enough. Multidrug resistant *M. genitalium* strains including macrolide or fluoroquinolone-resistance are increasing and analysis of *M. genitalium* strains is important.
Methods *M. genitalium* strains were isolated from urinary sediment of *M. genitalium*-positive urine-specimens from Japanese man. The antimicrobial susceptibility testing was examined by the cell-culture method. The tested antimicrobials were azithromycin (AZM), clarithromycin (CLR), doxycycline (DOX), minocycline (MIN), ciprofloxacin (CIP), levofloxacin (LVX), moxifloxacin (MOX) and sitafloxacin (STFX).
Results Total 14 *M. genitalium* strains were isolated from Japanese patients. Four strains were isolated in 2003, and other 10 strains were isolated in 2017 and 2018. MIC50 and MIC90 were ≥16 mg/L and ≥16 mg/L for AZM, ≥16 mg/L and ≥16 mg/L for CLR, .5 mg/L and 1 mg/L for DOX, 0.25 mg/L and 0.5 mg/L for MIN, 8 mg/L and ≥16 mg/L for CIP, 4 mg/L and ≥16 mg/L for LVX, 1 mg/L and 4 mg/L for MOX and 0.125 mg/L and 0.5 mg/L for STFX, respectively. There was no macrolide-resistant strains in 2003, but 9 strains isolated in 2017 and 2018 were resistant to macrolide. Seven strains had high MICs more than 1 mg/L for MOX, but only one strain had high MIC 1 mg/L for STFX. Except for one strain which had MIC 2 mg/L for DOX, MICs of other strains for DOX or MIN were shown between 0.125 mg/L and 1 mg/L.
Conclusion Among 14 strain, 7 strains had high MICs for macrolide and MOX. In Japan, multidrug-resistant *M. genitalium* strains were increasing. Limitation of this study was that we tried to isolated *M. genitalium* strains form patients with treatment-failure cases by macrolide or fluoroquinolone in 2017 and 2018.
Disclosure No significant relationships.

P613 PREVALENCE AND CLINICAL FEATURES OF *MYCOPLASMA GENITALIUM* IN PATIENTS ATTENDING A STI OUTPATIENT CLINIC IN BERLIN: 2013–2017

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Background The *Mycoplasma genitalium* (MG) infection is a sexually transmitted infection (STI) with often asymptomatic course and increasing antibiotic resistance. One of the risk groups with a high prevalence are men, having sex with men (MSM). To our knowledge we are the first clinic in Germany to test routinely for MG.
Methods We performed a retrospective analysis of all data from MG-tested patients (rectal, pharyngeal and urethral swabs and urine samples) between 2013 and 2017. Due to an absence of consequent test of cure (TOC), an in-depth analysis was performed solely on the samples collected by the first visit of selected patient.
Results A total of 32,302 probes from 7,474 patients were systematically analyzed. Over 5 years we continuously increased testing rates from 3,362 probes (2013) to 11,845 probes (2017). The majority of patients were male (97.0%), with the mean age of 34.7 years. Most of the patients identified themselves as MSM. Due to patient discomfort, the tests for urethral infection were successively switched from urethral swab to urine probe (2013, 59.6% vs 2017, 88.2%). The mean prevalence appeared relatively stable and peaked in 2014 (5.2%). The majority of infections were rectal (6.7%) and urethral (4.8%). Pharyngeal infections were rarely identified (1.0%). The urethral swabs appeared as more sensitive when compared to urine probes (5.5% vs 4.1%). A total of 3,819 (51.1%) patients never received a TOC.
Conclusion The presented data represent the largest epidemiological surveillance of MG in Germany to date. The prevalence of MG appeared stable over 5 years. Probably due to many asymptomatic courses the majority of patients did not received a TOC, making them possible vectors in case of treatment failure. Due to increased vulnerability for HIV-acquisition in persons with a MG-infection, we recommend routine rectal tests in MSM.
Disclosure No significant *relationships.*

P614 MACROLIDE RESISTANCE IN *MYCOPLASMA GENITALIUM* IS STRONGLY ASSOCIATED WITH STI CO-INFECTION

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Background Co-infections can compromise empirical therapy when treating genital discharge syndrome (GDS). In the UK, lack of testing for *Mycoplasma genitalium* (MG), a common cause of GDS, is particularly challenging because of increasing rates of macrolide antimicrobial resistance (AMR). We calculated prevalence of MG co-infections, macrolide resistance and associated risk factors in a diverse symptomatic sexual health clinic (SHC) population.
Methods SHC attendees in England aged ≥16 years, symptomatic of an STI provided: vulvovaginal swabs (females), first void urine (men-who-have-sex-with-women (MSW) and men-who-have-sex-with-men (MSM)), pharyngeal and rectal swabs (MSM). Routine clinic *Chlamydia trachomatis* (CT)/*Neisseria gonorrhoeae* (NG) results were obtained and PCR used for MG detection. Macrolide resistance was determined using Sanger sequencing. Unadjusted and risk factor adjusted odds ratios (ORs) for being MG resistant were derived using logistic regression models.
Results Prevalence of MG was 9.5% across all groups and 6.5%(95%CI:4.6–8.9), 12.8%(9.1–17.3) and 12.3%(8.5–17.1) in females, MSW and MSM, respectively ($p<0.005$). Among patients infected with CT and/or NG, co-infection with MG was 18.7%(8.9–32.6), 9.5%(3.6–19.6) and 4.9%(1.4–12.2), respectively ($p<0.05$). Among MG positives, macrolide resistance was 62.1%(42.3–79.3), 77.4%(58.9–90.4), and 90.9% (70.8–98.9), respectively. In univariate analysis, being MSM (OR:3.0[95%CI:1.60–5.88]), being of black (3.02[1.66–5.47]) compared to white ethnicity, reported more than one regular partner (3.19[1.25–8.13]), having an STI co-infection (10.13 [4.62–22.25];$p<0.001$) and a recent STI diagnosis (2.09[1.18–3.68];$p<0.005$) were associated with having macrolide resistant MG. In multivariable analysis, being MSM (aOR:3.31 [1.44–7.61]), being of black ethnicity (3.31[95%CI:1.58–6.94]; $p<0.005$), more than one regular partner (3.32[1.21–9.08];

p<0.005) and having a co-infection (10.35[4. 32–25.30]; p<0.001) remained significant.
Conclusion Having an STI co-infection with MG was the strongest indicator of likelihood of having macrolide resistance which was also associated with being in particular risk groups. These findings are suggestive that macrolide resistance may be maintained in discreet sexual networks that are themselves exposed to antibiotic selection pressures.
Disclosure No significant relationships.

P615 CLINICAL IMPROVEMENT AFTER STANDARD TREATMENT FOR URETHRITIS: THE ROLE OF *MYCOPLASMA GENITALIUM*

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Background *Mycoplasma genitalium* (MG) is a sexually transmitted organism associated with urethritis in men. We examined clinical improvement of symptoms in men treated syndromically for urethritis, and correlated the clinical outcome to MG positivity.
Methods At the STI clinic in Amsterdam, the Netherlands, urethritis is defined as the presence of ≥10 leucocytes per high power field in Gram stains of urethral discharge. The additional presence of intracellular gram-negative diplococci defines gonococcal urethritis. Point-of-care standard therapy for gonococcal urethritis is 1000 mg ceftriaxone and for non-gonococcal urethritis is azithromycin 1000 mg. From May 2018 onwards, urine samples of all men with urethritis were tested for presence of *N. gonorrhoeae* (NG), *C. trachomatis* (CT), and *M. genitalium* (MG) using TMA assays (Aptima, Hologic). These men were sent a text message two weeks after receiving standard therapy, with a questionnaire about improvement (including resolution) of their urethritis symptoms. We analyzed clinical improvement by MG status.
Results From May through December 2018, 1015 men presented with 1111 episodes of urethritis. Of 88 episodes, there were no results for MG. Of the remaining 1023 episodes, men responded to the text message in 379 cases (37%). Of 379 cases 87 (23%) were positive for NG, 119 (31%) for CT, and 81 (21%) for MG. Clinical improvement was reported in 312 episodes (82%); this was 89% in NG cases; 82% in CT cases, and 72% in MG cases. Clinical improvement was reported by 92%(55/60), 85%(83/98) and 70%(35/50) of those with single infection with NG, CT or MG respectively (P=0.009); and by 80%(110/134) of those with none of these infections. Those with MG/CT co-infection had worse outcomes than those without MG (P=0.015).
Conclusion Among men with urethritis 82% improved after standard syndromic treatment. Those with MG/CT co-infection and those with MG single infection had significantly worse treatment results.
Disclosure No significant relationships.

P616 PREDICTIVE MACROLIDE AND FLUOROQUINOLONE RESISTANCE MARKERS IN *MYCOPLASMA GENITALIUM* FROM THE UK AND IRELAND

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Background This study sought to assess the prevalence of macrolide and fluoroquinolone resistance in *Mycoplasma genitalium*-positive specimens received in PHE's national reference laboratory.
Methods *M. genitalium*-positive clinical specimens submitted from 59 laboratories across the UK and Ireland were tested for molecular markers of macrolide and fluoroquinolone resistance. The 23S rRNA gene and the quinolone-resistance-determining region (QRDR) of *parC* were amplified by PCR and Sanger sequenced. Single nucleotide polymorphisms (SNPs) associated with clinical treatment failure were detected through sequence alignment in BioNumerics software (V.6.1, Applied Maths, USA).
Results Four hundred and fifty-eight *M. genitalium*-positive specimens were received between 01/09/17 and 28/11/2018. Sequencing results were available for both gene targets in 389/458 (84.9%) specimens. Seventy-one percent (275/389) were predicted to be resistant to macrolides. 23S rRNA SNPs detected were A2058G (136/275, 49.5%), A2059G (131/275, 47.6%), A2058T (5/275, 1.8%) and A2059C (3/275, 1.1%). Eight percent (31/389) were predicted to be resistant to fluoroquinolones. *parC* mutations detected were D87N (16/31, 51.6%), S83I (12/31, 38.7%), D87Y (2/31, 6.5%) and S83R (1/31, 3.2%). Seven percent (26/389) were predicted to be resistant to both antimicrobial classes. Only 28% of positive samples tested were predicted to be susceptible to both classes of antimicrobial.
Conclusion Resistance to macrolides, the current first-line treatment for *M. genitalium*, in specimens received at PHE from patients attending STI clinics in the UK and Ireland is very high, at 85%. Conversely, resistance to the second-line treatment, moxifloxacin, in these specimens was estimated at 8% although the actual rate of resistance may be higher as there are many mutations with unknown treatment outcomes. Isolates exhibiting resistance to both antimicrobial classes are of significant public health concern as further treatment options for this organism are limited. Effective surveillance of SNPs in this organism is imperative to further understand the affect on clinical outcome.
Disclosure No significant relationships.