Conclusions CIN2+ rates varied by catchment area, possibly reflecting differences in screening or case ascertainment. HPV16 or 18 were present in ~52% of lesions. Type-specific monitoring of CIN2+ can allow evaluation of vaccine impact on cervical disease, and may be useful in determining whether type replacement occurs.

Epidemiology oral session 3: bacterial resistance

O1-S03.01 ANTIMICROBIAL RESISTANCE TO *NEISSERIA GONORRHOEA* IN A COHORT OF YOUNG MEN IN KISUMU, KENYA: 2002–2009

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Background We evaluated antimicrobial resistance in *Neisseria gonorrhoeae* (NG) isolated from men aged 18–24 enrolled in a randomised trial of male circumcision to prevent HIV.
Methods Urethral specimens were obtained from men with discharge. These were inoculated in modified Thayer-Martin agar and incubated at 37°C in 5% CO_2 for 24–48 h, with confirmation of NG colonies by standard procedures. Minimum inhibitory concentrations (MICs) were determined by agar dilution. Clinical Laboratory Standards Institute criteria determined resistance: MIC≥2.0 μg/ml for penicillin, tetracycline, and azithromycin; ciprofloxacin MIC≥1.0 μg/ml; spectinomycin MIC≥128.0 μg/ml. Susceptibility to ceftriaxone and cefixime was MIC<0.25 μg/ml. We used PCR amplification to detect mutations in the parC and gyrA genes, associated with quinolone resistance.
Results From 2002 to 2009, 168 NG isolates were obtained from 142 men. Plasmid mediated penicillin resistance (PPNG) was found in 65%, plasmid mediated tetracycline resistance (TRNG) in 97%, and 11% were ciprofloxacin resistant (QRNG). QRNG appeared November 2007, increasing from 9.5% in 2007 to 50% in 2009 see Abstract O1-S03.01 table 1. Resistance was not detected for spectinomycin, cefixime, ceftriaxone, and azithromycin, but MICs of cefixime (p=0.018), ceftriaxone (p<0.001), and azithromycin (p=0.097) increased over time. In a random sample of 51 men gentamicin MIC was assessed: 4 μg/ml (n=1), 8 μg/ml (n=49), 16 μg/ml (n=1). Increased MICs were associated with urban residence, multiple recent sex partners, not using condoms.
Conclusions Quinolone resistance increased rapidly and alternative treatment, such as cefixime, is required for NG in this area. Systematic surveillance of antimicrobial resistance in NG is necessary for appropriate drug choice. Increases in MICs for oral cephalosporins add to growing concern for multi-drug resistant NG. The high prevalence of PPNG and TRNG suggest strong selective pressure from background antibiotic use.

Abstract O1-S03.01 Table 1

Year	Quinolone resistance n/N (%)	95% CI
2002–2006	0/89 (0.0)	–
2007	2/21 (9.5)	1.2 to 30.4
2008	6/22 (27.3)	10.7 to 50.2
2009	7/14 (50.0)	23.0 to 77.0
p Value for trend		<0.001

O1-S03.02 CEPHALOSPORIN SUSCEPTIBILITY OF *NEISSERIA GONORRHOEAE* ISOLATES IN THE USA, 2000–2010

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Background Cephalosporins are recommended by CDC for first-line gonorrhoea treatment. Declining cephalosporin susceptibility and clinical cefixime treatment failure have been reported from Asia, Europe and other regions. We report cephalosporin susceptibility trends among US *N gonorrhoeae* isolates.
Methods The Gonococcal Isolate Surveillance Project (GISP) is a sentinel surveillance system that monitors antimicrobial susceptibility among isolates collected from men with urethritis. Minimum inhibitory concentrations (MICs) are determined by agar dilution. The proportion of isolates with elevated MICs to cefixime (≥0.25 μg/ml) and ceftriaxone (≥0.125 μg/ml) from 2000 through the first half of 2010 were tested for trends using the Cochran-Armitage trend test. Susceptibility tests for cefixime were not performed during 2007–2008.
Results 61 559 isolates were tested during 2000–June 2010 (annual mean=5845). Overall, 37% of isolates were from men in the northeastern or southern regions of the US, 25% were from the Midwest, and 38% were from the West; 21% were from men who have sex with men (MSM). The proportion of isolates with elevated MICs remained stable for cefixime (CFX) from 2000 to 2006 (0.2% to 0.1%; CFX susceptibility not tested 2007 and 2008) and for ceftriaxone (CRO) from 2000 to 2008 (0.1% to 0.1%); the proportions increased in 2009 and 2010 (CFX: 0.8% and 1.9% [n=53], p<0.001; CRO: 0.3% and 0.4% [n=11], p<0.001). In 2010, most isolates with elevated MICs to cephalosporins were from the West (CFX: n=48 [91%]; CRO: n=7 [64%]) and from MSM (CFX: n=46 [87%]; CRO; n=9 [82%]).
Conclusions The proportion of gonococcal isolates with elevated MICs to cefixime and ceftriaxone recently increased in the US. Most of the isolates with elevated MICs were from men in the West and MSM. This is worrisome given trends elsewhere in the world and the history of fluoroquinolone-resistance in the US, which, early in the epidemic, was most often detected in the western US and among MSM. Cephalosporins remain effective for gonorrhoea treatment in the US, yet increasing MICs suggest that resistance may emerge. If cephalosporin resistance does emerge, alternative antibiotic treatment options will be needed.

O1-S03.03 CLONALLY RELATED *NEISSERIA GONORRHOEAE* ISOLATES WITH DECREASED SUSCEPTIBILITY TO EXTENDED-SPECTRUM CEPHALOSPORINS IN AMSTERDAM, THE NETHERLANDS

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Background Between 2006 and 2008, the prevalence of *Neisseria gonorrhoeae* (NG) isolates with decreased susceptibility (0.125<MIC<0.5 μg/ml) to the extended-spectrum cephalosporin (ESC) cefotaxime (CTX) among visitors of the STI clinic in Amsterdam, the Netherlands increased from 4.8 to 12.1%. The transmission patterns, clonality, phenotypic and genotypic characteristics of the NG isolates transmitted within this high-risk group were examined.
Methods From 2006 to 2008, 74 NG isolates with a CTX MIC of >0.125 μg/ml (group A), 54 with a CTX MIC of 0.125 μg/ml (group