Conclusion Low baseline CD4 T-cell count, haemoglobin, aspartate transaminase and sCD14 levels are predictive of suboptimal CD4 T-cell recovery in this cohort of HIV-1 subtype C infected patients. These markers are potentially useful in identifying patients who need frequent clinical monitoring to minimise unfavourable outcomes associated with poor CD4 T-cell recovery.

015.2 COMPARISON OF THE ROCHE COBAS 4800 CTNG TEST WITH MICROBIAL CULTURE FOR DETECTING *NEISSERIA GONORRHOEAE* IN GENITAL AND NON-GENITAL SPECIMENS IN NEW ZEALAND

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Background In New Zealand it has been usual practise to detect *Neisseria gonorrhoeae* (NG) by culturing endocervical and urethral specimens obtained by pelvic examination. However there is a significant false negative rate. The use of newer nucleic acid amplification tests (NAATS) increases the detection of NG and allows testing of non-invasively collected samples. A large retrospective audit was performed on 18,913 microbial culture and cobas 4800 NG PCR results with the aim to determine if urogenital and non-genital specimens could be screened without the need for supplementary testing of positive results.
Methods Results from culture and PCR were compared; discrepancies were resolved by clinical correlation and/or an in-house assay targeting the *opa* gene and the *porA* psuedogene.
Results NG PCR diagnosed 33% more urogenital and 25% more rectal infections than culture; and testing of non-invasive specimens by PCR resulted in 37% more patients being screened for infection. Female urine is not suitable as a sole screening specimen by this assay as sensitivity was only 86.7%. There were insufficient pharyngeal or eye swabs available for the study to rule out the need for supplementary testing by additional DNA targets.

This study also showed an association between 'failed' cobas 4800 results and NG positive culture results, likely caused by mucopurulent discharge. Treating specimens with 1.4% Dithiothreitol enabled resolution of 89% of these specimens, of which 18% were positive for CT and/or NG.

In our population, 8% of NG positives were *porA* negative, and 22% were *opa* negative. Confirmatory testing of a pharyngeal specimen identified a cross-reacting commensal Neisseria which gave a false positive cobas 4800 NG result.
Conclusion The cobas 4800 NG test is acceptable for urogenital and rectal specimens without supplementary testing in our low prevalence (< 1%) population, however other non-genital sites require confirmation.

015.3 EVALUATION OF AN IMMUNOCHROMATOGRAPHIC POINT-OF-CARE TEST FOR THE SIMULTANEOUS DETECTION OF NONTREPONEMAL AND TREPONEMAL ANTIBODIES IN PATIENTS WITH SYPHILIS

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Background We described the evaluation of the DPP Syphilis Screen and Confirm Assay, a point-of-care test (POC) for the simultaneous detection of nontreponemal and treponemal antibodies for the serological diagnosis of patients with syphilis.
Methods A total of 248 samples from patients with active syphilis (173), past syphilis (15) and from individuals considered as no infected by *Treponema pallidum* (60) were studied with the DPP Syphilis Screen and Confirm, Rapid Plasma Reagin (RPR), and fluorescent treponemal antibody absorption (FTA-Abs) tests. In addition patients with active syphilis cases (36) primary, (39) secondary, and (98) latent, were evaluated. The DPP Syphilis Screen and Confirm device consists of a plastic cassette with a recombinant *T. pallidum* and a synthetic nontreponemal test line antigens and a procedural control line.
Results The sensitivity of the DPP Syphilis Screen and Confirm, nontreponemal and treponemal tests was 97.6% and 96.8% while the specificity was 94.7% and 93.1% respectively, when compared to the predicates RPR and FTA-abs tests. The treponemal and nontreponemal clinical sensitivity of primaries was 100% (36/36), for both and for secondary syphilis was also 100% (39/39), for both test and predicates. For patients with latent syphilis the sensitivity was 97.96% (96/98) for the treponemal test and 98.98% (97/98) for the nontreponemal test while for the predicates FTA-ABS and RPR was 100% (98/98) and 98.98% (97/98), respectively. With patients without syphilis the specificity of the DPP Syphilis Screen and Confirm test was 91.66% (55/60) for the treponemal line and 96.66% (58/60) for the nontreponemal line.
Conclusion These results indicates that the DPP Syphilis Screen and Confirm POC test could be a useful tool for the serological diagnosis of syphilis, including resource-poor settings where there is a need to provide counselling and treatment on site and thus prevent the further spread of the disease.

015.4 FIELD PERFORMANCE OF THE ALERE DETERMINE HIV COMBO ASSAY IN A LARGE AUSTRALIAN MULTI-CENTRE STUDY IN A SEXUAL HEALTH CLINIC SETTING

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Background Rapid HIV testing has been available to gay and other men who have sex with men (MSM) overseas for many years. Alere's Determine HIV Combo 'fourth generation' rapid test containing antibody and antigen components is now available in Australia, but field performance data for this assay are limited.
Methods From September 2011, MSM attending four Sydney public sexual health clinics were offered rapid HIV testing using the Determine HIV Combo and also had sexually transmissible infection screening and conventional HIV serology. Rapid test sensitivity, specificity, and positive and negative predictive values (PPV, NPV) were calculated by comparing results to reference tests (Abbott Architect HIV Ag/Ab Combo, Biorad Genscreen HIV antigen and HIV Western blot).
Results In 15 months, 1716 men had 2043 rapid tests performed with four invalid rapid tests (0.2%) excluded from analysis. Of 34 men confirmed as HIV-positive by national HIV case definitions, 29 had reactive rapid tests (sensitivity = 85.3%, 95% CI: 68.2–94.5). With 29 true reactive rapid tests from a total of 44 reactive tests, PPV overall was 65.9% (50.0–79.1). Of five men with false non-reactive tests, four were seroconvertors. Rapid tests were non-reactive in 1990 out of 2005 cases where laboratory HIV testing was negative; hence, overall specificity was 99.3% (95% CI: 98.7–99.6) and NPV was 99.8% (99.4–99.9). Of 15 men with false reactive rapid tests, four had

non-specific reactivity on HIV Western blot. Specificity and NPV for the antibody component was 99.5% (99.0–99.7) and 99.9% (99.6–100.0) and for the antigen component was 99.8% (99.4–99.9) and 99.6% (99.1–99.8), respectively.

Conclusion Antibody and antigen component specificity was consistent with the rapid test package insert; whereas sensitivity was lower, notably in those with recent infections. Hence, identifying patients at risk of recent infection is vital so that conventional laboratory serology is performed. A formal assessment of test performance in seroconvertors is warranted.

015.5 PERFORMANCE CHARACTERISTICS OF SD BIO LINE RAPID HIV-SYPHILIS DUO TEST KIT FOR SIMULTANEOUS DETECTION OF HIV AND SYPHILIS INFECTIONS

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Background Human immunodeficiency virus (HIV) and *Treponema pallidum* share modes of transmission. Congenital syphilis is a significant cause of stillbirth, prenatal death and serious neonatal infections. We sought to evaluate rapid test kit for HIV-syphilis dual detection to improve diagnosis and enable accurate management towards achieving the renewed zeal of eradicating syphilis and congenital syphilis.

Methods Six hundred and eighty serum specimens from HIV discordant couples in a clinical trial, tested for syphilis infection by RPR with reactive specimens confirmed by TPHA, were used for this evaluation. HIV status was determined by Uni-Gold™ and Determine™ HIV rapid kits and all positive samples confirmed by two HIV Enzyme immunoassay test. These specimens were blindly retested using the HIV-Syphilis Duo kit.

Results Of 698 samples evaluated 139 (20%) were RPR positive and 346 (50%) were HIV positive. Among the RPR positive, 85 (61%) were TPHA positive. None of 559 RPR negative samples tested syphilis positive on HIV-Syphilis Duo kits. Of the 85 RPR positive-TPHA positive samples, none tested syphilis negative on the HIV-Syphilis Duo kit. All RPR positive-TPHA negative samples tested syphilis negative on the HIV-Syphilis Duo kit. Sensitivity and specificity was: both 100% for syphilis detection and; 99.71% and 100% respectively for HIV detection. On this sample set the Sensitivity of Determine™ and Uni-Gold™ was 96.82% and 98.27% respectively while the Specificity was 93.75% and 99.43% respectively. HIV-Syphilis Duo kit detected 5 early HIV infections that were missed out by Determine™ and Uni-Gold™ at least one month prior to a seroconversion visit.

Conclusion HIV-Syphilis DUO test kit performed better compared to RPR for syphilis and Determine™ for HIV detection. It was equivalent to TPHA for syphilis and Uni-Gold™ for HIV detection. Its implementation in antenatal clinics/VCTs will present an added opportunity for simultaneous diagnosis of HIV and syphilis.

015.6 MOLECULAR SURVEILLANCE OF *NEISSERIA GONORRHOEAE* PENICILLIN RESISTANCE: INFORMING EMPIRIC PRESCRIBING POLICY IN WESTERN AUSTRALIA

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Against the worldwide trend, there remain populations in the remote regions of Western Australia (WA) where the efficacy rates for penicillin may be above the World Health Organisation (WHO) 95% guideline for *N. gonorrhoea* drug selection. Oral amoxicillin (3g) with probenecid (1g) is used empirically in these regions. The majority of gonorrhoea diagnoses in our laboratory are performed by PCR with culture-based antimicrobial resistance surveillance limited by the lack of a representative number of isolates. We therefore implemented a world-first comprehensive molecular gonococcal surveillance of penicillin resistance in our remote populations.

We tested all *N. gonorrhoeae*-PCR positive cases from August 2011 to July 2012 (n = 1235) using a PCR assay targeting the penicillinase-producing *N. gonorrhoeae* (PPNG). This represented approximately 60% of the 2092 notified WA gonorrhoea cases but 91% of cases from the remote regions. Of these regions, the Kimberley PPNG rate was 0.7%, the Pilbara 4.0%, the Goldfields 10.3%, and the Mid West 0% compared to Perth, the state capital city with 12(8–16)%. When adjustments were made for chromosomal-mediated penicillin resistance (additional 3.4%), the Kimberley and Mid West regions remained below the 5% WHO resistance threshold for penicillin. In addition, a review of the Pilbara and Goldfields regions found PPNG only in the major regional centres.

Based on this data, continuation of amoxicillin with probenecid in the Kimberley region with its reintroduction into the Mid West was recommended. In the Pilbara and Goldfields amoxycillin with probenecid could be continued in remote communities but empiric treatment in the regional centres and of non-locals should employ intramuscular ceftriaxone therapy, as for other parts of WA. Our study shows that molecular surveillance of gonococcal antimicrobial resistance directly from clinical specimens is feasible and could be extended to include other targets conferring resistance to other antibacterials such as ceftriaxone.

O.16 - STI-Potpourri: Chlamydia, HPV and special populations

016.1 THE BEHAVIOURAL IMPACT OF CHLAMYDIA TESTING AND ATTITUDES TOWARDS TESTING AMONG YOUNG ADULTS IN ENGLAND

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Background In England, the National Chlamydia Screening Programme aims to control chlamydia infection in young adults (aged 15–24 years old) through opportunistic testing. This study aimed to investigate the impact of testing on young adults' subsequent healthcare seeking and sexual behaviour. Young adults' attitudes to chlamydia and chlamydia testing are important barriers to screening, and thus questions on attitudes to testing and reasons for not testing were included.

Methods A cross-sectional web-based anonymous survey of 1,521 young adults aged 16–24 resident in England was conducted using a nationally representative research panel. The impact of chlamydia testing on subsequent behaviour, and attitudes towards chlamydia testing, were assessed by asking respondents to use a Likert scale to score how well they agreed with a series of statements.

Results Just under half (46%; 695/1,521) of respondents had been tested for chlamydia previously: of whom 14% (94/695) reported ever having received a positive result. Those tested (n = 695) reported a positive impact on subsequent healthcare seeking behaviour (e.g. 68% agreeing that they were more likely to test again), and a smaller impact on sexual behaviour (e.g. 40% agreeing that they were more likely to use condoms consistently). Having positive attitudes towards chlamydia testing was associated with a higher likelihood of having been tested (OR 4.9; 95% CI 3.9–6.1). Of those sexually active but not tested (32%; 488/1,521), 70% did not consider themselves to be at risk.