historically treated patients with PP regardless of syphilis stage. We compared serological response, adherence and tolerance among these patients compared with those receiving alternative regimens.

Methods A retrospective analysis of HIV positive individuals with early syphilis infection. Response to treatment was defined by ≥4-fold decline in VDRL titer within 13 months.

Results 197 patients were diagnosed with primary(24%), secondary(50%) or early- latent(26%) syphilis between 2012-2015. 102(52%) received PP, 26(13%) BPG, 38(19%) doxycycline for 28 days and 4(2%) amoxicillin plus probenecid. For 27(14%), treatment regimen was unknown. Of those who completed PP, 91% had serological response, BPG 65%, doxycycline 79%. Four patients on PP switched due to non-adherence. Of the PP patients median age 42, CD4 576 and 80% were on antiretroviral therapy. This did not differ greatly between those who achieved serological response and those who did not.

Abstract UG6 Table 1 Demographics and follow up of patients divided by treatment regimen

	PP (%)	BPG (%)	DOXY (%)	AMOX+P (%)
No. of patients started treatment	102 (52)	26 (13)	38 (19)	4 (2)
No. of patients completed treatment	94 (92)	26 (100)	34 (89)	4 (100)
Serological Response	86 (91)	17 (65)	27 (79)	3 (75)
Serological Failure	3 (3)	1 (4)	3 (8)	1 (25)
Lost to Follow up <13 months	5 (5)	8 (31)	4 (11)	0
No. of patients did not complete treatment	8 (8)	0	4 (11)	0
Serological Response	7 (88)		3 (75)	
Serological Failure	1 (12)		1 (25)	
Switched Treatment Regimen	4 (4)	0	1 (3)	0
BPG	1 (25)	0	1 (100)	0
Doxycycline	3 (75)	0	0	0
Serological Response	4 (100)	0	1 (100)	0
Age				
Median	42	44	38	54
Range	25–46	29–68	27–58	40–63
Syphilis Infection				
Primary	24 (24)	9 (35)	7 (18)	1 (25)
Secondary	47 (46)	12 (46)	25 (66)	1 (25)
Early Latent	31 (30)	5 (19)	6 (6)	2 (50)
CD4 at Diagnosis				
Median	576	654	534	728
Range	126–1223	170–2384	274–847	404–1146
On ART at Diagnosis				
Yes	82 (80)	21 (81)	30 (80)	4 (100)
No	20 (20)	5 (19)	8 (20)	0

PP=procaine penicillin plus oral probenecid; BPG= benzathine penicillin G; DOXY= doxycycline; AMOX+P= amoxicillin plus oral probenecid; HART=HIV antiretroviral therapy

Discussion We demonstrate good adherence and tolerance of PP. There was a superior serological response to treatment in this group but a large loss to follow up among those treated with BPG. Further statistical analysis may identify factors associated with serological failure. Prospective studies exploring co-infection are required.

Poster Presentations

Bacterially Sexually Transmitted Infections

P001 WHAT IS THE EVIDENCE THAT PREVIOUS AZITHROMYCIN TREATMENT FOR CHLAMYDIA OR GONORRHOEA IS ASSOCIATED WITH NEISSERIA GONORRHOEAE AZITHROMYCIN RESISTANCE?

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Introduction The prevalence of azithromycin resistance in *Neisseria gonorrhoeae* (NG) including high-level resistance (HL-AziR NG) is increasing in England. It has been suggested that exposure to azithromycin at sub-optimal doses may facilitate development of azithromycin resistance in NG. We investigated whether treatment history for non-rectal chlamydia (CT) or NG (as proxies for azithromycin exposure) in GUM services was associated with susceptibility of NG to azithromycin.

Methods Descriptive and negative binomial regression analyses of azithromycin Minimum Inhibitory Concentration (MIC) data from 4608 NG isolates collected by the Gonococcal Resistance to Antimicrobials Surveillance Programme (GRASP) 2013–2015 (matched to GUMCADv2 data on CT/NG diagnoses) were performed. Descriptive analyses of previous CT/NG among 56 HL-AziR NG isolates (MIC>256 mg/L) were also performed (2013–2016).

Results Modal azithromycin MIC was 0.25mg/L (1 dilution below the resistance breakpoint) in those with and without history of CT or GC. There were no differences in MIC distribution by previous CT/NG, nor by time since most recent infection (CT: p=0.97; NG: p>0.99). Among patients with HL-AziR NG, 4 (8%) were treated for CT and 4 (8%) for NG in the previous year, compared with 9% and 13% respectively for all GRASP patients.

Discussion There was no evidence of an association between previous CT/NG treatment in GUM services and subsequent presentation with an azithromycin-resistant strain. However, 46% of CT diagnoses occur in non-GUM settings therefore further research is needed to explore whether an association with azithromycin exposure in other settings and for other conditions exists.

P002 ASSESSING THE IMPACT OF INDIVIDUALISED TREATMENT: AN INDIVIDUAL-BASED MATHEMATICAL MODELLING STUDY OF ANTIMICROBIAL RESISTANT NEISSERIA GONORRHOEAE TRANSMISSION, DIAGNOSIS AND TREATMENT IN MEN WHO HAVE SEX WITH MEN

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Introduction Antimicrobial resistant (AMR) gonorrhoea is a global public health threat. In London, diagnoses in men who

have sex with men (MSM) have more than quadrupled from 2010 to 2015. Importantly, our last-line treatment (ceftriaxone) is used in first-line dual therapy. However, over half of tested isolates are still sensitive to older drugs, e.g. ciprofloxacin. Discriminatory point-of-care tests (POCT) to detect drug sensitivity are under development, enabling individualised treatment decisions.

Methods An individual-based transmission model of gonorrhoea infection in MSM was developed, incorporating ciprofloxacin-sensitive and resistant strains, using novel heuristic approach to capture partnership dynamics. We explored different strategies to improve treatment selection including a) discriminatory POCT, b) partner treatment based on index case susceptibility, and c) variably delayed positivity testing prior to treatment (pre-screening).

Results The flexible model structure enabled us to credibly simulate London gonorrhoea transmission dynamics - assuming 2–10% prevalence and 10–50 daily diagnoses per 100,000 MSM. Simulations show that a) using POCT to detect ciprofloxacin sensitive infections resulted in a 70% decrease in ceftriaxone doses, and b) using index case sensitivity profile to direct treatment of partners could reduce ceftriaxone use by 27%.

Discussion POCT are likely to dramatically reduce reliance on ceftriaxone. In the meantime, we could use existing data more informatively. If lab turnaround times are fast enough, index case sensitivity profiles could be used to select effective treatments for partners. This new framework addresses limitations of previous models and provides a flexible platform for exploring control options for AMR gonorrhoea.

P003 GENITAL C. TRACHOMATISINFECTIONS LAST LONGER IN MEN THAN WOMEN, BUT ARE LESS LIKELY TO BECOME ESTABLISHED

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Introduction Rigorous estimates for the duration of untreated chlamydia infection are important for understanding its epidemiology and designing control interventions, but are only available for women. We have estimated the duration of untreated infection in men.

Methods Data came from published studies in which untreated, chlamydia-infected men were re-tested at a later date. We used analysis methods that had previously been applied to data from women, which allow for a new infection to take one of multiple courses, each clearing at a different rate. We determined the optimal number of possible courses. Parameter estimates were obtained using a Bayesian statistical framework.

Results The best-fitting model had two different courses of infection: 'slow-' and 'fast-clearing', as had been the case for women. In men only 68% (57%–78%) (median sample; 95% credible interval) of incident infections were 'slow-clearing', compared with 77% (69%–84%) in women. The posterior median estimate for the mean infection duration in men was 2.84 (0.87-18.79) years, compared with 1.35 (1.13–1.63 years) in women.

Discussion Our estimated infection duration in men is longer than has previously been assumed. Male infections are less likely to become established (slow-clearing) than those in women but once established, tend to last longer. Long-term, asymptomatic infections in men – in whom chlamydia screening rates are lower – could be sustaining chlamydia prevalence in both sexes. This study provides an improved description of chlamydia's natural history to better inform public health decision-making. We advocate further data collection to reduce uncertainty in estimates.

P004 PROSPECTIVE COMPARISON OF CHARCOAL SWABS VERSUS NEAR-PATIENT DIRECT CULTURE PLATE INOCULATION FOR THE CULTURE OF GONORRHOEA IN HIGH-RISK PATIENTS. A REPEAT AUDIT

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Introduction Gonorrhoea culture is required to monitor antibiotic resistance and is recommended for all patients known or suspected to be infected. In July 2016 a retrospective comparison of near-patient direct plating and transported charcoal swabs found that the culture positive rate was 24% lower for charcoal swabs. Since this audit, the laboratory service implemented an urgent transport system for charcoal swabs, in order to improve the reliability of this method.

Methods Between July 2016 and January 2017 all patients who had a positive GC NAAT or were otherwise at high risk had two culture swab specimens taken from the infected site (cervical, male urethra, rectum, pharynx): 1. a charcoal swab sent to the laboratory for plating within two hours and 2. specimen directly plated onto VCAT GC selective agar.

Results Of 139 positive NAATs across all sites, 47 were followed by both direct plating and charcoal swab. Of these 47 pairs of cultures, there were only 2 discrepancies between culture types (one with direct plating positive, charcoal negative, the other vice-versa).

Abstract P004 Table 1 Culture +ve rate by method and site

Site	Cervix	Urethra	Pharynx	Rectum	Total
No. of positive NAATs	28	50	36	25	139
No. of patients in whom both methods of culture/ transport used	5	24	9	9	47
No. (%) +ve by direct plate	4 (80%)	21 (88%)	2 (22%)	7 (77%)	34 (72%)
No. (%) +ve charcoal swab	4 (80%)	21 (88%)	2 (22%)	7 (77%)	34 (72%)

Discussion With the implementation of the new urgent transport system, there is no difference in the culture positive rates of direct plating versus charcoal swabs for GC culture. Provided the same high standards of transport are maintained, a change in practice, moving to charcoal swabs transported to the lab for GC culture and stopping direct plating, is recommended.