a completely different NG-MAST/NG-STAR/MLST profile in an isolate pair from different time points. One other isolate pair from multiple time points differed only in NG-MAST, suggesting a potential case of reinfection. However, the level of similarity between typed cgMLST alleles was still >99% within the 5 isolate pairs with varying NG-MAST, which was only 4–87% within isolate pairs with completely different NG-MAST/NG-STAR/MLST profiles.

Conclusion Isolates with completely different NG-MAST/NG-STAR/MLST profiles can be considered as different strains, according to the low similarity in cgMLST alleles. Isolates with variable NG-MAST still had high similarity in cgMLST alleles, suggesting that NG-MAST might be too variable for identifying mixed- and re-infections.

Gonorrhoea epidemiology and antimicrobial resistance

009.1 TRENDS AND REGIONAL DIFFERENCES OF NEISSERIA GONORRHOEAE ANTIMICROBIAL RESISTANCE IN THE NETHERLANDS, 2013–2019

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Gonococcal antimicrobial resistance is emerging worldwide, and is monitored in the Netherlands in 18 out of 24 Sexual Health Centres (SHC) that perform culture and susceptibility testing for patients with gonorrhoea. This study describes trends, determinants and regional differences in azithromycin resistance and ceftriaxone decreased susceptibility in 2013–2019.

Data on person characteristics, STI diagnoses and MIC values (Minimum Inhibitory Concentration, measured by E-test) for gonorrhoea were reported by participating SHC. We describe azithromycin resistance (AZI-R, MIC >1 mg/L) and ceftriaxone decreased susceptibility (CEF-DS, MIC >0.032 mg/L) over time and per SHC. We use multilevel logistic regression analysis to describe determinants of AZI-R/CEF-DS among MSM and heterosexuals, correcting for SHC region. A separate multilevel model was made to quantify the effect of population differences on the regional variance of AZI-R and CEF-DS.

A total of 13,000 isolates were included from 2013–2019. AZI-R significantly increased from 2.8% (95% Confidence Interval 2.1–3.9%) to 9.3% (8.2–10.5%). CEF-DS significantly decreased from 7.0% (5.7–8.5%) to 2.9% (2.3–3.6%). Overall, regional differences were seen between SHC: AZI-R varied from 0.0% to 16.9%, CEF-DS from 0.0% to 7.0%. Regional variance could not be explained by population characteristics. Regression analyses found pharyngeal strain origin and year of consultation significantly associated with AZI-R and CEF-DS among MSM and heterosexuals. Among heterosexuals also a high number of partners was associated with AZI-R and CEF-DS.

No resistance or decreasing susceptibility was found for ceftriaxone, the first line gonorrhoea treatment in the Netherlands. However, azithromycin resistance is increasing, similar to trends worldwide. Differing levels of resistance/decreased susceptibility per SHC could not be explained by differences in population characteristics. This indicates the need for nationwide surveillance and reporting of results on a regional level. The association of pharyngeal strain origin with resistance/decreased susceptibility underlines the importance of including extragenital infections in gonococcal antimicrobial resistance surveillance.

009.2 LACK OF ASSOCIATION BETWEEN AZITHROMYCIN-RESISTANT NEISSERIA GONORRHOEAE INFECTION AND PRIOR EXPOSURE TO AZITHROMYCIN AMONG PERSONS ATTENDING A SEXUAL HEALTH CLINIC

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Background There is conflicting evidence on whether azithromycin (AZM) exposure is associated with subsequent AZM-resistance in persons with *Neisseria gonorrhoeae* (NG) infection.

Methods We included all patients from the Public Health-Seattle & King County Sexual Health Clinic (SHC) with culture-positive NG at ≥1 anatomic site whose isolates were tested for AZM resistance 2011–2019. We examined association of 1) any prescription of AZM from the SHC in ≤3, 6, and 12 months prior to NG diagnosis with AZM resistance (minimum inhibitory concentration [MIC] ≥2.0 µg/ml) using logistic regression and 2) the number of AZM prescriptions of either 1 or 2g in ≤3, 6, and 12 months and AZM MIC using linear regression. Both analyses controlled for race, age, HIV status, sex assigned at birth, gender of sex partner(s), anatomic site of infection, year/season of NG diagnosis, number of sexual partners in ≤12 months, and number of clinic visits in ≤3, 6, and 12 months.

Results Among 1,845 unique patients with 2,400 incident NG infections, 145 (6%) were resistant to AZM. In logistic regression, diagnosis with resistant NG was not associated with receipt of any AZM in ≤12 months (adjusted Odds Ratio [aOR] 0.69, 95% CI 0.43–1.12), ≤6 months (aOR 0.66, 95% CI 0.36–1.12) or ≤3 months (aOR 3.10, 95% CI 0.61–15.69). AZM MIC was not associated with the number of AZM prescriptions in ≤12 months (adjusted coefficient 0.06, 95% CI -0.07–0.18), ≤6 months (0.16, 95% -0.10–0.41) or ≤3 months (2.47, 95% CI -1.79, 6.7).

Conclusion Although our exposure variable is limited to receipt of AZM at a single clinic, we found no significant association between AZM exposure in ≤3, 6, or 12 months and subsequent AZM resistance among MSM with recurrent NG. These data suggest that individual-level AZM use for STI does not explain most cases of AZM resistant NG among MSM.