhibitory concentrations (MICs) for 334 consecutively obtained gonococcal isolates by agar dilution testing for: penicillin, tetracycline, ciprofloxacin, spectinomycin and ceftriaxone.  $\beta$ -lactamase production was determined by paper acidometric testing.

**Results** The prevalence of PPNG and TRNG was 36.53% (122/334) and 38.32% (128/334), respectively. Chromosomally-mediated resistance to penicillin and tetracycline was 87.26% (185/212) and 99.03% (204/206), respectively. Chromosomal resistance to ciprofloxacin (QRNG) was detected in 98.80% (330/334) of the isolates. All gonococcal isolates were susceptible to spectinomycin. Gonococcal isolates having ceftriaxone MICs  $\geq 0.06$  mg/L accounted for 27.54% (92/334); among them two isolates with MICs of 0.25 mg/L and 13 having MICs of 0.125mg/L.

**Conclusion** Among *N. gonorrhoeae* strains isolated in Nanjing, chromosomally-mediated resistance to penicillin, tetracycline and ciprofloxacin was high. Ceftriaxone and spectinomycin should be considered effective anti-microbial agents for the treatment of gonorrhoea in Nanjing, but and susceptibility of *N. gonorrhoeae* to these antimicrobial agents should be monitored continuously.

# **P5.103 INCREASE OF AFRICAN-TYPE PENICILLINASE-PRODUCING N. GONORRHOEAE STRAINS ISOLATED IN GUANGZHOU, CHINA, 2001–2011**

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**Background** The continuing spread of drug-resistant gonococci has posed a challenge for successful treatment worldwide. Guangdong Province in South China has one of the highest resistance rates of gonococci in China and a large number of international migrants. We investigated the *in vitro* antimicrobial susceptibility and genotypes of *N. gonorrhoeae* isolated in Guangzhou, the capital city, in 2001–11.

**Methods** MICs to penicillin, ceftriaxone, tetracycline, ciprofloxacin, and spectinomycin were determined by agar plate dilution and susceptibilities were interpreted according to WHO standards. Penicillinase-producing *N. gonorrhoeae* (PPNG) was determined by paper acidometric testing and high-level tetracycline resistant *N. gonorrhoeae* (TRNG) by MIC. The isolates with resistant plasmids were genotyped by PCR.

**Results** Of 1250 consecutive gonococci isolated during 2001–11, no ceftriaxone and spectinomycin resistant strains were found, but the prevalence of less susceptible strains to ceftriaxone rose from 17% to 46.5%. The MIC<sub>90</sub> for ceftriaxone showed intermediate sensitivity (0.06–0.125 $\mu$ g/mL) and spectinomycin near the resistant level (16–32 $\mu$ g/mL). The resistance to penicillin, tetracycline and ciprofloxacin were from 85%, 85% and 78% in 2001 to 81.9%, 100% and 98.4% in 2011, respectively. Of 349 (27.9%) PPNG and 539 (43.1%) TRNG

detected. 232 (18.6%) strains were both PPNG and TRNG. PPNG increased from 17.0% to 32.3% and TRNG from 26.0% to 41.7% during 2001–10. Genotyping TEM-1 gene showed 94.8% PPNGs carrying the Asia-type  $\beta$ -lactamase plasmids. The Africa-type PPNG (1, 1.3%) emerged in 2008 and has increased to 8(6.2%) in 2011. Genotyping of tetM gene showed all TRNGs were Dutch variants.

**Conclusion** Gonorrhea resistance continues to be a major public health problem in Guangzhou. The emergence and increase of African-type PPNG may be related to the large African diasporas in Guangzhou, migration of Chinese to Africa, or other migration patterns. More research is needed to determine what practises, systems and behaviours contribute to escalating resistance patterns.

# **P5.104 PRELIMINARY STUDY OF THE SENSITIVITY OF NEISSERIA GONORRHOEAE TO ANTIBIOTICS IN STRAINS ISOLATED FROM PEOPLE WITH RISKY SEXUAL BEHAVIOUR IN THE CZECH REPUBLIC**

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**Background** *Neisseria gonorrhoeae* infection is currently a serious medical problem for widespread of multi-drug resistant strains causing difficult to treat illnesses. Resistance to fluoroquinolones, azithromycin as well as recently reported cases of resistance to cefixime and ceftriaxone represents important health threat.

**Methods** The first consecutive isolates of *Neisseria gonorrhoeae* obtained from patients with risky sexual behaviour (promiscuity, commercial sex, gay community including HIV infected individuals) suspected of infection or carriage, coming to two dermatovenereology clinics in Prague from June 2012 to February 2013, were included. Strains were detected from clinical samples (urethral, vaginal/cervical, rectal or throat swabs) using standard culture technique. Susceptibility to fluoroquinolones and macrolides was routinely determined using disc diffusion test. E-test technique was done to establish MIC values of penicillin and cefixime. Clinical and epidemiological characteristics of patients and strains were studied using standardised protocol.

**Results** A total of 82 *N. gonorrhoeae* consecutive isolates were tested. The resistance rate to ciprofloxacin was 40%, resistance to erythromycin was 3.8%, respectively. Penicillin MIC equal or higher than 1.0g/l was found in 21% of strains. Cefixime MIC values were equal to 0.125g/l in 4.9% of strains, no strain with MIC higher than 0.125g/l was identified. The patients were treated with azithromycin, doxycycline, cefixime, ceftriaxone, penicillin or combinations of antibiotics. Treatment failure was observed in 7 cases. Association of treatment failure with antimicrobial resistance should be clarified via following clinical studies.

**Conclusions** Preliminary results confirmed important occurrence of resistance of *N. gonorrhoeae* to essential antimicrobials in high risk population in the Czech Republic. Similarly to other European countries, increasing MIC values of penicillin and cefixime indicate growing risk of difficult to treat *N. gonorrhoeae* infections.

# **P5.105 IDENTIFICATION AND FUNCTIONAL ANNOTATION OF SECRETED PROTEINS OF CHLAMYDIA TRACHOMATIS USING BIOINFORMATICS TOOLS**

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**Background** The large number of sexually transmitted diseases cases caused globally each year by *Chlamydia trachomatis* has made this organism a World Health Organization priority for vaccine development. Even after a decade of availability of *C. trachomatis* genome sequence, no promising vaccine has seen the light of the day. This clearly indicates the challenges in discovering new vaccines against this organism but also suggests a gap in our current understanding of Chlamydial biology. We attempt to bridge this gap by carrying out extensive annotation of hypothetical proteins of *C. trachomatis* and further identification of candidate genes that might be involved during the immune response against this organism. In this study, we have shortlisted proteins secreted by the general export pathway of *C. trachomatis* from among the hypothetical proteins of this organism with an aim to identify novel vaccine candidate gene/s.

**Methodology** Characterization of the proteins was carried out using various Bioinformatic tools, Pfam, Tigrfam, Scanprosite, CDD, Signal P, SigPred, TMPred, TMHMM and Lipo P.

**Results** 336 hypothetical proteins were deduced from the *C. trachomatis* genome and were analysed with several software tools for functional annotation. Next we identified the hypothetical proteins are secreted via the general export pathway (GEP) using bioinformatics approach. We were able to classify the shortlisted proteins into three broad categories as outer membrane proteins, secretory proteins and lipoproteins. These shortlisted candidate proteins could possibly induce protective immunity or elicit immune responses of diagnostic value. Few of them can further turn out to be good vaccine candidate genes as well.

**Conclusion** The identification of novel secreted proteins of *C. trachomatis* opens the way to studies on their subcellular localization and to the immunological characterization of these proteins to define their potential for immunological diagnosis and/or vaccine design.

#### P5.106 CHARTING THE PATH FOR HUMAN PAPILLOMAVIRUS (HPV) VACCINE INTRODUCTION IN KENYA: ASSESSING HPV VACCINE ACCEPTABILITY AMONG CAREGIVERS AND OPINION LEADERS IN NYANZA PROVINCE, KENYA

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**Background** Cervical cancer is the second most common cancer diagnosed, and the leading cause of cancer-related mortality among women in Kenya. Kenya's Ministry of Health has outlined new prevention strategies, including support for vaccination. Formative research is critical to identify information, mobilisation and communication needs for vaccine introduction. To inform vaccine mobilisation and communication efforts in Kenya, this study sought to explore HPV vaccine-related community knowledge, attitudes, beliefs, and acceptability.

**Methods** We conducted five focus groups (FG) among caregivers of girls aged 9–12 years (n = 56), and 12 interviews with community opinion leaders in four locations of Nyanza Province, Kenya. Information was collected about participant knowledge, attitudes and beliefs regarding vaccines, cancer, cervical cancer and HPV; and perceived benefits/barriers to HPV vaccination. FG transcripts and interview notes were reviewed and analysed by a team of four researchers using thematic content analysis. FG data were analysed using NVivo8, and concept matrices were used for interview notes.

**Results** Awareness of vaccines and cancer was high among caregivers and opinion leaders, but low for cervical cancer, HPV and HPV vaccines. Whereas cancer was feared as a fatal disease, vaccines were generally well accepted. Once informed, participants were eager to

support HPV vaccination for their daughters/communities. Protection against cervical cancer was perceived as a key benefit. Potential barriers to vaccination included religious/cultural beliefs; confusion/suspicion about intended vaccination effort; and concerns about vaccine safety and side effects (infertility). Most believed these barriers could be overcome with effective community mobilisation/education.

**Conclusion** The success of an HPV vaccination programme will depend critically on information, communication and social mobilisation - not only for raising awareness of cervical cancer and the need for vaccination, but for preventing possible misconceptions and rumours from arising. Recommendations are made to inform Kenya's communication and mobilisation strategies in preparation for vaccine introduction.

#### P5.107 CLINICAL PRACTICE GUIDELINE FOR SEXUALLY TRANSMITTED INFECTIONS AND OTHER INFECTION OF THE GENITAL TRACT - SYNDROMIC MANAGEMENT - 2012

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**Objective** To develop a Clinical Practice Guidelines for the Syndromic management of Sexual Transmitted Infections and other Genital Tract Infections in patients between 14 and 75 years old using the current international standards.

**Methods** The Guidelines developer group (GDG) was composed taking into account a multidisciplinary team as well as user/patients' point of view. The scope, questions and relevant outcomes were first defined and then a search of available CPGs was done looking for international and regional repositories and also in Medline and LILACS. The CPGs that accomplish the inclusion exclusion criteria were assessed using the AGREE II instrument. None of the evaluated guidelines were suitable to be adapted to the Colombian requirements. Based on this fact, a search for Systematic Reviews, RCT and observational studies was initiated in order to develop the novo CPG. Evidence tables were built and recommendations were elaborated following the GRADE approach using informal and formal consensus.

**Results** A new GPC for the management of the patients with cervicitis, urethritis, genital ulcer disease, pelvic inflammatory disease and vaginal discharge is presented. The CPG includes 80 recommendations for the diagnosis and treatment of the index patient and its partner and also for the pregnant women with GTI. The implementation plan is based on the administration of a single dose for each of the causal germs in each syndrome.

**Conclusion** A new evidence-based guideline is presented for Syndromic management of Sexual Transmitted Infections and other Genital Tract Infections which could be suitable for adaptation in settings of constrained resources. Source of funds: Ministry of Health of Colombia and COLCIENCIAS.

#### P5.108 ATHEROSCLEROTIC CAROTID DISEASE AND CARDIOVASCULAR RISK IN HIV-INFECTED PATIENTS

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**Introduction:** Although survival has been improved in HIV-infected patients, the risk for atherosclerotic diseases has increased.