Session title: Innovations in clinical practice
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01 RAPID AUTOMATED WHITE CELL URINALYSIS IS MORE ACCURATE THAN URETHRAL SMEAR FOR PREDICTING CHLAMYDIA INFECTION IN MEN

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Background The cut-off of ≥5 polymorphs/high power field (p/hpf) in a Gram stained male urethral smear (GSUS) for diagnosing non-gonococcal urethritis derives from evaluations using Chlamydia trachomatis (CT) culture as gold standard. There is also significant observer variation in performing microscopy.
Objective To compare automated flow cytometry of first void urine white cell count (FVU-UWC) to GSUS for prediction of CT infection in men.
Methods First void urines from 227 symptomatic male patients, all undergoing GSUS, were collected and patients stratified into: those treated for urethritis, diagnosed by GSUS result, history and examination (n=114) and; those not thought to have urethritis (n=113). First void urines were analysed by automated flow cytometry using the bench-top Sysmex UF-100 Analyser.
Results CT was found in 11.6% and 6.2% urethritis and non-urethritis patients respectively and gonorrhoea (GC) in 3.6% and 1.1% respectively. There was no difference in UWC between urethritis and non-urethritis (p=0.690) nor association between GSUS grade and UWC (p=0.933). Median GSUS was higher for CT positive compared to negative patients (≥5/hpf vs 0). UWC were higher in CT (p=0.001) and GC (p≤0.001) positives. ROC area under the curve (AUC) for predicting CT was 0.844 (p≤0.001) with an optimal cut-off of >29 UWC/µl giving sensitivity of 90% and specificity of 76%. For predicting CT in urethritis and non-urethritis: the positive predictive values using the >29 UWC/µl cut-off were 20% (95%CI 9.1% to 37.5%) and 34.4% (19.2% to 53.2%) and the negative predictive values NPVs 100% (94.2% to 100%) and 97.5% (90.4% to 99.6%) respectively; for GSUS, using ≥5/hpf, positive predictive values were 10.5% (5.4% to 18.9%) and 0% (0% to 60.4%) and negative predictive values were 82.4% (55.8% to 95.3%) and 93.6% (86.8% to 97.2%) respectively.
Conclusion UWC is (1) higher in CT and GC infection; (2) is a better predictor of urethral CT than GSUS and; (3) possibly more useful for determining non-gonococcal urethritis. Automated rapid flow cytometry may offer significantly improved utility over microscopy in the clinic.

02 WHO SHOULD HAVE GONORRHOEA CULTURES IN ADDITION TO GONORRHOEA AND CHLAMYDIA NUCLEIC ACID AMPLIFICATION TESTS? COST EFFECTIVENESS STUDY

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Background Nucleic acid amplification tests (NAATs) can now detect chlamydia (CT) and gonorrhoea (GC) but cultures are needed in GC NAAT positive people prior to treatment. This necessitates re-evaluation, examination and culture if cultures have not been taken initially.
Aim/Objective To discover if it is more cost-effective to perform a NAAT plus GC culture or just a NAAT followed by recall of GC positives for culture.
Methods 3973 women performed a self-taken vulvo-vaginal swab (VVS) then clinicians took urethral and endocervical samples for GC culture. The VVSs were analysed for GC/CT by Aptima Combo 2 (AC2). Cost effectiveness was analysed using incremental cost effectiveness ratios using correct detection of GC/CT as the primary endpoint. Costs were estimated from a sub-sample of 92 patients in July 2009 and included costs of clinic time and laboratory costs. Comparisons were made of GC cultures plus a CT NAAT vs VVSs analysed by AC2 in various subgroups.
Results VVS GC/CT NAAT with subsequent culture of GC positives was more cost-effective (8% cost-saving). The greatest saving was in women not requiring examination (37% cost saving). Cost of time taken explaining a self-taken swab was 11% of cost of examination. Savings also accrued by using AC2 rather than GC culture and CT NAAT. In contacts of GC, it was more cost-effective to include GC culture at first examination (15% cost saving).
Conclusions VVS analysed by AC2 for GC/CT is more cost-effective and detects more infections than GC culture plus CT NAAT. In women with no symptoms self-taken VVSs give cost savings of 37%. In women with symptoms VVSs remain cost-effective unless the prevalence of GC is above 10%. We would recommend including GC culture at first examination for women who are GC contacts (see abstract O2 table 1), those with pelvic inflammatory disease or cervicitis and in other circumstances where immediate antibiotic treatment is given.

Abstract O2 Table 1 Costs of different testing strategies in whole group and subgroups

Subgroup	Gonorrhoea prevalence	Total cost GC culture + CT NAAT	Total cost GC/CT NAAT and subsequent GC culture if GC +ve
All women n=3973	2.5%	£199 285.68	£182 769.12
Symptomatic for bacterial STI n=1677	3.4%	£84 118.32	£77 650.50
Asymptomatic for bacterial STI but requiring examination n=900	3.4%	£45 144.00	£41 625.49
Asymptomatic and not requiring examination n=1396	0.9%	£70 023.36	£44 230.22
GC contacts n=44	50%	£2940.52	£3382.06
Previous GC n=162	7%	£10 826.46	£10 365.43
Cervicitis n=218	10%	£14 568.94	£14 163.10
Pelvic inflammatory disease n=169	8.3%	£11 294.27	£10 888.58

03 GONORRHOEA TEST OF CURE: OUTCOMES IN A LARGE URBAN SEXUAL HEALTH SERVICE

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Background New British Association for Sexual Health and HIV guidelines for the management of gonorrhoea in adults were introduced in June 2011. First line therapy was changed to ceftriaxone 500 mg intramuscularly plus azithromycin 1 g orally, with a test of cure (TOC) recommended for all patients at 2 weeks. Our clinic policy changed to reflect these guidelines. TOC, previously performed in selected cases, was recommended in all cases.
Aims To identify the proportion of cases correctly treated following the change in guidelines and analyse TOC outcomes.
Methods A retrospective case notes review was carried out from 17 June to 22 November 2011. Diagnosis of gonorrhoea was from

microscopy, nucleic acid amplification tests (NAAT) and culture. The NAAT test used was Gen-Probe APTIMA Combo 2, confirmed by the Aptima GC mono-assay.

Results 152 cases were identified; 63% of cases were in men, 75% were heterosexual. The median age was 25 years (IQR 20–33.5). 24% had previously had gonorrhoea, 29% had concurrent sexually transmitted infections and 5% had HIV co-infection. 88% of patients received correct treatment as per British Association for Sexual Health and HIV guidelines. 76% were offered TOC; of these, 43% attended for TOC. TOC was negative in all patients tested (NAAT and/or culture). 4% of patients attending TOC were retreated because of re-infection risk. 22% (82/369) of partners were tested and treated for gonorrhoea; however, written or official verification of this was limited.

Discussion Our data show that a high proportion, though not all, of patients are offered correct treatment at our centre, but only 43% return for TOC. Of those who return, persistent infection, to date, has not been detected at our centre. This may indicate that guidelines can be refined to direct TOC towards populations at greater risk of persistent or resistant gonorrhoea infection. More data regarding the best time to offer TOC is also required, as earlier TOC may improve uptake.

04 PHARYNGEAL GONORRHOEA: ASSESSING TREATMENT RESPONSES IN AN ERA OF UNCERTAINTY

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Background The last decade has seen a paradigm shift in diagnosis and treatment of gonorrhoea (GC). Recent guidelines are hampered by lack of evidence for optimal timing for test of cure (TOC) and method of testing. The majority of pharyngeal GC (pGC) is seen in MSM and is culture-negative. Traditionally infection is harder to eradicate at this site and TOC is now routinely recommended.

Aim To assess treatment responses and TOC strategy for pGC over a 2-year period that included multiple changes in practice.

Methods Retrospective case note review of all pGC diagnosed by Aptima Combo 2 (AC2) and confirmed with Aptima GC from January 2010 to January 2012 at two urban UK GUM clinics. Treatment regimens changed from oral to parenteral and TOCs performed at 2 or 3 weeks across the study period.

Results A total of 523 cases of pGC were diagnosed; 514 (98.3%) were in men. Of the 343 where culture was taken concurrently, 63 (18.4%) were culture positive. Ciprofloxacin resistance was present in 33% of pGC isolates but none showed cefixime resistance. Of the 476 where pGC treatment was given and documented by us, most were treated with either cefixime 400 mg PO (51.3%) or ceftriaxone 500 mg IMI (40.1%), usually with azithromycin 1 g PO or doxycycline 100 mg bd ¡Ý7 days PO. Of the 386 that underwent TOC within 90 days of treatment, most had both culture and AC2 taken. Positive TOC was seen in 14 (3.6%) patients (only five were culture-positive); all had received cefixime-based regimens as their first line GC treatment. High rates of ongoing sexual risk clouded the determination of treatment failure. The majority of TOCs done at 2 weeks (31/32; 97%) or 3 weeks (43/44; 98%) were AC2-negative. Two AC2-positive TOCs at 7 and 8 days post-treatment, respectively, were difficult to interpret (see abstract O4 table 1).

Conclusions Our data support the new guidelines for pGC treatment with ceftriaxone 500 mg regimens followed by TOC at 2 weeks with a molecular test. Prospective studies and ongoing surveillance are needed to monitor the efficacy of this strategy.

Abstract O4 Table 1

Antibiotic regimen used for pharyngeal GC treatment	No. of patients with TOC	No. with negative TOC result (%)
Cefixime 400 mg + AZI 1 g	161	153 (95%)
Cefixime 400 mg + doxy ≥7 days	10	5 (50%)
Ceftriaxone 500 mg + AZI 1 g	101	101 (100%)
Ceftriaxone 500 mg + doxy ≥7 days	16	16 (100%)
Ceftriaxone 500 mg only	9	9 (100%)
Ceftriaxone 250 mg + AZI 1 g	3	3 (100%)
Ceftriaxone 250 mg + doxy ≥7 days	2	2 (100%)
Ceftriaxone 250 mg only	5	5 (100%)
Azithromycin 2 g only	9	9 (100%)
Ciprofloxacin 500 mg + AZI 1 g	6	6 (100%)

AZI, azithromycin; doxy, doxycycline 100 mg bd; TOC, test of cure.

05 PARTNER NOTIFICATION FOR GONORRHOEA: ANALYSIS OF OUTCOMES USING SURVEILLANCE DATA

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Background Partner notification (PN) is an essential component of STI control but can be difficult where index cases have multiple casual partners. Guidelines recommend that for gonorrhoea, a minimum of 0.4 contacts/case in large conurbations, and 0.6 contacts/case elsewhere, should be screened. We investigated the effectiveness of newly introduced surveillance codes for monitoring standards of PN in England.

Objectives To investigate the relationship between PN ratios for gonorrhoea and patient socio-demographic characteristics.

Methods Data on PN from the Genitourinary Medicine Clinic Activity Dataset (GUMCAD) were analysed.

Results Reporting on PN began on a rolling basis in 207 GUM clinics during 2011. Provisional data on PN were available from 171 clinics reporting data covering 951 clinic months in total, during which there were 7423 cases and 2749 contacts. In this period, the overall PN ratio for gonorrhoea was 0.37 contacts/case. PN ratios were highest for clinics in non-urban areas (0.42 vs 0.36 in urban areas) but there was no difference between PN ratios in London and the rest of England. PN was most successful for female partners of heterosexual male index cases (0.44 contacts/case). Of those attending as a contact 26% (707/2749) tested positive for gonorrhoea; 31% of females, 22% of heterosexual males and 24% of MSM.

Conclusions Provisional data suggest that, on average, contact to index case ratios for gonorrhoea are below recommended standards but these are likely to vary considerably by clinic. The high prevalence of gonorrhoea among contacts emphasises the importance of PN for case finding and reducing transmission. Further analysis to better understand the strengths and limitations of these data is warranted.

06 SENIORITY IMPROVES SPECIFICITY: DIFFERENCES IN PID DIAGNOSIS BETWEEN DIFFERENT GRADES OF CLINICIAN

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Background Pelvic inflammatory disease is difficult to diagnose; dependent on interpretation of clinical symptoms and signs that lack sensitivity and specificity. Differences in the rates of PID diagnoses have been noted among senior sexual health physicians. Given the potential severe consequences of untreated PID, we