

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.