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# HIV

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# MEDICINE

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EDITORS

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# REYATAZ<sup>®</sup> is the only PI in a large independent study\* to show similar efficacy to efavirenz<sup>1</sup>

ONCE DAILY  
**REYATAZ<sup>®</sup>**  
(atazanavir)

\* A study with at least 250 patients per arm.

## New clinical data from CROI 2010

**REYATAZ<sup>®</sup> (atazanavir) HARD CAPSULES PRESCRIBING INFORMATION** See summary of product characteristics prior to prescribing. **PRESENTATION:** Hard capsules: 150mg, 200mg, 300mg atazanavir (as sulphate). **INDICATION:** Antiretroviral combination treatment of HIV-1 infected adults. **DOSAGE AND ADMINISTRATION:** Oral. 300mg with ritonavir 100mg once-daily with food. If co-administered with didanosine, recommend didanosine be taken two hours after REYATAZ<sup>®</sup> with ritonavir with food. Hepatic impairment: use caution in patients with mild hepatic insufficiency. Renal impairment: no dosage adjustment required. **CONTRAINDICATIONS:** Hypersensitivity to atazanavir or any excipient. Moderate to severe hepatic insufficiency. Do not use in combination with rifampicin or products that are substrates of CYP3A4 and have a narrow therapeutic windows or products containing St. John's wort. REYATAZ<sup>®</sup> with ritonavir is contraindicated in patients undergoing haemodialysis. **SPECIAL WARNINGS AND PRECAUTIONS:** Patients with chronic hepatitis B or C treated with combination antiretroviral therapy are at increased risk for severe and potentially fatal hepatic adverse events. Patients with pre-existing liver dysfunction must be monitored according to practice. In worsening liver disease consider interruption or discontinuation of treatment. REYATAZ<sup>®</sup> may induce PR prolongations. Caution with medicines that may increase QT interval. Caution in haemophilic patients. Combination antiretroviral therapy has been associated with lipodystrophy and metabolic abnormalities. In clinical studies, REYATAZ<sup>®</sup> (with or without ritonavir) has been shown to induce dyslipidemia to a lesser extent than comparators. Hyperbilirubinaemia has occurred in patients receiving REYATAZ<sup>®</sup>; no dose reduction is recommended. Nephrolithiasis has been reported in patients receiving REYATAZ<sup>®</sup>. If signs or symptoms occur, temporary interruption or discontinuation of treatment may be considered. On initiation of combination therapy immune reactivation syndrome may occur. **DRUG INTERACTIONS:** Co-administration of REYATAZ<sup>®</sup> with the following agents is not recommended: simvastatin, lovastatin, nevirapine, efavirenz, proton pump inhibitors or tenofovir & an H2-receptor antagonist. Oral contraceptives: ethinylloestradiol 25µg & norgestimate coadministered with atazanavir 300mg with ritonavir 100mg OD: recommended minimum 30µg ethinylloestradiol. Remind patient of strict compliance with dosing regimen. Co-administration with other hormonal or oral contraceptives has not been studied - therefore avoid. Alternate reliable methods of contraception recommended. Co-administration of REYATAZ<sup>®</sup>/ritonavir is not recommended for the following unless justified by the benefit/risk ratio; voriconazole, flucanazole or other glucocorticoids that are metabolised by CYP3A4. **PREGNANCY AND LACTATION:** Avoid use in pregnancy and lactation. **UNDESIRABLE EFFECTS:** Common: nausea, headache, ocular icterus, vomiting, diarrhoea, dyspepsia, abdominal pain, jaundice, insomnia, asthenia, peripheral neurologic symptoms, rash, fatigue and lipodystrophy. Serious: pancreatitis, myopathy,

hepatitis, nephrolithiasis. Consult SPC for other side effects. **LABORATORY ABNORMALITIES** Elevated bilirubin, creatinine kinase. **LEGAL STATUS:** POM. **PACKAGE QUANTITIES AND BASIC NHS PRICE:** Carton of 60 hard capsules, 150mg: £303.38, 200mg: £303.38, carton of 30 capsules, 300mg: £303.38. **MARKETING AUTHORISATION NUMBERS:** EU/1/03/267/003 - 150mg Bottle; EU/1/03/267/005 - 200mg Bottle. EU/1/03/267/008 - 300mg Bottle. **MARKETING AUTHORISATION HOLDER:** Bristol-Myers Squibb Pharma EEIG, BMS House, Uxbridge Business Park, Sanderson Road, Uxbridge, Middlesex. UB8 1DH. Telephone: 0800-731-1736.

**DATE OF PI PREPARATION:** December 2009  
687UK09PM024

**SUSTIVA<sup>®</sup> (efavirenz) 600mg FILM-COATED TABLETS PRESCRIBING INFORMATION** See Summary of Product Characteristics prior to prescribing. **PRESENTATION:** Film-coated tablets: 600mg efavirenz. **INDICATIONS:** Antiretroviral combination treatment of HIV-1 infected adults, adolescents and children 3 years of age and older. Sustiva has not been adequately studied in advanced HIV disease. **DOSAGE AND ADMINISTRATION:** Oral. Sustiva must be given in combination with other antiretroviral medications. *Adults and adolescents over 40kg:* 600mg once daily preferably at bedtime and on an empty stomach. **CONTRAINDICATIONS:** Hypersensitivity to contents. Severe hepatic impairment (Child Pugh Grade C). Do not use in combination with St. John's wort or products that are substrates of CYP3A4. See SPC for details. **WARNINGS AND PRECAUTIONS:** Not for sole use. Discontinue use if severe rash associated with blistering, desquamation, mucosal involvement or fever develops. Advise immediate contact with doctor if experience severe depression, psychosis or suicidal ideation. Nervous system symptoms generally resolve after the first 2 - 4 weeks. Immune reactivation syndrome may arise with severe immune deficiency. Given lipodystrophy association with combination antiretroviral therapy, consider monitoring fasting serum lipids and blood glucose and manage as appropriate. Patients with hereditary disorders of galactosaemia or glucose/galactose malabsorption syndrome should not take Sustiva tablets. Patients should be advised to seek medical advice if they experience joint aches & pain, joint stiffness or difficulty in movement. Caution needed in mild to moderate liver disease or chronic Hepatitis B or C infection. Where evidence of worsening liver disease, interruption or discontinuation of treatment must be considered. Close safety monitoring is recommended in patients with severe renal failure. Caution if history of seizures. Efavirenz should not be given to patients below 3 years or weigh less than 13kg. **DRUG INTERACTIONS:** Efavirenz is an inducer of CYP3A4 and an inhibitor of some CYP isozymes including CYP3A4. Other compounds that are substrates of CYP3A4 may have decreased plasma concentrations when co-administered with efavirenz. Efavirenz exposure may alter when given

with medicinal products or foods (e.g. grapefruit) which affect CYP3A4 activity (see Contraindications above). See SPC for full drug interaction details with antiretrovirals, antimicrobials, anticonvulsants, lipid-lowering agents, antacids, warfarin, opioids, St. John's wort, antidepressants, hormonal contraceptives, calcium channel blockers, immunosuppressants, the H1-antihistamine cetirizine, lorazepam, and antifungal agents, (efavirenz dose should be reduced when co-administered with voriconazole). **PREGNANCY AND LACTATION:** Avoid use in pregnancy and lactation. Barrier contraception should always be used in combination with other methods of contraception. **UNDESIRABLE EFFECTS:** Common: disturbance in attention, dizziness, headache, somnolence, abdominal pain, diarrhoea, nausea, vomiting, rash, pruritus, fatigue, abnormal dreams, anxiety, depression, insomnia. Serious: psychiatric adverse reactions, immune reactivation syndrome, lipodystrophy and metabolic abnormalities, osteonecrosis, acute hepatitis, acute pancreatitis. Laboratory abnormalities for liver enzymes, amylase, lipids, and false positive cannabinoid test results. See SPC for full details of side effects. **LEGAL STATUS:** POM. **PACKAGE QUANTITIES AND BASIC NHS PRICE:** Blister packs of 30 tablets: £200.27. **MARKETING AUTHORISATION NUMBERS:** EU/1/99/110/009. **MARKETING AUTHORISATION HOLDER:** Bristol-Myers Squibb Pharma EEIG, BMS House, Uxbridge Business Park, Sanderson Road, Uxbridge, Middlesex. UB8 1DH Telephone: 0800-731-1736. **DATE OF PI PREPARATION:** December 2009  
692UK09PM005(1)

Adverse events should be reported.  
Reporting forms and information can be found  
at [www.yellowcard.gov.uk](http://www.yellowcard.gov.uk) Adverse events  
should also be reported to Bristol-Myers Squibb  
Pharmaceuticals Ltd Medical Information on  
0800 731 1736, [medical.information@bms.com](mailto:medical.information@bms.com)

### Reference

1. Daar ES, et al. ACTG 5202. Final Results of Abacavir/Lamivudine (ABC/3TC) or Tenofovir DF/Emtricitabine (TDF/FTC) with Either Efavirenz (EFV) or Atazanavir/Ritonavir (ATV/r) in Treatment-Naive HIV-Infected Patients. CROI 2010 San Francisco February 16-19, 2010. Abstract #59LB.

**DATE OF PREPARATION:** March 2010  
687EME10PM018

 Bristol-Myers Squibb

# Oral Abstracts

## Transmission and Pathogenesis

O1

### Achieving an undetectable viral load in pregnancy... Are we starting HAART early enough?

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<sup>1</sup>Guy's and St Thomas' NHS Foundation Trust, London, UK, <sup>2</sup>Homerton University Hospital NHS Foundation Trust, London, UK, <sup>3</sup>Chelsea and Westminster Hospital NHS Foundation Trust, London, UK, <sup>4</sup>Brighton & Sussex University Hospitals NHS Trust, Brighton, UK and <sup>5</sup>Imperial College London, London, UK

**Background:** HAART dramatically reduces HIV mother to child transmission allowing vaginal delivery if the viral load (VL) is low (<1000 c/ml USA) or undetectable (<50c/ml BHIVA). However, the optimum timing of HAART initiation has not been established. This study aims to provide data for the timing of short course HAART in pregnancy.

**Method:** Retrospective multicentre cohort study including all pregnant women commencing boosted PI, NNRTI or triple NRTI based HAART. Demographics, gestation, drug class, CD4 count, and VL results were collated. Survival curves for reaching a VL <50 were stratified by initial HIV VL. Cox's proportional hazards regression model adjusted for demographics and immuno-virological parameters.

**Results:** 439 pregnancies met the inclusion criteria of which 378 had sufficient data for analysis. Over 85% of women were of Black African origin and infected with non-B subtype. Median age at conception was 30 years (IQR 26-34). Median pre-treatment CD4 and VL were 330 cells/mm<sup>3</sup> (IQR 195-470) and 8243 copies/ml (IQR 2341-32640). 246 women (65%) commenced PI, 129 (34%) NNRTI, and 3 (1%) NRTI-based HAART, initiated at a median of 23.2 weeks gestation (IQR 20.4-26.3).

VL was <50 in 292 (77.3%) by delivery date (mean 38 weeks), following a median of 58 days of therapy. Pre-treatment VL was associated with both the time taken and the proportion achieving a VL<50 at delivery (p<0.001). The proportion of women <50 and <1000 at delivery and at 36 weeks gestation is shown in table 1.

In multivariate analysis, the Hazard Ratio (HR) for an NNRTI regimen achieving a VL<50 compared to a PI was 0.7 (0.52-0.94 CI 95%). However if VL >10000, 58% of PI and 66% of NNRTI regimens achieved <50. If the baseline VL was <10000, gestation at initiation of HAART did not significantly alter the probability of a VL<50 at delivery. With a baseline VL of 10000-50000 the HR for a VL<50 reduced to 0.51 if HAART was initiated after 23.3 weeks (p<0.01) whilst if VL>100000, starting HAART before 20.4 weeks gave a HR of 0.2 (p<0.01) compared with 0.1 if started after 20.4 weeks (p<0.01).

	% of women	VL <50 at delivery		
		VL <1000 at delivery	<50 at 36 weeks	
VL at initiation <10000 n=200		91	97	80
of HAART (c/ml) 10-50000 n=111		73	92	60
50-100000 n=24		54	87	50
>100000 n=43		37	83	30

**Discussion:** HAART fully suppresses low VL (<10000) even when initiated late in pregnancy. If VL is greater than 100000 copies HAART should be initiated as early as possible to have any chance of achieving full suppression.

O2

### Duration of ruptured membranes and vertical transmission of HIV: data from national surveillance in the UK and Ireland

H Haile-Selassie<sup>1</sup>, P Tookey<sup>1</sup> and A de Ruiter<sup>2</sup>

<sup>1</sup>Institute of Child Health, London, UK and <sup>2</sup>St Thomas' Hospital, London, UK

**Background:** Duration of rupture of membranes (ROM) was identified as a risk factor for mother-to-child transmission (MTCT) of HIV before the availability of highly active antiretroviral therapy (HAART) in pregnancy. However for women on effective HAART for whom vaginal delivery is now an option it is unclear whether duration of ROM is still of clinical relevance. Concern over ROM is a likely contributing factor to the high rate of emergency caesarean section currently observed. We have used observational national surveillance data to explore this issue.

**Methods:** Surveillance of obstetric and paediatric HIV in the UK and Ireland is conducted through the National Study of HIV in Pregnancy and Childhood. Data on ROM have been sought since January 2007: pregnancies resulting in live singleton births to diagnosed women reported in 2007-9 were reviewed.

**Results:** Whether or not membranes were ruptured prior to delivery was reported for 2093/2686 pregnancies; for 884/2093 ROM was prior to delivery, and duration was provided for 661/884 (75%): median duration 4 hrs (IQR 1.5-8), ≤6hrs for 444 (67%), >6-48 hrs for 201 (30%), >48 hrs for 16. Among the 421 infants with known infection status, there was no significant difference in MTCT following ROM for >6hrs compared with ≤6 hrs (2/137 (1.5%) vs 4/284 (1.4%), odds ratio 1.0, 95% CI 0.2-5.7). In the sub group of women with undetectable viral load (<50 copies/ml) near delivery (99.7% on HAART) there was no difference in MTCT between those with ROM for >6 hrs vs ≤6 hrs (0/112 vs 1/229); likewise among those with undetectable viral load who had a planned vaginal delivery (0/52 vs 1/151). Six of the 661 children have confirmed infection to date including 3 likely in utero transmissions (+ve PCR on Day 1, see table).

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
ROM hrs/mins	12.45	4.00	3.29	5.50	6.50	4.37
Mode of delivery	EMCS	Vaginal	EMCS	EMCS	EMCS	Vaginal~
Gest age (wks)	38	40	36	39	40	37
HAART (start wk <sup>†</sup> )	Yes* (33)	Yes (17)	Yes (17)	Yes (22)	Yes* (21)	Yes* (32)
Maternal vl <sup>#</sup> (copies/ml)	334	<40	48,232	71,500	122,042	23,463
Infant: 1st +ve PCR	Day 1	16wks <sup>‡</sup>	Day 1	6 wks <sup>‡</sup>	Day 4	Day 1

~Unplanned <sup>†</sup>Gestation wks <sup>\*</sup>Adherence issues reported <sup>#</sup>closest to delivery <sup>‡</sup>-ve on day 1

**Conclusion:** Data are sparse to date, but so far there is no evidence that among women on HAART longer duration of ROM is associated with an increased risk of MTCT. Further monitoring is essential.

O3

### Refocusing our efforts – Transmission and late diagnosis of HIV among adults aged 50 and over

R Smith, V Delpech, A Brown and B Rice  
Health Protection Agency, London, UK

**Background:** The number of older adults living with HIV is on the increase in most western countries. We provide epidemiological features and trends of adults aged 50 years and over diagnosed in England, Wales and Northern Ireland (E, W, NI) in recent years and comparing these with adults aged 15–49 years. We estimate the proportion of adults likely to have acquired their infection as older adults.

**Methods:** Adults aged 15 years and over reported to the Health Protection Agency with a new HIV diagnosis and accessing HIV-related care between 2000 and 2007 in E, W and NI were analysed. Age at infection was estimated using a published algorithm based on CD4 count at diagnosis.

**Results:** The number of older adults accessing care with diagnosed HIV in the UK increased three-fold over the past eight years (from 2333 in 2000 to 8268 in 2007). They account for 16% of adults accessing care in 2007 and 8% of all HIV diagnoses between 2000 and 2007. Compared to younger adults, newly diagnosed adults aged 50 years and over were significantly more likely to be men (74% vs. 58%;  $p < 0.001$ ), infected through sex between men (40% vs. 34%;  $p < 0.001$ ) and of white ethnicity (60% vs. 38%;  $p < 0.001$ ). Older heterosexual adults were more likely to be infected within the UK (16% vs. 12%;  $p < 0.001$ ), with evidence of travel abroad amongst white heterosexual men. Late diagnosis (CD4 count  $< 200$ ) was significantly higher amongst older adults (48% vs. 33%;  $p < 0.001$ ); with older MSM being twice as likely to present late than younger MSM. We estimate that nearly half (48%; 1486) of persons diagnosed between 2000 and 2007 acquired their infection aged 50 and over.

**Conclusion:** The contribution of older adults among persons living with HIV is increasing. Our study provides evidence of HIV transmission and high rates of late diagnoses among this age group. These findings highlight the need for increased targeted prevention efforts and strategies to increase HIV testing among older adults at risk of HIV.

O4

### Accessibility to real-time HIV avidity results along with good clinical acumen significantly enhances immediate identification of PHI otherwise missed: an audit of the identification of primary HIV infection (PHI) from three large UK HIV centres

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**Background:** There are two compelling reasons to enhance the identification of Primary HIV infection (PHI): to prevent onward HIV transmission during this period of hyperinfectiousness and to intervene with antiretroviral therapy (ART).

**Methods:** A retrospective case note review was undertaken in 3 large HIV centres (2 in London and 1 in Brighton) of all incident cases (identified using STAHRs assay on all new HIV+ cases) between Jan–Aug 2009. Case note review searched for: PHI identification; risk factors predicting PHI; and documentation of subsequent safe sex counselling. 7 cases of false positive STARHS results were identified and excluded from analysis.

**Results:** N=65 incident cases were identified: 52/65 (80%) MSM, average age 36 years. 45/65 (69%) incident cases were GUM requests. PHI was correctly identified by the clinical team in 8/11 (73%) in Brighton, 15/27 (56%) South London, and 8/27 (30%) West London. 29/65 (45%) were identified at nurse led first visit and a further 8 detected at subsequent clinician visit.

50/65 (77%) patients identified a specific risk or symptom leading to testing with the remainder attending for routine screening. 33/65 (51%) reported unprotected anal or vaginal intercourse with a high-risk partner, 2/65 (3%) had STI in past 3 months and 27/65 (42%) reported symptoms of PHI. Individuals with PHI symptoms were most likely to have been diagnosed with PHI ( $p = 0.001$ ). 17/65 (26%) had a negative HIV test in preceding 6-months and of these 12/17 (71%) were identified with PHI. Only 11/34 (32%) identified with PHI had documentation to confirm they had been informed of the enhanced risk of transmission. In only 3/65 (5%) cases had the recommendation to modify risk behaviour been documented.

**Conclusion:** Of 65 cases of PHI identified using the STAHRs 48% were not recognised as such according to documentation from clinical notes. This represents a missed opportunity for reducing onward transmission of HIV and possible ART intervention. The enhanced identification of PHI at the Brighton centre was related to the immediate availability of the STAHRs result by the clinical team at first consultation. One recommendation from this audit is to facilitate the availability of STARHS results in real time to ensure that they are available to the clinical team by the first medical consultation after new diagnosis.

O5

### Hepatitis C viral load in semen of HIV-positive men during acute and chronic hepatitis C infection

J Turner<sup>1</sup>, E Aarons<sup>2</sup>, S O'Farrell<sup>3</sup>, H Price<sup>3</sup>, B Ferns<sup>4</sup>, A Copas<sup>3</sup> and R Gilson<sup>3</sup>  
<sup>1</sup>NHS Lothian, Edinburgh, UK, <sup>2</sup>Guy's and St Thomas' NHS Foundation Trust, London, UK, <sup>3</sup>UCL Centre for Sexual Health and HIV Research, London, UK and <sup>4</sup>UCL Centre of Virology, London, UK

**Background:** Acute hepatitis C infection (HCV) in MSM is well described. Sexual transmission of HCV is suspected, but the excess among HIV-positive men remains unexplained. One factor may be a higher concentration of HCV virus in body fluids in HIV-co-infection, particularly during acute infection, as described for HIV itself. HCV is present in the extracellular fluid of semen (seminal plasma). In HIV co-infection up to 40% of HCV viraemic patients have HCV RNA detectable in seminal plasma. We hypothesised that HIV-positive men with acute HCV infection were more likely to have detectable HCV in seminal plasma than those with chronic HCV infection and that the viral load may be higher.

**Methods:** Paired blood and semen samples were collected from each man at presentation of acute HCV (defined as HCV-RNA positive/anti-HCV negative with follow up confirming acute infection or HCV RNA positive with previous negative within 6 months and  $> 10x$  rise in ALT), with repeat samples at 1 and 6 months. For the control group (HCV infection for  $> 6$  months and not on HCV treatment), paired samples were taken at baseline (recruitment), 1 and 6 months. HCV RNA quantification on plasma and seminal plasma was performed using an automated nucleic acid extraction with amplification and detection by TaqMan PCR. HCV VL lower limit of detection is 10 IU/ml.

**Results:** To date, 5 acute HCV cases and 9 chronic HCV cases have been recruited. At baseline 0/5 acute and 2/9 chronic cases had detectable HCV RNA in semen. Of all samples tested 2/10 (20%) of acute cases and 4/23 (17%) of chronic cases (NS) had detectable HCV RNA in semen. In all, HCV RNA viral loads were  $< 30$  IU/ml (acute cases) and  $< 230$  IU/ml (chronic cases). HCV RNA in semen did not correlate with plasma HCV viral load.

**Conclusion:** In this study there was no evidence that seminal HCV RNA viral loads were higher in acute HCV infection. The majority of HCV seminal viral loads were undetectable and when present, were in very low quantities. This suggests that the quantity of seminal HCV virus is not a significant factor in determining the rate of HCV transmission. Recruitment to the study is ongoing.

(BHIVA Research Award Winner 2007: Joanna Turner.)

O6

### Protective HLA class I alleles are associated with reduced immune activation and fibrinolysis in individuals with primary HIV infection

E Hamlyn<sup>1</sup>, S Hickling<sup>2</sup>, J Frater<sup>2</sup>, R Phillips<sup>2</sup>, A Babiker<sup>3</sup>, M McClure<sup>1</sup> and S Fidler<sup>1</sup>

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**Background:** Immune activation is an independent predictor of HIV-1 disease progression and raised levels of inflammatory and coagulation biomarkers interleukin-6 (IL-6) and D-dimer in chronic HIV infection are predictive of adverse outcome. Carriers of class 1 alleles HLA-B\*27 and B\*57 have delayed HIV progression. We hypothesise that low levels of immune activation contribute to reduced disease progression in individuals with protective HLA types and examine the relationship between HLA type and markers of immune activation, inflammation and fibrinolysis in patients with Primary HIV infection (PHI).

**Methods:** Baseline samples were obtained from UK participants enrolled in the SPARTAC trial, an international Randomised Controlled Trial of 366 participants comparing short course ART to no treatment in PHI. IL-6 and D-dimer were measured from stored plasma and peripheral blood mononuclear cells were analysed by flow cytometry for CD38 expression on CD8 T-cells. The relationships between HLA type, log<sub>10</sub>-transformed biomarker, CD38% expression, and log<sub>10</sub>-transformed plasma viral load (VL) were examined using linear regression.

**Results:** HLA type was available in 145/149 UK participants of whom 126 and 91 had available plasma and PBMC samples respectively. HLA B\*27 and B\*57 were present in 14 and 6 individuals respectively. IL-6 and D-dimer correlated with VL ( $p=0.01$  for both) and each other ( $p=0.005$ ). CD38% expression correlated with VL ( $p<0.001$ ) and with D-dimer ( $p=0.006$ ). HLA B\*27 positive individuals had significantly lower D-dimer compared to other HLA types, geometric mean 0.24 vs 0.4 g/L, relative difference 40% (95% CI 15%, 54%;  $p=0.003$ ). On adjustment for VL, D-dimer remained 29% lower (95% CI 3%, 48%;  $p=0.03$ ). IL-6 was 26% lower in HLA B\*27 positive individuals but this was not statistically significant ( $p=0.2$ ). HLA B\*57 positive individuals had significantly lower CD8 CD38% expression compared to other HLA types: geometric mean 15% vs 47% (95% CI 15, 48;  $p<0.001$ ). On adjustment for VL, CD38% remained 24% lower (95% CI 8, 40;  $p=0.003$ ).

**Conclusion:** HLA B57 positive individuals had lower levels of immune activation and HLA B27 positive individuals had lower D-dimer, independent of VL. In addition to directing HIV-specific T-cell responses, HLA associated limitation of immune activation and/or fibrinolysis may additively contribute towards delayed HIV progression in individuals with protective HLA types.

## HIV Treatment and Pharmacokinetics

O7

### A Phase IV, double-blind, multi-centre, randomised, placebo-controlled, pilot study to assess the feasibility of switching individuals receiving efavirenz (EFV) with continuing central nervous system (CNS) adverse events (AE) to once-daily etravirine (ETR)

L Waters<sup>1</sup>, M Hadley<sup>2</sup>, A Winston<sup>3</sup>, C Higgs<sup>1</sup>, W Hadley<sup>2</sup>, L Garvey<sup>3</sup>, S Mandalia<sup>1</sup>, N Perry<sup>2</sup>, N Mackie<sup>3</sup> and M Nelson<sup>1</sup>

<sup>1</sup>Chelsea and Westminster Hospital, London, UK, <sup>2</sup>Royal Sussex County Hospital, Brighton, UK and <sup>3</sup>St Mary's Hospital, London, UK

**Background:** 2NRTI+EFV is recommended initial therapy for HIV-1 infection in British guidelines. Most EFV-related CNS toxicity resolves during early therapy but some experience persistent symptoms; we studied the impact of switching from EFV to ETR in these individuals.

**Methods:** A randomised, double-blind, placebo-controlled trial in subjects with viral suppression but ongoing CNS AE after  $\geq 12$  weeks EFV-based HAART. Eligible patients were randomised to 2NRTI/EFV/ETR-placebo (delayed switch [DS]) or 2NRTI/ETR/EFV-placebo (immediate switch [IS]) for 12 weeks followed by a 12-week open label extension phase where all received 2NRTI/TMC125. ETR dose was 400mg OD. CNS AE were graded on a 5-point scale (0=absent,1=mild,2=moderate,3=severe,4=life-threatening). Primary end-point was % with G2-4 CNS AE at 12 weeks; secondary endpoints included viral suppression, CD4 change, CNS score (sum total of CNS AE grades) and median number G2-4 CNS AE.

**Results:** 38 subjects (all male) were eligible; 20 and 18 were randomised to IS and DS. Median age was 43 years; 37 were Caucasian. Baseline NRTI: Truvada 58% (50% Atripla), Kivexa 29%, other 13%. All had HIV-RNA  $<50$  c/ml; median CD4 was 444 and 498 cells/mm<sup>3</sup> in IS and DS arms. Baseline G2-4 CNS AE (overall & individual AE) were similar in both arms. 19 IS patients completed follow-up (1 LFU) and 13 on DS (2 LFU, 2 withdrawn consent, 1 AE). IS group G2-4 CNS AE: 90% at baseline (median no. 5); 60% at week 12 (median no. 1.5);  $p$ -values for change in %/median were 0.041/0.003. DS group G2-4 CNS AE: 88.9% at baseline (median no. 4); 81.3% at week 12 (median no. 3);  $p$ =ns for both. IS CNS score at week 12 declined from 14 to 6 ( $p=0.001$ ) and DS score from 10 to 7.5 ( $p=0.192$ ). Combined (both arms) % decline in G2-4 CNS AE after 12 weeks of ETV was statistically significant for overall AE, insomnia, abnormal dreams and nervousness ( $p=0.009$ , 0.016, 0.001, 0.046 respectively). Combined (both arms) reduction after 12 weeks ETV in median CNS AE was 2 ( $p<0.001$ ) and CNS score was 4 ( $p=0.001$ ). All subjects on study maintained HIV-RNA  $<50$ . Median week 24 CD4 was 593/607 cells/mm<sup>3</sup> on IS/DS. 2 subjects experienced new G3/4 AE (DS: G3 flatulence; IS: G4 viral URTI [SAE]).

**Conclusion:** Switching EFV to ETR led to significant reductions in G2-4 CNS AE, insomnia, abnormal dreams and nervousness plus median number of CNS AE and CNS score after 12 weeks. Lack of improvement for some AE and patients suggests causative factors other than ARV toxicity.

O8

### Outcomes of second-line ritonavir-boosted protease inhibitor (PI/r)-based ART after failure of a first-line nonnucleoside reverse transcriptase inhibitor (NNRTI)-based ART

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**Background:** 2NRTI+NNRTI is the most common first-line regimen worldwide; virological failure continues to occur so better understanding of optimal 2<sup>nd</sup> line therapy is crucial. Most 2<sup>nd</sup> line therapy is PI/r based but it is unclear how many active NRTI are necessary.

**Methods:** We identified adults within the UK CHIC cohort (a collaboration of 11 UK clinics) who failed 1<sup>st</sup> line NNRTI-based ART and switched to a PI/r 2<sup>nd</sup> line between 1999-2008. We aimed to identify factors associated with 2<sup>nd</sup> line virological failure (VF), particularly the importance of number of new/fully active NRTI. VF was defined as HIV-RNA  $>200$  copies/ml after at least 4 months continuous therapy. Genotypic sensitivity score (GSS) for the NRTI component of the 2<sup>nd</sup> line regimen was calculated according to Stanford interpretations. Kaplan-Meier was used to calculate time to VF and Cox regression to identify factors associated with 2<sup>nd</sup> line failure.

**Results:** 403 people were eligible for inclusion in the analysis. Median time to 1<sup>st</sup> line VF was 9.4 months; median CD4 and HIV-RNA at start of 2<sup>nd</sup> line were 213 cells/mm<sup>3</sup> and 4.4 log<sub>10</sub> copies/ml respectively. 181 patients (44.9%) subsequently failed 2<sup>nd</sup> line therapy. By Kaplan-Meier

the proportions with virological failure at 1 and 3 years were 27.1% and 48.1%, respectively. 216/403 subjects underwent resistance testing prior to 2<sup>nd</sup> line initiation; characteristics of those who did and did not have a resistance test were similar. 211/216 patients started at least 1 NRTI; NRTI GSS distribution was: ≤1 (15.6%), 1.25–1.75 (33.6%), ≥2 (50.7%). Factors independently associated with 2<sup>nd</sup> line VF were: heterosexual transmission, low CD4 count and high HIV-RNA; in contrast, risk of VF was not associated with the number of new NRTI (HR for 0 vs ≥2 new NRTI 0.83; 95% CI 0.51–1.33). By multivariable analysis only risk group and CD4 count were significantly associated with VF amongst those who underwent resistance testing; NRTI GSS was not associated with risk of VF (HR for GSS of 0 vs ≥2 0.73; 95% CI 0.37–1.41). Further, neither number of new NRTI nor NRTI GSS were associated with VF when fitted as numerical variables instead of in categories.

**Conclusion:** Most patients started 2<sup>nd</sup> line therapy with NRTI GSS of ≥2 but neither this, nor number of new NRTI appeared to predict risk of VF. These findings – which are of potential global significance – could reflect potency of PI/r or lower adherence when starting more new agents.

**O9**  
**Comparing the tolerability of two HIV post-exposure prophylaxis regimens**

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**Background:** Following the updated DOH HIV post exposure prophylaxis guidelines (PEP) in 2008, the recommended PEP regimen was changed in our clinic from Combivir/Kaletra (CK), to Truvada/Kaletra (TK), in April 2009. We aimed to compare the tolerability of these two PEP regimens. **Method:** A retrospective case-notes review was performed on patients attending the clinic for PEP for 13 months from 1st November 2008. Data was analysed using Microsoft Excel. Symptoms reported by patients and blood results were analysed according to the regimen the patient was started on. Abnormal blood results were graded using the Rockville National Institute of Allergy + Infectious diseases, 1992 grading system. **Results:** 299 patients attended for PEP during the review period. We reviewed 143 case-notes of which 72 were started on CK and 71 on TK. 20% of the CK arm switched to an alternative regimen due to side effects compared with the 6% in the TK group. 75% in both the CK and TK arms completed 28 days of medication. On average, the number of follow-up attendances in the CK group was 2.7 compared with 3.0 visits in the TK group.

Reported Side Effects	CK Arm		TK Arm		Odds Ratio
	% affected	Odds	% affected	Odds	
Nausea	56.9%	1.32	42.3%	0.73	1.81
Vomiting	18.1%	0.22	11.3%	0.13	1.75
Diarrhoea	48.6%	0.95	47.9%	0.92	1.03
Fatigue	37.5%	0.6	28.2%	0.39	1.53
Myalgia	4.2%	0.043	1.4%	0.01	3.07
Insomnia	2.8%	0.028	8.5%	0.09	0.30
Mood Changes	4.2%	0.043	11.3%	0.13	0.34

Abnormal biochemistry	Grade 0-4		Grade 4		Grade ≤ 3		Odds Ratio Grade 0-4
	Grade 0-4	Grade 4	Grade ≤ 3	Grade 0-4	Grade 4	Grade ≤ 3	
Bilirubin	33.3%	0%	2.8%	35.2%	0%	1.2%	0.92
ALT	12.5%	1.4%	1.4%	18.3%	1.4%	4.2%	0.63
Amylase	5.6%	0%	0%	11.2%	0%	0%	0.46
Phosphate	20.8%	0%	1.4%	29.6%	0%	1.4%	0.62
Cholesterol	19.4%	0%	1.4%	23.9%	0%	0%	0.76
Triglyceride	5.6%	1.4%	1.4%	2.9%	0%	2.8%	2.0

**Conclusion:** The Truvada based PEP was better tolerated than the Combivir based PEP, however, the increased rates of abnormal

biochemistry with the Truvada regimen resulted in increased follow-up visits and may therefore increase the cost of providing PEP.

**O10**  
**Switching from Kivexa [KVX] ABC/3TC + efavirenz [EFV] to Atripla [ATR] (EFV/FTC/TDF) reduces cholesterol in hypercholesterolemic subjects: preliminary results of a 24-week randomized study**

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**Background:** Dyslipidemia in persons with HIV contributes to CV risk. Comparative studies suggest tenofovir DF-based regimens have a favourable lipid profile relative to abacavir-based regimens. We investigated the change in fasting total cholesterol (TC) in hypercholesterolemic subjects switching from KVX+EFV to ATR.

**Methods:** A 24-week, UK multicenter study, in subjects stable on QD KVX+EFV, HIV RNA <50 copies/mL for ≥6 months and TC ≥5.2 mmol/L at screening, randomized to continue KVX+EFV or switch to QD ATR. The primary endpoint was change from baseline to Week 12 in fasting TC. Changes in fasting lipid parameters and 10-year risk score for coronary heart disease (CHD) were also assessed. At Week 12 subjects randomized to continue on KVX+EFV were switched to ATR.

**Results:** 157 subjects were randomized and received at least 1 dose of study medication; 78 continued KVX+EFV, 79 switched to ATR. Subjects were well matched for baseline characteristics. Lipid analyses excluded 3 subjects (ATR) who started/increased lipid-lowering agents during the study and 3 subjects (KVX+EFV) that did not have fasting TC ≥5.2 mmol/L at baseline.

Week 12 lipid results were confirmed at Week 24 for subjects with a delayed switch to ATR. At Week 4 mean (SD) change in 10-year risk for CHD was: -1 (3.3) vs 1 (3.0) for ATR vs KVX+EFV, maintained at Week 12: -1 (3.8) vs 0 (2.7). There were no protocol-defined virologic failures and no study-drug related SAEs.

Fasting Lipids (mmol/L):	Baseline		Wk 12 Change from Baseline (LOCF)		ATR vs KVX+EFV Mean diff (95% CI)
	ATR (n=76)	KVX+EFV (n=75)	ATR (n=76)	KVX+EFV (n=74)	
Median (Q1, Q3)					
TC	6.60 (5.97, 7.25)	6.19 (5.80, 6.78)	-0.89 (-1.23, -0.44)	0.01 (-0.54, 0.42)	-0.74 (-1.01, -0.47)
LDL	4.05 (3.57, 4.65)	3.92 (3.41, 4.38)	-0.60 (-1.01, -0.18)	0.02 (-0.41, 0.23)	-0.49 (-0.71, -0.26)
HDL	1.40 (1.15, 1.67)	1.43 (1.22, 1.69)	-0.13 (-0.23, 0.02)	0.04 (-0.09, 0.14)	-0.14 (-0.21, -0.07)
Triglycerides	1.84 (1.30, 2.59)	1.67 (1.12, 2.21)	-0.26 (-0.73, -0.03)	0.00 (-0.28, 0.26)	-0.42 (-0.75, -0.10)
			p<0.001	p=0.37	p<0.001
			p<0.001	p=0.89	p<0.001

**Conclusion:** Switching from KVX+EFV to ATR significantly reduces lipid parameters in 12 weeks and may have a positive impact on CHD risk while maintaining virologic suppression. Hence ATR is preferential to an ABC-based regimen in hypercholesterolemic patients.

O11

### Darunavir penetration into semen exceeds the PC EC<sub>50</sub> for wild type virus: implications for PI monotherapy studies and the sexual transmission of HIV

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**Background:** Available information on ART drug penetration into the male and female genital tract is sparse. In part this is due to the difficulties with sample collection and analysis. However, our group has found that multiple sampling at specified time points post drug ingestion can provide important insights into drug dynamics and concentrations achieved within these important body compartments. With the continued interest in protease inhibitor monotherapy strategies, it is vital to have accurate data as to whether single drugs can achieve therapeutic drug concentrations in all body compartments including the genital tract. In this study we have evaluated the penetration of Darunavir(DRV) into the semen of HIV positive (+ve) men.

**Methods:** 18 HIV-1 positive men prospectively produced time matched semen and blood samples at designated time points post drug ingestion. Samples were analysed with a lower limit of detection for [DRV] of 79ng/ml. [DRV] concentrations were measured in seminal plasma and compared to published (PC) EC<sub>50</sub> values for wild type (WT) HIV (55ng/ml) and (PC) EC<sub>50</sub> for resistant HIV (550ng/ml). Time specific seminal plasma (SP) to blood plasma (BP) ratios were calculated. 5 patients provided 4 or more time matched semen and blood samples at specific times post drug ingestion so that seminal plasma and blood plasma area under the concentration time curves (AUC) were constructed. Quantitative seminal viral load (VL) analysis was also conducted.

**Results:** 34 closely timed SP and BP samples were produced. The median BP [DRV] at 1-3h, 4-6h and 22-24h were 5579 ng/ml (IQR range:4639-7505), 3734 (2935-4586) and 2445 (1365-3167) respectively. The corresponding median SP [DRV] at 1-3h, 4-6h and 22-24h were 588 ng/ml (509-778), 490 (479-640) and 217 ng/ml (172-261) respectively. The median DRV SP:BP ratios at 1-3h, 4-6h and 22-24h were 0.11 (0.09-0.15), 0.13 (0.07-0.18) and 0.11 (0.09-0.15) respectively. The median SP:BP AUC<sub>0-24h</sub> ratios were 0.17 (0.07-0.19). SP [DRV] exceeded the PC EC<sub>50</sub> for WT HIV by 11 fold (6-45) at 1-3h, 9 fold (3-21) at 4-6h and 4 fold (2-16) at 22-24h.

RTV concentrations in semen were undetectable in all but 2 SP samples.

**Conclusions:** DRV demonstrates good penetration into semen with [DRV] exceeding the PC EC<sub>50</sub> for wild type HIV in all 34 semen samples analysed at all time points post drug ingestion. Furthermore 1/3rd of all SP [DRV] exceeded the PC EC<sub>50</sub> required to inhibit drug resistant HIV.

O12

### Factors associated with central nervous system penetration effectiveness (CPE) score of antiretroviral regimens within a large UK cohort

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**Background:** The central nervous system penetration effectiveness (CPE) score is frequently used in retrospective studies to evaluate the impact of combination antiretroviral therapy (cART) neuropenetration upon clinical outcomes. Such research tools may be influenced by confounding factors. **Aims:** To investigate the CPE score of initial cART regimens prescribed in the UK between 01/01/96 and 31/12/07 and establish the presence of association between CPE score and any baseline demographics or clinical parameters.

**Methods:** All adult subjects commencing cART within a large UK cohort, with follow up data available and without previous CNS opportunistic

diseases, were included. CPE score of initial cART regimen was determined as previously described by the CHARTER group. Baseline characteristics were analysed overall, and then stratified by CPE score. cART was defined as any regimen containing an NNRTI, PI, abacavir or enfuvirtide.

**Results:** 19828 eligible subjects started cART during the study period. Median (IQR) age was 36 (31,42) years, 14895 (75%) were male and 5099 (26%) were of black African ethnicity. The median (IQR) CPE score for initial cART increased from 1.5 (1.0,2.0) in 1996/97 to 2.0 (1.5,2.5) in 2002/03 and has since declined to 1.5 (1.0,2.0) in 2006/07. In a multivariate analysis, subjects prescribed regimens with a high CPE score of at least 3 had statistically significantly higher pre-cART HIV RNA ( $p=0.005$ , see table) and were more likely to have commenced cART between 2000-2003 than other years ( $p<0.0001$ ). Female heterosexuals were less likely to be prescribed regimens with high CPE score, than individuals from other risk groups ( $p<0.0001$ ).

Multivariate analysis to assess factors associated with CPE of at least 3		OR	95% CI	p-value
Sex/risk group	MSM	1	-	-
	Male heterosexuals	0.81	0.58, 1.11	0.19
	Female heterosexuals	0.67	0.50, 0.89	0.006
Calendar year of commencing cART	IDU	0.64	0.35, 1.17	0.15
	1996/97	0.18	0.10, 0.32	0.0001
	1998/99	0.41	0.30, 0.58	0.0001
	2000/01	1	-	-
	2002/03	1.16	0.90, 1.50	0.26
	2004/05	0.17	0.11, 0.27	0.0001
	2006/07	0.10	0.06, 0.18	0.0001
Pre-cART HIVRNA	1.17	1.05, 1.31	0.005	
Per log higher				

**Conclusion:** Clinical status at time of commencing cART influences antiretroviral selection and CPE score. This information should be considered when utilising CPE scores for retrospective analyses.

O13

### Kaletra single-agent therapy as a universal ART stopping strategy: the STOP 2 study

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**Background:** Simultaneously stopping ART drugs with unbalanced half-lives may lead to functional monotherapy. This is increasingly relevant in an era of longer half life drugs. We present a pilot study supporting the use of 4 weeks (wks) Kaletra single agent therapy (KAL monoTx) as a universal stopping strategy applicable to stopping any ART regimen, the aim being to prevent the evolution of ART resistance and preserve future treatment options.

**Methods:** Pts planning to stop ART were recruited to a prospective multicenter PK study. Pts stopped their ART regimen on day 0 and Kaletra 2 Tablets BD was started and continued for 4 wks. Pts were reviewed at baseline and wks 1, 2, 3, 4 and 8 after stopping original ART. Plasma samples were analysed for trough Lopinavir concentrations [LPV]<sub>12</sub> at wks 1-4. Plasma levels of original ART components were measured weekly until undetectable. Viral load analysis was performed at all time points.

**Results:** 20 patients were enrolled (17 male). 12 of the regimens stopped were classified as pharmacologically 'unbalanced', 8 with the potential for NNRTI monotherapy and 4 for TDF or FTC monotherapy. 17/17 pts who had a VL < 200c/ml upon stopping had a VL < 200c/ml following 4 weeks of KAL monoTx. (15/17 were < 40, one had a viral load of 135c/ml and in one, the result is unavailable) The 3 pts with detectable VL at

baseline (353, 90288, 128789 c/ml) had a reduction in VL by 4 weeks (to 131, 1263, 238 c/ml). Six pts with VL <40 c/ml at wk 4 opted not to stop Kaletra and remained <40 c/ml at wk 8. Two were immediately swapped to alternative ARV regimens and also remained <40 c/ml at wk 8. No new resistance mutations were detected in the 12 pts in whom resistance testing was performed at wk 8. Median [LPV]<sub>12</sub> wks 1-4 was 7160ng/ml (range 227-14,152). LPV concentrations were above 1000ng/ml in all but 2 samples (suspected non-adherence). Stopped drug concentrations were consistent with their known pharmacokinetics with 6 patients on unbalanced regimens having sub-therapeutic concentrations of longer half-life drugs present >1 wk after stopping.

**Conclusion:** The strategy of using 4 wks KAL monoTx when stopping ART is supported by the virological suppression maintained by therapeutic LPV concentrations. This pharmacological protection provided by a drug with a high genetic barrier to resistance should prevent the development of resistant viruses at a time when stopped drug concentrations fall through the zone of resistance selection.

O14

### The safety, efficacy and steady-state pharmacokinetics of atazanavir/ritonavir (ATV/r) once daily during pregnancy: results of Study AI424182

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**Objectives:** Primary: To determine what dosing regimen of ATV/r produces adequate drug exposure during pregnancy compared to historical data in HIV-infected subjects

**Secondary:** – Measure maternal:infant ATV level ratio

– Safety of ATV/r in pregnant women

– Safety in infants born to women exposed to ATV/r during pregnancy

– Antiviral efficacy:

- Suppression of HIV RNA in mothers
- Prevention of mother-to-child transmission of HIV-1

**Methods:** Multicenter, open-label, prospective, single-arm phase 1 study. Study Population: HIV-1 infected pregnant women between 12-32 weeks gestation; CD4 ≥ 200 cells/mm<sup>3</sup>.

Treatment: ATV/r 300 or 400/100mg QD and ZDV/3TC 300/150mg BID. Planned First Interim PK analysis after 12 subjects received ATV/r 300/100mg during third trimester with pre-specified criteria for increasing dose to ATV/r 400/100mg. Second Interim Analysis after primary endpoint data available (all third trimester PK data at both ATV/r 300/100mg and 400/100mg). Second trimester PK data for ATV/r 300/100mg was collected in a limited number of subjects. Post-partum PK was assessed between 3-10 weeks after delivery.

Infants were assessed by HIV DNA testing on the date of delivery and at week 2, 6, 16 and 24.

**Results:** Compared to ATV/r 300/100 mg in HIV-infected non-pregnant adults:

–ATV/r 300/100 mg has a lower third trimester AUC, but similar C<sub>min</sub>.

–ATV/r 400/100 mg has a similar third trimester AUC but higher C<sub>min</sub>.

All C<sub>mins</sub> observed were > 10X EC<sub>90</sub> for ATV (EC<sub>90</sub> = 14 ng/mL for wild-type virus). The lowest observed C<sub>min</sub> was 196 ng/mL. Both ATV/r 300/100 and ATV/r 400/100 were well tolerated with no unexpected, related AEs. However, ATV/r 400/100 dosing was associated with twice as much Grade 3-4 hyperbilirubinemia as ATV/r 300/100. The ratio of maternal to cord blood ATV indicates that, as with other PIs, ATV does not freely cross the placenta, however, the levels achieved in the cord blood may provide some anti-viral protection to the fetus. Full suppression of HIV viral replication (HIV RNA < 50 copies/mL) was achieved in all mothers, and no mother-to-child HIV transmission occurred.

**Conclusion:** ATV/r 300/100mg QD dosing has a 27% lower AUC in the 3rd trimester of pregnancy compared to the AUC in non-pregnant adults, however, C<sub>mins</sub> are similar. Increasing the dose to ATV/r 400/100mg achieves a similar AUC to non-pregnant adults and higher C<sub>mins</sub>, but with more frequent grade 3-4 hyperbilirubinemia.

O15

### Altered plasma levels of nevirapine after commencing rifampicin-containing TB regimens in Malawi

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**Background:** The reduction in nevirapine exposure by rifampicin is well characterised in patients commencing antiretroviral therapy (ART). Conversely there are limited data on the impact of rifampicin on patients stable on nevirapine containing ART who develop TB. In such patients, the national treatment protocol for Malawi stipulates continuation of ART (without dose-modification) in addition to rifampicin-containing TB treatment for 6 months. The potential for drug-drug interactions is a major concern among patients on rifampicin regimens as it induces CYP450 enzymes leading to a significant reduction in nevirapine plasma levels.

**Methods:** We conducted an open label prospective cohort study in HIV positive patients stable on NVP containing ART who start TB treatment (smear positive and smear negative). To determine the effect of rifampicin on plasma nevirapine levels, a truncated PK profile (2ml of blood taken at 0, 1, 2, 4, 8 hours post dose) was performed on day 0 and day 14 in 10 male and 10 female HIV positive patients stable on nevirapine containing regimen (200mg twice daily, for at least 2 weeks) after commencing a rifampicin-based anti-TB regimen. In addition, a single trough level was measured on day 3 and 7 after starting rifampicin to determine when the reduction was evident. Nevirapine levels were measured by LC-MS at the University of Liverpool.

**Results:** Of the 20 patients 2 had sub therapeutic levels on day 0. By day 14, there was a 22% geometric mean reduction in the AUC of nevirapine. Six (30%) patients had sub therapeutic nevirapine levels at day 20. This reduction occurred as early as day 3 with progressive drop in geometric mean concentration.

**Conclusions:** Our data show that there is a significant decrease in Plasma nevirapine levels when rifampicin is commenced in a patient stable on ART. We argue for a strategy for nevirapine dose increment before day 14. This could be done on day 3 after starting rifampicin.

## Epidemiology, Testing and Surveillance

O16

### Reducing the proportion of undiagnosed HIV-positive individuals – how are we doing?

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**Background:** The Unlinked Anonymous Survey of GUM clinic attendees (GUM Anon) is the only large scale survey in the UK to provide information on the prevalence of HIV and in particular undiagnosed HIV amongst GUM attendees. Early diagnosis of HIV is vital for improving individual survival and reducing onward transmission. In 2001 the National Strategy for Sexual Health and HIV (NSSHH) recommended that all GUM clinic attendees be offered an HIV test and set a target of a 50% reduction in the proportion of HIV positive individuals remaining undiagnosed after a GUM visit by 2007. We present data on trends in HIV testing among GUM attendees from 1999 to 2008.

**Methods:** The GUM Anon survey uses the unlinked anonymous technique on left-over sera taken for routine syphilis testing. All identifying information is removed from the specimens. For each serum, limited information is available including sexual orientation, world region

of birth, HIV status and HIV testing at the visit. Sera from individuals attending 15 sentinel GUM clinics between 1999 and 2008 were screened for HIV1/2 antibodies using a 3<sup>rd</sup> generation enzyme immunoassay. Reactive specimens were subjected to confirmatory testing.

**Results:** Over the last decade 859,886 sera were tested. Overall HIV prevalence has remained relatively constant: 0.65% in 1999 to 0.57% in 2008. HIV test uptake increased more than 3-fold from 29% in 1999 to 95% in 2008, while the proportion of individuals remaining undiagnosed on leaving the clinic declined from 57% to 21%. In men who have sex with men (MSM) the proportion of undiagnosed individuals declined from 62% to 31%; in heterosexuals born in sub-Saharan Africa (SSA) from 49% to 21%; while the biggest decline was in heterosexuals born in the UK and elsewhere: 58% to 8%.

**Conclusion:** The increased focus on HIV testing in GUM clinics has been successful at substantially increasing HIV testing rates, as well as reducing the proportion of HIV positive individuals remaining undiagnosed on leaving the clinic. The data suggest that the NSSHH target of a 50% reduction in the proportion of HIV positive individuals remaining undiagnosed between 2001 and 2007 has been achieved. However over a quarter of HIV positive MSM and over a fifth of SSA born heterosexuals may still leave the clinic undiagnosed. A proportion of these may know their status and choose not to disclose it to the clinician. Continuing efforts are needed to encourage HIV testing in GUM and non-GUM settings.

**O17**  
**A 54-month evaluation of the results of an HIV1/2 point-of-care test in a genitourinary medicine clinic**

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**Background:** HIV Point of Care Tests (POCT) tests are now widely used within Genitourinary Medicine clinics. In May 2005, we introduced the Determine™ HIV 1/2 Antibody POCT test in our clinic, for patients from higher risk groups. This test gives a reactive, negative or void result, visually, in 15 minutes. All void POCT tests are repeated and reactive tests are confirmed by an HIV 1/2 antibody test on a venous blood sample. We aimed to systematically review test experience over time and compare our results with reported test performance.

**Methods:** The clinic HIV POCT database contains details of all tests and results since POCT testing commenced. 54 consecutive months of test data was analysed using Excel. Data was split into consecutive 6 month periods to assess longitudinal trends.

**Results:** During 54 months, 14267 POCTs were performed. Testing increased with time, from 974 in the first 6 months to 1841 in the last. During the review period the proportion of void tests decreased significantly from 1.027% to 0.109% (p<0.01). The clinic created a fourth category of test result, inconclusive, where the two test readers' results were not concordant. In these cases, patients were told they would need to wait for the venous laboratory results.

As product literature states that this test is 100% sensitive, we calculated our test specificity was higher than the 99.75% reported by the manufacturer. It increased from 99.78% in the first two years to 99.89% thereafter. The positive predictive value of the POCT, over the four and a half year period, was 96% with an underlying increasing trend over this time period.

**Conclusions:** The real-life specificity of the test has increased to 99.89% with experience of use, exceeding manufacturer claims.

Initially inexperienced staff reported some tests as reactive on the basis of result line visibility rather than colour uptake. False reactive POCT tests were more frequent initially and decreased with experience. In addition, the introduction of an 'inconclusive' category of the POCT result was useful as all 'inconclusive' tests were shown to be negative on venous laboratory testing and hence the patient was spared unnecessary anxiety.

Ongoing training and experience of POCT readers has resulted in the increased specificity and positive predictive value of this test.

**O18**  
**Who believes in oral HIV point-of-care tests? We do! A summary of 3 years' experience and more than 2000 OraQuick rapid tests**

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**Background:** After an evaluation and a pilot study in four sexual health clinics in the UK in 2007, OraQuick® Advance rapid HIV-1/2 testing was rolled-out and is currently offered in routine service to MSM and patients from countries where the HIV prevalence is greater than 1%. BHIVA and BASHH guidelines have so far been cautious about endorsing point of care oral fluid testing mainly because of a concern about an extended window period and a high false positive rate reported in one large CDC study in the US. Being the only service in the UK where the test has been implemented on a large scale, we report a summary of our experience with this test.

**Methods:** Calculation of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) for phase 1 (oral fluid test taken but results given according to EIA blood test), phase 2 (oral fluid test results given with confirmatory EIA blood test) and PPV in routine clinical service (confirmatory EIA blood test for positive oral fluid tests). Summary of results of patient satisfaction surveys.

**Results:** The overall prevalence of confirmed HIV positive tests was 4.5% (129/2864).

Of 432 patients completing questionnaires, 85% were in favour of receiving same day HIV test results. 40% of patients believed that the availability of a "mouth swab" to test for HIV would have made them test sooner. Almost all patients agreed that the OraQuick® test was easy (89%) and comfortable (91%). A separate questionnaire showed that 87.5% preferred an oral mouth swab to a finger prick test, however, this changed to 50% if the waiting time was 20min for oral versus 10min (finger prick) and to 25% if 20min versus 2min.

Number of tests	Sensitivity\$	Specificity\$	PPV	NPV\$
Phase 1	94.8%	99.8%	96.5%	99.7%
1001 tests	55/58	941/943	55/57	941/944
Phase 2	100%	99.8%	96.2%	100%
526 tests	25/25	500/501	25/26	500/500
Post study	N/A	N/A	97.9%	N/A
1337 test			46/47	
Total (\$ based on 1527,	96.4%	99.8%	96.9%	99.8%
PPV on 2864 tests)	80/83	1441/1444	126/130	1441/1444

**Conclusion:** In our service the OraQuick® test had a high PPV and specificity when used in a high risk population and achieved high satisfaction scores among patients. Comparatively long waiting times and concerns about a prolonged window period need to be addressed especially with the advent of 4<sup>th</sup> generation tests.

**O19**  
**HIV testing in acute general medical admissions must be universally offered to reduce undiagnosed HIV**

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**Background:** A third of HIV infections in England are thought to be undiagnosed and consequent late presentation causes avoidable morbidity, mortality and onward transmission. HIV testing guidelines produced by BHIVA, BASHH and BIS, have addressed this issue by encouraging more widespread HIV testing strategies. Among recommendations is a routine

offer of HIV testing in acute general medical (AGM) admissions in areas of high HIV prevalence (>2/1000).

**Methods:** Individuals admitted under AGM not already known to the admitting team to be HIV positive were eligible to be offered an HIV test as part of routine investigations. In addition to offer and uptake rates and test results, demographic data and clinical information regarding the presenting admission was collected. A parallel anonymous sero-prevalence study was undertaken to assess effectiveness of the pilot in correctly identifying undiagnosed HIV and to determine the prevalence of HIV in all acute hospital admissions (medical and other).

**Results:** From August to December 2009, 2735 patients were admitted through AGM. Of these, 1190 (43.5%) were offered a test, of whom 1049 (88.2%) accepted. 2 tested HIV positive; both were individuals from high prevalence countries although 1 (who was seroconverting) acquired her infection within the UK; both presented with a clinical indicator disease. The offering rate varied by Consultant firm from 35% to 61%. Those offered a test were more likely to be younger (median age 57 years v 62 years,  $p < 0.001$ ), and more likely to have a clinical indicator disease (59.6% versus 42.0%,  $p < 0.001$ ). In the anonymous seroprevalence study, 4900 tests were performed; 3006 in AGM and 1885 in other specialties). 60 tests were positive; 44 in AGM (a prevalence of 15/1000), 11 in surgery (9/1000), 0 in O&G (0/1000), and 5 in orthopaedics (12/1000). In AGM, 33 were known to be HIV positive and therefore 2/11 (18%) of undiagnosed infections were identified and 9/11 (82%) not.

**Conclusions:** Whilst HIV testing is acceptable to the majority of patients in AGM, the rate of offering during this pilot was low, and varied substantially between medical teams as in previous antenatal testing research. The prevalence of HIV was higher than in the general population, and well above that recommended for routine testing in AGM, surgery and orthopaedics. Although recommended as routine, clinicians appear to be targeting testing, yet failing to identify the majority of undiagnosed infections.

## O20

### HIV testing in the emergency department – reporting one arm of the HIV testing in Non-Traditional Settings (HINTS) study

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**Background:** National guidelines recommend the routine offer of an HIV test to adults in general healthcare settings when the local diagnosed HIV prevalence exceeds 0.2%.

**Aims:** To assess the feasibility and acceptability, to patients and staff, of routinely offering HIV tests in an Emergency Department (ED).

**Methods:** All patients aged 16–65 attending the ED during study hours over a three month period were offered an HIV test on a saliva sample. Subsets of patients completed a questionnaire collecting behavioural and attitudinal data, or participated in focus groups and interviews. Tests were offered by clinical staff or trained non-clinical testers. Shifts were of two types: testing only (TS) or testing plus questionnaire recruitment (QS). ED staff completed questionnaires and participated in focus group discussions pre- and post-study.

**Results:** A total of 5513 patients aged 16–65 attended the ED during study hours, and 4070 (74%) of all patients within the age range were approached (83% TS vs 63% QS). Of these, 611 (15%) were clinically ineligible. Of 3459 patients offered an HIV test, 2123 accepted (uptake:

61%). Six individuals were confirmed to have HIV infection, of whom four were newly diagnosed, and all were transferred to care.

Patients were more likely to accept a test if they were younger, or if they were offered the test by clinical rather than non-clinical staff ( $p < 0.001$ ).

There was no association observed between test uptake and ethnicity. There were 528 questionnaires returned (a 77% response rate) and 95% of respondents considered the offer of an HIV test in the ED acceptable to them. The most common reasons for declining a test were having recently tested (46%) and self-perception of low risk of HIV infection (41%). Reported sexual orientation was not associated with test uptake. Pre-study, ED staff had anxieties about the feasibility of delivering the service and its acceptability to patients. Post-study focus groups demonstrated a high level of satisfaction amongst staff that the delivery of testing was feasible and acceptable to the majority.

**Conclusion:** HIV testing in an Emergency Department setting is acceptable to patients and staff, and operationally feasible. The strategy proved successful in identifying previously undiagnosed HIV-infected individuals. The test acceptance rate was not influenced by ethnicity or sexual orientation, assuaging concerns that higher risk groups may be less likely to accept an HIV test in such settings.

## O21

### Community and hospital HIV testing in the highest HIV prevalence area in the UK; missed opportunities for earlier diagnoses identified

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**Objectives:** The HIV undiagnosed and late presenting populations are major contributors to HIV transmission, patient morbidity/mortality and health economics. BHIVA/ Department of Health HIV testing guidelines address this by providing mechanisms to increase testing. We investigated HIV testing patterns in a large inner city hospital with high local HIV prevalence, and identified missed opportunities for HIV testing.

**Methods:** All HIV tests performed in 2008 were analysed and stratified for location of request. HIV positive results for inpatients and outpatients underwent case-note review to establish the circumstances surrounding the test and to identify previous presentations, HIV indicator diseases and missed opportunities for HIV testing.

**Results:** 41095 tests were performed in 36392 individuals. 363(1%) were diagnosed HIV positive. 31941/35349 (90%) of HIV tests performed within the hospital were part of screening (GUM, antenatal, fertility or renal replacement therapy). Of 3408 (10%) tests performed outside of routine screening in inpatients and outpatients, 51 (1.3%) were positive. 19/46 (41%) (12/29 (41%) inpatients and 7/17 (41%) outpatients) of HIV diagnoses had attended the Trust with HIV indicator diseases within the preceding 24 months, but not tested for HIV. The most common pre-existing indicator conditions were viral infections ( $n=8$ ) haematological abnormalities ( $n=5$ ) and Pneumonia ( $n=4$ ). 5 inpatient diagnoses notes were unavailable. Of 68/5746 positive tests requested by GPs, 23 were for screening, 17 indicator diseases and for 28 no details were available. Of the 34 inpatient diagnoses, the median age was 43 years, 38% were MSM, 50% heterosexual (5 men 12 women). 18/34 had an AIDS defining diagnosis, median CD4 cell count 64 cells/mm<sup>3</sup>. Median admission duration was 15 days (Range 1–324) and included 69 days intensive care. Mean time from admission to HIV test was 2 days.

**Discussion:** Missed opportunities for HIV diagnosis, have serious sequelae for all. Local implementation of HIV testing guidelines would have detected over one third of late presenters earlier and prevented their subsequent hospital admission. The low number of tests occurring in non-screening settings is of added concern in this high HIV prevalence area but the use of indicator diseases by GPs is encouraging. Results of this audit have been prioritized by the Trust and local Primary Care Trust and as such plans are underway for the widespread implementation of the BHIVA guidelines.

O22

### Chlamydia trachomatis do not enter a persistent state within human immunodeficiency virus type 1 (HIV-1) coinfecting host cells, suggesting that HIV infection will not affect the efficacy of chlamydial antimicrobial therapy *in vivo*

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**Introduction:** Lymphogranuloma venereum (LGV), caused by *Chlamydia trachomatis* serovar L2, has recently emerged among men who sex with men. Most cases present with proctitis and are positive for human immunodeficiency virus-1 (HIV-1). Both micro-organisms can infect and replicate in reticuloendothelial cells, however, under stressful *in vitro* conditions, *C. trachomatis* can enter a latent state, termed "persistence". Persistence-inducing factors include: exposure to interferon-gamma or penicillins, amino acid or iron starvation, and co-infection with herpes-simplex virus-2. Doxycycline (200mg od 3/52) is the recommended antimicrobial regimen, based on historical studies. However, azithromycin (1g po stat) has since been introduced and is now the treatment of choice for *C. trachomatis* serovars D-K. There is evidence from *in vitro* work that azithromycin is more efficacious in eradicating persistent infection than doxycycline, while doxycycline is more efficacious in eradicating acute infection. If HIV co-infection results in chlamydial persistence, this would have implications for antimicrobial therapy *in vivo*.

**Methods:** We sought to characterise the effect of HIV-1 co-infection on *C. trachomatis* serovar L2 replication in MAGI P4R5 cells (a CD4-positive epithelial cell-line). We evaluated several experimental parameters, including chlamydial inclusion size, inclusion number, elementary body (EB) and reticulate body (RB) morphology, EB infectivity, genome copy number and the transcription of unprocessed *16S rRNA*, *ompA*, *omcB*, and *euo* transcripts. In the persistent state, inclusions are typically enlarged, chlamydial organisms are aberrant, there is a loss of EB infectivity, *ompA*, *omcB* are downregulated, and *euo* upregulated.

**Results:** Although co-infection resulted in larger inclusions (Mann-Whitney U  $P < 0.01$ ), consistent with a persistent phenotype, no difference in EB morphology, genome copy number, EB infectivity, or the transcription of unprocessed *16S rRNA*, *ompA*, and *euo rRNA* was noted, although *omcB rRNA* was upregulated.

**Conclusion:** HIV co-infection does not result in chlamydial persistence *in vitro*. This suggests that both azithromycin and doxycycline will be equally efficacious in HIV-positive and negative individuals, however, we acknowledge that only one cell type and one strain of HIV have been investigated in this study and HIV infection could still influence chlamydial infection *in vivo* through other mechanisms, notably immunosuppression.

O23

### Does routine Treponema pallidum PCR testing have a role in diagnosing patients with early syphilis?

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**Background:** *Treponema pallidum* (*T pallidum*) polymerase chain reaction (PCR) testing is a useful adjunct to diagnosing early infectious syphilis along with dark ground microscopy (DGM) and syphilis serology. The test became available in our clinic in early 2008. The aim of this audit is to determine whether routine *T pallidum* PCR testing in patients with oral and ano-genital ulcers is justified.

**Methods:** A retrospective case note review from Jan 2008–Jan 2009 was carried out on 512 patients presenting with ulcerative lesions swabbed

for HSV and *T pallidum* PCR. Additionally, case note review was performed on 170 people diagnosed with serologically confirmed syphilis over the same time period.

**Results:** PCR samples were obtained from 512 patients (290 males and 193 females) with oral or ano-genital ulcers. The males included 154 heterosexual, 8 bisexual and 128 men who have sex with men (MSM). A total of 215 (116 males; 99 females) were diagnosed with HSV (41.9%). *T pallidum* PCR was positive in 29 (5.7%) people.

Over the same time period, syphilis was diagnosed in 170 people (159 males; 11 females). 138 were MSM, of whom 48 (30.2%) were HIV positive. The median age was 32 years (range 17–85 years). The majority was Caucasian (81.8%) and 44 (25.9%) had a previous diagnosis of syphilis.

Of 170 people diagnosed with syphilis, 40 had been swabbed for both HSV and *T pallidum* PCR. All were male (MSM = 37 (92.5%) and 21 (52.5%) were HIV positive. *T pallidum* PCR was positive in 29 (72.5%) samples; 28 (96.6%) were MSM. The majority was Caucasian (89.7%) and 10 men (34.5%) were HIV positive. Two samples were co-infected with HSV. DGM was performed in 21 of these *T pallidum* PCR positive lesions and correlated positively with the PCR in 10 cases (47.6%). In 2 patients, DGM and PCR were positive with initial negative serology. It was thought that these patients were diagnosed prior to syphilis seroconversion.

**Conclusion:** *T pallidum* PCR testing is a validated tool for diagnosing early infectious syphilis especially in lesions where DGM is difficult to perform and oral lesions. In this cohort it proved helpful in diagnosing very early syphilis where serology was initially negative. However, significant cost implications and laboratory burden with routine sampling suggest it would be prudent to limit *T pallidum* PCR testing to high risk groups such as MSM, HIV positive patients, and those who are contacts of syphilis infection.

O24

### Prevalence of asymptomatic neurosyphilis after treatment of early syphilis in HIV coinfecting patients

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**Background:** Marra et al reported that HIV patients were more likely to have asymptomatic neurosyphilis (AN) if pre-treatment serum rapid plasma reagin (RPR) titres were  $>16$  and/or CD4 lymphocyte counts  $<350/\text{mm}^3$ . We aimed to find the prevalence of AN after standard treatment of early syphilis in HIV patients meeting the Marra criteria.

**Methods:** We enrolled 47 patients. All were male, mostly British (42) caucasian (43) men who have sex with men (45). Median age was 40 years (range 25–65). Median CD4 count was  $401/\text{mm}^3$  (range 84–1072) and 28 were taking antiretroviral therapy (ART). Syphilis staging was 12 primary, 26 secondary, 21 early latent. All patients received standard antibiotic treatment described in current (2008) UK guidelines, mostly (36 patients) single dose benzathine penicillin G (BPG) 2.4MU im. Lumbar puncture (LP) was performed after treatment (median and range). AN was defined as a positive cerebrospinal fluid (CSF) RPR, or  $>20$  leucocytes/ $\text{mm}^3$  plus a CSF *Treponema pallidum* particle agglutination (TPPA) titre  $>320$ .

**Results:** 30/47 patients achieved serological cure at the time of LP. CSF examination excluded AN in 45 patients. Only one patient was diagnosed with AN. Coincidentally, he presented soon after his LP with relapsing secondary syphilis, having previously achieved serological cure. At study entry, his CD4 count was  $419/\text{mm}^3$  (he was not taking ART) and his serum RPR  $>128$ . Initial treatment was single dose BPG. A second patient received precautionary treatment for AN after his CSF samples were lost in transit and he declined repeat LP.

Twelve patients had CD4 counts  $<300/\text{mm}^3$  at enrolment; none of these had AN on LP. Two patients had an isolated CSF pleocytosis (22 and 50 leucocytes/ $\text{mm}^3$  respectively) with negative CSF RPR/TPPA tests.

**Conclusions:** In this cohort of HIV-infected patients, AN was uncommon after standard antibiotic treatment of early syphilis.

## Complications of HIV Disease or Treatment

O25

### Downregulation of genes controlling fatty acid metabolism and anaerobic respiration in subcutaneous adipose tissue after 18–24 months' antiviral treatment with efavirenz-containing regimens

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**Objectives:** To compare patterns of gene expression in the subcutaneous adipose tissue of HIV positive subjects before and after 18-24 months of antiretroviral therapy (ART) with HIV negative controls.

**Methods:** We performed Iliac crest fat biopsies on 15 HIV negative controls and patients receiving initial ART with efavirenz plus zidovudine/lamivudine (n=9) or tenofovir/emtricitabine (n=10) or abacavir/lamivudine (n=12). Following total RNA extraction, gene expression was profiled using real-time PCR and quantified relative to an internal house keeping gene (18S). Comparison between groups was by Mann-Whitney test.

**Results:** Baseline demography, subcutaneous and visceral fat distribution by DEXA and abdominal CT were similar between the groups. Most genes involved with adipocyte cortisol and lipid metabolism were significantly down regulated compared to HIV-negative controls, while H6PDH was up-regulated (table 1). There were reduced expression of some mitochondrial and nuclear regulated respiratory genes compared to controls and increase in nuclear genes PCG-1 $\alpha$  and UCP-2. The changes in all three regimens were in the same direction and the only significant difference was in cytochrome B between tenofovir and zidovudine groups (p=0.04).

Table 1. Fold change in gene expression from HIV negative controls (=1). NS = not significant

Gene	Fold change vs. control	p value
11 $\beta$ -hydroxysteroid dehydrogenase type1	0.21	0.0001
hexose-6-phosphate dehydrogenase(H6PDH)	3.23	0.0001
glucocorticoid receptor- $\alpha$	0.42	0.0001
fatty acid synthase	0.13	0.0001
lipoprotein lipase	0.41	0.001
hormone sensitive lipase	0.55	0.02
fatty acid binding protein-4	0.67	0.02
glucose transport protein-4(GLUT4)	0.76	NS
peroxisome proliferator-activated receptors- $\gamma$	0.61	NS
acetyl CoA carboxylase 1	0.56	NS
acetyl CoA carboxylase 2	0.61	0.02
PPAR- $\gamma$ coactivator-1- $\alpha$ (PCG-1 $\alpha$ )	3.73	0.0001
nuclear respiratory factor-1(NRF-1)	0.67	0.003
mitochondrial transcription factorA(TFAM)	1.23	NS
NAD dehydrogenase genes ND-1(complex I)	1.31	0.05
cytochrome B (CYT-B - complex III)	0.56	0.007
cytochrome c oxidase 3(complex IV)	0.71	NS
cytochrome c oxidase 4(complex IV)	0.32	0.0001
uncoupling protein-2	1.57	0.002
uncoupling protein-3	0.39	0.001

**Conclusion:** After 18-24 months treatment with efavirenz-containing regimens there is significant down-regulation of most genes involved with lipid and cortisol metabolism compared to controls. There is evidence of impairment in mitochondrial electron transport, more marked with zidovudine-containing regimens and least for tenofovir.

O26

### Baseline renal function is an independent predictor of death and progression to severe chronic kidney disease

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**Introduction:** Chronic kidney disease is an important cause of morbidity and mortality in HIV infected patients. We studied the effects of baseline renal function on mortality and progression to severe chronic kidney disease (CKD).

**Methods:** Renal function (expressed as eGFR [calculated by MDRD]) and mortality was studied from 1998-2007 in UK CHIC. As Acute Renal Failure is particularly common within 3 months of first presentation, baseline renal function was defined as the first eGFR measurement obtained >3 months after entry into the cohort. Renal function was categorised as per CKD stages 1-5, with stage 2 further divided into eGFR values of 75-89 and 60-74 mL/min/1.73m<sup>2</sup>. Mortality and progression to stages 4/5 CKD (eGFR<30 for  $\geq$ 3 months) was analysed using Cox regression.

**Results:** Baseline renal function was available for 19,111 patients (median age 41 [IQR 36, 47] years, 78% male, 24% black ethnicity) and obtained a median of 4 [3, 9] months after entry into the cohort. At baseline, the median eGFR was 96 [84,110] mL/min, and 1.94% of patients had eGFR <60 mL/min. Patients were followed for a median of 5.7 [2.7, 9.1] years, and by late 2007, 1,837 patients (9.6%) had died and 82 (0.43%) had progressed to stages 4-5 CKD. Mortality rates were 1.5 (1.4, 1.5), 3.1 (2.4, 3.9), 8.9 (5.4, 14.5) and 11.9 (7.3, 19.4) per 100 person-years in patients with baseline eGFR  $\geq$ 60, 30-59, 15-29, and <15 mL/min, and rates of progression to stages 4-5 CKD were 0.1 (0.0, 0.2), 0.2 (0.1, 0.4), 0.5 (0.2, 1.1) and 7.3 (4.5, 12.0) per 1000 person years for those with baseline eGFR of  $\geq$ 90, 75-89, 60-74, and 30-59 mL/min, respectively. In multivariable analyses adjusting for age, gender, ethnicity, risk group, prior AIDS, cART use, CD4 cell count and HIV RNA level, baseline eGFR <60 mL/min was an independent risk factor for death (adjusted Hazard Ratio [aHR]: 3.1 (2.4, 3.9), p<0.001). Reduced eGFR was also found to be an independent risk factor for progression to stages 4-5 CKD (aHR 6.6 (2.0, 21.3) for baseline eGFR 60-75 and aHR 71.7 (25.1, 205.2) for baseline eGFR 30-59 mL/min [compared to eGFR  $\geq$ 90 mL/min]).

**Conclusions:** In HIV infected patients, baseline renal function is an important and independent predictor of death and progression to severe CKD during follow up.

O27

### The value of urine protein/creatinine (uPCR) and albumin/creatinine ratios (uACR) in assessing renal disease in HIV infection

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**Background:** Renal disease in HIV can be due to the virus, combination antiretroviral therapy (cART) or other pathology. Low level proteinuria in patients on cART is common but there is continued uncertainty as to its significance, and its value for screening and monitoring. We analysed the utility of measuring urine protein/creatinine ratio (uPCR) and albumin/creatinine ratio (uACR) concurrently in assessing renal disease.

**Methods:** Simultaneous uPCR and uACR (mg/mmol) values were assessed in patients attending an HIV clinic over 2.5 years. Markers of renal function and cART use were analysed. Statistical significance was assessed by one-way analysis of variance (ANOVA) or a  $\chi^2$  test as appropriate.

**Results:** Of 6132 uPCR results (1437 patients), 368 (6%) had uPCR >50. There were 206 simultaneous uPCR and uACR results from 123 patients,

of whom 120 were cART-experienced. Samples were categorised into 3 groups: uPCR <50 (trivial proteinuria), uPCR >50 and uACR <30 (probable tubular proteinuria), and uPCR >50 and uACR >30 (probable glomerular proteinuria) (see table). Of 18 (15%) patients with heavy proteinuria (uPCR >100), 16 had non-HIV/cART-related renal injury. Of these, 7 had a renal biopsy: 6 showed glomerular or other pathology (mean uPCR 190, mean uACR 150, ACR/PCR= 80%), and 1 showed no glomerular injury, but minor tubular cART-related abnormalities (mean uPCR 151, mean uACR 20, ACR/PCR=15%).

	Trivial proteinuria (n=145)	Probable "tubular" proteinuria (n=33)	Probable "glomerular" proteinuria (n=28)	p value
Mean eGFR, ml/min/1.73m <sup>2</sup> (SD)	57.8 (5.21)	58.6 (3.03)	57.5 (5.74)	0.637
Mean plasma phosphate, mmol/l (SD)	0.86 (0.22)	0.74 (0.24)	0.94 (0.20)	0.002
Any tenofovir (TDF) use up to sampling, n (%)	132 (92)	33 (100)	21 (78)	0.004
TDF at time of sampling n (%)	64 (44)	17 (52)	13 (46)	0.742

**Conclusions:** High uPCR with low uACR may identify patients with tubular proteinuria suggested by lower plasma phosphate levels. Use of uPCR alone risks misdiagnosing glomerular disease as tubular and may lead to unnecessary alteration of cART regimens. In patients with significant proteinuria (uPCR >50) measuring both uPCR and uACR may assist in the diagnosis of renal disease.

**O28**  
**Epidemiology and outcomes of hepatitis delta infection in a large, ethnically diverse UK HIV cohort**

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**Background:** Hepatitis delta (HDV) is usually acquired at the same time as Hepatitis B (HBV) resulting in HBV/HDV coinfection. More rarely, HDV superinfection can occur in pre-existing HBV infection. The main route of HDV transmission in Europe is through injecting drug use (IDU). Sexual transmission between MSM has been shown to occur in Southeast Asia and heterosexual transmission has been reported in South America, both in areas of high HBV endemicity.

**Method:** This is a retrospective study of all patients with HIV/HBV coinfection attending King's College Hospital between January 1995 and January 2010. Coinfected patients were tested for the presence of HDV antibody. Demographic and virological data were collected on all HIV/HBV/HDV coinfecting patients.

**Results:** Of 251 pts with HIV/Hep B SAg +ve, 14 (5.6%) had a positive delta antibody test. The median age was 41, 6 were female. The risk factor for HDV acquisition was heterosexual sex in 8, IDU in 5 and one patient was an MSM. 6/8 of those who acquired the infection heterosexually were from West Africa. 2 heterosexual patients, one female, one male, acquired HDV infection during the course of their HIV/HBV follow up as evidenced by a flare in transaminases and seroconversion from HDV antibody negative to positive.

10/14 patients were HDV IgM positive. In 9 of those tested, qualitative HDV RNA was positive in 6. Median HBV DNA prior to starting treatment was 1.8 logs.

HCV antibody was positive in 6 patients, 5 of whom had a history of IDU. In all 6 cases, Hepatitis C RNA was negative.

11 patients received treatment for HIV with anti-HBV activity; 10 received lamivudine/emtricitabine which was in combination with tenofovir in 9 patients. One patient received tenofovir alone.

Overall the clinical outcome was poor. 8 patients had either clinical or histological evidence of cirrhosis; there were 2 liver related deaths and one patient underwent liver transplantation.

**Conclusion:** Coinfection with HIV/HBV/HDV carries a poor prognosis. In our cohort heterosexual transmission of HDV was common and superinfection occurred during the course of HIV follow up. As recommended in the BHIVA HIV/Hepatitis guidelines; screening for HDV in patients with HBV should be performed at baseline and yearly in those at ongoing risk of infection.

**O29**  
**High rates of asymptomatic neurocognitive impairment are observed in perinatally HIV-infected adolescents**

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**Background:** Neurocognitive function impairment (NCI) remains prevalent in HIV-infected subjects despite effective antiretroviral therapy. Data describing rates of NCI in perinatally-acquired HIV-infected adolescents (PaHIV) are sparse. The aim of this study was to compare rates of NCI in neurologically asymptomatic PaHIV and adult-acquired HIV infected subjects (AaHIV).

**Methods:** Neurocognitive function was assessed in three groups of subjects; Group 1, PaHIV aged 16-23; Group 2, AaHIV aged 24 - 59 years; Group 3, AaHIV aged > 60 years. Neurocognitive function was assessed using a validated battery (CogState™) and NCI defined as a score > 1 standard deviation (SD) below aged-matched population mean in 2 or more cognitive domains. Demographic and clinical data were collected.

**Results:** NCI was observed in 67%, 35% and 18% of subjects in groups 1,2,3, respectively (see table) and in a univariate and multivariate model for factors associated with the presence of NCI, correcting for baseline differences observed between groups, the presence of NCI was significantly associated with younger age (p=0.02, 95% CI -0.02; 0).

Mean (SD) unless otherwise stated	Group 1 PaHIV	Group 2 AaHIV	Group 3, AaHIV	Univariate p value (CI)	Multivariate p value (CI)
Number of subjects	6	37	39	-	
Age, years (mean, range)	18 (17-23)	44 (24-59)	64 (60-77)	0.004	0.02
Male gender, n (%)	2 (33)	31(84)	38 (97)	0.09	0.59
Current plasma CD4+ count (cells/uL, SD)	618 (229)	572 (277)	546 (241)	0.66	
Nadir plasma CD4+ count (cells/uL, SD)	393 (241)	184 (134)	173 (110)	0.22	
Number of years education (years)	11.7 (1.5)	-	12.7 (3.7)	0.12	0.23
Diagnosis NCI, n (%)	4 (67)	13(35)	7 (18)	0.09	

**Conclusion:** High rates of NCI are observed in young PaHIV subjects compared to AaHIV subjects. Number of subjects in this study are small, and work is ongoing to further investigate for NCI in a larger cohort of perinatally infected young adults utilising CogState™, neuropsychometric testing and MR spectroscopy.

O30

### Abacavir is associated with increased risk of cardiovascular disease in HIV-infected patients: a UK clinic case-control study

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**Background:** Although the mechanism remains unclear, there are an increasing number of studies associating abacavir with increased cardiovascular disease (CVD). However, this has not been seen in all cohorts, in naïve-therapy studies, and was unclear from the French case control study. The aim of this study was to assess the effect of exposure to abacavir on cardiovascular disease in a UK clinic population.

**Methods:** Cases were patients in follow up who suffered first myocardial Infarction (MI), tread mill and or angiographic evidence of coronary artery disease (CAD) or cerebrovascular accident (CVA) between October 1994 and October 2009. Up to 5 controls were selected at random without replacement among patients with no history of CVD matched for age, gender and duration of follow up in cohort. Data on cardiovascular risk and treatment history were extracted from medical records. Conditional logistic regression [STATA 10] was used to assess the effect of cumulative, recent (currently or within the preceding 6 months) and past use (stopped more than 6 months ago) of abacavir on CVD. We adjusted for cardiovascular risk factors that are unlikely to be affected by antiretroviral therapy and the cumulative use of other antiretrovirals and eGFR.

**Results:** Data on 38 cases (22 MI, 8 CAD, 8 CVA) and 124 controls were analysed. Cases were all male with a median age of 51 years. We found that recent use of abacavir was associated with an increased risk of CVD compared with those with no recent use of the drug [odds ratio (OR) 6.37, 95% CI 1.67-24.35; P=0.007]. Additional adjustment for eGFR attenuated this effect (OR 5.97; 95% CI 1.45-24.68; P=0.014).

There was no increased risk observed in those who stopped using abacavir more than 6 months ago compared to those who had never used the drug (OR 1.16, 95% CI 0.18-7.41 [P=0.88]). Similarly no increased risk was seen with cumulative exposure to abacavir. No interaction was found between recent and cumulative exposure to abacavir as well as between exposure to abacavir and the number of cardiovascular risk factors.

**Conclusion:** Our findings are consistent with an increased risk of CVD in individuals exposed to abacavir within the preceding 6 months.

This risk is not modified by the number of cardiovascular risk factors present, and seems to disappear within 6 months of abacavir discontinuation. This suggests that the use of abacavir should be carefully reviewed in all patients, irrespective of cardiovascular risk.

O31

### A study to assess the impact of the D:A:D study on clinical practice

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**Background:** In February 2008, data were presented associating abacavir with an increased risk of myocardial infarction (Data collection of Adverse Events of Anti-HIV Drugs [D:A:D]); subsequent cohort data sets have supported this and recent guidelines reflected these findings in their recommendations. This study was designed to assess the impact of these results on clinical practice; in particular whether patients with low risk of coronary heart disease (CHD) (10-year predicted risk was calculated from the Framingham equation) were being switched away from abacavir.

**Method:** Two cohorts matched for age, sex and ethnicity were identified: 50 patients on fixed-dose combination (FDC) abacavir/lamivudine (ABC/3TC) and 50 on FDC tenofovir/emtricitabine (TDF/FTC) in December 2007. The medical notes and computerised records of each patient were examined and data collected. Low risk was defined as a CHD 10-year Framingham score of <10.

**Results:** Demographics for the groups were similar (median age [40 vs. 41.5], gender [72% vs. 78%] and ethnicity [Caucasian 68% vs. 70%]) for

ABC/3TC and TDF/FTC respectively. Baseline viral load (VL) was >40 copies/ml in 46% in those on ABC/3TC versus 42% for those on TDF/FTC. For those with detectable VL on commencing FDC, median time to VL <40 copies/ml was 6 months for both groups. 14 patients overall developed virological failure (5 on ABC/3TC vs. 9 on TDF/FTC). Rates of hypertension, diabetes and current smoking in 2007 were 48%, 2% and 30% in the ABC/3TC group compared to 10%, 0% and 22% in the TDF/FTC group. In 2009 these rates were 66%, 2% and 24% (ABC/3TC) and 30%, 0% and 20% (TDF/FTC). Known family history of CHD was found in 20% and 22% of the ABC/3TC and TDF/FTC patients respectively. Median Framingham 10-year predicted CHD scores were 5.4% in 2007 and 5.95% in 2009 for the ABC/3TC group versus 4.3% and 4% for those on TDF/FTC. By December 2009 38% of patients had switched from ABC/3TC compared to 10% from TDF/FTC. The majority who switched off ABC/3TC did so to reduce CHD risk (28% of cohort) and had a high Framingham risk (>10 risk in 38%). 21% had switched by June 2008, 42% by December 08 and 95% by September 09. 3 patients had a new cardiovascular event between 2007 and 2009 (all from the ABC/3TC cohort).

**Conclusion:** Patients on ABC/3TC in December 2007 were more likely to have a higher CHD risk but also more likely to subsequently have their ABC switched in accordance with the findings of D:A:D and current guidelines.

O32

### Can KSHV viral load be used to differentiate multicentric Castlemans disease from Kaposi's sarcoma?

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**Background:** Kaposi's sarcoma-associated herpesvirus (KSHV) is known to be associated with Kaposi's sarcoma (KS), multicentric Castlemans disease (MCD) and primary effusion lymphoma. The aim of this study was to look at the relationship between the level of KSHV viraemia and these diagnoses.

**Methods:** Retrospective casenote review of all HIV-positive patients who had a plasma KSHV viral load performed between January 2007 and July 2009. Where a diagnosis of MCD, KS or PEL was made prior to this period the KSHV viral load performed closest to the time of that diagnosis was obtained.

**Results:** 88 patients had 140 assays performed. 25 patients had multiple assays. 30 patients (34.1%) had KSHV DNA detectable in plasma by PCR on at least one occasion. 11 patients had MCD including 4 with KS. 23 had KS alone, 2 had primary effusion lymphoma (PEL) and 52 patients had other diagnoses of which 10 had mycobacterial infection and 11 had other haematological malignancies/myeloproliferative disorders. The range of KSHV viral loads closest to time of diagnosis, and the CD4 count taken closest to this are shown in the table.

KSHV viral loads were significantly higher when comparing MCD with KS, MCD with all other diagnoses and KS with all other non-MCD diagnoses (p<0.05). However, there is an overlap in the range of levels seen in MCD and KS. A KSHV plasma viral load of ≥2000 copies/ml gave a specificity of 86.9% and sensitivity of 81.8% for the diagnosis of MCD. A serum KSHV level of <2000 copies/ml had a negative predictive value of 97.3% for MCD when compared to all other diagnoses (including KS).

Diagnosis	Plasma KSHV viral load (copies/ml)					Median CD4 count
	Minimum	Lower quartile	Median	Upper quartile	Maximum	
MCD (+/- KS)	420	6600	43500	150000	4900000	210
KS (without MCD)	0	0	210	500	29661	240
Visceral (n=9)	0	130	280	500	29661	240
Cutaneous (n=14)	0	0	210	500	2200	290
PEL	0	0	0	0	0	115
Other	0	0	0	0	2300	140

**Conclusion:** This suggests patients with MCD have higher KSHV viral loads than those with KS but the overlap in the range of levels, particularly in those patients with visceral KS when compared to MCD, may limit the usefulness of the assay in distinguishing between these conditions. While having a raised KSHV plasma viral load may not always be useful in differentiating MCD from visceral KS, a low KSHV viral load (<2000 copies/ml) is useful in excluding a diagnosis of MCD.

O33

### Non-germinal centre subtype of AIDS-related diffuse large B-cell lymphomas associated with improved survival

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**Background:** Both gene expression profiling and immunohistochemistry are capable of dividing diffuse large B-cell lymphoma (DLBCL) into germinal centre (GC) and non-GC subtypes. Most studies in immunocompetent patients suggest that GC have a better prognosis, although this difference may not exist when rituximab is included in treatment schedules. However, a recent analysis of two AIDS Malignancy Consortium clinical trials of AIDS related DLBCL (AMC 010 and AMC 034) has reported no correlation between subtype and outcome.

**Methods:** We undertook an immunophenotypic study of 73 patients with AIDS related DLBCL from 3 centres in London and correlated subtype with clinical features and outcome. Cases were classified using the algorithm reported by Hans et al based on expression of CD10, BCL-6 and MUM-1. **Results:** There were no differences between the GC (n=32) and Non-GC (n=42) groups in gender, age, prior AIDS diagnosis, CD4 cell count or detectable HIV viraemia at DLBCL presentation. Two patients (both GC) received best supportive care only at patients' requests. The remaining 71 received anthracycline based combination chemotherapy regimens (CHOP=6, R-CHOP=29, CDE=29, CODOX-M/IVAC=6, R-CODOX-M/IVAC=1). There were no differences in the use of rituximab or of the more intense CODOX-M/IVAC schedule between the groups. The overall survival was significantly greater for non-GC than GC with 5 year overall survivals of 77% (95%CI: 64-90%) for non-GC and 51% (95%CI: 32-69%) for GC (Logrank p=0.027).

**Conclusion:** The improved survival in the non-GC group suggests that the behaviour and outcome predictors in HIV-DLBCL are different from those in immune competent DLBCL.

## New Technologies, Interventions and Treatments

O34

### Are self-taken vaginal swabs an effective way of finding gonorrhoea? A comparison of the detection of *Neisseria gonorrhoea* by Gen-Probe Aptima Combo 2 AC2 assay performed on self-taken vulvo-vaginal swabs (VVSs) versus culture performed on clinician-taken urethral and endocervical swabs

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**Background:** The role of non-invasive testing for gonorrhoea in women has not yet been fully established. Validation of nucleic acid amplification tests (NAATs) in low prevalence populations has been recommended. Our study is the first to compare gonorrhoea detection on patient-taken VVSs by AC2 assay with 'gold-standard' culture of clinician-taken urethral and endocervical swabs.

**Methods:** Women aged 16 and over, requesting testing for sexually transmitted infections (STIs), with no recent antibiotic use and consenting to perform a self-taken VVS prior to routine examination were included. Clinicians took urethral and endocervical swabs for gonorrhoea culture and an endocervical swab for AC2 assay. AC2 assay gonorrhoea positives were confirmed with Aptima GC assay.

**Results:** 3498 women are included in this analysis; final data will include 4000.

Mean age 25 years (range 16-59). 93/3498 (2.7%) women were infected with gonorrhoea. 48 (52%) were co-infected with *Chlamydia trachomatis*.

Women with gonorrhoea were significantly younger than those without (mean 21y versus 25y, p<0.0001). They were also significantly more likely to have symptoms (p=0.001), to have been in contact with an STI (p<0.0001) to have cervicitis (p<0.0001), and to have a clinical diagnosis of PID (p=0.0004).

75/92 (82%) were culture positive.

88/92 (96%) were endocervical NAAT positive.

87/92 (95%) were VVS NAAT positive. However, 4 VVSs were unable to be processed due to patient error in collection. The sensitivity of the processed VVS NAATs was 87/88 (99%).

4 samples were VVS NAAT positive but endocervical NAAT negative; three of the four were culture negative.

In all patients there is significant superiority in test sensitivity of VVS NAAT versus clinician-taken cultures (symptomatic p=0.003, asymptomatic p=0.029).

**Conclusion:** Gonorrhoea detection by AC2 assay from self-taken VVSs is significantly more sensitive than by culture from urethral and endocervical swabs and equivalent to detection by AC2 assay from clinician-taken endocervical swabs.

O35

### Comparison of culture and Gen-Probe Aptima Combo 2® assay for the detection of *Neisseria gonorrhoeae* from throat and rectal specimens in MSM

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**Background:** The Aptima Combo 2® (AC2) assay has high sensitivity and specificity for the detection of *Neisseria gonorrhoeae* (GC) and cross-reactivity with other Neisserial species has not been reported. Our study compares the performance of GC culture with AC2 in throat (TS) and rectal swab (RS) specimens from MSM.

**Methods:** We implemented routine testing using AC2 in addition to GC culture for all MSM attending our two UK inner city walk-in clinics in September 2008. TS and RS specimens were collected by nurses using female AC2 swab kits. Men with symptoms of proctitis were offered proctoscopy by a clinician for direct sampling of RS. GC cultures were inoculated at the bedside onto a selective VCN medium with immediate transfer to a CO<sub>2</sub> incubator. AC2 was performed according to the manufacturer's instructions with all positives confirmed by the GC single analyte Aptima assay. Anonymised demographic, clinical and laboratory data were collected from all MSM who tested positive and these were matched for age and week of attendance with GC-negative controls. Those who had received antibiotics within the last month or were attending for test-of-cure were excluded from the analysis.

**Results:** In total, 3504 and 2767 MSM were tested using both assays for RS and TS, respectively. 12.3% had anorectal symptoms and 2.8% had throat symptoms. The positivity rate of rectal and throat GC detected by either method was 6.8% (238/3504) and 7.1% (197/2767), respectively. Concordant GC culture and AC2 results were seen in 127/238 (53.4%) RS and 44/197 (22.3%) TS specimens. No false negative AC2 results were seen. The sensitivity, specificity, positive and negative predictive values for GC culture compared with AC2 were 53.4%, 100%, 100% and 96.8%

for RS specimens and 22.3%, 100%, 100% and 94.5% for TS specimens. MSM with AC2-positive, culture negative results were more likely to have symptoms, be GC contacts, be HIV-positive, have GC detected at another site and had last sex more recently compared to AC2-negative MSM. MSM with rectal AC2-positive, culture negative results had fewer anorectal symptoms and were less likely to be GC contacts than rectal culture positive MSM, perhaps reflecting more recent infection.

**Conclusion:** In comparison to standard GC culture, AC2 has much higher sensitivity for detecting GC in RS and TS specimens. Clinicians and epidemiologists should be aware of the poor sensitivity of GC culture from non-genital sites in MSM.

## O36

### Risk factors for acquisition of lymphogranuloma venereum: results of a multi-centre case-control study in the UK

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**Background:** Since 2003, lymphogranuloma venereum (LGV) has been an important cause of morbidity in men who have sex with men (MSM). This study quantifies specific risk factors for LGV acquisition.

**Methods:** We carried out a case control study of LGV in six UK clinics in 2009. Confirmed cases of LGV in MSM were compared to two groups of controls without LGV: MSM with symptoms; MSM without symptoms. Clinical and behavioural data were collected using a web-based computer-assisted self interview (CASI). We present odds ratios with 95% confidence intervals as ORs (symptomatic controls) and ORa (asymptomatic controls).

**Results:** The six clinics recruited 76 cases and 148 controls with a high response rate. These cases account for approximately half of the cases diagnosed in the UK in 2009. The majority of cases (95%) had rectal infection; most (88%) were symptomatic. HIV co-infection was found in 84% of cases, 69% of symptomatic and 40% of asymptomatic controls. LGV was significantly associated with a range of risk factors as shown in the table. Figure: URAI: unprotected receptive anal intercourse; UIAI: unprotected insertive anal intercourse.

Risk factor	ORs (95% CI)	ORa (95% CI)
>10 partners	3.5 (1.6, 7.6)	2.6 (1.3, 5.4)
Group sex	3.1 (1.4, 6.8)	4.8 (2.2, 10.3)
Meet internet	3.5 (1.6, 7.7)	4.5 (2.1, 9.8)
URAI	6.8 (2.1, 21.7)	14.0 (4.5, 43.4)
UIAI	10.0 (3.7, 26.7)	11.4 (4.3, 30.5)
Fisting	3.0 (1.3, 6.7)	10.0 (3.2, 30.6)
Enema use	3.7 (1.6-8.7)	2.7 (1.2, 6.5)
Meth use	3.8 (1.8, 8.1)	12.2 (4.6, 32.1)
Viagra use	4.8 (2.1, 10.7)	4.6 (2.1, 10.3)

**Conclusion:** LGV is strongly associated with HIV infection, and also with meeting partners on the internet, having multiple partners, attending sex parties, engaging in multiple types of penetrative sex, and taking recreational drugs. Multivariate analyses show that these factors are highly correlated, and HIV infection may act both as a driver for these behaviours, for example through sero-sorting, and as a biological factor.

## O37

### Clinical presentation of Lymphogranuloma venereum in a multi-centre case-control study in the UK: LGV-net

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**Background:** Lymphogranuloma Venereum (LGV) has been recognised as a significant public health issue in the UK since 2003. It has a varied clinical presentation and the diagnosis is often delayed.

**Methods:** In a case control study at 6 UK centres in 2009, LGV cases in MSM were compared to two control groups; symptomatic MSM who were LGV negative and asymptomatic MSM. All patients completed a web based computer assisted self interview questionnaire providing clinical, and behavioural data. Additional clinical and microbiological data was collected at initial presentation and at test of cure five weeks post treatment with doxycycline.

**Results:** LGV-net recruited 76 cases and 147 controls. The median age was 39 years (range 23-62) and 60(92%) were of white ethnicity. Of the cases 12% were asymptomatic, 55 (85%) had rectal symptoms and 8 (12%) had genital symptoms of either dysuria, urethral discharge, lymphadenopathy or ulcer. Anal discharge (40, 62%), anal pain (37, 57%), bleeding per rectum (35, 54%), tenesmus (22, 34%) and constipation (19, 29%) were common rectal symptoms. Constitutional symptoms were described by 25 (38%) patients with malaise (15, 23%), fever (11, 17%) and weight loss (9, 14%) being common. Of 8 cases that were asymptomatic at presentation, only 4/7 remained asymptomatic throughout, hence the asymptomatic rate fell to 6%. Duration of symptoms varied with median time to presentation of 10 days (range 1-180) for patients with rectal symptoms and 5 days (range 2-7 days) for patients with genital symptoms. Proctoscopy in cases revealed proctitis and exudate in 28 (62%), bleeding in 17 (38%) and an ulcer in 4 (9%) and was normal in 3 (7%) cases. LGV was detected from the rectum in 97% of cases; there was 1 from first void urine and 1 from an ulcer swab. HIV co-infection was present in 84% of cases and Hepatitis C in (10%).

**Conclusion:** The majority of LGV cases were symptomatic, with rectal symptoms predominating. Asymptomatic patients frequently progressed to symptoms prior to completion of treatment, and hence it is unlikely that a significant asymptomatic pool of infection exists. Additionally we observed a high rate of constitutional symptoms, although not in isolation. Proctoscopy is a high yield investigation and should be performed in all MSM presenting with any rectal symptoms.

## O38

### What is the best specimen site for detecting Chlamydia trachomatis in women with and without symptoms?

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**Background:** Non-invasive testing for *Chlamydia trachomatis* (CT) is extensively used in screening programmes. In women, self-taken VVS are superior to urine testing and as accurate as clinician-taken endocervical (endocx) swabs. As symptomatic women require examination endocx swabs are considered the specimen of choice. We recently switched to the Gen-Probe AC2 assay. Only one swab can be analysed per assay. It is unclear if this should be a clinician-taken endocx swab or a self-taken VVS (10% of CT infection in women is exclusively urethral). Our study is the first to compare these samples for CT detection in symptomatic and asymptomatic women in clinical practice.

**Methods:** Women aged 16 and over, requesting testing for STIs and consenting to perform a self-taken VVS prior to routine examination were included. All AC2 positive tests were retested using the Aptima CT assay to confirm positivity and ensure specificity of 100%.

**Results:** 3496 women analysed so far; presented data will include 4000. 358/3496 (10%) had CT. 48/358 (13%) had *Neisseria gonorrhoea* co-infection.

Women with CT were significantly younger than those without (mean 22y versus 25y  $P < 0.0001$ ), significantly more likely to have symptoms ( $P = 0.001$ ), to be a contact of an STI ( $P = < 0.00001$ ), to have cervicitis ( $P < 0.00001$ ) and to have a clinical diagnosis of PID ( $P = 0.00001$ ).

336/358 (94%) were VVS NAAT positive and 320/358 (89%) were endocx NAAT positive ( $P = 0.043$ ). 12 of the VVSs were unable to be processed due to error in collection. Sensitivity of the processed VVSs was 336/346 (97%), significantly higher than the endocx swabs ( $P = 0.00009$ ).

191/358 (53%) women with CT had symptoms suggestive of this infection. Of these, VVS NAAT was positive in 182/191 (95%) and endocx NAAT was positive in 169/191 (88%). In women with these symptoms the VVS NAAT performed significantly better than the endocx NAAT even when unprocessed samples are included in the analysis ( $P = 0.02$ ).

In women with no symptoms suggestive of CT, VVS NAAT was positive in 154/167 (92%) and endocx NAAT was positive in 151/167 (90%). In women without these symptoms the VVS NAAT and endocx NAAT performed equally well ( $P = 0.07$ ).

**Conclusion:** Self-taken VVSs are superior to clinician-taken endocx swabs in women with symptoms and perform equally well in asymptomatic patients. The superiority of the VVSs may be due to the proportion of female CT infections present only in the urethra that are missed by exclusive sampling of the endocx.

O39

### A pilot comparative study of the Chlamydia trachomatis Pgp3 antibody ELISA and two C. Trachomatis-specific MOMP peptide assays on sera from young people in the community

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**Introduction:** Although *Chlamydia trachomatis* surveillance data are available, true population exposure remains unknown. Two population-based studies of Chlamydia trachomatis suggest a prevalence range from 3–6% in people aged 16–24 yrs old. However, these surveys have employed nucleic acid amplification tests (NAATs) which identify active infection (i.e. when the organism is present) and have not measured prevalence of past exposure and the cumulative risk of infection. A sensitive and specific serological assay would therefore be useful in measuring cumulative age specific population exposure. We have recently developed the sensitive and specific Pgp3 *C. trachomatis* ELISA and wished to compare it to two commercial assays using sera from women not attending a GUM department.

**Methods:** The Health Protection Agency Seroepidemiology Unit provided 87 female sera from women aged 20–29yrs old which had been obtained in 2000. They were tested using Pgp3 ELISA, the commercial SeroCT and Medac MOMP peptide ELISAs and the Annilabsystems *C. pneumoniae* MIF assay which incorporates *C. trachomatis* and *C. psittaci* controls.

**Results:** 29 [33% (95% CI: 23.8% - 44.3%)] were Pgp3 ELISA positive compared to 11 [12.6% (95% CI: 6.8% - 21.9%)] with either the Medac or SeroCT ELISAs. If either the SeroCT or Medac assay is considered positive the positivity rises to 16 [18.4% (95% CI: 11.2% - 28.4%)]. There was a high degree of correlation between all three assays  $p < 0.001$ . 13 [14.9% (8.5% - 24.5%)] were antibody positive using the *C. trachomatis* MIF assay. No correlation ( $p > 0.1$ ) was observed between *C. pneumoniae* MIF and Pgp3, SeroCT and Medac ELISAs but a correlation was observed

between the *C. pneumoniae* MIF and *C. trachomatis* MIF  $p = 0.001$ . No women was *C. psittaci* antibody positive.

**Conclusion:** We observed a high prevalence of *Chlamydia trachomatis* antibody in women 20 yrs and older using the Pgp3 ELISA, 33% (23.8% - 44.3%). This was more than double that observed using two MOMP peptide based ELISA 12.6% (6.8% - 21.9%). As the confidence limits do not overlap this is likely to be a significant difference. This could not be explained by cross reactive antibody to *C. pneumoniae* or *C. psittaci*.

O40

### One week of doxycycline is an effective treatment for asymptomatic rectal Chlamydia trachomatis infection

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**Background:** Rectal *Chlamydia trachomatis* (CT) is the most prevalent bacterial sexually transmitted infection (STI) in men who have sex with men (MSM) in the UK. There are currently no specific evidence-based guidelines for management of asymptomatic rectal CT infection, however, azithromycin 1g and doxycycline 100 mg bid for 7 days are both commonly cited. We assessed the efficacy of the both in treatment of asymptomatic rectal CT in our MSM cohort.

**Methods:** All MSM diagnosed with asymptomatic rectal CT at a large inner city GUM clinic between September 2006 and September 2009 were offered doxycycline 100 mg bid for 7 days and a test of cure 4 weeks after completion of treatment. Data collected included demographics, other STI diagnoses, treatment received, time and result of TOC.

**Results:** 252 TOC from 241 MSM were performed during the study period. Median age was 31 yrs (IQR 26–38), 67% were white British, 19% were HIV-positive and unprotected receptive anal sex was documented in 50%. 21% had genital symptoms and 74% were asymptomatic. New HIV and syphilis infections were diagnosed in 3% and 5%, respectively. Co-infection with urethral CT, rectal gonorrhoea (GC) and urethral GC was seen in 16%, 12% and 6%, respectively. 76% (191/252) were treated with doxycycline 100 mg bid for 7 days, 13.6% (35/252) were given doxycycline 100 mg bid for more than 14 days and 10% (26/252) took azithromycin 1g (usually as part of a GC treatment regimen). Median time post treatment for TOC was 45 days (IQR 34–88). In total, 95% (240/252) had a negative TOC and 12 patients tested CT-positive at follow-up. 3.1% (6/191) of those treated with doxycycline 100mg twice daily for one week tested positive, however, 5 of the 6 had evidence for re-infection (new bacterial STI at time of TOC). In the azithromycin group, 5/26 (19%) tested positive with no evidence for re-infection. One patient was treated with 3 weeks of doxycycline and thus had a high suspicion of new infection.

**Conclusion:** After exclusion of likely re-infection cases our findings show that doxycycline 100 mg bid for 7 days is highly effective treatment for asymptomatic rectal CT infection, achieving clearance of CT in 99.5% (185/186). Whilst numbers are small, the lower rate of clearance of 81% (21/26) seen with azithromycin 1g stat suggests that it is suboptimal for Chlamydia infection at this site. We advocate doxycycline as first line therapy for rectal CT and advise TOC if azithromycin is used.

O41

### Antimicrobial resistance in Chlamydia trachomatis: is it a reality?

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**Background:** The widespread use of a single antimicrobial (doxycycline or Azithromycin) to treat *C. trachomatis* (CT) has raised concerns regarding the potential emergence of resistance. In 2007 an enhanced surveillance program aimed at investigating patients at high risk of CT treatment failure was established and the findings of the first 18 months of this program are presented.

**Methods:** The program comprised of two main components (i) the identification of patients infected with CT who were at low risk of re-infection and had failed treatment with a first line antimicrobial on multiple occasions (using a questionnaire) and (ii) the molecular examination of specimens sourced from these individuals for the presence of mutations in CT genes known to be responsible for macrolide and tetracycline resistance in other bacterial species.

**Results:** Ten patients who had failed treatment with a first line antimicrobial and were determined to be at low risk of re-infection were identified in this program. PCR examination of their respective CT positive clinical specimens, targeting genes which may infer resistance to azithromycin (23S rRNA (2 alleles), *rpID*, *rpIV*) revealed single nucleotide polymorphisms (SNP) including both residue and silent changes in specimens sourced from 3 patients. Significantly an Alanine<sub>22</sub>-to-Threonine residue change was seen in the CT *rpID* gene in two different patients, one of which also had an additional Isoleucine<sub>63</sub>-to-Valine residue change in the CT *rpIV* gene. Both the *rpID* and *rpIV* are 50S ribosomal proteins which form the lining of the peptide exit tunnel and have been shown to affect the binding of macrolide antimicrobials in other bacterial species.

PCRs targeting six tetracycline resistance genes revealed that all specimens examined were negative for TetA, TetB, TetC, TetD and TetE. However specimens from 7 patients were found to be positive for TetM. DNA sequencing of a 170bp region of the TetM gene revealed that there was a 100% sequence homology with the TetM gene found in *Neisseria gonorrhoeae*.

**Conclusions:** This work was undertaken to determine if CT treatment failure occurs in the UK. Whilst potentially interesting mutations have been discovered during this study, including SNP in the CT *rpID* and *rpIV* genes and the presence of the TetM gene, the true clinical significance of these findings are currently unknown. Further work is urgently required.

**O42 Contamination of chlamydia and gonorrhoea samples in the clinic**

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**Background:** Recent increase in the uptake of self taken Chlamydia and Gonorrhoea samples in the GUM setting and the high sensitivity of nucleic acid amplification tests (NAAT) pose a risk of false positive tests secondary to surface contamination. We tested hard surfaces of toilet sites in our clinics to investigate the possibility of specimen contamination for self collecting swabs for Chlamydia and gonorrhoea screening in a busy genitourinary medicine clinic.

**Methods:** Ten surfaces were initially swabbed using Aptima –Combo 2 NAAT test kits. After reviewing the results the following measures were introduced:

- alcohol hand rub dispensers in toilet cubicles
- staff advised to regularly clean surfaces

We repeated testing of hard surfaces after 4 months to investigate the impact of the above policies on reduction of contamination.

**Results:** Hard surface screening of areas used for self collecting Chlamydia and gonorrhoea screening

	Before recommendations	After recommendations
Female toilet 1 inner door handle	negative	negative
Female toilet 2 inner door handle	negative	negative
Female toilet 2 – toilet handle	negative	negative
Male toilet inner door handle	Gonorrhoea positive	Chlamydia and gonorrhoea
Female room examination trolley	negative	negative
Laboratory computer 1 keyboard	negative	negative
Laboratory computer 2 keyboard	negative	negative

	Chlamydia positive	Trolley used instead
Specimen hatch (where samples are left by patients for staff to collect)	positive	
Female toilet 1 – toilet handle	Chlamydia positive	Chlamydia and gonorrhoea
Male toilet specimen trolley	negative	Chlamydia and gonorrhoea positive
Female toilet 1- specimen trolley	Specimen hatch used	Chlamydia and gonorrhoea positive

**Conclusions:** This study demonstrated that there is a risk of acquiring false positive NAAT results when samples are taken in an area that is contaminated with Chlamydial or Gonorrhoea DNA; however, despite efforts to reduce the likelihood of contamination these have failed. Further actions required include:

- Clear patient notices to use alcohol hand rub
- Daily reminders to staff to clean surfaces on a regular basis
- Patients offered option of wearing disposable gloves when obtaining specimens.

Study will be carried out again 3 months after implementing these changes.

**Innovation and Maintaining Quality in Clinical Practice**

**O43 Testing men who have sex with men in accordance with the 2006 BASHH guidelines misses the majority of gonococcal and chlamydial infection**

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**Background:** *Neisseria gonorrhoeae* (GC) and *Chlamydia trachomatis* (CT) are the two most prevalent bacterial STIs in UK MSM. As nucleic acid amplification tests (NAATs) have become available for these pathogens their uptake has been variable due to availability, cost and restriction of use to genital specimens. Current BASHH guidelines (2006) specify that the asymptomatic MSM screen should comprise GC culture from urethra, rectum and throat and urethral/urine NAAT for CT as well as serology for HIV and syphilis. There is mounting evidence supporting the use of GC/CT NAATs from non-genital sites in MSM. We sought to quantify how much additional infection would be detected in MSM with routine use of a GC/CT NAAT on urine, throat and rectal specimens.

**Methods:** All MSM attending our inner city walk-in GUM clinic from September 2008 to September 2009 were offered a GC/CT NAAT on urine and rectal specimens in addition to GC culture from rectum and throat. From January 2009 a routine throat swab GC/CT NAAT was added. Specimens were tested with the Gen-Probe Aptima Combo 2<sup>®</sup> (AC2) assay with all positives confirmed by the GC or CT single analyte Aptima assay. Anonymised demographic, clinical and laboratory data were collected from all MSM who tested positive. Those who had received antibiotics within the last month or were attending for test-of-cure were excluded from the analysis.

**Results:** 3866 MSM screens were included in the analysis: median age was 34 and 16.1% were known HIV-positive. 784 (20.3%) MSM had at least one positive result. Only 37% of urethral, 17% rectal and 3% of throat infections was symptomatic.

**Figure 1. Percentage of all MSM testing positive by each testing modality**

MSM	GC by culture	GC by AC2	CT by AC2
Throat	1.6% (44/2767)	7.1% (197/2767)	1.2% (32/2767)
Rectum	3.7% (129/3504)	6.8% (238/3504)	8.0% (282/3504)
Urethral	3.7% (141/3773)*	4.4% (165/3773)	4.1% (153/3773)

\*21 MSM did not have urethral GC culture results (declined swab or plates lost) There were 3/144 false-negative urethral GC cultures (symptomatic, positive slide, AC2+)

**Conclusion:** One in five MSM in our cohort tested positive for GC or CT infection. Testing MSM for GC and CT according to current BASHH guidelines would have missed 48% of GC and 67% of CT infection that was detectable with the AC2 assay. We advocate more widespread use of GC/CT NAATs in MSM, in particular for throat and rectal sites where the majority of the infectious reservoir resides asymptotically.

O44

### UK national audit of asymptomatic screening in UK genitourinary medicine GUM clinics

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**Background:** Asymptomatic screening is a core practice in UK GUM clinics for which the BASHH has guidelines.

**Methods:** An online audit against the BASHH guidelines in 2009.

**Results:** Case notes audit: Case note data were submitted by 156 clinics (~60% clinics) on 4428 asymptomatic patients. Screening of asymptomatic heterosexual men, men who have sex with men (MSM) and women for chlamydia, gonorrhoea, syphilis and HIV infection was >80%. Cervical culture for gonorrhoea was performed in only 65% women, with a further 1/4 screened with cervical or vulvovaginal nucleic acid amplification tests (NAATs). There was a preponderance of gonorrhoea NAATs used in some regions. Over 80% of MSM, not known to be immune, were screened for hepatitis B. Urethral microscopy was performed in 22% heterosexual men and 17% MSM, and cervical microscopy in 12% women. Documentation was absent for 55% and 61% female cases, and 19% and 12% MSM, about receptive oral and anal sex respectively.

**Clinic policy audit:** Clinic policy data were submitted by 142 clinics. Most clinics have policies in keeping with the BASHH national guideline for testing of asymptomatic men and women for blood borne infection. Most clinics offer screening for chlamydial and gonorrhoeal genital tract infection in men and women. A significant minority of clinics use NAATs, and not culture, for gonorrhoea screening, with about 1/3 clinics offering heterosexual and homosexual men urinary or urethral NAATs, and just over 1/4 clinics offering cervical, vulvovaginal or urinary NAATs for gonorrhoea screening in women. A small number of clinics did not specify routine offering of testing for gonorrhoea in women. About 1/5 clinics continue to offer urethral microscopy to asymptomatic heterosexual men and MSM, and about 1/2 clinics offer urethral culture for gonorrhoeal detection in asymptomatic women, although these practices are not recommended.

**Conclusions:** Improved documentation on oral and anal sex is needed to identify sampling need. Regional strategies should be considered to balance nucleic acid amplification testing for gonorrhoea with culture testing to monitor antibiotic sensitivity. Increased screening for hepatitis B in MSM is needed in some regions. More screening for HIV is needed in some regions, particularly for women. Clinics without policies for cervical gonorrhoea screening in asymptomatic women should review this.

O45

### Incidence of acute STIs in HIV-infected persons receiving HIV care – prevention failure?

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**Background:** It is a common belief that HIV infected patients receiving care would have a low incidence of STIs. To look in to this, we estimated the proportion of known HIV positive patients who subsequently presented with an acute STI to determine whether more intensive interventions for this population might be warranted.

**Methods:** The Genitourinary Medicine Clinic Activity Dataset (GUM-CAD) collects anonymised, patient-level data on diagnoses of STIs and HIV from all GUM clinics in England. Known HIV positive patients in the GUMCAD record between 2008 and 2009 were followed up to determine subsequent diagnoses of an acute STI at the same clinic. For those newly diagnosed with HIV, acute STI diagnoses within six weeks of the HIV diagnosis were excluded. Survival analysis and Kaplan Meier plots were used to estimate the proportion who presented with an acute STI.

**Results:** GUMCAD data from 88% (180/205) of clinics covering 73% (1051/1440) of the calendar quarters between 2008 and 2009 were available for analysis and included 27,713 HIV positive patients (4,916 new and 22,797 previous diagnoses). Overall, 3.7% (95% CI, 3.5%-4.0%) of HIV patients returned with an acute STI within one year of their first HIV attendance in this period. Of these, 6.7% (6.1%-7.3%) of men who have sex with men (MSM) presented with an acute STI within one year compared to 4.2% (3.7%-4.8%) of heterosexual males and 1.5% (1.3%-1.8%) of females. Those aged under 24 were most likely to return with an acute STI within a year: 18.8% (8.1%-40.2%) of MSM aged 16-19 years, 6.5% (3.6%-11.5%) of heterosexual males aged 20-24 years, and 3.6% (1.5%-8.7%) of females aged 16-19 years. Rates of presentation also varied by ethnic group and country of birth. We will undertake sensitivity analyses for different STIs and use data from the Survey of Prevalent HIV Infections Diagnosed (SOPHID) dataset to investigate the representativeness of this analysis. We will present estimates of the total number of HIV positive patients who subsequently present with an STI.

**Conclusions:** We present evidence that HIV positive patients receiving care at GUM clinics, especially MSM, have a high incidence of acquiring STIs. Onward transmission of HIV is a risk if serodiscordant partners are having unprotected sex. Although many MSM report practicing 'serosorting', this is less likely for heterosexuals, and the high incidence of STIs has implications for the effectiveness of current prevention efforts in GUM.

O46

### Recall of men who have sex with men diagnosed with bacterial sexually transmitted infections for retesting: a feasible and effective strategy?

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**Background:** The rate of sexually transmitted infections (STIs) and new HIV diagnoses among MSM in the UK continue to rise. Studies demonstrate higher rates of STIs among those with a history of STI(s). Recall studies among heterosexuals show high rates of re- or new infection but few data are available among MSM. This study aimed to determine i) the feasibility of recalling MSM diagnosed with *Chlamydia trachomatis* (CT), *Neisseria gonorrhoea* (GC), lymphogranuloma venereum (LGV) or syphilis (STS) after 3-months, ii) factors associated with MSM not returning (NR) compared with those being recalled (RC) or self-returning (SR), iii) changes in sexual behaviour at return and iv) associations with incident STIs.

**Methods:** MSM diagnosed with a bacterial STI between 1/12/08- 31/8/09, were recalled at 3-months. Data was collected using a standard proforma and analysed using SPSS (version 16.0). Chi-squared, T-test, ANOVA and Wilcoxon were used to compare characteristics of MSM NR, RC and SR at baseline (T0) and RC and SR at 3-months (3M). Logistic regression was used to examine predictors of re- or new infection.

**Results:** 310 MSM were diagnosed with a bacterial STI (GC n=154, CT n= 120, LGV n= 5, STS n=59) at T0. Previous STI was reported by 213 (69%) and 24 (8%) were HIV+. In the preceding 3-months MSM reported a median of 3 (range 0-62) sexual partners and 50% reported

unprotected anal intercourse (UAI).192 (62%) MSM returned after a median of 3 months (IQR 3-3), of whom 141 (73%) RC and 51 (27%) SR. There were no significant differences in age, ethnicity or rates of UAI at T0 between NR, RC and SR. Compared to T0, at 3M there was a decline in i) median number of partners from 4 (range 1-49) to 3 (range 0-60)  $p=0.028$  and ii) proportion reporting UAI from 50% to 38% ( $p<0.001$ ). Another STI was diagnosed in 16/192 (RC n=8, SR n=8) (GC n=10, CT n=5, STS n=1) and four had a new HIV diagnosis (RC n=3, SR n=1), incidence of 33.3/100 pyfu and 8.7/100 pyfu respectively. MSM with CT at T0 were significantly less likely to have an STI at recall (OR 0.21, 95% CI 0.06-0.75). There was a trend for MSM with GC at T0 to be more likely to have an STI at recall (OR 1.92, 95% CI 0.75-4.9).

**Conclusions:** Recall of MSM diagnosed with bacterial STIs is feasible and rates of incident STIs and HIV among those returning are high. Onward transmission of infection may be reduced by the early identification of STIs and recent HIV infection among this group. Further evaluation is warranted.

O47

### Email consultations in the clinical care of stable HIV-infected patients are an effective method of healthcare delivery

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**Background:** With the growing number of HIV infected patients, there is pressure on health care services as clinic appointments and other resources are limited. We set up the email clinic which allows stable HIV infected patients to be seen less frequently, so that more time could be allocated to patients with more complicated health problems.

**Methods:** Patients enrolled in the email clinic from September 2008 to December 2009 who have had at least one appointment were included in the study. Enrolment was stepwise and only if certain criteria were satisfied. Email (EM) patients attend for routine blood appointments, results are reviewed by a doctor and an email sent. These are 4 monthly appointments with the 3<sup>rd</sup> appointment being face to face with a doctor. Interim visits were allowed should the patient develop a health problem. These patients were compared with those receiving standard of care (SOC) [a mix of those eligible for email clinic but not yet enrolled and those who satisfy the immunological and virological criteria for the email clinic but have other health issues] over the same period of time. T-test statistic was used to compare means and Pearson's chi-square test was used for categorical data.

**Results:** 321 EM and 1095 SOC patients were analysed. The EM patients were older than the SOC patients (mean 45.8 years vs 44.3 years  $P=0.01$ ) and more likely to be male (93% vs 87%  $P=0.04$ ). 296(92%) EM patients were on treatment at enrolment; 97% of which had a viral load (VL)  $<40$ . The mean CD4 count for the EM patients at enrolment and censorship was 620 and 629 respectively.

Amongst those on treatment; the mean CD4 count at censorship was higher in the EM patients compared to the SOC patients (625 vs 553  $P=0.0001$ ). Among those on treatment, 97% of EM patients had VL $<40$  showing no change from baseline whilst 90% of SOC care patients had VL $<40$  ( $P<0.001$ ). After 6 months follow up, the mean numbers of visits for blood tests among EM and SOC patients were 1.28 and 1.89 respectively ( $P<0.0001$ ) whilst for doctor appointments it was 1.38 and 2.16 respectively ( $P<0.0001$ ).

**Conclusion:** This study shows that stable HIV infected patients can be followed up by email without compromising their care and has the added benefit of reducing clinic visits. The better virological outcome in EM patients could reflect the fact that stricter criteria were applied in their selection and the frequency of co-morbidities including mental health issues was greater in the SOC group.

O48

### Confessions of a high resolution anoscopist – increasing ability to detect high grade squamous intraepithelial lesions (HSIL) over time

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**Background:** Cytological analysis of anal swabs, followed by High Resolution Anoscopy (HRA) is currently the method of choice for identifying those with anal HSIL, the presumed precursor of anal cancer. Typically HRA is used as the gold standard with which to estimate the sensitivity and specificity of cytology. However, considerable expertise is required to perform HRA, and the potential exists to miss significant lesions, particularly by the less experienced anoscopists. We postulated that the ability to diagnose HSIL by HRA for a given cytological diagnosis, would increase over time, as a result of acquiring greater expertise.

**Methods:** Paired cytology and histology data were collected from 165 patients attending a single clinician at an anal dysplasia clinic from January 2004 to June 2009.

**Results:** The table below indicates the proportion of cases in which HSIL was diagnosed at biopsy ("HSIL<sup>+</sup>") by time period and most recent cytological result. It can be seen that, for example, when cases with a cytological diagnosis of  $\geq$  LSIL (that is LSIL, ASCUS, ASC-H or HSIL) were examined, the proportion of cases with HSIL diagnosed at biopsy increased from 35.2% in 2004-5 to 63.2% in 2008-9.

Year	Histology		% in which HSIL diagnosed	95% CI	P value
	HSIL <sup>+</sup>	HSIL <sup>-</sup>			
<i>Cytology <math>\geq</math> LSIL</i>					
2004-5	32	59	35.2	25.4-45.9	0.002
2006-7	74	76	49.3	41.1-57.6	
2008-9	24	14	63.2	46.0-78.2	
<i>Cytology <math>\geq</math> ASCUS</i>					
2004-5	16	23	41.0	25.6-57.9	0.007
2006-7	36	17	67.9	53.7-80.1	
2008-9	12	4	75.0	47.6-92.7	
<i>Cytology <math>\geq</math> HSIL</i>					
2004-5	10	7	58.9	32.9-81.6	0.093
2006-7	18	7	72.0	50.6-87.9	
2008-9	9	1	90.0	55.5-99.7	

LSIL: low-grade squamous intra-epithelial lesion; ASCUS: anal squamous cells of undetermined significance; HSIL: high-grade squamous intra-epithelial lesion

**Conclusions:** The proportion of histologically proven HSIL in those with cytology  $\geq$  LSIL and  $\geq$  ASCUS increased significantly over time (with a trend also for those with  $\geq$ HSIL). This is highly suggestive of improved HRA diagnostic ability over time.

# Poster Abstracts

## HIV Treatment and Pharmacokinetics

P1

### Early viral suppression and long-term efficacy outcomes on HAART: analysis of ARTEMIS and TITAN trials

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**Background:** The long-term implications of earlier HIV RNA suppression <50 copies/mL on antiretroviral treatment are unknown. The ARTEMIS trial evaluated TDF/FTC + either DRV/r 800/100 QD or LPV/r in treatment-naïve patients. The TITAN trial evaluated optimised N(N)RTIs plus either DRV/r 600/100 mg BID or LPV/r in experienced patients.

**Methods:** In ARTEMIS and TITAN, patients with HIV RNA suppression <50 copies/mL by Week 24 were divided into early suppressors (HIV RNA first <50 before Week 12) and late suppressors (HIV RNA first <50 between Weeks 12-24). Using multiple logistic regression, the probability of subsequent confirmed HIV RNA rebound above 50 copies/mL, by Week 96, was then correlated with baseline HIV RNA, early versus late viral suppression and treatment group.

**Results:** Overall, 719 patients (67%) showed early HIV RNA suppression, while 354 patients (33%) showed late suppression. In ARTEMIS and TITAN, patients with early suppression had lower mean baseline HIV RNA (4.5 and 4.0 log<sub>10</sub> copies/mL respectively), versus patients with late suppression (5.2 and 4.9 log<sub>10</sub> copies/mL) (p<0.01). In both trials, patients with higher baseline HIV RNA were more likely to rebound by Week 96 (p<0.001). Of the patients with HIV RNA <50 copies/mL by Week 24, the percentage with subsequent confirmed rebound by Week 96 (adjusted for baseline HIV RNA) were as follows:

Rebound in HIV RNA to Week 96 by early versus late HIV RNA suppression

Trial	DRV/r	LPV/r
ARTEMIS		
Early suppressors (n=352)	3.7%	8.5%
Late suppressors (n=241)	4.5%	10.1%
TITAN		
Early suppressors (n=367)	18.6%	18.1%
Late suppressors (n=113)	7.7%	21.8%

In ARTEMIS, early and late suppressors did not differ in rebound rates within treatment arms. LPV/r treated patients were more likely to rebound than DRV/r treated patients (p=0.01). The same effects were seen in the TITAN trial. In the DRV/r arm, patients with late suppression were slightly less likely to rebound to Week 96.

**Conclusions:** In the ARTEMIS and TITAN trials, the time of first HIV RNA suppression <50 copies/mL correlated with baseline HIV RNA. Later HIV RNA suppression was not a significant risk factor for HIV RNA rebound during treatment. The clinical relevance of early HIV RNA suppression was not clear in this analysis of the ARTEMIS and TITAN trials.

P2

### Boosted protease inhibitor (PI/r) monotherapy is effective in clinical practice

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**Background:** Standard HIV treatment comprises ≥3 antiretroviral drugs (ARVs) in combination. PI/r monotherapy is a potential alternative for those stable on ARVs with virological suppression and is a strategy being used locally.

**Methods:** Patients currently receiving PI/r monotherapy for ≥1 month outside a clinical trial were identified. Data were gathered from clinic computer systems and patient notes to describe: Duration of HIV infection; baseline CD4 and viral load (VL); duration of virological suppression on previous ARV therapy; choice of PI; reason for PI/r monotherapy; subsequent virological failure on PI/r monotherapy.

**Definitions:** VL expressed as copies/ml; virological suppression = VL<40 (<50 prior to October 2005); blip = 1x VL<500 and subsequent re-suppression without ARV change.

**Results:** 61 patients were identified.

**Patient characteristics:** Median age 52 years (range 30-79), 54 (89%) male, median duration of HIV infection 13.4 years (range 2-25).

**At monotherapy initiation:** Median CD4 count 486 cells/mm<sup>3</sup> (range 121-1253); 60 patients (98%) had VL<40, 1 had a blip (VL 83). Median duration VL<40 prior to monotherapy: 57 months (range 0-129).

**Reason(s) for PI/r monotherapy (≥1 possible) were:** Current toxicity – 36 patients; risk of toxicity – 19; simplification – 15; renal failure – 2.

**PI/r monotherapy prescribed at time of analysis:** Darunavir – 45 patients (74%); Kaletra<sup>®</sup> – 13 (21%); atazanavir – 3 (5%).

**Outcome:** Median duration of PI/r monotherapy: 12 months (range 2-41). 50 (82%) patients remained VL<40 throughout. 7 (11%) patients experienced isolated blips. 4 (7%) patients experienced VL>40: 1 with documented low adherence and limited options to switch; 1 had 5 blips all <500 with intermittent VL<40 suggesting adherence problems; 1 re-suppressed following switch of PI/r monotherapy from atazanavir to darunavir; 1 patient had a viral load of 64 at the time of analysis (previously <40), repeat viral load awaited.

**Conclusion:** In this cohort most patients currently receiving PI/r monotherapy have a long duration of HIV infection with years of suppressive ARV therapy. As a result, NRTI toxicity was the main reason for switch to PI/r monotherapy; the strategy has been successful in maintaining virological suppression. As HIV therapy is lifelong and ARV toxicity may be treatment limiting, an approach such as this which minimises exposure and preserves options is beneficial.

P3

### Cost-efficacy analysis of the MONET trial using UK antiretroviral drug prices

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**Background:** In virologically suppressed patients, switching to DRV/r monotherapy maintains HIV RNA suppression, and could also lower treatment costs.

**Methods:** In the MONET trial 256 patients with HIV RNA <50 on current HAART for over 24 weeks (NNRTI based (43%), or PI based (57%)), switched to DRV/r 800/100 mg once daily, either as monotherapy (n=127) or with 2NRTI (n=129). Patients were followed up every three months, which is similar to routine clinical practice. The UK costs per patient with HIV RNA below 50 copies/mL were calculated, using a "switch included" analysis, to account for additional antiretrovirals taken after initial treatment failure. British National Formulary 2009 prices were used.

**Results:** In the primary efficacy analysis, HIV RNA <50 copies/mL by Week 48 was 86.2% versus 87.8% in the DRV/r monotherapy and control arms; by switch included analysis, efficacy was 93.5% versus 95.1% respectively. No patients in either arm developed phenotypic resistance to DRV. Six patients in the monotherapy arm intensified with NRTIs during the trial, after episodes of low-level viraemia. Before the trial, the mean annual cost of antiretrovirals was £7175 for patients on NNRTI based HAART, and £8348 for patients on PI based HAART. During the MONET trial, the mean annual per-patient cost of antiretrovirals was £8642 in the triple therapy arm, of which 55% was from NRTIs and 45% from PIs. The mean per-patient cost in the monotherapy arm was £4126, a saving of 52%. The mean cost per patient with HIV RNA <50 copies/mL at Week 48 was £9085 in the triple therapy arm versus £4413 in the DRV/r monotherapy arm. The additional cost per extra patient with HIV RNA <50 copies/mL in the control arm (Incremental cost-efficacy ratio (ICER)) was £277,738.

**Conclusions:** Based on the MONET results, the lower cost of DRV/r monotherapy versus triple therapy in UK would allow 226 patients to be treated for a fixed annual £1 million budget, versus 110 on DRV/r + 2NRTI, while maintaining HIV RNA suppression below 50 copies/ml.

#### P4 Gender-based differences in antiretroviral-naïve patients treated with ritonavir-boosted protease inhibitors: results from the CASTLE study through 96 weeks

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**Objectives:** To assess the virological, immunological, and safety of ATV/RTV and LPV/RTV by gender using 96-week data from the CASTLE study.

**Methods:** Randomised, open-label, prospective study of ATV/RTV QD vs. LPV/RTV BID, both with fixed-dose TDF/FTC in 883 treatment-naïve HIV-infected patients. The primary end point was proportion of patients with HIV RNA < 50 copies/mL at Week 48. Efficacy and safety analyses for each treatment by gender were pre-specified.

**Results:** ATV/RTV QD was non-inferior to LPV/RTV BID: 74% of patients on ATV/RTV and 68% on LPV/RTV achieved HIV RNA < 50 copies/mL at Week 96 (95% confidence interval [CI], 0.3%-12.0%;  $P < 0.05$ ) using an ITT analysis, Complete Virological Response (CVR), Non-Completer (NC) = Failure (F). CVR rates were higher in both male and female patients receiving ATV/RTV. CVR rates were lower in female than in male in both treatment arms. Time to Loss of Virological Response (TLOVR) analysis showed that more patients in the ATV/RTV than the LPV/RTV group had HIV RNA < 50 copies/mL at 96 weeks (ATV/RTV 64% female and 73% male patients; LPV/RTV 57% female and 66% male patients). Mean CD4 cell count changes from baseline at Week 96 were similar: 265 cells/mm<sup>3</sup> in female patients and 269 cells/mm<sup>3</sup> in male patients on ATV/RTV; 298 cells/mm<sup>3</sup> in female patients and 286 cells/mm<sup>3</sup> in male patients on LPV/RT.

**Adverse Events:** Most GI AEs occurred in patients on the LPV/RTV compared with the ATV/RTV. Women and men receiving LPV/RTV experienced more nausea and diarrhoea, respectively. Jaundice or scleral icterus occurred in 4% of women and 5% of men receiving ATV/RTV.

Rash occurred in 3% and < 1% of women and 2% and 1% of men receiving ATV/RTV and LPV/RTV, respectively.

**Lipids:** Lipid analyses by gender at 96-weeks show that the median fasting TC, non-HDL-C, and TG levels were lower on ATV/RTV than LPV/RTV, regardless of gender. At Week 96, men receiving LPV/RTV had median TG levels higher than the National Cholesterol Education Program (NCEP) cut-offs. Women and men in both treatment groups had median HDL-C levels above the NCEP cut-offs. In the ATV/RTV arm mean changes from baseline in fasting lipids were lower in women than in men. In the LPV/RTV arm, mean changes from baseline were lower in women than in men for non-HDL-C and TG; higher in women than in men for HDL-C; and similar in men and women for TC and LDL-C.

**Conclusion:** In treatment-naïve patients, regardless of gender, QD ATV/RTV is as efficacious as BID LPV/RTV.

#### P5 Non-uptake of HAART among HIV-positive persons with a CD4 count <350 cells/mm<sup>3</sup>

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**Background:** BHIVA guidelines recommend that all patients with a CD4 count <350 cells/mm<sup>3</sup> are offered HAART. In previous UK CHIC analyses, only 10-15% of patients with a CD4 count of 200-350 started HAART in the following 6 months; these results were, however, based on data to 2003. We aimed to identify patients with a confirmed CD4<350 who had not initiated HAART (any regimen including a PI, NNRTI, abacavir or enfuvirtide) by their last clinic visit in 2007/2008 and to identify factors associated with this.

**Methods:** All adults with a first confirmed (2 consecutive) CD4 <350 measured from 2004-2007, >6 months follow-up after this count, and ≥1 clinic visit in 2007/2008 were included. Characteristics at the time of the low CD4 count (baseline) and over follow-up were compared to identify factors associated with delayed HAART uptake. Analyses used proportional hazards regression with fixed (sex, age, risk group, ethnicity, AIDS, baseline CD4) and time-updated (frequency of CD4, % of CD4<350) covariates.

**Results:** 3943 patients (26% female; 51% MSM, 38% heterosexual; 42% non-white ethnicity; median age 36) had a confirmed low CD4 from 2004-2007 of whom 564 (14.3%) had not started HAART by 2007/2008. Median (IQR) baseline CD4 was 228 (110, 298), and patients were followed for 24.9 (14.8, 36.3) months. The patients had a median of 10 (6, 16) CD4 counts after baseline of which 67% (38%, 100%) were <350. When considering baseline covariates, those starting HAART were older (relative hazard [RH] /10 yrs: 1.12 [95% confidence interval 1.08, 1.16]) and had their low CD4 in more recent years (2005: 1.02 [0.93, 1.12]; 2006: 1.14 [1.04, 1.26]; 2007: 1.39 [1.24, 1.55] vs. 2004), whereas IDU (0.77 [0.59, 0.99]) and those with a higher baseline CD4 [0.71 [0.69, 0.72] /50 cells) were less likely to start. When also considering time-updated covariates, both the latest CD4 (0.52 [0.50, 0.54] /50 cells) and the number of counts <350 (1.14 [1.12, 1.16] /count) were independent predictors of HAART. After controlling for these, MSM (1.13 [1.00, 1.28]) and female heterosexuals (1.12 [1.00, 1.25]) were also more likely to initiate HAART, whereas the association with the baseline CD4 count was reversed (1.31 [1.26, 1.35] / 50 cells) demonstrating that HAART starters has rapidly declining CD4.

**Conclusion:** Although the situation has improved, a substantial minority of patients (particularly those with slowly declining counts of 200-350 cells) remain untreated despite its indication.

P6

### Raltegravir (RAL) in combination with etravirine (ETV) – is there a case for therapeutic drug monitoring (TDM) in clinical practice?

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**Background:** An interaction between RAL and ETV has been described in healthy volunteers (34% decrease in RAL trough concentrations  $C_{trough}$ ) but no dose adjustment recommended. However a report of 4 cases of low RAL levels when given with ETV caused concern. ETV is taken with food; RAL can be taken at the same time but exhibits greater PK variability with food than fasting. The aims of this study were to examine RAL and ETV plasma concentrations in patients undergoing TDM, relate the levels to virologic endpoint, and compare with data from controlled pharmacokinetic (PK) trials.

**Methods:** TDM was performed routinely in these centres on patients receiving both drugs–RAL 400mg bd, ETV 200mg bd ± darunavir/r (DRV). Data collected included demographics, HIV treatment history, concomitant drugs and plasma viral load [copies/ml] (VL). Summary statistics (Mann-Whitney test) and logistic regression were performed (SPSS version 17.0) to identify predictors of maintaining a VL of <40 over the preceding 6 months. **Results:** Data were available for 34 patients. 24 had documented 2 or 3 class ARV resistance. 27 (79%) also received DRV (26 bd). None of the other co-medications were known to reduce RAL concentrations. No significant differences in ETV or DRV  $C_{trough}$  were noted between the two groups ( $p>0.142$ ). There was no correlation between RAL and ETV  $C_{trough}$ . In a univariate model only RAL  $C_{trough}$  was significantly associated: 1.32 increase in odds of maintaining VL <40 over the last 6 months for every 1 unit (10ng/ml) increase in RAL  $C_{trough}$ .

VL on regimen over last 6 months	Always <40	≥1 VL>40	p-value
No. patients	24	8*	
RAL $C_{trough}$ median (range)	164 (49–1192)	50 (8–169)	0.0004
RAL $C_{trough}$ **			
>75 <sup>th</sup> percentile (≥58ng/ml)	96% n=23	38% n=3	0.002
<25 <sup>th</sup> percentile (≤21ng/ml)	4% n=1	38% n=3	0.039

\*2 of 8 patients had RAL  $C_{trough}$  between 25<sup>th</sup> & 75<sup>th</sup> percentiles. A further 2 were excluded from statistical analyses due to documented low adherence.

\*\*compared to RAL PK data (HIV cohort not on ETV n=19)

**Conclusion:** The main study finding is an association between RAL  $C_{trough}$  and the likelihood of experiencing a VL blip. Low adherence was unlikely to be a major factor as there was no significant difference in ETV and DRV levels between those with or without a blip. Since all patients were on a RAL+ETV regimen we cannot comment on the existence of an interaction between the 2 drugs, but the relationship between RAL level and maintaining VL<40 suggests TDM may be of value when they are used together.

P7

### NNRTI or PI-boosted as first-line HAART regimens in the UK?

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**Background:** 2NRTIs + NNRTI regimens were demonstrated to be cost-effective regimens for first-, second- or third-line HAART in the UK. This

analysis could not adequately compare NNRTI with PI<sub>boosted</sub> first-line regimens, nor could it investigate the effect of starting at different CD4 counts. This study compared the outcome and cost-effectiveness of NNRTI with PI<sub>boosted</sub> first-line regimens in the UK, 1996 – 2006.

**Methods:** Times to first-line treatment failure and annual cost (2006 prices) were calculated for different first-line HAART regimens and stratified by CD4 count. Cost-effectiveness per life-year gained (LYG) of 2NRTIs+NNRTI versus 2NRTIs+PI<sub>boosted</sub> regimens were calculated by CD4 strata.

**Results:** Medium time-to-treatment failure for 2NRTI's + PI<sub>boosted</sub> was 18.5 years (IQR 9.0 to 28.1) for people living with HIV (PLHIV) starting with CD4 counts ≤ 200 cells/mm<sup>3</sup> and 14.7 years (IQR 6.6 to 22.9) for 2NRTI's + NNRTI regimens; when CD4 > 200 cells/mm<sup>3</sup>, medium time-to-treatment failure for 2NRTI's + PI<sub>boosted</sub> was 13.1 years (IQR 6.3 to 19.9) and 13.9 years (IQR 6.5 to 21.3) for 2NRTI's + NNRTI. Annual treatment cost decreased as CD4 count increased. When starting with a CD4 count ≤ 200 cells/mm<sup>3</sup>, annual treatment cost for PI<sub>boosted</sub> and NNRTI regimes were £23,442 and £20,226 respectively, compared with £15,600 and £12,659 per annum respectively when starting with a CD4 count > 200 cells/mm<sup>3</sup>. The cost per LYG for 2NRTIs+PI<sub>boosted</sub> for PLHIV with CD4 count ≤ 200 cells/mm<sup>3</sup> was £39,533, which was not cost-effective as it is more than £35,000; starting with 2NRTIs+NNRTI regimens and CD4 counts > 200 cells/mm<sup>3</sup> was cost-saving. Fifty-five percent of PLHIV started HAART with a CD4 count ≤ 200 cells/mm<sup>3</sup>, with disproportional over-representation of Black African PLHIVs.

**Conclusion:** 2NRTI+NNRTI was cost-saving or cost-effective compared with 2NRTI + PI<sub>boosted</sub> regimens. 2NRTI+NNRTI regimens should be started as first-line HAART, unless specific contra-indications exist, and starting at a CD4 count between 200 and 350 cell/mm<sup>3</sup>. This will increase the number of people receiving HAART, which at one level might add to the financial burden of the National Health Service. However, starting PLHIVs on these cost-effective regimens earlier, will maintain them in better health, will result in the use of fewer annual health or social services, thereby generating fewer treatment and care costs, and enabling PLHIV to remain socially and economically active members of society.

P8

### Comparing the response of switching from NNRTI-based to PI-based antiretroviral therapy among patients with dual HIV-1/2 infection in Ghana

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**Background:** Ghana has an HIV prevalence of 3–4% and around 5–10% of all infection is either HIV-2 or dual HIV-1/2 infection, although type-specific HIV testing is not routine. HIV-2 infection causes less morbidity and mortality than HIV-1, however in those with lower CD4 counts, the frequency of clinical events is similar to that seen in HIV-1 infection. ART has become widely available in Ghana since 2004. Almost all patients needing ART have started NNRTI-based therapy. NNRTIs are ineffective against HIV-2, although a recent study in this cohort has suggested most dual-infected patients have made reasonable responses to NNRTI-based ART. A cohort of dual HIV-1/2 and HIV-2 infected patients has been identified, and a proportion of these patients were switched to PI-based ART over the past 2–3 years.

**Methods:** A retrospective cohort study of patients attending a government HIV clinic was performed. Response to switching from an NNRTI-based regimen to a PI-based regimen was assessed in 12 dual HIV-1/2 infected patients and was compared with 44 patients not switching. Median change in CD4 count and weight was assessed in each group at 12 and 24 months post switch and compared with non-switchers who had been on ART for a similar duration. Viral loads were performed on a subgroup of patients in whom samples were available.

**Results:** The change in CD4 count was greater at both 12 and 24 months in those patients who had switched compared to non-switchers (median 101 and 166 vs 37 and 53 cells/ $\mu$ l  $p=0.07$  and  $0.08$ ). A greater change in weight was also seen in patients who switched at 12 and 24 months (2.8 and 4.3 vs 0.75 and 0.5kg  $p=0.09$  and  $0.44$ ). 83% of switchers had undetectable HIV-2 viral load compared to 69% of those not switching to PIs, a median of 24 months after switching ART. HIV-1 viral load data is on-going and will be presented at the conference.

**Conclusion:** In patients with dual HIV-1/2 infection, switching to a PI-based regimen confers marginally better, although non-significant virological, clinical and immunological responses when compared to patients who continue on an NNRTI-based regimen. These results highlight the need for type-specific HIV testing to establish in areas of high HIV-2 infection whether or not patients are infected with HIV-2. Ideally patients with dual HIV-1/2 infection (as well as those with HIV-2), should start a PI-based regimen where PIs are available, however may have adequate responses to NNRTI-based ART.

P9

### Enfuvirtide for acute HIV-related illness

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**Background:** Early initiation of antiretrovirals (ARVs) in acute opportunistic infection has been shown to improve survival. Enfuvirtide (ENF) and zidovudine are the only 2 ARVs that can be given parenterally allowing reliable drug concentrations in patients who are critically ill and/or unable to absorb oral medications. ENF requires no diluent volume, is safe in liver and renal dysfunction, and has no significant drug interactions, all important considerations in critical care where multi-system failure and fluid overload may exist. It therefore offers an effective way of administering ARVs until oral dosing can be established.

**Methods:** Retrospective descriptive analysis of patients receiving short-term ENF who were critical ill and/or unable to reliably absorb oral ARVs using pharmacy, laboratory and case note records to extract data.

**Results:** Of 27 patients prescribed ENF, 6 patients were identified who fulfilled the criteria. 3 were male, mean age 45y (range 31-74), with mean baseline CD4 27 cells/ $\text{mm}^3$  and viral load  $\text{Log}_{10}$  5.0 copies/ml respectively (ranges and  $<40-1.97 \times 10^6$ ). 4 received ENF because of malabsorption, 1 because of severe hepatitis and 1 because of multisystem disease including *Clostridium difficile* enteritis. Duration of ENF treatment ranged from 7 to 130 days (mean 27 days) with a successful outcome in 5: the patient who died had severe acute hepatitis. All had a drop in viral load. The 4 patients with malabsorption all successfully switched to oral medication after a mean of 21 days (range 8-35).

**Conclusion:** Despite preference now being given to orally administered drugs in triple-class experienced patients and therefore reduced use of ENF for its licensed indication, these cases exemplify the unique value of ENF in circumstances where oral dosing is either impossible or cannot be relied on. Where delayed introduction of ARVs or suboptimal ARV effect may have an adverse effect on recovery from the acute illness, this option should be considered.

P10

### Total and unbound lopinavir/ritonavir (LPV/r) concentrations in the genital tract (fGT) of HIV-1-infected women during pregnancy

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**Background:** Previous studies have shown reduced plasma and genital tract levels of LPV/r in HIV-1 infected pregnant women compared with non-pregnant historical controls. Physiological changes of pregnancy

may alter antiretroviral pharmacokinetics. Furthermore differential protein binding in the fGT and plasma may influence drug compartmentalisation patterns. Here we determined total and unbound LPV concentrations [LPV] and HIV-1 RNA in paired plasma and cervicovaginal secretions (CVS) from HIV-1 infected women in the third trimester of pregnancy. Prior to commencing this study the methods for collecting genital tract samples were validated in a pilot study.

**Methods:** HIV-1 infected pregnant women receiving LPV/r tablets (standard dosing) were recruited. Plasma and CVS samples were taken at steady-state, between 3 and 6 hours post dosing. Total and unbound (ultrafiltrate) [LPV] in plasma and CVS were determined using validated HPLC-MS/MS methods (lower limit of quantification: total = 16 ng/ml; unbound = 0.5 ng/ml). HIV-RNA were determined with Roche Amplicor Monitor, V1.5 (detection limit: plasma=50copies/ml; CVS=520copies/ml). Total and unbound fGT:plasma ratios (%) were calculated and [LPV] in both compartments were compared with published  $\text{IC}_{50}$  values for wild type HIV (70ng/ml).

**Results:** Nine women participated. Median gestational age at time of sampling was 33 weeks. Median total [LPV] in plasma and CVS were 8525 ng/ml (range 4779-12211) and 102 ng/ml (range 74-253), with a total fGT:plasma ratio of 1.2% (0.8-3.7). All fGT samples exceeded the total [LPV]  $\text{IC}_{50}$  for WT HIV by 1.5 fold (range 1-4). Unbound [LPV] and % unbound in plasma were 69 ng/ml (15-121) and 0.8% (0.2-1). Unbound [LPV] was detected in 5/9 fGT samples; median(range) = 8.ng/ml (5.5-28.7; n=5); %unbound was 7.8% (3.9-14.7; n=5). All participants had undetectable HIV-1 RNA in both compartments at time of sampling.

**Conclusion:** Here we provide further evidence that the penetration of LPV into the fGT is lower than previously described in non-pregnant women. Despite this, with standard LPV/r dosing, total LPV concentrations were in excess of the  $\text{IC}_{50}$  for wild type virus and HIV-1 viral loads were undetectable in all genital samples. 4/9 (44%) women delivered vaginally and all 9 infants were HIV-1 uninfected.

P11

### Do you need three active drugs to control HIV in patients with the M184 mutation?

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**Background:** To achieve a regimen with 3 active drugs, patients with the M184 mutation may have unfavourable pill burdens or be exposed to drugs with perceived increased toxicity. We hypothesized that in patients with the M184 mutation, combining emtricitabine (FTC) or lamivudine (3TC) in the form of Truvada® or Kivexa® with a single boosted protease inhibitor (PI), should control HIV allowing for reduced pill burden and/or the removal of abacavir or didanosine where necessary.

**Method:** Retrospective analysis was performed on 277 patients on antiretroviral therapy (ART) with any M184 mutation identified from our cohort. Data regarding viral load (VL), ART and resistance were available for 212 patients. Of these 91 were identified who had remained on 3TC/FTC with a single NRTI (either Truvada® or Kivexa®) in combination with one boosted PI (Group A) for a median of 63.5 weeks (range 1 to 700). These were compared to 72 patients no longer on 3TC/FTC and on 3 or more active drugs (Group B). Data were collected regarding VL, time on current regimen, VL at start of current regimen and presence or absence of thymidine analogue mutations (TAMs). 8 patients in Group A were coinfecting with Hepatitis B.

**Results:** In group A 68 patients (74.7%) had a VL of  $<40$  c/ml at their most recent test result compared to 55 (76.4%) in group B ( $p = 0.86$  2 tail Fisher's Exact Test). In Group A, of those patients who had a VL of  $<40$  c/ml at the time of starting their 3TC/FTC ( $n=42$ ), 95.2% ( $n = 40$ ) achieved a VL of  $<40$  c/ml compared to 62.5% ( $n = 25$ ) of patients whose VL was not  $<40$  c/ml ( $n = 44$ ) at time of starting their 3TC/FTC ( $p = 0.00003$ ). In those patients in group A who had no identified TAMs ( $n = 46$ ), 69.6% ( $n = 32$ ) achieved a VL of  $<40$  c/ml compared to 79.1% ( $n = 34$ ) in those patients with one or more TAMs ( $n = 43$ ) ( $p = 0.34$ ).

**Conclusion:** In this small retrospective study, in patients with M184, a regimen including 3TC or FTC in combination with one NRTI in the form of Truvada® or Kivexa® combined with a single boosted PI resulted in equivalent HIV VL control when compared to patients no longer on 3TC/FTC and on 3 active drugs. Virological control was not affected by the presence or absence of TAMs, but VL at time of switch had an impact which may reflect adherence and requires further study. This approach allowed for reduced tablet numbers, reduced cost and removal of drugs with perceived toxicity. Removal of 3TC or FTC for patients without Hepatitis B co-infection may be justifiable.

#### P12 Therapeutic drug monitoring of lopinavir/ritonavir in pregnancy

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**Background:** To determine total and unbound lopinavir (LPV) plasma concentrations in HIV infected pregnant women receiving lopinavir/ritonavir (LPV/r tablet) undergoing therapeutic drug monitoring (TDM) during pregnancy and postpartum.

**Methods:** Women were enrolled who were receiving the LPV/r tablet as part of their routine prenatal care. Demographic/clinical data were collected and LPV plasma (total) and ultrafiltrate (unbound) concentrations were determined in the first, second and third trimesters using HPLC-MS/MS. Postpartum sampling was performed where applicable. Antepartum and postpartum concentrations ( $C_{trough}$ ) were compared independently (ANOVA) and on a longitudinal basis (paired t-test).

**Results:** Forty-six women were enrolled in the study (38 black African; median age, 28.7 years). 40 women initiated LPV/r treatment in pregnancy. Median (range) gestation at initiation was 25 weeks (15-36) and baseline CD4 count and viral load were 346 cells/ $\mu$ l (14-836) and 8724 copies/ml (<50-267408).

Forty (87%) had LPV concentrations which were above the accepted minimum effective concentration for wt virus (MEC; 1000 ng/ml). Geometric mean (95% CI) total LPV concentrations at in the first/second [3525 ng/ml (2823-4227) n=16] and third [3346 ng/ml (2813-3880) n=43] trimesters were significantly lower relative to concentrations at postpartum [5136 ng/ml (3693-6579) n=12] (P=0.006). In a paired analysis of 12 patients, total LPV concentrations were reduced in the third trimester [3657 ng/ml (2851-4463)] versus postpartum (P=0.021). No significant differences were observed in the LPV fraction unbound (fu%).

**Conclusions:** The 'therapeutic' concentrations achieved in the majority of women and similarities in the fu% suggest standard dosing of LPV/r tablet is appropriate during pregnancy. However, reduced LPV concentrations in the second/third trimesters and potentially compromised adherence highlights the need for TDM-guided dose adjustment in certain cases.

#### P13 Prospective randomised controlled study comparing delayed versus immediate interleukin 2 in patients with CD4 cell counts below 100 on HAART for greater than three months with an undetectable serum HIV viral load

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**Background:** HIV patients with an undetectable viral load and CD4 persistently below 100 cells/mm<sup>3</sup> remain at high risk of opportunistic

infection. This study describes the use of IL-2 in patients with HIV disease on antiretroviral therapy with undetectable viral loads and low CD4 cell counts, comparing them with patients who deferred uptake of IL-2.

**Methods:** This was a prospective, randomised open label controlled study comparing the efficacy of subcutaneous IL-2 in combination with antiretroviral therapy versus antiretroviral therapy alone in HIV infected patients with HIV viral load <400copies/ml for at least 3 months and a CD4 count less than 100 cells/mm<sup>3</sup>. Patients were randomised to receive cyclical subcutaneous IL-2 (4.5MU sc twice daily for 5 days every 8 weeks for 1 year) together with HAART or to receive HAART alone. After 16 weeks, all patients were given the opportunity to receive IL-2. The primary endpoint was change in serum absolute CD4 cell count. Secondary endpoints measured were change in serum HIV viral load and mortality.

**Results:** 29 patients were recruited in the study between November 2001 and April 2008, of which 25 met the inclusion criteria. 13 patients started on IL-2 immediately and 12 waited until week 16.

Median CD4 count at baseline was comparable in both groups (55 vs 69 p=0.81). Median CD4 counts at 12, 48, 60, 120 and 240 weeks were 35, 120, 106, 92 and 158 in the earlier treatment group compared with 24, 62, 130, 195 and 180 in the later treatment group. None of these differences were statistically significant. Absolute CD4 increase for all patients was 26, 148 and 162 cells/ mm<sup>3</sup> at 12, 120 and 240 weeks respectively. In the earlier treatment group, HIV viral loads were detectable in 4.1% of samples compared with 20.6% in the later treatment group (p=0.03). 1 patient died in the study as a result of suicide thought not related to the IL-2 therapy.

**Conclusion:** Overall, CD4 counts increased similarly in both groups and there was no difference in mortality at 240 weeks. Earlier treatment with IL-2 had no effect on the rate of absolute CD4 count increase, although patients randomised to earlier IL-2 treatment were more likely to have undetectable HIV viral loads.

#### P14 The effects of a nucleoside-sparing antiretroviral regimen on the pharmacokinetic profile of once-daily ritonavir-boosted darunavir in HIV-1-infected subjects

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**Background:** Nucleoside sparing combination antiretroviral therapy (cART) may be an attractive therapeutic option for HIV-1 infected subjects. The pharmacokinetic (PK) profiles of such regimens are frequently unknown and require exploration.

**Methods:** Fourteen HIV-1 infected subjects (age 21-55 years, 64% male) on stable cART with a plasma HIV RNA level below 50 copies/mL entered this phase 1 PK study comprising of 3 study periods (see table). At steady-state, intensive PK sampling was undertaken (days 10, 20, 30). Differences in geometric mean ratios (GMR) for PK parameters between study periods and factors associated with PK parameters were assessed. **Results:** Darunavir (DRV) concentration at trough ( $C_{trough}$ ) was statistically significantly reduced during period 3 (the nucleoside sparing period) and was below 550 ng/mL (the minimum effective concentration for protease resistant HIV-viral isolates) in 4/14 subjects during period 3 only. No cases of virological failure occurred. No statistically significant differences ritonavir or raltegravir PK parameters were observed. Increasing age was statistically significantly associated with greater DRV total plasma exposure (area under time-concentration curve, AUC<sub>24h</sub>, p=0.002) and maximum plasma exposure ( $C_{max}$ , p=0.013) whereas no other study parameters were significantly associated with plasma drug exposure.

	Antiretroviral therapy	DRV geometric mean Ctrough (ng/mL), [95% CI]	DRV Ctrough GMR [95% CI]
Period 1 (day 1-10)	TDF/FTC od DRV 800mg od RTV 100mg od	1551 [1139, 2111]	Period 2/1 0.87 [0.64, 1.18]
Period 2 (day 11-20)	TDF/FTC od DRV 800mg od RTV 100mg od	1352 [1032, 1770]	Period 3/1 0.64 [0.44, 0.93]
Period 3 (day 21-30)	RAL 400mg bd DRV 800mg od RTV 100mg od RAL 400mg bd	970 [605, 1555]	

**Conclusions:** DRV Ctrough was 36% lower when administered without tenofovir/emtricitabine and provides evidence that the PK of DRV/r is regimen-dependent. This interaction may be of clinical significance in the management of individuals with protease-resistant HIV-viral isolates.

### P15 Virological efficacy of darunavir/ritonavir monotherapy in clinical practice

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**Background:** Darunavir is a non peptidic protease inhibitor with activity against wild type and protease resistant HIV when used in combination with low dose ritonavir. Recent studies using darunavir/ritonavir (DRVr) monotherapy have shown this to be effective alternative to conventional highly active antiretroviral therapy (HAART). We describe our experience using DRV monotherapy within the Chelsea and Westminster Hospital cohort.

**Methods:** This prospective observational cohort evaluation followed a group of patients who commenced DRVr (800 or 900mg/100mg) monotherapy. CD4 cell count, viral load (VL) and safety bloods were measured at baseline and at 12, 24, 36 and 48 week intervals.

**Results:** 81 patients commenced DRVr monotherapy. All patients were antiretroviral experienced. Phenotypic resistance tests, where available, were analysed prior to commencement of DRVr. No patient commenced on DRVr monotherapy was found to have or suspected to have resistance to DRV. 71/81 (88%) patients were male. Median age (range) of patient was 47 years (27-69). 73/81 (90%) patients switched to DRVr monotherapy with an undetectable viral load (<50 copies/mL). Data were available for 73, 63, 43, and 22 patients at weeks 12, 24, 36 and 48 respectively. The proportion of patient maintaining HIV VL<50 copies/mL (ITT) was 93% at week 12, 89% at week 24, 86% at week 36 and 91% at week 48. 5 patients discontinued therapy. Reasons for discontinuation were gastrointestinal intolerance (2/5), lost to follow up (1/5), lipodystrophy syndrome concern (1/5) and patient choice (1/5). Virological failure (VF) was observed in 3/73 patients (VF defined as detectable VL on 2 occasions after VL<50 copies/mL). VF suspected to be related adherence. 3/3 individuals reported adherence problems to DRVr monotherapy. Proportion of patients achieving HIV VL<50 copies/mL in those commencing DRVr monotherapy with detectable HIV VL at baseline was 38% at week 12.

**Conclusion:** The majority of individuals who switched to DRVr monotherapy in this cohort evaluation maintained virological suppression. DRVr monotherapy appears to be an effective and well tolerated alternative to conventional HAART.

### P16

#### Population pharmacokinetics of unboosted atazanavir and influence of the pregnane $\alpha$ -receptor PXR 63396C>T

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**Background:** PXR is classically considered to be a ligand-activated receptor but its expression is also correlated with CYP3A4 in liver in the absence of enzyme inducers. The PXR 63396C>T (rs2472677) single nucleotide polymorphism (SNP) alters PXR expression and CYP3A4 activity *in vitro*. CYP3A4 is one of the main enzymes responsible for the metabolism of ATV, and we previously showed an association of this polymorphism with unboosted ATV plasma concentrations. The aim of this study was to develop a population pharmacokinetic (PK) analysis to quantify the impact of 63396C>T.

**Methods:** A population PK analysis was performed with 281 plasma samples from 140 randomly selected patients receiving unboosted ATV (66% male). The median (range) age was 44 (19 – 74) years. Genotyping was conducted using standard methodology. 247 of the blood samples were collected at random time points and 11 patients had a full concentration-time profile at steady state. Non-linear mixed effects modelling was applied (NONMEM v. VI 2.0) to explore the effects of PXR 63396C>T and patient demographics. The model was validated by means of simulation and visual predictive check.

**Results:** A one-compartment model with first-order absorption best described the data. Population clearance was 18.8 L/h with inter-patient variability of 26%. Homozygosity for the T allele was associated with a 20% higher clearance that was statistically significant. Patient demographic factors had no effect on the clearance.

**Conclusion:** These data show an association between PXR 63396C>T and unboosted ATV clearance. The association is likely to be mediated through an effect on hepatic PXR expression and therefore expression of its target genes (e.g. CYP3A4 and ABCB1), which are known to be involved in ATV clearance.

### P17

#### Sub-optimal CD4 responses to highly active antiretroviral therapy – a cross-sectional study

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**Background:** Immune recovery with Highly Active Antiretroviral therapy (HAART) is demonstrated as a rise in CD4 positive T lymphocytes. Suboptimal CD4 responses (SOR) can occur despite viral suppression. The aim of this multi centre study is to quantify rates of, and describe characteristics associated with SOR.

**Methods:** SOR was defined as failure to reach CD4 count > 200 cells/cu.mm between June 2006 and December 2007, in patients with viral load (VL) consistently <50 on HAART. Cases were identified using data from the Health Protection Agency Centre for Infections. Demographic and clinical data were collected at 4 treatment centres.

**Results:** 1842 adults with VL consistently <50 on HAART during the study period were identified at the study centres. Of these, 102 (5.5%) had CD4 consistently <200. Thus far 84 cases have been analysed the results are shown in table 1.

Table 1 (median value unless stated)

Age (years)	43
Male/ Female %	67/33
Ethnicity %	
Black	60
White	37
Other	3
Mode of infection %	
Heterosexual	62
Homosexual	35
IVDU	3
Length of time since HIV diagnosis (months)	48
Age at HIV diagnosis (years)	36
Nadir CD4 (%)	31 (4)
CD4 at start of study period (%)	118 (9)
CD4 at end of study period (%)	151 (13)
Months on suppressive HAART	30
Hep B S antigen positive %	8
Hep C IgG (PCR) positive %	6 (8)
AIDS defining diagnosis %	51
History of IVDU %	5
History of excess alcohol intake %	8

**Conclusion:** SOR occurs in a small but significant proportion of patients on HAART. In this cohort SOR was common in patients of black ethnicity, male gender and those who acquired HIV heterosexually. Nadir CD4 levels were low and low level CD4 gains were seen over study period. Work is ongoing to compare SOR with optimal CD4 responders.

### P18 Combining raltegravir and atazanavir in clinical practice

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**Background:** Raltegravir (RAL) is a 1<sup>st</sup>-in-class licensed antiretroviral (ARV) for naïve and experienced patients. However, trial data has demonstrated the potential for virological failure if pre-existing archived resistance is present prior to successful initiation of suppressive PI-based HAART. Combination with atazanavir (ATZ) is logical because both inhibit UG1A1 resulting in increased RAL levels, no negative effect on ATZ pharmacokinetics (PK), and with no need for dose adjustment of either drug even with ritonavir boosting. Moreover, boosted ATZ has a high barrier to resistance and should prevent emergent archived mutations leading to failure. This descriptive study reviews patients in this unit who have switched to this combination.

**Method:** Data were retrieved from case notes, and computer records. Patients were included if they had received ATZ and RAL from Jan 2008 to Dec 2009. Demographic, ARV history, virological, lipid, CD4, PK, and toxicity data were collected.

**Results:** 19 patients (17 male) were identified who received ATZ/RAL as part of their ARV regimen (median age, nadir CD4 and years on ARV were: 45.4, 280 cells/mm<sup>3</sup>, and 14 respectively): all were 3-class experienced (median number of previous regimens 7) and 94.7% had documented current/archived resistance. Median duration of treatment was 8 months: 94.7% received RAL 400mg bd and 5.3% unboosted ATZ. 52.6% received only one other ARV as part of their regimen, 42.1% two, and 5.3% three. 63.2% had detectable viral load at switch; median time to reach <40 copies/ml was 3 months in this group and 2 patients remain detectable. No patient switched undetectable developed virological failure or emergent resistance mutations. 72% were switching off an NRTI, abacavir being the most commonly stopped drug. Reasons for switch included resistance to other ARV (34.8%), reduction of cardiovascular risk (26.1%), problems with injection sites on T-20 (8.7%), and commencing hepatitis C therapy (4.3%). 4 patients discontinued both RAL/ATZ, 2 RAL, and 1 ATZ for liver dysfunction, dyslipidaemia and GI upset. Mean total cholesterol/HDL ratio and triglycerides both dropped by

0.35 mmol/l after 12 weeks on the new regimen. PK was measured in 10.5% and demonstrated effective drug levels in all.

**Conclusion:** Individually ATZ and RAL are potent ARVs. This study expands on data in confirming that their combination is a safe and effective strategy for patients with ARV toxicity or current/archived resistance.

### P19 Failure modes effects analysis (FMEA): could it be used to reduce the risks associated with antiretroviral (ARV) formulation changes (FCs)?

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**Background:** In 2007 darunavir (DRV) 300mg tablets were licensed for bd use (600mg+ 100mg ritonavir) in ARV-experienced patients. In anticipation of the license extension to include ARV-naïve patients, some centres were also using an unlicensed dose (900mg/100mg od). In Feb 2009 the od dose (800mg/100mg) was approved and new formulations (400mg and 600mg tablets) were introduced. Patients therefore experienced a FC either to 1x600mg tablet bd or 2x400mg tablets od. High adherence is crucial to ARV treatment success so it is vital that patients understand which medicines to take, the dose and frequency. When a FC occurs the information needs to be communicated effectively to the patient to prevent medication errors. However, despite extensive preparation by pharmacy for the switchover, it became apparent that some dosing errors had occurred after the supply of a different DRV formulation. A recent report highlighted the utility of FMEA (a risk analysis tool) in identifying and reducing medication-related risk. The aim of this study was to investigate the DRV FC errors & use FMEA to develop a new process for implementing future changes.

**Method:** We investigated all DRV FC-related medication errors we were aware of to identify contributory factors. FMEA was used as part of the process to help devise a strategy to prevent errors associated with ARV FCs.

**Results:** 164 patients were taking DRV (75 od, 89 bd) in Feb 2009. Errors affecting 9 patients (5.5% of those who had a DRV FC) were retrospectively identified: 8 on bd, 1 on od. 6 of the 8 on bd took 1200mg (2x dose); 1 of 8 noticed the tablet colour change & contacted pharmacy; 1 was non-adherent but confused about DRV dose post-FC. The patient on od DRV had a supply of 300mg & 400mg tablets at home & took 2x300mg od for two weeks. No serious adverse events were reported or observed. There were no prescribing or dispensing errors. A new procedure has now been put in place that addresses the risks highlighted by our experience & the FMEA tool. Additional steps have been added to the dispensing process when a FC occurs, including ensuring counselling on the new formulation has taken place and been documented.

**Conclusion:** Contrary to the commonly held perception that FCs are minor therapy alterations, they can be associated with significant clinical risk. FMEA was a useful tool to aid development of a structured procedure designed to reduce the risk of medication errors with the implementation of future ARV FCs.

### P20 Morbidity in HIV-1-infected individuals in rural Uganda before and after the introduction of antiretroviral therapy: a prospective cohort study

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**Background:** Studies in sub-Saharan Africa have mainly reported on impact of antiretroviral therapy (ART) on morbidity in prevalent cohorts. In our study, data from a cohort of HIV participants with known

seroconversion dates in rural Uganda were followed up and morbidity rates were estimated and compared with those among a comparison group of HIV-uninfected individuals from the same population. We also compared morbidity in HIV-1 infected patients before and after introduction of antiretroviral therapy in this rural African setting.

**Methods:** Prospective cohort nested within a general population cohort in rural Uganda, followed from 1990-2008. ART was first available in 2004. Incidence rates of WHO stage-defining diseases in HIV-infected individuals aged  $\geq 13$  years with known seroconversion dates ("HIV seroconverters") and an age-stratified sample of HIV-negative individuals were estimated by random-effects Poisson regression modeling.

**Results:** The most common morbid events in HIV seroconverters and HIV-negative controls were severe bacterial infections (including pneumonia) with incidence rates of 9.0/100pyr among seroconverters and 1.7/100pyr among HIV negative participants (hazard ratio [HR]=3.50, 95%CI:2.4-5.1). Among seroconverters, the incidence of having any one of the WHO stage-defining diseases rose from 14.4/100pyr (95%CI:11.1-18.6) in 1990-1998 to 46.0/100pyr (95%CI:37.7-56.0) in 1999-2003. Following the introduction of ART, incidence among seroconverters declined to 36.4/100pyr (95%CI 27.1-48.9) in 2004-2005 and to 28.3/100pyr (95%CI:21.2-37.8) in 2006-2008. Individuals who had been on ART for longer than 12 months were at lower risk of having any one of the WHO stage diseases than those not on treatment, after adjusting for calendar period and other factors (adjusted HR=0.35, 95%CI:0.2-0.6). Incidence of having any one of the WHO stage-defining diseases increased from 20.6/100pyr among those with CD4 $\geq$ 500 to 102.2/100pyr among those with CD4 $<$ 200 ( $P$ -trend  $<$ 0.0001).

**Conclusion:** In this Ugandan population, we observed a decline in morbidity among HIV-infected people on ART, and this decline was more marked with increasing duration on ART. The benefits of decreased HIV-related morbidity from ART lend support to urgent global efforts to ensure that access to ART is extended widely, including in rural settings in Africa.

## P21

### Tenofovir and efavirenz plasma concentrations in HIV-infected patients aged 50 years or over

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**Background:** Approximately 30% of HIV-infected individuals are aged 50 or more years and the number of patients in this age group will continue to increase. Whether changes in drug disposition with increasing age affect antiretroviral exposure and therefore efficacy and toxicity remains unclear. Data on antiretroviral concentrations in the aging population are limited. Here we present results of drug concentration determination in patients 50 years of age or over, who had routine therapeutic drug monitoring (TDM).

**Methods:** Patients over 50 years of age who were stable on tenofovir and efavirenz-containing regimens with a plasma concentration determination were included in this analysis. Since trough concentrations were difficult to collect in the routine clinical setting, randomly collected drug concentrations (obtained during the dosing interval of 0 to 48h) were related to population data generated from formal pharmacokinetic studies. The approach with population centiles (10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup> and 90<sup>th</sup>; P10-P90) was used to interpret how the drug concentrations in the aging cohort related to data previously observed in younger adult patients. Spearman's rank and linear regression analysis were used to assess the relationship between tenofovir plasma concentrations and glomerular filtration rate (GFR).

**Results:** Steady-state tenofovir and efavirenz plasma concentrations were available for 32 (1 female) and 31 (6 females) patients, respectively (1 sample per patient). Median (range) age was 57 (50-81) years.

When compared to data obtained from pharmacokinetic studies performed in younger adult patients: i) tenofovir concentrations were

below P10 in 6 subjects, above P90 in 6, below P50 in 19, and above P50 in 12 subjects; ii) efavirenz concentrations were below P10 in 3 subjects, above P90 in 3, below P50 in 20, and above P50 in 12 subjects.

As expected, tenofovir plasma concentrations were higher in patients on protease inhibitors and correlated with GFR ( $\rho=0.59$ ,  $p=0.0006$ ).

**Conclusion:** In this small cohort of older HIV-infected individuals, plasma concentrations of tenofovir and efavirenz were not markedly different when compared to data in younger patients. However, it is essential to collect more data for all the currently used antiretrovirals over a wide age range.

## P22

### Virtual reality – evaluation of a nationally accessible virtual clinic for antiretroviral prescription; success or failure?

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**Background:** The BHIVA standards for HIV clinical care aim to achieve uniform HIV care across the UK with the emphasis on development of clinical networks between larger, more specialised HIV outpatients units and smaller HIV departments. A national virtual clinic offering specialist opinions in HIV resistance interpretation and drug interactions has been set up offering support to HIV specialists working at units in areas without access to specialist advice on drug resistance, drug toxicities or complex co-morbidity. The referring clinician is encouraged to be involved in the case discussion via conference call facilities with the clinic team which includes physicians, researchers, and pharmacists. This service evaluation reviews the National Virtual Clinic since it commenced in November 2008.

**Method:** Retrospective service evaluation of all cases referred to the virtual clinic including reason for referral, comorbidities, drug toxicities, adherence, resistance, recommended change to antiretroviral (ARV) regimen and time from referral to clinic appointment and written summary. An evaluation questionnaire was sent to all physicians following referral assessing ease of referral, whether advice was useful and other comments.

**Results:** Over twelve months, 29 patients were referred by 18 physicians from eight regions of the UK. Reason for referral included virological failure(7), failure to suppress(2), switch for toxicity or simplification(9), comorbidity(2), restart of therapy(4) and pregnancy(4). Median wait for appointment was 6 days (range 0-65). Eighteen patients had comorbidities, 10 had adherence issues and 13 had adverse drug reactions to ARV. Nineteen patients had detectable HIV resistance; three single class, twelve dual class and three triple class. Advice regarding individual patient management was given in addition to suggestion for change of ART when appropriate. Ten physicians replied to the questionnaire; all found it fairly or very easy to refer, six used the ARV suggested however four used only part or none of the advice due to patient choice or poor adherence. Seven reported a successful outcome for the patient. Six physicians described the service very useful and four quite useful. All would use the service again.

**Conclusion:** This virtual clinic has been a successful resource for HIV physicians across the UK, allowing a forum for discussion of complex patients with a team of multidisciplinary specialists, aiming to achieve optimal care.

## P23

### Cohort analysis of long-term thymidine use

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**Aim:** Zidovudine (ZDV) and stavudine (D4T) are no longer recommended first-line antiretrovirals (ARV) because of their long-term toxicity profile. However, they remain potent drugs and ZDV is still a preferred option in

pregnancy, infants, and HIV-related brain disease. This study looked to explore the characteristics of patients maintained on uninterrupted long-term D4T or ZDV as part of their ARV regimen.

**Methods:** Data were retrieved from pharmacy lists, databases, case notes, and computer records. Patients were included if they were receiving D4T or ZDV-based treatment in December 2009. Demographic, ARV history, virological, lipid, CD4, and toxicity data were collected from commencement/1<sup>st</sup>-documented use of D4T/ZDV, as well as reasons for continued use.

**Results:** Of 1503 on ARVs (87.2% of total cohort), 4 were taking D4T and 120 ZDV. For those on D4T median age, CD4 nadir, years on treatment and D4T use were 47.7 years, 220 cells/mm<sup>3</sup>, 11.9 years, and 9.1 years respectively: 1 patient was naïve at commencement. CD4 rose by 108 cells/mm<sup>3</sup> and median VL fell from 32,600 to <40 copies/ml over the study period. All patients had remained on D4T because of patient choice and absence of toxicity. Data from 72 patients receiving AZT (60%) were available for analysis: median age was 39 years, male 52.7%, and Black African 39%. Median nadir CD4, years on ARV and ZDV use were 232 cells/mm<sup>3</sup>, 5.7 years (IQR 3.5–7.6), and 5 years respectively: 54% were naïve to therapy on commencing ZDV. CD4 rose by 323 cells/mm<sup>3</sup> and median VL fell from 91750 to <40 copies/ml over the study period. Specified reasons for commencing ZDV included: appropriate choice at time of commencement (48.6%), good CNS penetration (13.8%), pregnancy (12.5%) and resistance to other ARVs (9.7%). Reasons for remaining on ZDV included: no side effects of therapy (36%), resistance or side effects to other ARVs (25%), pregnancy/potential for pregnancy (8%) and good CNS penetration (8.3%). Toxicity was seen in 32%, including anaemia (5.5%), gastrointestinal upset (5.5%), lipodystrophy (6.9%) and lipid abnormalities in 12.5%. **Conclusion:** D4T and ZDV are potent NRTIs. They are used less frequently now due to their toxicity profile and the availability of more convenient and better-tolerated alternatives. However, this study confirms that some patients taking D4T or ZDV tolerate the drugs well, have no significant long-term side effects despite prolonged use, and have stated a preference not to switch.

## P24

### Switching to dual therapy with once-daily darunavir and etravirine

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**Background:** Long term maintenance with NRTI-sparing regimens may be preferable for patients with NRTI toxicities, and may offer potential cost savings. Dual ART with once daily darunavir/r and etravirine may be preferable to previous PI/r/NNRTI combinations due to its theoretical higher genetic barrier to resistance and good PK profile. We looked at the use of this regimen within our HIV cohort.

**Methods:** All patients prescribed dual ART with darunavir/ritonavir 800mg/100mg QD with etravirine 400mg/day (DRV/r/ETR) were identified by our virtual clinic database. Reason for switch, HIV resistance, viral outcomes and cost compared to previous ART were identified.

**Results:** 20 patients were switched to DRV/r/ETR with mean time on regimen of 32wks (range 8–141 wks). 85% (17/20) were given ETR 400mg QD.

65% (13/20) switched from dual PI/r regimens, 8 combined with efavirenz or nevirapine. 20% (4/20) switched from conventional ART (2 NRTI+PI/r or NNRTI). Patients had a median exposure to 9 ARV drugs prior to switch (range 3–14), with 90% (18/20) having previous NNRTI exposure, 5 of which had CNS toxicity with efavirenz.

At switch, 60% (12/20) had no previous resistance, 25% (5/20) NRTI mutations only, and 15% (3/20) had NNRTI mutations (K103N (2), & Y181C combined with NRTI K65R, M184V mutations (1)). 90% (18/20) had VL<50cps/ml at switch, with 100% (20/20) achieving/maintaining VL<50cps/ml (mean virological follow up 24 wks, range 4–111wks).

Indications for switch were desire for simplification (8) (typically from dual PI), and need for NRTI-sparing regimen (12), including previous renal

toxicity with tenofovir (4), lipodystrophy (7), peripheral neuropathy (1) and lactic acidosis (2).

DRV/r/ETR was generally well tolerated, 1 patient had a mild rash which resolved, and 1 patient discontinued at 4wks due to GI tolerability.

Overall the switch presented a drug cost saving in 94% (18/19) of patients maintained on DRV/r/ETR, mean saving £187/patient/month, typically due to switch from dual PI regimens. Overall DRV/r/ETR offers a potential drug budget saving of £42,750/year for the 19 patients on treatment.

**Conclusions:** For patients with VL<50cps/ml, simplification to dual therapy with darunavir/r 800/100mg QD plus etravirine 400mg QD maintains viral suppression, is well tolerated and may offer substantial cost savings particularly for patients currently on dual PI/r regimens, or with NRTI toxicities.

## P25

### Differences between patients' and healthcare professionals' opinions on combination antiretroviral therapy (cART) side effects

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**Background:** The potential for adverse effects with cART play an important part in the decision-making process for both HIV-infected patients and healthcare professionals (HCP) when choosing cART. There is very little information on the whether patients and HCP have similar opinions on the side effects that are associated with cART. Here we present the results of survey that was given out to both patients and HIV specialist HCP.

**Method:** 145 patients and HCPs (91 and 54 respectively) were asked to complete an anonymous survey on antiretroviral (ARV) drugs side effects. The survey outlined 10 common ARV side effects and asked the patient and HCPs to rate how distressing each one would be on a 100mm non-hatched visual analogue scale. The investigator then measured the mark on the line to the nearest 10mm increment to give a value from one to ten. The mean values for each group were used to rank the side effects.

**Results:**

Rank	Patient	HCP
1 Most distressing	Lipodystrophy	Nausea and vomiting
2	Sleep disturbances	Effect on sexual function
3	Increased risk of MI/stroke	Sleep disturbances
4	Nausea and vomiting	Diarrhoea
5	Effect on sexual function	Lipodystrophy
6	Itchy rash	Weight gain
7	Jaundice	Increased drowsiness
8	Increased drowsiness	Increased risk of MI/stroke
9	Diarrhoea	Jaundice
10 Least distressing	Weight gain	Itchy rash

**Conclusion:** The results from this small survey show that patients and HCP opinions of ARV side effects differ. It is therefore important that HCP have an awareness of this difference so patients concerns regarding side effects of ARV's can be addressed appropriately. However, more data is needed in order to see if these differences are seen in a larger cohort.

## P26

### Immunological outcomes after 5 years of HAART in a West African HIV cohort attending a public clinic

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**Objectives:** 1. To describe the immunological response to HAART in a cohort of 250 West African HIV patients over 5 years follow up. 2. To

describe the impact of CD4 count monitoring on therapy changes during this period.

**Study Design:** A prospective, closed cohort, observational study of HIV infected Ghanaians attending a new treatment clinic. CD4 lymphocyte counts, attendance rates and antiretroviral drug changes were recorded for the first 250 HIV patients who started HAART between January and July 2004 at 6 month intervals for 5 years. CD4 cell count but not viral load monitoring was available. Patients paid a flat fee of 5US\$ equivalent per month covering assessment, CD4 testing and ARV drugs but not other tests or treatments. Exclusion criteria: previous antiretroviral use, age <16 years or insufficient baseline data. Differences at each interval were compared using ANOVA with Bonferroni post-tests and groups were compared with student's t test.

**Results:** 237 patients met the inclusion criteria. 139 were female, mean(sd) age was 40(9.0) years, baseline CD4 was 120(88)cells/mm<sup>3</sup> and 184(77.6%) were WHO stage 3 or 4 at baseline. HAART combinations were AZT/3TC (66%) or d4T/3TC (34%) plus nevirapine (48%) or efavirenz (51%). Attendance rates at 12, 24, 36, 48 and 60 months after starting ARV were 190, 176, 168, 151 and 144 (61%) respectively. Mean CD4 rise from baseline was 443 cells/mm<sup>3</sup> (p<0.0001), and only 6.9% had CD4<200 cells/mm<sup>3</sup> at 5 years. 26 patients who had been on therapy at least 6 months had 44 episodes of immunological failure (IF) over the study period. In 13 (50%) with IF there was a subsequent sustained CD4 recovery and only a small number were switched to second line. Neither age, sex, choice of NNRTI nor baseline CD4 were significantly associated with immunological failure.

**Conclusions:** The use of 2NRTI/1NNRTI in this cohort has been successful over 5 years. Most default is within one year and failure is likely to be a consequence of starting therapy with advanced HIV. Subsequently, few patients have IF, and IF does not reliably predict who is going to fail first line therapy. In this cohort the availability of CD4 count monitoring (in the absence of viral load data) has only infrequently resulted in therapy being changed to second line.

## P27

### Outcomes in 200 patients starting antiretroviral therapy (ART) from naïve, compared with BHIVA audit standards

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**Background:** To audit outcomes in adults starting ART from naïve compared with BHIVA audit standards 2006/7.

**Methods:** Retrospective case note review, using a standardised pro-forma, of 200 consecutive patients >15 years starting ART from naïve 2/06-6/08.

**Results:** 55% male, 55% Black African, 52% MSM, median age 25yrs (range 17-75yrs). 108/200 (54%) started ART with CD4<200; 62/200 (31%) were late presenters. 14/200 (7%) started ART with CD4 >200; 8/14 were pregnant. There were 25 pregnancies in 22 women; 24/25 had VL<40 at delivery. Good outcome ratings were: VL <40, stopped ART at end of pregnancy and CD4 >200, VL blip with previous and subsequent VL <40. Of 187/200 patients with 6 month data, 143/200 (72%) had VL<40. 9/25 stopped ART at end of pregnancy with baseline CD4 >200, 2/200 (1%) had VL blip. Poor outcome ratings were: Died, VL not reported as stopped attending, VL detectable. 1/200 (0.5%) died, 5/200 (2.5%) stopped attending, 32/200 (16%) never achieved VL<40 by 6 months. Of the 176/200 patients with 12 months data, 152/200 (76%) had VL <40. 6/25 (24% of those pregnant) stopped ART at end of pregnancy with baseline CD4 >200, 7/200 (3.5%) had VL blip. 2/200 (1%) died, 18/200 (9%) stopped attending, 10/200 (5%) never achieved VL <40 by 12 months. Patients were unrated if they were known to have transferred their care, moved abroad or they were part of a clinical trial.

167/200 (84%) had a baseline resistance test pre ART. 141/167 (84%) had no baseline resistance, 26/167 (16%) had single class resistance, NNRTI being the most common (13/46). The most commonly prescribed ARVs were Truvada (n=100/200) and Efavirenz (n=106/200).

Table 1: Local outcomes compared with National BHIVA audit standards 2006/7

	National Outcome at 6 months (n=1170)	Local outcome at 6 months (n=200)	Local outcome at 12 months (n=200)
Good outcome	73.6%	77.5%	82.5%
Poor outcome	17.6%	19.0%	15.5%
Unrated	8.8%	3.5%	2.0%

**Conclusion:** Good patient outcomes at our centre were above the national average and poor outcomes were below. Consultant led virtual clinics where all patients with detectable viral loads are closely managed and patients who are lost to follow up are recalled, may help to further improve outcomes. There is also an urgent need to reduce late presentation of HIV (31% at our centre) by working with hospital colleagues and local GPs to increase awareness of early HIV testing.

## P28

### Raltegravir: use in patients without three-class resistance within a large London teaching hospital

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**Background:** Within the London HIV consortium (LHC) the integrase inhibitor raltegravir (RAL) is classed as a high cost drug (HCD). Separate funding to the standard tariff is provided for patients but only if they are shown to have 3 class resistance to NRTI, NNRTI, Pls. When used outside of these criteria RAL is funded within the standard tariff.

We looked at the use of RAL outside of the LHC guidelines within our large cohort.

**Methods:** Patients prescribed RAL outside of funding guidelines between May 2007 and October 2009 were identified via the HIV database and virtual clinic reviews. The indication, viral load, and HIV resistance assays were identified.

**Results:** 36 patients were prescribed RAL outside of the funding criteria. 25% (9/36) had 2 class ARV resistance, 19% (7/36) one class and 50% (17/36) had no detectable resistance. 2 patients had recently transferred from another unit without available reports.

72% (26/36) were prescribed for long term indications, including intolerance of ritonavir (6), acute ARV related liver toxicities (2) and chronic drug toxicities (3) including dyslipidaemia, and nucleoside toxicity. 4 patients with 2 class resistance required RAL to achieve suppressive HAART.

28% (10/36) were prescribed for short term indications, including drug intolerance/toxicity during pregnancy (2, plus 1 patient ongoing) and failure to suppress VL by 36 weeks gestation (1). Other short term indications include drug interactions with chemotherapy (1) and anti-TB medication (1); renal failure (1) and HBV flare (1). 60% (6/10) of short term RAL use was either first line (1) or as a substitute for 1<sup>st</sup> line therapy (5) due to acute toxicity or organ impairment.

In the long term RAL group, 73% (19/26) of patients achieved/maintained VL<50cps/ml (mean follow up 53 wks, range 0.5-139wks), with suspected non-compliance (5) and death soon after prescribing (1) the reasons for VL>50cps/ml.

All 10 patients on short term RAL had a VL reduction (mean follow up 8.8 wks, range 0.2-25wks), with 4 achieving/maintaining VL<50cps/ml.

**Conclusions:** RAL is a very useful drug, not only in 3 class resistant patients but also those with acute and chronic co-morbidities such as liver disease, malignancy and TB. However, the use of RAL outside of LHC funding is at present limited by its high cost, which if reduced significantly could lead to an expansion in its use and benefit to our patients.

P29

### Experience and outcomes of using boosted protease inhibitors in combination with one nucleoside reverse transcriptase inhibitor in a central London HIV cohort

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**Background:** Triple antiretroviral therapy (ART) has been standard for treating HIV-1 infected adults since 1996, but data is mounting about safety and efficacy of ritonavir boosted protease inhibitor (PI) monotherapy. We looked at the use and outcomes of boosted PIs in combination with One nucleoside reverse transcriptase inhibitor (NRTI) – PION – in our HIV cohort.

**Methods:** Patients were identified from our database coded as receiving a currently used PI + ritonavir + 1 NRTI (not on a second NRTI) at any time since 2002, and we reviewed their clinical records.

**Results:** 16 patients were identified of whom 15 had notes available which were reviewed. 1 was on PION for only 3 weeks before starting triple ART and was excluded. 9/14 received TDF as the NRTI, 4 3TC and 1 FTC. 6 received atazanavir, 3 saquinavir, 2 darunavir and 3 lopinavir. None of the patients were naïve to ART and 5 had a documented undetectable viral load (VL) at the time of switch to PION. 1/14 dropped 1 NRTI to simplify to PION whilst 9/14 switched strategy (e.g. from non nucleoside based triple ART). 1 patient transferred to our centre on a pre-existing PION regimen, 1 started PION in pregnancy and in 2/14 there was no clear documentation. 12 patients switched regimen to PION. Reasons for switch were toxicity in 3/12, resistance in 4/12. In 5/12 the decision was unclear due to no explicit documentation.

At 3 months 13/14 patients taking PION had VL <50. At 6 months, 13 patients were still taking PION, of which 10 had a VL <50. (1 patient had stopped taking PION or any other ART post delivery at 3 months). For 2/13 patients there was no VL data available. At 12 months 8 patients were still taking PION. For 3/8 patients no VL data was available but 5/5 with data recorded had VL <50. There were no discontinuations due to resistance or toxicity. 3 patients were still taking PION at the end of the study period but had only been on it for 9 months and did not have VL data available for the 12 month time point. 1 patient chose to stop all ART at 8 months and was no longer on PION. 2 patients switched their initial PI but remained on the PION strategy. Of those taking PION, only 1 (with documented poor adherence) had detectable VL at any time point.

**Discussion:** It is reassuring that we have so few patients on this non BHIVA standard regimen, but the use of PION warrants further research.

P30

### Use of therapeutic drug monitoring (TDM) in routine clinical practice

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**Background:** TDM is a valuable tool used to optimise antiretroviral (ARV) therapy and assist in the management of selected patients. TDM may be considered in certain situations eg drug-drug or drug-food interactions; pregnancy; children; suspected non-adherence; lack of virological response; to confirm unlicensed doses. TDM can currently be used to determine levels of non-nucleoside reverse transcriptase inhibitors (NNRTIs), protease inhibitors (PIs) and integrase inhibitors. The aims of this study were to identify: Reasons for and appropriateness of TDM; which drugs were monitored; whether TDM prompted a change in therapy.

**Methods:** Retrospective observational study of all TDM samples from October 2008 to September 2009 inclusive. Analysis of drug levels was carried out by Delphic Laboratories (Liverpool); these results were obtained and additional data were collected from pharmacy records and patient notes, including reason(s) for test, recommendations and outcome.

**Results:** 206 samples from 94 patients were collected during this time period. Of these, 36 patients were taking 2 or 3 drugs requiring TDM simultaneously.

Drugs analysed were: darunavir-57 samples (28%), efavirenz-46 (22%), raltegravir-33 (16%), etravirine-31 (15%), atazanavir-22 (11%), lopinavir-10 (5%), nevirapine-5 (2%), saquinavir-2 (1%). Reasons for TDM were: low level viraemia- 38, risk of interactions (non-TB meds)- 33; adherence- 12; potential interaction with anti-TB drugs in 6 patients, dose confirmation- 4, toxicity- 2, drug confirmation- 1 (>1 reason allowed). Results were discussed at multidisciplinary meeting and drug or dose changes were recommended in 38 samples (18%); 5 of these recommendations were not followed. Of the 206 samples, 35 were repeats, taken for the following reasons: 22 following dose changes, 8- VL remained >40, 2- interacting drugs, 2 following regimen change, 1- confirm low drug levels.

**Conclusion:** TDM was carried out appropriately in most cases and results acted upon. Where TDM prompted a drug or dose change repeat TDM should be carried out to confirm appropriate levels are obtained; this did not always happen. Although it is possible to obtain integrase inhibitor levels there is currently no consensus on the significance of these. Of note, raltegravir and etravirine levels were measured due to concerns re a potential interaction; otherwise the drugs sampled reflect current prescribing habits.

P31

### Using protease inhibitors in first-line HAART: is clinician anxiety about poor adherence justified?

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**Background:** BHIVA guidelines recommend NNRTI based therapy as first line with some exceptions, e.g. those with psychiatric illness, women planning pregnancy or baseline resistance. Low resistance development in PI treated patients with virological failure is an important factor when choosing therapy in those with potential poor adherence. This study investigates reasons for PI based regimen initiation in an inner city cohort and reviews outcomes in patients thought to have difficulties adhering.

**Methods:** 313 treatment naïve HIV-1 patients starting therapy between 1/1/06 and 30/9/09 were identified from a clinic database. 91 (29%) started a PI. Case notes were reviewed to identify reasons for selecting a PI and any adherence concerns. Clinical and laboratory data were used to obtain treatment outcomes.

**Results:** 87 clinical records were available. Reasons for selecting PI based therapy were: pregnancy = 32 (37%), adherence concerns = 22 (25%), mental health problems = 8 (9.2%), baseline resistance = 8 (9.2%), started before baseline genotype = 7 (8.0%), other/not clear = 6 (6.9%), actively planning pregnancy = 2 (2.3%), patient choice = 2 (2.3%). Of the 22 with adherence concerns, 18 (82%) had a history of substance misuse and/or mental health difficulties. Of this group, 6 (27%) achieved an undetectable viral load at 3 months and 9 (41%) at 6 months. 11 (50%) of this group underwent a patient initiated treatment interruption, including 5 that had achieved virological suppression. An additional 5 patients in this group were noted to have poor adherence. Excluding those treated only during pregnancy, those planning pregnancy, those with baseline resistance and those who transferred to other clinics/were lost to follow-up, 10 of 53 (19%) patients subsequently started NNRTI-based therapy and 90% achieved durable virological suppression – 3 were in the anticipated low adherence group.

**Conclusions:** In non-pregnant patients the most common reason for using a PI was clinician anxiety over adherence, largely due to psychosocial difficulties. This anxiety was often proven correct as demonstrated by low virological suppression rates, many patients interrupting therapy and/or clinician-assessed poor adherence. NNRTI based treatment switch was successful in a small number. Uncertainties remain over whether side-effects and pill burden could account for low adherence and whether "risking" simpler NNRTI-based therapy should be considered more.

P32

### Immunologic and virologic responses to second-line antiretroviral therapy (SLA) after 6 months on SLA in India: first-time experience in an Indian government programme

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**Background:** In 2008, the National AIDS Control Organisation (NACO) initiated the provision of second line antiretroviral therapy (SLA) to patients who have failed first line antiretroviral therapy (FLA) based on virologic response (i.e. Viral load [VL] > 10,000 copies/ml). Immunologic and virologic responses to SLA have not been studied in the Indian context. We studied the prevalence and associated factors for various immunologic and virologic responses to SLA in patients enrolled in a large tertiary care hospital in India

**Methods:** We conducted a cross-sectional study of HIV patients who have failed FLA and subsequently initiated on SLA by the State AIDS Clinical Expert Panel (SACEP). SACEP evaluates and initiate patients on SLA based on National guidelines. Patients on SLA received a repeat VL and CD4 count test after 6 months of starting SLA. Concordant favourable response (CD4+/VL+) was defined as: increase in CD4 count of > = 50 cells/mL and achievement of plasma HIV RNA level < 400 copies/mL. Concordant unfavourable response (CD4<sup>-</sup>/VL<sup>-</sup>) defined as: increase in CD4 count of < 50 cells/mL and achievement of plasma HIV RNA level > 400 copies/mL. An immunologic only response as (CD4+/VL<sup>-</sup>), and a virologic only response as (CD4<sup>-</sup>/VL+). Various clinical and demographic factors were analyzed between concordant favourable response (CFR) and concordant unfavorable response (CUR) groups using Chi-Square and Fishers exact test.

**Results:** From January 2008 to February 2009, 70 patients were initiated on SLA. Of these, 60 (85.7%) were eligible for evaluation. In those evaluated 76.7% experienced CD4+/VL+, 10% CD4+/VL<sup>-</sup>, 5% CD4<sup>-</sup>/VL+, and 8.3% CD4<sup>-</sup>/VL<sup>-</sup> response. The respective baseline characteristics for CFR and CUR groups were: mean age in years 37 and 36 (p-value > 0.05), 97.8% and 100% males (p-value > 0.05), mean baseline CD4 count of 100 and 198 cells/mL (p-value < 0.05), mean baseline VL of 187754 and 265580 copies/mL (p-value > 0.05). Other characteristics of CFR and CUR groups respectively were: mean CD4 count at 6 months (313 vs. 147 cells/mL; p-value < 0.05), SLA substitution (13% vs. 40%; p-value > 0.05), concomitant history of anti-tuberculosis therapy (10.9% vs. 20%; p-value > 0.05), adherence >95% (100% vs. 40%; p-value < 0.05)

**Conclusions:** In this population, 76.7% of patients after 6 months on SLA indicated CFR and 8.3% experienced CUR. CUR associated with poor adherence to SLA. So adherence counselling should be given to patients on SLA.

P33

### Development of Cushing's syndrome in patients coadministered ritonavir and inhaled fluticasone dipropionate: a case series

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**Introduction:** With shared medical care for HIV+ patients by primary and secondary care, many now receive prescriptions from more than one source. This has the potential for inadvertently prescribing drugs with serious interactions. For example, Cushing's syndrome has been documented with co-administered inhaled fluticasone dipropionate (FDP) and ritonavir (RTV). We report a series of 4 cases of HIV+ patients who developed Cushing's syndrome following co-administration of FDP and RTV.

**Methods and Results:** A case review of clinical notes of four patients known to have developed Cushing's after prescription of FDP and RTV. All patients were receiving RTV as part of a boosted PI-containing regimen (100mg OD - 400mg BD). In two cases FDP was started in patients stable on RTV; in the others RTV was started in patients on FDP. Three patients were prescribed FDP inhalers for asthma and one for emphysema.

Three patients were commenced on FDP by their GP, one by a hospital asthma clinic. All four patients had disclosed their HIV+ status to their GP who received regular written communication from our clinic. No written correspondence was received by our unit when patients were started on inhaled FDP by their GP.

In one case where RTV was started second, a full drug history was taken by our unit and the GP was informed of the contraindication. In the other case this information was not communicated.

In all cases Cushing's syndrome was diagnosed clinically by their HIV physician. Three were diagnosed following body habitus changes, one after non-specific symptoms (lethargy). Diagnosis was confirmed by random cortisol and synacthin testing.

Following discontinuation of FDP, two patients saw complete resolution of their presenting symptoms. Two remain dependant on daily hydrocortisone supplementation. Three patients demonstrate long term consequences of steroid excess (osteoporosis (3), diabetes mellitus (1), thromboembolism (1), psychosis (1) and suicidal ideation (1)).

**Discussion:** Inhaled FDP is often overlooked in screening patients for drug interactions when co-administered RTV. This is despite the well documented and serious complications. We highlight the importance of educating healthcare professionals of this potentially serious interaction. A bidirectional systems failure in communicating drug information resulted in four avoidable adverse events, underscoring the possible serious consequences of suboptimal communication between primary and secondary care.

## Complications of HIV Disease or Treatment

P34

### Low CD4 cell count and renal impairment are independent risk factors for acute renal failure in HIV-infected patients

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**Introduction:** Acute renal failure (ARF) is a serious complication of HIV infection. While the risk factors for ARF in this population have been identified, their relative importance is unknown.

**Methods:** ARF incidence rates and risk factors for ARF were studied in a large HIV cohort from 1/1999 to 12/2008. ARF was defined by both (1) >40% reduction in eGFR from baseline within a 3 month period and (2) a confirmed eGFR <60 mL/min. ARF incidence rates were calculated for patients stratified by baseline and time updated covariates (CD4 cell count, HIV RNA, cART use and eGFR), and multivariable Poisson regression analysis was used to examine the effects of HIV parameters and renal function on ARF incidence.

**Results:** 2556 patients (median age 35 [IQR 30, 40] years, 60% male, 60% black ethnicity, median nadir CD4 cell count 213 [87, 339] cells/mm<sup>3</sup>, 10% hepatitis C co-infected) were followed for a median of 2.5 years. Overall, 184 patients (7.2%) experienced 202 ARF episodes [ARF incidence rate: 2.8 (95% CI: 2.46, 3.24) per 100 person-years]. The median ARF duration was 8 (4, 27) days, the median CD4 cell count closest to ARF 101 (27, 222) cells/mm<sup>3</sup>, and 56% of episodes occurred in patients not receiving cART. The ARF incidence rate progressively increased from 1.3 to 26.1 episodes/100 person-years as CD4 cell counts declined from >350 to <50 cells/mm<sup>3</sup>, and from 1.9 to 20.0 episodes/100 person-years as eGFR declined from ≥90 to <60 mL/min. In multivariable analyses, lower current CD4 cell count [rate ratio (RR) compared to

CD4>350 cells/mm<sup>3</sup>: 1.43 (0.90, 2.29), 1.78 (1.01, 3.14), 7.64 (4.18, 13.94), and 10.87 (6.27, 18.84) for time spent at CD4 counts of 200–350, 100–200, 50–100 and <50 cells/mm<sup>3</sup>, respectively], and lower eGFR [RR compared to eGFR ≥90 mL/min: 1.21 (0.76,1.94), 3.34 (2.03,5.50), and 7.02 (4.01,12.27) for time spent at eGFR 75–89, 60–74, and <60 mL/min, respectively] were associated with increased risk of ARF, while cART use, HIV viraemia (>400 c/mL), prior AIDS and IVDU/Hepatitis C co-infection were not associated with ARF. In supplementary analyses, indinavir [RR 8.44 (2.94, 24.26)], but not tenofovir [RR 0.77 (0.51, 1.19)] exposure was associated with an increased risk of ARF.

**Conclusions:** In this large multi-ethnic HIV cohort, low current CD4 cell count and chronic renal impairment were independent risk factors for developing ARF.

P35

### Low incidence of coronary heart disease (CHD) in HIV-infected patients in South London

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**Background:** HIV infected patients may be at increased risk of coronary heart disease (CHD: myocardial infarction and coronary revascularisation), and the relative contribution of traditional risk factors, HIV induced inflammation and antiretroviral therapy remains to be defined. Most data on CHD in HIV infected patients has been generated in white males, and little is known about the incidence of CHD in black patients with HIV infection.

**Methods:** Observational cohort study of all HIV infected patients followed at 2 South London clinics from 1/2004–12/2008. CHD incidence rate was compared in patients stratified by ethnicity and gender, and the risk factors for CHD and the 10 year CHD Framingham risk score evaluated in a subset of patients.

**Results:** 5280 patients (35% female, 51% black, mean age at entry 36.3 years) were followed for 16210 person-years. 15 patients (all male, 13 white, 2 black) experienced a CHD event, of whom 7 (46%) had renal impairment (eGFR<75 mL/min). Overall CHD incidence was low (0.93 [95% CI 0.56–1.53] per 1000 person years, and lower in black males (0.58 [0.15, 2.33] compared to white males (1.85 [1.07, 3.19]) (p=0.001).

Consistent with the low CHD incidence, the majority (76%) of 268 patients who had their CHD risk assessed had 10 year CHD risk scores of <10%. CHD risk was lowest for black women (1% [IQR 1, 2]), followed by black males (4% [3, 6]) and white males (6% [4, 9]) (p<0.001), reflecting lower rates of smoking (12%, 20% and 55%, p<0.0001) and more favourable lipid profiles (total/HDL-cholesterol 3.1, 3.7 and 4.7, p<0.001) in black patients, and the lower median age of black women.

**Conclusion:** The incidence of CHD in black patients is significantly lower than in white males. The higher CHD risk in white patients can be reduced by smoking cessation and management of dyslipidaemia. Renal impairment is not infrequently a manifestation of generalised cardiovascular disease and may serve to identify those at greatest risk of CHD events. Preferential use of abacavir in patients with renal impairment may result in a spurious association between abacavir exposure and CHD.

P36

### Reversal of severe vitamin D deficiency after switch from efavirenz to darunavir/ritonavir in the MONET trial

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**Background:** Severe Vitamin D deficiency (<25 nmol/L) is associated with elevated risks of cardiovascular disease, cancer and poor survival in

cohort studies of HIV negative people. Use of efavirenz has been associated with severe Vitamin D deficiency in other studies.

**Methods:** The MONET trial recruited 256 European patients taking NNRTI or PI-based HAART and HIV RNA <50 copies/mL. Patients were switched to either DRV/r 800/100 mg OD monotherapy or DRV/r 800/100 mg OD + 2NRTIs. 25(OH) Vitamin D was measured at a central laboratory, at baseline and Week 72–96. Multiple regression was used to correlate Vitamin D with gender, season, treatment group and use of antiretrovirals.

**Results:** Overall, 80.5% of patients were male, and 91% were Caucasian, with a mean age of 44 years. At the pre-baseline visit, 57 patients were using efavirenz based HAART while 140 were using nevirapine or PI based HAART. At baseline, mean Vitamin D levels were lower in the winter season (October to March) (p=0.02), for non-Caucasians (p=0.06) and for patients taking efavirenz pre-trial (p=0.0013). The risk of severe Vitamin D deficiency (<25 nmol/L) at baseline was 3 times higher for patients taking efavirenz pre-trial (17/57 patients, 30%), relative to other antiretrovirals (15/140 patients, 11%) (p=0.005). During the MONET trial, 17 patients with severe Vitamin D deficiency on efavirenz switched to darunavir/ritonavir: there was a significant rise in Vitamin D levels for these patients during the trial; only 1 had severe Vitamin D deficiency at their last study visit.

**Conclusions:** In this sub-study of the MONET trial, severe Vitamin D deficiency was associated with season, race and use of efavirenz. Switching from efavirenz to darunavir/ritonavir led to reversal of severely deficient Vitamin D levels. Routine screening of HIV positive patients for Vitamin D should be encouraged; use of oral Vitamin D supplements, or possibly changes in antiretroviral treatment, may be warranted for those with severe Vitamin D deficiency.

P37

### The use of coronary artery calcium (CAC) scores to aid cardiovascular risk stratification in an ageing HIV population

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**Background:** Traditional methods of establishing cardiovascular risk such as Framingham scores have been shown to underestimate events in HIV infected individuals. Calcification of coronary arteries is identifiable on CT imaging and can be used to calculate a coronary artery calcification (CAC) score; this has been shown to correlate with risk of cardiovascular events. More accurate stratification of individuals at high risk of cardiovascular disease would allow appropriate allocation of resources.

**Method:** Individuals from our over 50's HIV clinic underwent CT scanning to determine their CAC scores; a total of 46 completed the scan. Patients were excluded if they had a known history of ischaemic heart disease. We then performed a retrospective analysis of these individuals to evaluate the service we offered, assessing duration of HIV infection, current viral load and risk factors such as smoking, hypertension, diabetes and lipid profiles and whether patients were receiving a statin. We also calculated their Framingham risk scores and performed a multivariate analysis using SPSS programme.

**Results:** Demographics showed 44/46 subjects were male, 41/46 were Caucasian, 4 black African and 1 Asian. Median age was 58.5 years (range 51–81). All individuals had undetectable (<50 copies/ml) HIV-1 RNA viral loads. Median time of HIV diagnosis was 11 years (2–25). CAC scores strongly correlated with age (p<0.001) and traditional risk factors such as hypertension (mean [SE] with 554.2±243.0, without 263.6±88.9) and diabetes (with 616.4±303, without 341.1±113.6). Framingham scores correlated with CAC scores (p=0.037), however out of the high risk group on CAC score (>75<sup>th</sup> percentile for age and sex matching) 6/13 had Framingham scores <15% risk cardiovascular disease

per 10 years and 5/13 (38%) were not on a statin and would potentially benefit from one (approximately 10% of this cohort).

**Conclusion:** In an ageing HIV population CAC scoring can be used to identify a subset of individuals who may otherwise be deemed low cardiovascular risk but may benefit from intervention. Local practice is to initiate a statin in patients with elevated CAC score and low to intermediate Framingham score and to perform exercise testing to identify inducible ischaemia with subsequent referral for percutaneous coronary intervention.

### P38

#### Assessment of a nurse-led clinic for delivering poly-lactic acid treatment for patients with drug-induced facial lipoatrophy

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**Background:** Data have accrued confirming the benefit of intradermal injection of poly-lactic acid (PLA) as a treatment for mild to moderate facial lipoatrophy. This Unit began offering PLA as part of a funded lipodystrophy project in 2002 but as patient referrals and demand increased, it was decided that this should be developed into a nurse-led service under consultant supervision. This study describes the practical requirements for, and experience in, development of the service as well as qualitative results since conception.

**Methods:** Data was collected on all patients treated in the nurse-led clinic (NLC) from January 2007 to December 2009. This included demographic, HIV and antiretroviral (ARV) treatment history, nurse practitioner's assessment of the lipoatrophy, number of intradermal injections, complications and outcome as judged by a survey of patient satisfaction. This was assessed using a non-validated questionnaire to quantify pre and post treatment impact of their facial disease on appearance and social interaction with patients ranking their agreement on a Likert scale.

**Results:** Logistics for development of this service required application to allow this to be deemed a medical and not research product, training and competency assessment programmes to be set in place, the development of clinical and management protocols, and securing recurrent funding. Application to the local Primary Care Trust commissioners for funding was made and granted in 2006, training of two nurse specialists commenced in 2007 and the nurse-led service started in 2007. 99 patients have since been treated in the NLC: 3 were not treated because of significant comorbidity or a propensity to keloid formation. 412 treatments have been administered PLA, of which 313 were follow up visits. The mean number of treatments per patient was 4.2. Patient satisfaction with the service and perceived outcome of treatment were good with reduction in stigma resulting from their physical appearance reported.

**Conclusions:** Intradermal PLA treatment for ARV-induced facial lipoatrophy is effective and produces good rates of satisfaction in patients otherwise stigmatised by their HIV disease and effects of drug treatment. A NLC providing treatment and follow-up is safe and effective and can be costed into treatment strategies negotiated with PCT commissioners.

### P39

#### Over 50? It's time for a dual energy x-ray absorptiometry (DEXA) scan

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**Background:** The screening and diagnosis of bone disease including osteopaenia, osteoporosis and osteomalacia has become an important area of HIV management. A local audit of DEXA scans showed a high prevalence of osteopaenia and osteoporosis in patients aged over 50 years. The 2009 European AIDS Clinical Society (EACS) guidelines include risk factors for osteopaenia and osteoporosis in men aged  $\geq 50$  years

and post menopausal women. In January 2009, a specialist 'over 50s clinic' screening for non infectious co-morbidities commenced at our unit. This service evaluation reports data on bone mineral density and vitamin D levels (25-OH vitamin D) in this ageing HIV cohort.

**Method:** Electronic record review of patients attending the 'over 50s clinic'. Demographic data, current CD4 count, viral load (VL), body mass index, past medical history, antiretroviral (ART) history, hepatitis status, hypogonadism, renal disease, thyroid disease, vitamin D and parathyroid levels (PTH) and DEXA results were collected.

**Results:** Of 74 patients, four had diagnosed bone disease and were excluded. Results were available for 77% (54/70) of patients. The mean age was 60 years, 93% (50/54) were male and 85% (46/54) of white ethnicity. All patients were taking ART (100% VL<50, mean CD4 551 cells/mL). Current ART regimen included tenofovir in 65% (35/54), protease inhibitor 35% (19/54) and efavirenz 52% (28/54). DEXA showed osteopaenia and osteoporosis in 24% (13/54) and 11% (6/54). Of these, 77% (10/13) with osteopaenia and 100% (6/6) with osteoporosis were male, 63% (12/19) were taking tenofovir and 32% (6/19) a protease inhibitor. Two patients had osteoporosis secondary to chronic renal failure (CRF). Treatment included bisphosphonate and calcichew D3 forte. All were referred to the osteoporosis clinic. Of those with osteopaenia, fracture risk and need for treatment were assessed as per FRAX<sup>®</sup> calculation tool and the National Osteoporosis Guideline Group (NOGG) guidelines. Results for vitamin D were available in 96% (52/54); low levels occurred in 66% (4/6) with osteoporosis, 38% (5/13) with osteopaenia and 49% (17/35) with normal DEXA result.

**Conclusion:** Greater than one third (35%) of this cohort have osteopaenia or osteoporosis, supporting routine screening in individuals aged over 50.

### P40

#### A case of multi-drug-resistant HIV in the CNS causing HIV encephalopathy

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**Background:** HIV-1 infection may persist in the central nervous system (CNS), despite antiretroviral therapy. This case highlights the ability for drug resistant mutations to develop in the central nervous system compartment while plasma virus remains suppressed.

**Case:** A 55 year old man with HIV-1 infection presented with severe cognitive decline. Despite being antiretroviral therapy experienced he was virologically suppressed on abacavir, lamivudine, efavirenz and ritonavir boosted lopinavir for the past five years with CD4 count 760 x 10<sup>6</sup>/L (44%). He was admitted with increasing confusion and marked deterioration in mobility despite being previously completely independent and in full-time employment. All infective causes were excluded. Magnetic resonance imaging of the brain was suggestive of HIV-associated encephalopathy. His antiretroviral regime was intensified with zidovudine, which resulted in a dramatic improvement over several weeks. Eight months later he re-presented with a similar deterioration in cognitive state. A sample of cerebrospinal fluid (CSF) revealed HIV viral load of 3.72 log<sub>10</sub>RNA copies/ml despite virus remaining fully suppressed in serum. Genotyping of this sample showed an extensive pattern of resistance with multiple reverse transcriptase and protease mutations amplified. A new regime was commenced containing maraviroc, etravirine, raltegravir, boosted darunavir and enfuvirtide. Within two weeks he began to make clinical recovery with improvement in orientation and communication.

**Discussion:** Were the antiretroviral agents were not adequately penetrating the CNS or had resistant virus developed in the CNS because of adherence problems? We believe this case to be the first reported case of CNS antiretroviral failure in the absence of plasma virological failure. It highlights the ability for drug resistant mutations to develop in the central nervous system compartment while plasma virus remains suppressed.

P41

### Differences in cerebral function are observed in HIV-infected subjects stable on combination antiretroviral therapy, with and without chronic HCV coinfection

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**Introduction:** Neurocognitive impairment remains prevalent in HIV-infected subjects, despite effective combination antiretroviral therapy (cART). In subjects without evidence of hepatic decompensation, neurocognitive disturbance is also a feature of chronic hepatitis C infection. The aim of this study was to examine cerebral function parameters in individuals with HIV on stable cART, with and without HCV co-infection (HCVco) and to establish any differences between groups. **Methods:** Neurologically asymptomatic subjects underwent neurocognitive testing (Cogstate™), a dementia assessment (International HIV Dementia Scale (IHDS)) and a memory assessment (the Prospective and Retrospective Memory Questionnaire (PRMQ)). Differences between study groups were assessed by linear regression modelling, using SPSS software.

**Results:** 27 HCVco subjects were recruited and historic control data were available for 45 HIV mono-infected (HIVmo) subjects). Plasma HIV RNA level was below 50 copies/mL in 25/27 of HCVco subjects and in 45/45 HIVmo subjects. HCVco individuals had a slightly higher current CD4+ cell count (mean cells/ $\mu$ L, SD) of 562 (291) and nadir CD4+ cell count of 214 (166), compared to the control group: 546 (271) and 180 (130), respectively. No statistically significant differences in neurocognitive test or PRMQ scores were observed between groups, however a trend towards poorer executive function performance was observed in HCVco subjects (mean number of errors 17.9 versus 15.0 in HCVco versus HIVmo groups, respectively;  $p=0.106$ ,  $r=0.192$ ). IHDS scores (mean, SD) were poorer in HCVco subjects (10.48, 1.25) versus HIVmo subjects (11.51, 0.76), ( $p<0.001$ ). In a multivariate model, increasing age and HCVco were the only factors significantly associated with poorer IHDS score ( $p=0.039$  and  $<0.001$ , respectively).

**Conclusion:** In neurologically asymptomatic HIV-infected subjects stable on cART, statistically significantly poorer performance in the IHDS dementia assessment was observed in those with HCVco. Clinicians should be aware of potential cerebral function disturbance in subjects with HCVco.

P42

### A comparison of patients' attitudes to antiretroviral side effects in the UK and Uganda

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**Background:** Acceptable side-effect profiles of combined anti-retroviral therapy (cART) play an important role in the decision-making process of choosing cART and in patients achieving good long-term compliance. However, studies from our group have found that patients and health care professionals (HCPs) differ in their attitudes to side effects commonly associated with cART. As there is little data exploring patients' views regarding these side-effects, the main objective of this study was to compare views in two different patient populations.

**Method:** 155 patients in the UK and Uganda (91 and 64 respectively) were asked to complete an anonymous survey, which asked them to rate on a scale of 1-10 how distressing ten commonly occurring cART side-effects are. The mean values for each group were used to rank the side effects to compare the cohorts.

**Results:** The largest differences of distress rankings between the two countries were sleep disturbances and increased risk of MI/stroke (much higher in UK cohort) and diarrhoea (much higher in Uganda cohort). Lipodystrophy ranked highly in both countries, but was the most distressing side-effect in the UK.

Rank	Patients - UK	Patients - Uganda
1 (most distressing)	Lipodystrophy	Diarrhoea
2	Sleep disturbances	Nausea & vomiting
3	Increased risk of MI/stroke	Lipodystrophy
4	Nausea and vomiting	Itchy rash
5	Effect on sexual function	Effect on sexual function
6	Itchy rash	Increased drowsiness
7	Jaundice	Jaundice
8	Increased drowsiness	Increased risk of MI/stroke
9	Diarrhoea	Sleep disturbances
10 (least distressing)	Weight gain	Weight gain

**Conclusions:** Side-effects such as lipodystrophy are deemed distressing in both nations. Poor access to health resources may explain why diarrhoea and vomiting are ranked so highly in Uganda. More research is needed, but wider cultural differences in the acceptability of side-effects may also be contributory. This is particularly relevant to cART prescribers in multicultural cities such as London.

P43

### Abstract withdrawn

P44

### The relationship of HIV and bone density: implications for screening

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**Background:** There is evidence to show reduced bone mineral density (BMD) in individuals living with HIV. This study hypothesises that significant change among those living with HIV occurs at an early age, and examines other potential associations.

**Methods:** A cross-sectional study of 175 randomly selected HIV outpatients was undertaken. Recruitment was stratified by gender for the age groups <40, 40-49 years and  $\geq 50$  years. A questionnaire was completed for each participant including previous fractures, smoking, malabsorption, alcohol consumption, chronic associated diseases, body mass index, physical activity index, medication history, duration of diagnosis and nadir CD4. Biochemical analysis included serum corrected calcium, phosphate, 25-OH Vitamin D, alkaline phosphatase, albumin, sex hormone binding globulin (SHBG), testosterone, CD4 cell count and HIV RNA and urine protein creatinine ratio. Patients had a dual-energy X-ray absorptiometry (DEXA) scan of lumbar spine and hip. Osteopenia and osteoporosis were diagnosed according to the WHO criteria. Data was analysed using multivariate logistic regression analysis.

**Results:** Median age at the time of DEXA was 38 years (Interquartile range 30-43 years).

64% of participants were male, 41% were black, 15% HAART naïve and 31% current smokers. 49% had reduced BMD, 13% with osteoporosis and 36% with osteopenia.

In males aged 30-39, 40-49,  $\geq 50$ , osteoporosis was present in 8.3%, 11.8% and 20.5%, and osteopenia in 33.3%, 43.1% and 34.1%

respectively. For females osteoporosis occurred in 0%, 8.8% and 21.4%, and osteopenia in 14.3%, 26.5% & 57.1% respectively. In multivariate results, there was a significant association with age and reduced BMD ( $p=0.007$ ) occurring at a median age of 44.50 years (IQR 38.00–51.00). Low BMI (OR: 0.87; 95% CI (0.79, 0.95);  $p=0.003$ ) and ever having been on HAART (OR: 4.43; 95% CI (1.57, 12.50);  $p=0.005$ ) were significantly associated with abnormal BMD. Gender, ethnicity, HIV viral load, CD4 cell count, CD4 cell count nadir and vitamin D were not statistically associated with abnormal BMD.

**Conclusions:** Our findings demonstrate reduced BMD in a high proportion of patients with HIV from young age groups, and a significant correlation with HAART. This may provide a rationale for routine screening for risk factors that predict fracture in HIV, including low BMD. The potential for HAART as an incremental risk factor that lowers BMD, and may increase fracture risk, should be recognised, and monitored.

#### P45

### No association of vitamin D levels with individual antiretroviral agents, duration of HIV infection, alkaline phosphatase levels or bone mineral density findings

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**Background:** Bone health has emerged as an area of concern in individuals living with HIV. The aim of this study was to investigate the prevalence of and identify risk factors for vitamin D deficiency in a large London HIV cohort.

**Methods:** Consecutive patients visiting the dedicated HIV clinic in July 2009 had blood samples collected for analysis of 25(OH) vitamin D level which were analysed utilising Tandem Mass Spectrometry (Waters Corporation, Massachusetts, USA). This method combines vitamin D2 and D3 levels to provide a total 25(OH) vitamin D level. Data were collected retrospectively detailing gender, ethnicity, age, current treatment regimen, HIV viral load, CD4 count and duration of HIV infection.

The level of vitamin D was defined as normal when  $>70\text{nmol/L}$ , low  $40\text{--}70\text{nmol/L}$  and deficient  $<40\text{nmol/L}$ . Data were analysed using SAS statistical package version 9.1 with linear regression analysis.

**Results:** A total of 312 consecutive patients with mean age of 48 years (range 25–83) were identified. Of these, the majority were male ( $n=274$ , 88%). The mean duration of HIV infection was 12 years (range 0–26 years).

Median vitamin D level was  $66\text{nmol/L}$  (range  $<10\text{--}221$ ), 109 (35%) were defined as low and 64 (21%) were defined as deficient. Vitamin D levels below the normal range were correlated with non-caucasian ethnicity ( $p<0.001$ ) and female sex ( $p<0.001$ ). There was no association with any antiretroviral class or specific agent, including efavirenz. Individuals with low vitamin D levels were not more likely to have a raised alkaline phosphatase level. In total, 102 patients (33%) had undergone bone mineral density measurement within the last six months for unrelated reasons. Median vitamin D levels were 71, 71 and  $58\text{nmol/L}$  for those with normal, osteopaenic and osteoporotic results respectively.

**Conclusion:** In this study, we could find no association of low vitamin D with any drug class or individual agent, which is in contrast to the findings of several other studies. The only associations identified were with classical risk factors of sex and race. The lack of association of low vitamin D levels with alkaline phosphatase level and bone mineral density findings brings into question the utility of this test as part of routine HIV care.

#### P46

### Screening for bone disease in HIV patients

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**Background:** It has been recognised that low bone mineral density occurs at higher rates in HIV infected patients and as this population ages is likely to contribute significantly to the burden of disease. However, current guidelines on DEXA use to screen for bone disease have not been fully validated in an HIV setting. The main aims of this audit were to identify the rates of osteoporosis/osteopaenia within the cohort of HIV patients undergoing DEXA scanning in our centre and to look for correlations between bone mineral density and biochemical and HIV disease parameters that could inform changes to our local guidelines and plans for future prospective investigation.

**Methods:** A retrospective audit of all HIV positive patients who had a DEXA scan between the 1<sup>st</sup> July 2007 and 31<sup>st</sup> December 2009 was performed. For each patient we collected demographic data, DEXA scan results (including T and Z scores at spine and femur), biochemical data and markers of HIV disease.

**Results:** 106 patients were identified, 73% were male and the mean (SD) age was 48.9 (9.7) years. 91% were on a suppressive antiretroviral regimen and the mean (SD) CD4 count was 470 (274.1). In 81% there was no evidence of previous dexa scanning. Mean (SD) Z scores at spine and femur were  $-0.088$  (1.51) and  $-0.365$  (1.13) respectively. Based on WHO criteria for the diagnosis of osteoporosis, 12% had osteoporosis, 30% had osteopaenia and 58% had normal DEXA scans. Of the 44 patients over 50, 36% had a diagnosis of osteoporosis and 41% had osteopaenia. The mean (SD) age in this group was 58.1 (7.02) years and the mean (SD) Z score at spine was  $-0.223$  (1.65) and at femur it was  $-0.617$  (1.27). In comparison, in the less than 50 group, 73% had normal dexa scans and 5% had osteoporosis. There was no significant correlation between bone mineral density and CD4 count, calcium or vitamin D levels.

**Conclusions:** Our audit in an HIV outpatient setting highlights the importance of screening for bone disease in an aging HIV population. In light of the high rate of low bone mineral density in the over 50 year group, further prospective study, incorporating patients over 50 with no other risk factors apart from HIV, is warranted to further inform optimal screening strategies.

#### P47

### Spectrum of neurological disease in patients with discordant HIV-1 RNA levels in plasma and cerebrospinal fluid

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**Background:** Cerebrospinal fluid (CSF) HIV-1 RNA levels are generally accepted to be  $1\text{--}2 \log_{10}$  copies/ml lower than in the plasma. There are increasing reports of discordance between CSF and plasma viral load levels. Case reports have described detectable HIV-1 RNA in CSF despite full suppression of viral replication in the plasma.

**Method:** We performed a retrospective analysis of all cerebrospinal fluid (CSF) samples sent for HIV-1 RNA viral load in our department. 25 CSF samples had been analysed. Patients with underlying CNS pathology were excluded.

**Results:** 5/25 (20%) demonstrated discordance between plasma and CSF HIV-1 RNA levels. These patients presented with a wide range of neurological symptoms and signs including headaches, seizures, dizziness, peripheral neuropathy, ataxia, and difficulty urinating. In terms of CSF findings, 5/5 (100%) of patients showed raised CSF protein levels (mean =  $0.95 \text{ g/l}$ , normal range  $0.1\text{--}0.45 \text{ g/l}$ ) with normal CSF glucose; 4/

5 (80%) showed CSF lymphocytosis. All patients underwent MRI brain imaging, 4/5 had normal studies and 1 patient had periventricular white matter changes (JC and BK virus negative).

Sex	Age	Presentation	CD4 count cells/ mm <sup>3</sup> (%)	Plasma HIV viral load (copies/ ml)	CSF HIV viral load (copies/ ml)	WBC (cm <sup>2</sup> )	Opening pressure (cm H <sub>2</sub> O)	ARV at presentation	ARV at discharge
F	38	6/52 headaches	271 (19)	1,676	31,536	24 lymph	17.5	Nil	Truvada/ EFV
M	58	8/52 altered sensation upper limbs, 2/52 confusion	477 (30)	<50	2,231	11 lymph	18	Truvada/ SAQ/r	Combivir/ SAQ/r
M	50	6/52 leg weakness, ataxia, difficulty urinating	51 (4)	255	93,116	<1	14	TDF/DDI/ ATZ/r	Truvada/ DRV/r
M	44	6/12 seizures, numbness and headaches	609 (19)	61	9,700	34 lymph	30	Nil	Truvada/ DRV/r
F	47	6/12 ataxia, slurred speech, urinary frequency	302 (22)	678	33,110	9 lymph	17	Truvada/ DRV/r	Combivir/ DRV/r

**Conclusion:** All patients improved clinically from starting antiretroviral therapy or switching from their combination to a regime with a higher CNS penetration score. CSF analysis for HIV-1 RNA is not frequently performed in most centres. We advise that any patient who presents with even vague neurological symptoms should have a lumbar puncture to exclude discordant CSF and plasma viraemia.

**P48**  
**Low vitamin D in HIV patients: an audit of prescribing practice and vitamin D incrementation following replacement therapy**

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**Background:** There is a high prevalence of vitamin D insufficiency in HIV infected individuals. Low levels of vitamin D are associated with osteomalacia, defective bone mineralisation, bone pain and increased fracture risk. The 2009 European AIDS Clinical Society (EACS) guidelines recommend measuring 25-OH vitamin D in all patients and, where insufficient (25-50 nmol/L) or deficient (<25nmol/L), parathyroid hormone (PTH) and bone biochemistry should be measured. Vitamin D replacement therapy (VDRT) should be initiated, with calcium supplementation where necessary. We audit prescribing practice and report vitamin D responses in treated individuals.

**Methods:** The HIV pharmacy database was interrogated for vitamin D prescriptions from 1<sup>st</sup> September 2008 until 31<sup>st</sup> August 2009. Individuals who had died or those with normal baseline vitamin D were excluded. Type and duration of VDRT, vitamin D levels following at least 3 months of therapy, demographics and antiretroviral history were collected from electronic records.

**Results:** Calcichew D3 forte and ergocalciferol were prescribed for 208 and 19 patients respectively and 11 patients received both. We excluded 112 patients: 3 patients died during treatment, 47 patients were treated for indications other than vitamin D deficiency and 62 patients did not have repeat vitamin D levels assessed. Of the remaining 126 patients, 68% were male, 54% were white and 31% were black African. The mean

age was 48 years (range 22-81 years). Only 46% of patients (58/126) had baseline PTH levels checked. All had bone biochemistry performed.

*Patients on VDRT with Calcichew D3 Forte and/or Ergocalciferol*

Vitamin D level after treatment	Patients with baseline deficiency		Patients with baseline insufficiency	
	Total number (%) n=91 (72%)	Mean duration of treatment (months)	Total number (%) n=35 (28%)	Mean duration of treatment (months)
Normal	60 (66)	5.5	28 (80)	4.6
Insufficient	20 (22)	6.4	6 (17)	7.0
Deficient	11 (12)	11.1	1 (3)	4.8

**Conclusions:** The majority of patients were prescribed VDRT appropriately according to EACS guidelines; however, fewer than half had an adequate PTH assessment. Most patients responded to a short course of treatment; however, a significant number had an inadequate response or were not appropriately followed up. We have written a local clinic policy to standardise vitamin D prescription and monitoring within our unit.

**P49**  
**Two case reports documenting HIV CNS compartmentalization with acute neurological presentations in patients with well controlled peripheral HIV**

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**Background:** Ongoing replication of HIV within the central nervous system (CNS) despite successful peripheral suppression of the virus with HAART, is well recognised, but the clinical consequences and treatment options remain poorly defined.

**Methods:** We describe 2 adults with well-controlled HIV infection on HAART (plasma HIV RNA consistently <40 copies/ml, CD4>350 cells/mm<sup>3</sup>) who presented with acute neurological symptoms and non-specific inflammatory lesions on brain MRI.

**Results:** Examination of the cerebrospinal fluid (CSF) revealed a pleocytosis with an elevated total protein in both cases, but no bacterial or viral cause was found. Despite undetectable plasma HIV RNA, HIV was detectable in the CSF – the first having a viral load of 2699 and the second having a viral load of 1268. HIV CNS compartmentalisation was suspected and the anti-retroviral medications of both patients were modified to achieve greater CNS activity. Ritonavir/darunavir were changed to Combivir (Lamivudine and Zidovudine) in the first patient whilst Ritonavir, Atazanavir and Kivexa was changed to Kaletra and Trizivir in the second. In both cases their neurological symptoms resolved completely within four weeks, MRI changes improved, and HIV became undetectable within the CSF.

**Conclusion:** These two reports suggest the clinical consequences of HIV CNS compartmentalisation may extend beyond the chronic, subtle neurocognitive disorders previously described to include acute neurological presentations. These problems may be driven by the differential activity of anti-retroviral drugs within the CNS, and HIV CNS compartmentalisation should be considered in patients on HAART with new onset neurological symptoms, regardless of plasma HIV viral load. A switch to anti-retroviral drugs with increased CNS activity may help treat the diverse neurological consequences of unrestrained HIV CNS replication. Further studies are required to define the clinical spectrum of these disorders and the best anti-retroviral regimen to combat them.

P50

### Use of high-dose oral colecalciferol to correct vitamin D deficiency in HIV-positive patients

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**Background:** Vitamin D deficiency is common amongst HIV+ patients and has been topic of much discussion recently. In the absence of specific guidelines for Vitamin D replacement in HIV patients, individual departments have adopted their own regimens. In Cardiff we started using high dose (20,000IU) oral colecalciferol capsules to replace deficiency in June 2009. We present the outcomes of our experience.

**Methods:** Patients are routinely tested for 25-hydroxycolecalciferol at clinic appointments at least annually. Those with deficiencies ( $<30\mu\text{g/l}$ ) were supplemented. A standard regimen of 20,000IU /wk for four week was used. Vitamin D levels were re-checked following the regimen.

**Results:** Results for 50 patients receiving oral high dose Vitamin D from June-09 to January-10 were analysed. Mean vitamin D level before treatment was  $12.0\mu\text{g/l}$ . 38% were classified as deficient ( $<10\mu\text{g/l}$ ), 58% were insufficient ( $10\text{--}20\mu\text{g/l}$ ) and 4% had levels  $20\text{--}30\mu\text{g/l}$  (ideal range  $30\text{--}100\mu\text{g/l}$ ). Following treatment, the mean rise of  $23.2\mu\text{g/l}$  resulted in a mean Vitamin D level of  $35.2\mu\text{g/l}$ . Overall, 66% of patients achieved final Vitamin D level  $>30\mu\text{g/l}$ . 67% of patients with a starting level  $<10\mu\text{g/l}$  achieved final level of  $>30\mu\text{g/l}$ .

No correlation was seen between the time of year and the baseline Vitamin D level nor the response to treatment. There was a trend towards those with lower starting levels to have a higher rise.

**Discussion:** Replacement with four doses of colecalciferol 20,000IU was an effective method of correcting vitamin D deficiency in the majority of patients, including in those with initial levels  $<10\mu\text{g/l}$ . The regimen was tolerated by all patients, with no reported side effects. Following this, we have now drawn up department guidelines for the management of vitamin D deficiency.

P51

### Reversibility of tenofovir-related renal toxicity: a retrospective cohort analysis

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**Background:** Tenofovir (TDF) is recommended as a 1<sup>st</sup>-line ARV in naïve patients because of high efficacy, low toxicity, fixed dose formulations and thereby dosing convenience. Significant renal dysfunction (RD) occurs in approximately 1%: recovery on discontinuation has been variably reported as being seen in the majority or only a proportion, when it appears to be associated with boosted-PI use and speed of decline in eGFR. The aim of this study was to identify patients developing RD on TDF and evaluate recovery on drug discontinuation.

**Methods:** Data were retrieved from pharmacy lists, databases, case notes, and computer records. Patients still under follow-up as of Dec 2009 who developed RD on TDF were identified. TDF-related RD was defined by one or more of: reduction in eGFR to  $<60\text{mL/min/1.73m}^2$  (Modification of Diet in Renal Disease equation), eGFR reduction by  $30\text{mL/min/1.73m}^2$ , or decrease in eGFR with tubular proteinuria (other causes excluded) with discontinuation of TDF for presumed TDF-related RD.

**Results:** 24 patients were identified with TDF-related RD (mean age 44 years, male 79%, White 92%): median time from HIV diagnosis was 6 years (0-18). Co-morbidities included chronic hepatitis (33% B; 4% C), hypertension 21%, and diabetes 8%: 17% were smokers. At initiation of TDF, 25% were ARV naïve, 50% were receiving boosted protease inhibitors, and 42% had an undetectable viral load (VL): median CD4 was  $240\text{ cells/mm}^3$  (5-900). Median time on TDF before discontinuation was 120 weeks (9-433). Decline in pre-TDF eGFR was a median  $34\text{mL/min}$  (95%CI 22.8-45.6: comparison of pre-TDF eGFR to switch -  $p<0.001$ ) and post-TDF improvement  $18.6\text{ mL/min/1.73m}^2$  (95%CI 11-26.2: comparison

of eGFR at switch to Dec 2009 -  $p<0.001$ ) occurring by a median of 120 weeks (range 6-143w). Only 29.1% reached their pre-TDF eGFR. No significant association with boosted-PI use was seen. Median CD4 at end of observation was  $423\text{ cells/mm}^3$  (range 189-1224) and 92% of patients had an undetectable VL.

**Conclusions:** Our observational data are consistent with previous data in that tenofovir associated renal dysfunction does not always return to normal. This should be borne in mind when eGFR starts to decline on a TDF-containing regimen.

P52

### A case of HIV-1 superinfection in chronic HIV-1 infection

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**Background:** There are no reports of HIV superinfection amongst chronically infected individuals in cohort studies. However, previous case reports suggest superinfection may occur at any time. We describe a case of HIV-1 superinfection in an individual chronically infected with HIV-1.

**Case Report:** A 30 year old Caucasian MSM was diagnosed HIV positive in July 2003 with no history of seroconversion illness. His baseline CD4 count was 159. He commenced antiretroviral therapy (ARV): Combivir/ Nevirapine then switched to Kivexa/Nevirapine in order to avoid lipodystrophy. He was always virologically suppressed. From November 2007, he complained of GI upset (nausea, vomiting, loose stools and fatigue but no rectal bleeding). Admission under the gastroenterologists with bloody diarrhoea in November 2008 did not reveal any pathology on endoscopy. No specimen was sent for gonorrhoea (rectal chlamydia was negative). His symptoms responded to oral ciprofloxacin.

In April 2009, he stopped therapy due to nausea and vomiting. At routine clinic review he had been pill free for 22 days and complained of a five day history of sore throat and rash. He reported frequent unprotected receptive and insertive anal intercourse with his HIV positive regular male partner (RMP) who was ARV experienced but currently off therapy. This RMP had frequent sex with other casual male partners. On examination he appeared well with a fine macular rash over his trunk. The rash had involved his limbs and face around the hairline. His oral cavity was unremarkable. He had shotty, bilateral inguinal lymph nodes only. Examination of cardiovascular, respiratory, abdominal and neurological systems was normal. Genital examination revealed perianal warts.

Serology for hepatitis A, B and C, Epstein-Barr and syphilis was all negative. HIV-1 viral load was 2,609,964. Genotypic Resistance Test (GART) revealed superinfection of previous clade B virus with CRF02\_AG. He had recommenced on Truvada, Atazanavir and Ritonavir prior to his GART results and achieved a four log drop in viral load at four weeks.

**Discussion:** Superinfection may compromise future ARV therapy. Infection with a second strain of HIV may affect clinical progression even in the absence of drug resistance. It remains unclear whether poor prognosis due to dual or superinfection is due to viral or host factors. All HIV positive individuals should be counselled regarding the risk of superinfection, particularly those who choose to serosort.

P53

### Two cases of tumefactive demyelination – rare but important

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**Background:** Focal brain syndrome (FBS) in HIV is rare but an important cause of morbidity and mortality, with toxoplasmosis, primary central

nervous system lymphoma and progressive multifocal leuco-encephalopathy responsible for most cases. Less commonly, demyelinating diseases are a cause of FBS. We describe FBS secondary to tumefactive demyelination (TD) as an early feature of HIV in 2 patients.

**Methods:** Data was collected from patient case notes. Case definition of TD was FBS, a brain lesion with incomplete open ring (OR) enhancement, and typical histology (extensive loss of myelin, marked perivascular reaction, clear border between normal tissue and advancing edge of demyelination).

**Results:** Both patients (male aged 54 in whom it was the presenting HIV illness and female aged 49 not on antiretrovirals [ARV]) presented with a subacute history of headache, dysarthria, and left (L) sided weakness with L facial upper motor neurone (UMN) paresis and L hemiparesis on examination. Baseline CD4 was 220 and 176 cells/mm<sup>3</sup> respectively. MRI revealed mass lesions (R parieto-temporal/L frontal; R frontal) with OR enhancement and moderate oedema: CSF was normal in both patients with a negative infection screen. Anti-toxoplasma therapy was started and due to lack of clinical and radiological response brain biopsy was performed. Histology showed aggressive demyelination and was consistent with TD. Both patients commenced combination ARVs and high-dose steroids tapered over 12 weeks with significant clinical and radiological improvement.

**Conclusion:** TD as a cause of treatable FBS is rare but can mimic the MR appearances of other mass lesions, particularly toxoplasmosis. Indicative features include a subacute history, focal features, distinctive OR MR appearance, and a CD4 count of >100 cells/mm<sup>3</sup>. Definitive diagnosis is by brain biopsy which should be performed in all patients failing anti-toxoplasma therapy. With early recognition and prompt steroid therapy a favourable neurological outcome is possible.

#### P54 Cardiovascular disease risk assessment in HIV patients

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**Background:** As HIV infection can increase cardiovascular disease (CVD) risk, BHIVA guidelines recommend yearly CVD risk assessment with appropriate management to at least Joint British Society guideline standards. The 10-year risk of developing CVD should be calculated (e.g. using the Framingham calculator). A CVD risk of  $\geq 20\%$  over 10 years is considered 'high risk' and requires professional lifestyle interventions, appropriate medication and consideration of switch of ART.

**Methods:** We reviewed the notes of HIV patients attending during September 2009 and established whether a risk assessment had been performed during the preceding year; ART /switch status; if lifestyle factors had been addressed; if lipid lowering or antihypertensive treatment had been started. The 10 year Framingham risk was calculated based on age, sex, smoking habit, systolic blood pressure and total/HDL cholesterol ratio.

**Results:** Although all patients had lipid levels checked, a recent CVD risk assessment had not been recorded in over 60% of patients, many of whom were of higher risk status.

Regarding higher risk patients, all had had lifestyle addressed in clinic, but 36% still smoked; 6 had cholesterol of >5.2, none of whom were currently taking a statin; 3 were ART naïve, 3 taking non-PI containing regimes, non taking Abacavir. Of the 4 higher risk patients on PI containing regimes, 3 were taking Atazanavir and all had options limited by resistance to other ART classes. One higher risk patient had untreated hypertension. Use of professional referral for addressing lifestyle risks was low, due to both patient choice and limited availability.

	All patients	'Higher risk' CVD risk $\geq 20\%$
Total	40 (6 women/34 men)	11
Average age	46 years	60 years
Previous CVD event	1	1
Diabetes	1	1
Current smoker	18	4
CVD risk recorded	15 (37.5%)	5 (45%)
Calculated CVD risk $\geq 10\%$	52.5%	
Calculated CVD risk $\geq 20\%$	27.5%	
On ART	36	8
On protease inhibitor (PI)	17	4
On any lipid lowering treatment	8	5

**Conclusions:** We are currently implementing an electronic patient record system and will develop patient consultation templates which formalise CVD assessment and guide appropriate action and review.

## Biology and Diagnostics

P55

### A simple solid matrix transport device SampleTanker® for economic collection, storage and transport of patient plasma between clinical sites for HIV-1 molecular and antibody testing

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**Background:** Worldwide, HIV-1 molecular and clinical laboratory testing requires transport of frozen samples which has become prohibitively expensive. SampleTanker® (ST) is a biomatrix for transport of dried plasma that can be used for movement of patients' samples in resource-limited and resource rich-settings for HIV-1, HBV and HCV genotypic analysis to support real-time clinical care.

This study evaluated the utility of ST versus frozen plasma for: accurate determination of genotypic resistance, qualitative and quantitative diagnostic HIV-1 antibody testing and relative economics of international shipment.

**Methods:** Paired ST and plasma samples 118 consecutive whole blood specimens from our HIV/AIDS cohort (VL >1000c/ml), were separated and 1ml of plasma was loaded onto the ST, air-dried overnight in a hood and stored, and 1 ml of plasma frozen at -70C.

The paired samples were analysed for genotypic resistance and subtype using the TRUGENE HIV-1 Genotyping Kit and HIV-1 GeneTanker PR/RT Select Assay. Analyses were performed to compare overall nucleotide sequence similarity and resistance associated amino acid mutations (IAS USA 2008) for all paired samples.

Patient plasma/ST pairs were evaluated qualitatively for HIV-1/HIV-2 antibodies using the HIV-1/2 DETERMINE assay (3rd Generation) and quantitatively by serial, parallel 10-fold dilutions to extinction in all cases.

**Results:** 108 of 118 paired sequences (91.2%) were obtained for comparison. ST sequencing results had mean similarity scores of 99.2% and 98.6%, respectively, at the nucleotide and amino acid level for resistance associated mutations (p: NS).

There was 100% concordance for qualitative HIV-1/2 antibody detection using 30 ST eluate/frozen plasma pairs, and quantitative antibody titres showed equivalent dilutional endpoints in all (p: NS).

International shipping costs were significantly higher for frozen plasma \$23.8/sample versus \$0.6/sample (p>0.001).

**Conclusions:** ST provided a highly flexible and cost effective means of storing and transporting plasma with high accuracy and reproducibility of

HIV-1 resistance genotyping and 100% qualitative and quantitative HIV-1/2 antibody detection rates compared with frozen plasma. In addition, viral load, subtyping and genotype analysis from distant and resource-limited settings, and serological analysis on the same samples will enhance the portfolio for real-time patient clinical care in adults and children.

P56

### Low rates of HIV p24 antigen detection using a fourth-generation point-of-care test

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**Background:** HIV point of care testing (POCT) has greatly improved the uptake and acceptability of HIV testing. Recently, a rapid fourth generation assay for simultaneous detection of HIV p24 antigen and antibodies to HIV-1 and HIV-2 in whole blood, serum or plasma has been developed (Determine HIV-1/2 Ag/Ab Combo assay (Inverness Medical)). Roll out of this new assay to clinics has occurred in the absence of large scale clinical evaluation and limited data on the sensitivity and specificity of the assay for detecting Primary HIV infection (PHI).

We investigated the ability of the Determine assay to detect p24 antigen in samples previously identified as being p24 antigenaemic using standard fourth generation assays.

**Methods:** Stored serum were evaluated from 36 individuals with confirmed HIV infection and positive for HIV p24 antigen following standard fourth generation serological testing. All p24 antigen positive results were confirmed with neutralisation. All samples were tested using the fourth generation Determine HIV-1/2 Ag/Ab Combo POCT assay (Inverness Medical) according to the manufacturer's instructions. Quality control samples were tested.

**Results:** The Determine assay detected p24 antigen in 18/36 (50%) cases; 15 were p24 antigen positive only, 3 p24 antigen and HIV antibody positive, 8 HIV antibody positive only and 10 negative for both p24 antigen and HIV antibody. HIV infection (p24 antigen positive and/or HIV antibody positive) was detected in 26/36 (72%) cases. In sequential samples from 2 individuals with confirmed PHI, the Determine assay failed to detect either antigen or antibody at baseline in one individual. **Conclusion:** The sensitivity of the fourth generation Determine assay, for detection of p24 antigen, was 50%. As such, only 18/36 cases were identified as recent infections and 10 were falsely identified as HIV negative. The high rate of false negative p24 antigen results suggests that cases of PHI may be missed. The role of the fourth generation POCT in the clinical setting needs to be better defined with the understanding that early HIV infection cannot be excluded and that standard fourth generation assays are still indicated in any individuals with possible primary HIV infection.

P57

### Novel insights into how quality as well as quantity of 'T-regulatory cells' might explain current disease patterns in HIV

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**Background:** In HIV infection, uncontrolled immune activation and disease progression is attributed to declining CD4+CD25+FoxP3+ regulatory T-cell (Treg) numbers.

This study hypothesises that in chronic HIV infection changes in the quality of T-regs affects the ability of classic CD4+ cells (effector CD4+ cells) to function and produce cytokines such as IL-2.

**Methods:** A classic suppression assay was optimized to measure CD4+CD45RO+CD25hi Treg cells to suppress the proliferation of CD4+CD45RO+CD25- effector cells following CD3/CD28 polyclonal stimulation and employed to compare the suppressive ability of healthy volunteers (N=27) and chronic HIV-infected, treatment naïve patients (N=18).

**Results:** Irrespective of effector CD4+ count and virus load, Treg cells of HIV+ patients displayed an enhanced capacity to suppress effector CD4 T-cell proliferation. Suppression levels of healthy volunteers decreased as the ratio of Effector CD4+:Treg cell ratio dropped (50% at 1:0.125), whilst suppression of chronic HIV+ patients remained at 97% under parallel conditions (p=0.0269). Cross-over assays comparing Treg from HIV+ control subjects to suppress a given allogeneic effector population isolated from controls and vice versa (Treg cells from controls to suppress allogeneic effector CD4+ cells from controls v HIV+ subjects), highlighted increased sensitivity of HIV+ effector cells to suppression, rather than increased potency of HIV+ Treg cells. In addition we examined an effector cell population called Th17, which has a reciprocal pattern of differentiation to Treg cells. IL-17+ cells from 18/20 patients tested had fewer IL-17+ cells than mean frequency of IL-17+ effectors in controls (p=0.0113, Fischer's exact test).

**Conclusion:** These data support the contention that enhanced quality of Treg function is a result of altered effector CD4+ cell function in response to HIV infection. Understanding functional changes to the two CD4 T cell subsets that orchestrate immune homeostasis: IL-17 producing proinflammatory cytokines and immunosuppressive Treg cells, is likely to be important in HIV pathogenesis. This might prove key in explaining the pro-inflammatory effects of HIV that lead to the non-HIV manifestations such as cardiovascular disease.

P58

### HIV-2 viral load testing – validation and quantification at low copy number

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**Introduction:** The management of HIV-2 infection poses many challenges including the availability and reliability of HIV-2 viral load quantification. A recent Europe-wide study found that HIV-2 quantification varied significantly between laboratories. Quantification at low HIV-2 copy numbers is particularly problematic with decreasing accuracy and reproducibility at decreasing HIV-2 loads. Only two laboratories were able to quantify HIV-2 below 200 copies/ml. As accurate assessment of HIV-2 is essential for optimal patient management, we sought to validate an in-house assay and to compare it to a standard assay.

**Methods:** The real-time quantitative PCR assay was adapted from a published method which had performed well in the European comparative study. Twenty samples with known decreasing copy numbers of HIV-2 were tested to determine the lower limit of detectability. Ten replicates were studied in the two assays to assess inter- and intra-assay variation. Forty three samples from HIV-2 infected patients were quantified in both assays and the results compared.

**Results:** The overall lower limit of detection was 248 copies/ml but 17/20 samples were quantifiable at copy numbers below this. Twenty one of 43 patient samples were quantified in both assays with  $0.45 \pm \log^{10}$  copies/ml higher loads in the test assay compared to the standard assay. Seven samples had "RNA quantified below limit of detection" in the standard assay; four of which were quantified at 540 – 790 copies/ml in the test assay. Eighteen samples had "RNA not detected" in the standard assay. Of these, three had "RNA quantified below limit of detection" and one quantified at 250 copies/ml in the test assay.

**Conclusion:** This assay performed well compared to the validated standard HIV-2 viral load assay. It was sensitive and reproducible at low copy numbers and in some cases detected or quantified RNA reported as undetectable by the comparator assay. This is important as many HIV-2 infected patients have low or undetectable viral loads throughout infection. A detectable HIV-2 load is often the trigger to initiate antiretroviral therapy. Monitoring of HIV-2 load whilst on therapy is essential as drug resistance is common and can develop rapidly. Detection of low HIV-2 loads on therapy will allow for early switching with the aim of preservation of the already limited repertoire of

antiretroviral drugs. Ongoing surveillance of our cohort will allow further assessment of this assay in clinical practice.

### P59 Integration and persistence of oncogenic, human papilloma virus mRNA in HIV-positive women

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**Background:** HIV positive women are more likely to have abnormal cervical cytology and oncogenic HPV infection. This prospective analysis examined a cohort of HIV positive women to assess the HPV DNA prevalence, HPV E6/E7 oncogene expression, cervical cytology and the persistence of HPV over time.

**Methods:** 350 HIV positive women were recruited between Jan 2007 and Dec 2010. PreservCyt™ cervical smears were taken at baseline and at 6-18 month follow up. Cytological diagnosis was made according to the BSCC guidelines. HPV DNA status was assessed using the Hybrid Capture II assay (Qiagen, UK). HPV E6/E7 mRNA expression was detected for 5 HPV subtypes (16, 18, 31,33, and 45) using the PreTect™ HPV Proofer assay (NorChip AS, Norway). Patient demographics, CD4 count, viral load, smoking status, ethnicity and antiretroviral (HAART) history was also recorded.

**Results:** 128/350 Europeans, 220/350 Sub-Saharan Africans, 2/276 Asians were recruited. 115/350 were current smokers, 25/276 were past smokers, 210/276 had never smoked. 175/350 (50%) were on HAART, 42/350 (12%) had CD4 <200 x 10<sup>6</sup>/L. 262 specimens were tested for HPV DNA at baseline, 132/262 (50%) tested positive. 260 specimens were tested for integrated HPV mRNA, 54/260 (21%) tested positive. The commonest subtype was 45 followed by 33, 18, 16 and 31 respectively. There was a significant correlation between CD4<200 x 10<sup>6</sup>/L and increased presence of HPV mRNA (p<0.05). There was no significant relationship between those on HAART and the presence of HPV mRNA. 49 patients have had sequential, (≥2), HPV DNA testing and 48 sequential mRNA testing. HPV DNA was present in 26/49 (53%) at baseline and 22/49(45%) at follow up. Integrated HPV mRNA was present in 10/48 (21%) at baseline and 11/48 (23%) at follow up. There was no significant correlation with persistence of infection and CD4 count or HAART treatment.

**Conclusions:** 25% of women had cytological abnormalities at baseline; this was significantly linked to the presence of HPV mRNA. Cytological abnormalities were present in (88%) of women with HPV DNA and 40% of women with HPV mRNA.

### P60 Inter-clade dual HIV-1 infection in the UK – an emerging phenomenon

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**Background:** Concern about HIV-1 dual infection is increasing although reported prevalence remains low. In addition to the risk of additional acquired antiretroviral (ART) resistance, dual infection may result in accelerated disease progression and treatment failure. We therefore enhanced surveillance for dual infections during routine HIV-1 genotypic antiretroviral resistance testing (GART) in a genetically diverse cohort.

**Methods:** GART was performed using a protocol derived from the Viroseq kit (Celera) modified by the substitution of an in-house panel of sequencing primers with broad cross-clade binding ability. GART data were further examined for indications of dual infections using polymorphism frequency as an initial filter, and subsequent close analysis for a combination of mixed and discordant sequences within compiled contigs.

Disentanglement of sequences was followed by standard GART typing and analysis using REGA and the Stanford database.

**Results:** Three inter-clade HIV-1 dual infections were identified. All are MSM who report sexual contacts exclusively in the UK. Sub-type B was identified in all cases with super-infection with subtypes G, CRF02\_AG and A. Two patients had dual infection on baseline genotype after diagnosis and have remained stable off ART to date. Patient 3 had a first genotype requested prior to initiation of ART due to declining CD4 count. There were no significant drug resistance mutations in any of the viral sequences.

**Conclusion:** These cases are the first to demonstrate the recent emergence of inter-clade dual HIV-1 infection due to sexual transmission between MSM in the UK. We have detected clades previously rare in MSM. This may reflect the changing epidemiology of HIV subtypes in London with increasing cross-over between otherwise distinct epidemiological groups. Dual infection has an established adverse effect on HIV disease outcome but inter-clade infections are of additional concern. Different clades may have differential responses to ART and drug resistance pathways may differ, making treatment more difficult. There is an increased risk of HIV recombination to form new unique or circulating viral forms and implications for future vaccine design. These results suggest that safer-sex messages to patients must be reinforced and that Public Health initiatives targeting specific groups may have to take account of a larger degree of viral mixing. Continued surveillance for dual HIV-1 infection is required.

### P61 Influence of different versions of the Roche Taqman™ assay on the rates of HIV viral load >50 copies/ml in patients on ART

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**Background:** Viral load blips (results >50 copies/ml in patients previously <50 on ART) were previously seen in about 2-4% of patients. In July 2009 we noticed a very large rise in the blip rate in our patients coincident with the change to the Roche Taqman version 2 assay.

**Methods:** We calculated the blip rate in our patients before and after the switch from Roche Taqman v1.5 to Roche Taqman v2 viral load assay. More robust specimen collection and preparation methods were subsequently introduced and the blip rates re-calculated.

**Results:** See the table for the incremental change in blip rate associated with the following changes: before July 2009, the routine assay used was the Roche Taqman v1.5; July 2009, the Roche Taqman v2 was introduced; August 2009 the specimen collection was changed to EDTA samples spun within 6 hours of collection; November 2009 there was a further change in laboratory procedures to ensure optimum specimen preparation. So far, 37/47 (79%) of these 'blip' patients using Roche Taqman v2 have returned to <50 copies/ml on retesting.

Month (2009)	Assay	Procedural changes	'blip' rate	P value
Pre-July	Taqman v 1.5	none	5/121 4.0%	
July	Taqman v 2.0	New assay	34/104 33%	<0.001
Sept/Oct	Taqman v 2.0	Sample collection	25/157 16%	0.02
November	Taqman v 2.0	Specimen preparation	8/128 6.3%	n.s.

**Conclusions:** The Roche Taqman v2 viral load assay was associated with an extremely high blip rate in our patients following its introduction into our service, leading to large number of patients needing recall and retesting. Although the blip rate fell to 6.3% with scrupulous and more labour-intensive specimen collection and preparation, this rate is still higher than previously seen in our patients and reported with other assays. This necessitates more patients being recalled for repeat testing and introduces more clinical management uncertainty in patients with blips. Whether these increased blips are due to better capture of transient viraemia or are due to increased non-specific signal in the assay remains to be ascertained.

P62

### HIV-neutralising response to recombinant, cross-clade, adjuvanted, virus-like particle-forming vaccine candidates

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**Background:** Broadly neutralising antibodies (bNAbs) are crucial to achieve sterilising immunity to HIV-1 but the design of immunogens that elicit high titres of bNAbs has remained an elusive goal. Earlier work on prime-boost T cell vaccines showed that strong CD8 T cell responses was selectively elicited to T cell epitopes held in common between priming and boosting agents. Here we test the hypothesis that broadly neutralising antibody responses to primary isolates of HIV will be elicited by prime-boost cross-clade immunisation with adjuvanted HIV virus-like particles because the key b12 neutralising epitope is held in common.

**Methods:** As a step towards this goal we constructed and characterised 3 novel adjuvanted *in vivo* clade A, C & D HIV virus-like particle forming vaccine candidates employing delivery systems potentially useable in humans: DNA, fowlpox/cholera toxin B & modified vaccinia virus Ankara/human complement C3d. Cynomolgus macaques (*Macaca fascicularis*) were sequentially immunised. Sera from vaccinated macaques were tested for neutralising activity against primary isolates of HIV. T cell and antibody responses were measured by IFN- $\gamma$  ELISpots and ELISA respectively.

**Results:** No macaque sera HIV neutralising activity was detectable in our assay and only one of the vaccinated macaques elicited a strong T cell and antibody response. This occurred despite appropriate expression of recombinant proteins by the vaccine candidates with formation of HIV virus-like particles seen on electron microscopy. Furthermore the b12 epitope (coincident with the CD4 binding site of gp120) was shown to be held in common by the vaccine candidates yet there was no neutralisation of the b12 sensitive strain SF162.

**Conclusions:** This novel strategy designed to focus the immune system on B cell epitopes shared across clades of HIV-1 did not elicit bNAbs to primary isolates of HIV-1. It may be that the vectors employed simply do not generate good antibody responses despite the attempts to improve this with C3d and CTB. Broadly neutralising epitopes are poorly immunogenic & may be subdominant to other conserved B cell epitopes. Further investigation may be warranted because (as demonstrated by the recent Thai trial) vaccine responsiveness in humans may be different to that in macaques. It also encourages us to pursue the development of safe live attenuated vaccines for HIV, because live attenuated retroviruses have shown greatest protective efficacy in the SIV/macaque model.

P63

### Lymphopenia on routine full blood count as an indicator of undiagnosed HIV infection

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**Background:** There is a high rate of undiagnosed HIV infection in the UK and consequently of late presentation, which is associated with adverse outcome. Late presenters have usually had multiple earlier contacts with health care professionals and missed opportunities to test for HIV. In addition, migrants and some ethnic groups may be more at risk of late presentation despite adequate engagement with medical services. The situation is particularly problematic in East London as there is a very high background rate of HIV and an ethnically diverse population. Many newly diagnosed patients have had earlier full blood counts (FBC); lymphopenia is an indicator condition for HIV testing in BHIVA guidelines, but this seems rarely to be undertaken in other medical settings. We therefore

undertook a study to investigate the utility of lymphopenia as an indicator of undiagnosed HIV infection.

**Methods:** All new HIV diagnoses presenting in the preceding 6 months were studied. Total Lymphocyte Count (TLC) and CD4 count on first paired FBC and lymphocyte subset sample taken after diagnosis were recorded. Normal range for TLC was defined as 1.5 – 4.0.

**Results:** 59 patients presented between April and October 2009. 17 (29%) were female and 42 (71%) male. Results were considered for whole cohort, and for those presenting with CD4<350 and CD4<200. CD4 range for whole cohort was 2 – 1453, median 219.

31 (53%) patients had TLC <1.5 at presentation, in whom CD4 range was 2–587, median 158.

Cohort	Number	TLC range	Median TLC
Total cohort	59	0.2 – 8.3	1.4
CD4<350	38	0.2 – 2.5	1.1
CD4<200	26	0.2 – 2.1	1.1

**Conclusions:** There was a higher than expected rate of late presentation of HIV. 64% of patients required immediate initiation of antiretroviral therapy by virtue of CD4<350. In addition, 44% presented with advanced immunosuppression at CD4<200. There was a low median TLC, showing that lymphopenia is common in HIV patients at diagnosis. Patients with CD4<350 at diagnosis had a lower median TLC count than the whole cohort, suggesting that TLC predicts advanced HIV-related immunosuppression. More than half of the cohort had low TLC (<1.5) at diagnosis, regardless of CD4 count. This suggests that lymphopenia on a routine FBC would potentially have identified undiagnosed HIV infection in these patients. Further work is planned to determine the predictive value of lymphopenia in identifying HIV and to pilot interventions based on this to increase rates of testing.

P64

### To evaluate the impact of herpes simplex virus HSV type 2 shedding on HIV plasma viral load (VL) in HIV-positive patients diagnosed with an acute bacterial sexually transmitted infection (STI)

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**Background:** The aim of this study is to determine the acceptability of HSV testing in HIV positive patients undergoing a routine STI screen, to establish the prevalence of HSV type 2 antibody (HSV 2 Ab) and HSV 2 PCR positivity within this group, and to further evaluate the impact of HSV type 2 shedding and acute STI diagnosis on plasma HIV VL.

**Methods:** Patients with a known HIV VL <50 undergoing a routine bacterial STI screen were requested to have extra tests including penile, perianal skin, and rectal swabs for HSV DNA in addition to HSV type specific serology. Data was collected on each patient included history of genital symptoms, current/previous suspected HSV, and current antiviral treatment for HSV. HSV swabs were tested by real time PCR –in house method. HSV serology was tested using herpes focus immunoblot. A further HIV VL sample was also taken at the time of screening and was tested in patients who were diagnosed with an acute STI and/ or those who were HSV 2 PCR positive.

**Results:** Data was collected on 61 patients. All were men who have sex with men (MSM). Median time for VL <50 copies/ml prior to screening was 31 months. Median CD4 count 585. 35/61 (57%) reported genital symptoms. 1/35 (2%) had current suspected genital HSV. 41/61 (67%) tested positive for HSV type 2 Ab.

14/61(23%) were on antiviral treatment for HSV.

2/41(5%) tested positive for HSV 2 PCR-isolated on rectal and perianal samples, respectively. Of these one patient was also diagnosed with rectal Chlamydia and Gonorrhoea. Neither were taking antivirals for HSV. Plasma HIV VL remained <50 copies/ml in both of these patients.

12/61(20%) were diagnosed with an STI. Only one of these patients confirmed a detectable HIV VL at the time of screening.

**Conclusion:** The acceptability of HSV testing as part of routine STI screening was 100%. We observed a high seroprevalence of HSV 2 Ab (67%) in MSM attending for STI screening. HSV2 PCR positivity and/or an acute STI had little impact on plasma HIV VL in this group.

P65

### Routine laboratory monitoring (RLM) of HIV outpatients: which tests, how often and why?

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**Background:** International guidelines recommend HIV patients have RLM every 3-6 months depending on whether they are taking cART. The DART study showed no difference in mortality between patients who had routine laboratory and clinical monitoring compared with those who had clinically driven monitoring only. The aim of this study was to determine the number and indication for performance of laboratory blood tests and the outcome of abnormal ones that were performed for RLM in a large UK HIV centre.

**Methods:** A prospective study was conducted from 16th November to 14th December 2009. A standard proforma was used to record the indication for every blood draw performed in clinic, (e.g. RLM, recall for abnormal results, STI screen). This information was collated and integrated with demographic data, cART history, CD4 count, HIV viral load, and blood test results. The abnormal results were graded using the MRC grading system (Grade 1-4) and analysed in SAS V9.1.

**Results:** Mean age 43 yrs. 77% male, 42% Caucasian, 62% MSM and 3% Hep B and/or C co-infected. 93% of patients had taken cART and 52% had a CD4 count greater than 500 cells/uL. 782 blood draws were performed on 667 patients. The indication for drawing blood was recorded in 424 (54%) episodes. Of these 390 (92%) were for RLM. 261/390 (67%) RLM episodes were abnormal. 235 (60%) were Grade 1 & 2 abnormalities and 26 (7%) were Grade 3 & 4 abnormalities. 207 (53%) of the abnormalities were in biochemistry tests and 54 (14%) in haematology. The most common biochemistry abnormalities were: ALT 86 (22%), bilirubin 40 (10%) and phosphate 35 (9%). The most common haematology abnormalities were neutrophils 22 (6%), platelets 14 (4%) and haemoglobin 10 (3%). Based on this cohort data for every 100 biochemistry and haematology tests performed we would expect to find seven abnormal results of Grades 3 & 4. Factors associated with abnormalities and clinical outcomes will be presented.

**Conclusion:** RLM is an ingrained part of HIV outpatient care in the developed world. In the developing world there is evidence that mortality is not improved by RLM. While low grade abnormalities are common in this cohort, the significance of these in managing patients is not clear. Research to determine which HIV infected patients need close RLM may reduce costs to patients and free clinical time to address other issues.

## Clinical Management

P66

### Ageing and HIV/AIDS: evaluation of a dedicated clinical service for HIV-infected individuals over 50 years of age

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**Background:** The HIV-infected population is ageing. This process may be accelerated by the direct and indirect effects of HIV itself. Issues such as polypharmacy and co-morbidities have led us to develop a dedicated HIV and ageing clinic. This was evaluated after 1 year.

**Methods:** A clinic dedicated to patients over 50 years old was initiated in January 2009. The team comprises a registrar, consultant, nurse

practitioner and supported by a pharmacist. Where appropriate, patients had: a full medication (including GP prescriptions, herbal and recreational drugs) and drug interactions review; PSA, testosterone, vitamin D, therapeutic drug monitoring (TDM), iron studies, fasting glucose and hepatitis screening, urinalysis, bone density scanning, chest X-ray, coronary artery calcification scores (CACs), neurocognitive assessment (International HIV Dementia Scale), adherence self-assessment, psychosocial assessment, sexual health evaluation.

**Results:** 69 patients (66 males) attended the clinic. Median age was 60 (range 51-81) years. All were on cART and 27% (19/69) were on  $\geq 3$  non-HIV drugs. Many individuals had cardiovascular risk factors: 27% (19/69) had raised HDL:cholesterol ratio; 45% (31/69) were on lipid-lowering agents. 7% (5/69) had known diabetes mellitus; 16% (10/64) required an oral glucose tolerance test and further referral. 17% (12/69) had known hypertension and were on anti-hypertensive agents. CACS results were high ( $>90^{\text{th}}$  centile) in 17% (8/46) and were referred to cardiology. 8% (6/69) had a PSA  $> \text{ULN}$ : 50% (3/6) were diagnosed with prostatic cancer. 24% (13/54) had osteopenia; 11% (6/54) had osteoporosis and were referred to rheumatology. 10% (4/39) were referred to the psychologists for neuro-psychometric testing. 70% (16/23) missed no doses of medication in the past 1 month. 24% (17/69) had a documented STI screen in the past year; 3% (5/17) had a diagnosed STI.

**Conclusion:** Asymptomatic patients over 50 years old in long-term follow up were found to have pathologies which were only discovered because of targeted screening. The clinic has served to improve GP liaison and closer working relationships with other specialties.

Patients have reacted positively to the clinic, particularly as many do not routinely access their GP.

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### An open-label randomized study to compare the efficacy of Engerix B® 20 microgram vaccine with HBVaxPro® (40 microgram/ml) vaccine in HIV-infected patients

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**Background:** HIV and Hepatitis B (HBV) share similar routes of transmission. HBV infection is more frequent and more severe in HIV-infected patients and therefore prevention of infection through vaccination is vital. Immunosuppressed patients have been shown to have a reduced antibody response following HBV vaccination. They are also less likely to maintain high protective antibody levels compared to immunocompetent individuals. The HBVaxPro 40 microgram/ml vaccine has been used in renal transplant patients and other non-HIV immunosuppressed individuals showing a higher rate of HepBsAb seroconversion.

**Methods:** Adult patients with documented HIV infection, a negative hepatitis B core antibody and no prior history of hepatitis B vaccination were recruited from December 2005. Patients were recruited from the Departments of Infectious Diseases and Genitourinary Medicine at North Manchester General Hospital and the Department of Genitourinary Medicine at Manchester Royal Infirmary. Consenting patients were randomised using a computer generated randomisation list. The patient then received either the Engerix B 20 microgram/ml vaccine or the HBVaxPro 40 microgram/ml vaccine at 0,1,6 months. Serology was checked at 3 months after the third dose and the vaccine considered efficacious if the hepatitis B surface antibody was greater than 100iu/l. We aim to recruit 190 patients in total. To date, 95 patients have been recruited. We have performed an interim analysis of the results available to date.

**Results:** From the 95 patients recruited to date, 64 patients had HepBsAb levels available. 27 patients had been randomised to the Engerix B 20 microgram/ml vaccine and 37 patients to the HepBVaxPro 40 microgram/ml vaccine. Multivariate analysis demonstrated a trend towards increased effectiveness with the higher dose vaccine, 34%

versus 15% ( $p=0.08$ ). An undetectable ( $<40$  copies/ml) HIV viral load at the date of the first vaccine dose was also independently associated with increased effectiveness, ( $p=0.02$ ).

**Conclusion:** The use of the HepBVaxPro 40 microgram/ml vaccine currently remains a second line option for non-responders to the standard dose vaccine. This study supports others that have shown increased efficacy with its use as a first line vaccine in HIV-infected patients. HAART-mediated virological suppression has been shown to improve vaccine response in many studies including this one.

P68

### Greying with HIV: an observational study of healthcare needs of HIV-infected patients aged 50 years or over

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**Background:** Older people with Human Immunodeficiency Virus (HIV) are increasingly living longer since the introduction of highly active antiretroviral therapy (HAART). The change in this demographic brings with it an interaction between HIV, HAART and the normal physiological changes of ageing and many have postulated that accelerated ageing may be seen. Thus, management of this group is more complex and poses challenges for service delivery. This study assesses the prevalence of co-morbidity, use of concomitant medications, and use of healthcare services in people living with HIV at an older age.

**Methods:** A questionnaire was offered to all HIV positive patients  $\geq 50$  years of age attending routine clinic appointments over 6 months. The questionnaire had 6 parts; patient demographics; self reported co-morbidities; attendance at hospital specialist clinics; list of concomitant medications; uptake of screening services and social information e.g. smoking and recreational drug use. Associations were studied using chi-squared and logistic regression (SPSS).

**Results:** 350 patients were eligible of whom 257 patients participated (73%). 85% reported having at least one co-morbidity, 21% had 2; 14% had 3, 11% had 4, with 18% reporting 5 or more co-morbidities. In multivariate analysis the number of years of being HIV positive was strongly associated to an increasing number of co-morbidities ( $p<0.005$ ) but age was not ( $p=0.099$ ).

67% of patients took one or more concomitant medication (12% reported 5 or more), including 27% receiving statins and 13% PPIs with the potential for significant drug interactions.

201 (79%) patients were under the care of other specialists as follows: 20% cardiology, 29% dermatology, 26% ENT, 25% gastroenterology, 25% surgery, 17% rheumatology, 14% endocrinology, and 1 patient under gerontology.

Uptake of "routine" screening data was collected: of note, only 25% of males had a PSA, and only 75% of women had mammography.

**Conclusions:** Older patients with HIV have a significant number of co-morbidities and require the input of a significant number of other specialist teams and administration of multiple concomitant medications. In order to optimise management and minimise harm, healthcare services need to ensure adequate communication and consider both the training needs of HIV clinicians and/or the provision of joint services with other specialist teams. This data suggests that HIV per se rather than age may be driving the frequency of co-morbidities.

P69

### Does use of a rule-based electronic prescription system in HIV outpatients clinics reduce prescription errors?

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**Aim:** to investigate the role of a rule based electronic prescription software in the number of prescription errors in a busy HIV department.

**Venue:** Out-patient HIV clinics in a tertiary HIV centre

**Methods:** As part of their activity record, HIV pharmacists prospectively logged prescription errors in outpatient HIV clinics electronically. The number and type of prescription errors in two intervals were compared; a) Paper-based prescription: between December 2006 and May 2008 when the department used paper based prescription forms where the list of antiretroviral (ARV) agents was tabulated in rows against different dates in columns. Clinicians identified their choice of ARVs by printing their amount of medicine to be dispensed in cells against the name of the ARV agents and under the date of prescription of the agent. They also had to sign under the date the drugs were issued. The total number of ARV issued during this period was abstracted by the pharmacy dispensing database.

b) Electronic prescription: since August 2008, the department has been using an electronic interface that permits rule based electronic prescription of drugs. The system is used trust wide, and only permits the recommended dosing and frequency for medicines approved by the trust's Medicine Management Advisory Group. Another commonly used rule is prevention of prescription of drugs to which a patient is allergic to. The system is highly flexible and allows implementation of prescription of rules for drugs.

**Results:** The total prescriptions in the intervals for paper-based and electronic prescriptions were 1538 and 1681 respectively. There were 311 (20%) prescription errors in the former interval, and 85 (9%) in the latter period, a difference that was statistically significant ( $P<0.0001$ ). Electronic prescription system has significantly reduced errors relating to poor/illegible handwriting ( $n=0$ ), allergies ( $n=1$ ), and drugs prescribed during pregnancy ( $n=1$ ).

**Conclusion:** Use of rule based electronic prescription software has significantly reduced the number of prescription errors in our department.

P70

### Cervical cytology testing of young HIV-positive women (<25 years) – a regional review of current practice and opinion

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**Background:** BHIVA guidelines suggest annual cytology for women with HIV infection. Currently in the UK, the National Cervical Screening Programme recommends screening women from the age of 25 years. This policy was introduced in 2004 and has been recently reviewed and upheld. BHIVA acknowledge that there may be a role for increased surveillance in HIV positive women under 25 years of age. However there is no recommendation on what to do in this age group.

**Methods:** In April 2009, we conducted a regional survey to evaluate current and preferred practice regarding cytology testing in HIV positive women <25 years of age. An anonymised postal questionnaire was sent to 40 consultants identified as practicing GU medicine. An additional questionnaire was sent to one consultant from each unit (23 clinics) to capture clinic data.

**Results:** 34 of the 40 Consultants responded (87%) and responses were received from 19 of the 23 clinics (83%). Practice was varied but most consultants currently only offer cytology testing for women with HIV when they reached 25 years of age (18/34, 52.9%). 5 (14.7%) offered annual testing from the onset of sexual activity and 6 (17.6%) started testing from 20 years in those who were sexually active. The remainder tested only in selected cases or used other regimens.

8 (23.5%) consultants indicated their practice was restricted by local cytology policies, and only 20.6% had access to HPV testing. When questioned on who they would prefer to be able to offer testing to, only 38% felt that testing should be delayed until 25 years. 41.2% would prefer to start annual screening either from 20 years of age if sexually active or from the actual age of first sexual contact.

All clinics offered cytology testing to HIV positive women, and 4 centres had a guideline for practice in women under 25.

**Conclusion:** Opinion remains divided on whether HIV positive women <25 years should have cervical cytology testing. BHIVA guidance on this is currently open to interpretation although the National Screening Program implies screening should start from age 25. Further research is warranted in this group, although it is recognised that the introduction of HPV vaccination is likely to influence future screening recommendations.

**P71**  
**Are there missed opportunities for diagnosing HIV infection in acute care? A review of new HIV diagnoses**

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**Background:** Late diagnosis of HIV is associated with a significant increase in mortality. Previous reports have shown that many patients have attended primary and secondary care and not been offered earlier HIV testing. We analysed patients' presentation at first HIV diagnosis in an acute care setting to gain understanding of potential missed opportunities for testing in order to identify the best acute care settings to focus future testing strategies.

**Method:** 55 patients were newly diagnosed HIV positive in our acute hospital between December 2007 and June 2009. We identified patients' ethnicity, diagnosis at time of HIV testing, whether the infection was incident and CD4 count at diagnosis. We reviewed the electronic patient records to identify previous attendances during the previous 3 years and clinical diagnosis at that time.

**Results:** Most patients were white, 21 (38%), with black African, 20 (36%) the second most prevalent ethnicity. 22 (40%) of patients had an AIDS defining illness when first tested. In 24 cases (44%) HIV testing was initiated in patients presenting with indicator diseases or in settings providing universal testing e.g. antenatally. 38 (69%) presented with advanced HIV disease. The mean CD4 count at diagnosis was 240 (range 0 to 870). 17 patients (31%) had attended this hospital in the previous 3 years, 11 (65%) of these with indicator diseases. 2 patients had recurrent admissions and outpatient reviews under the haematologists and rheumatologists and a further under the colorectal surgeons. 4 patients (7%) had been seen once in outpatients. 9 patients (16%) had attended the Accident and Emergency Department on at least one occasion.

**Conclusions:** In our patient group, patients generally presented with advanced HIV disease, with low CD4 counts and many with AIDS defining illnesses. 31% had previously attended our hospital, the majority of these with indicator diseases. Alongside universal testing currently piloted in some Trust settings, speciality specific training and support may minimise missed opportunities for HIV testing.

**P72**  
**A review of 10 years of clinical governance in an integrated sexual health service**

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**Background:** Health organisations are increasingly required to prioritise patient safety issues according to the Care Quality Commission. The county wide integrated sexual health service has held regular clinical governance meetings over the past 10 years, a major part of which has included discussion of near misses/incidents. Are there trends in the numbers and types of incidents, and has the highlighting of incidents led to improved practice?

**Methods:** A retrospective review of all the clinical governance meetings was carried out with respect to attendance at meetings, the frequency of near misses or incidents and type of incident.

**Results:** 47 meetings have taken place since 2000, involving discussion of 355 incidents. There was a yearly average attendance of 90 staff members, with a decrease when comparing 2007/09 with 2004/06 (81 vs 93). Categories of incidents most frequently reported were as follows: errors associated with the Chlamydia screening programme – 47/355 (13%); prescription of oral hormonal contraception – 41 (11.5%); specimen handling/mislabelling – 34 (9.6%); patient safety (e.g. inappropriate triage, omission of syphilis testing in genital ulcer disease, delays in giving positive results) – 33 (9.3%); confidentiality issues – 31 (8.7%); documentation errors – 22 (6.2%). 25/355 (7%) incidents/near misses were described as having potential for moderate to serious consequences according to a local risk matrix. 8 of these related to prescription of hormonal contraception in patients with histories of migraine or family histories of thromboembolic disease, while 7 related to patients receiving incorrect chlamydia results. In terms of trends over time, numbers of contraception errors were similar when comparing 2004-6 with 2007-9 (12 vs 11). Numbers of specimen errors were also broadly comparable between the two periods (15 vs 13), while there was an increase in the number of patient care and safety incidents from 10 to 13.

**Conclusions:** Over the study period the number of moderate/serious incidents/near misses discussed remained relatively low, given the number of staff members employed by the service. While the absence of firm downward trends appears disappointing at first sight, account should be taken of the increasing volumes of activity in the service over the past ten years and the greater diligence of staff in reporting incidents. Further work is required as to how to disseminate learning points to the entire workforce.

**P73**  
**Missed opportunities to diagnose HIV in late presenters**

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**Background:** Late diagnosis is associated with increased HIV-related mortality, impaired response to HAART and increased cost to health care services. All healthcare professionals should offer HIV testing to patients with indicator conditions in accordance with the UK National guidelines for HIV testing.

The aim of this work was to identify any prior missed opportunities to diagnose HIV in primary and secondary care.

**Method:** A questionnaire was sent to GPs in addition to a case note review of the HIV clinic notes and general hospital notes on all late presenters diagnosed between 1<sup>st</sup> Jan 07 – 31<sup>st</sup> July 07 with the aim of identifying any relevant past medical history. For the purpose of this study late presenters were defined as an initial CD4 count of <250 cells/ $\mu$ L.

We included patients who had been in the UK for at least one year prior to diagnosis. We obtained permission from the Primary Care Trust to send a questionnaire consisting of a list of HIV indicator conditions to all GPs of HIV patients (excluding GPs of patients who had not disclosed their HIV status).

**Results:** There were 85 new patients diagnosed of which 39 (46%) were late presenters. The range of CD4 counts was 5-237 (median 90) cells/ $\mu$ L. The age range was 20-54 years. There were 23 males (8 white British, 15 Black African) and 16 females (1 white, 15 Black African). 30 patients were black African (all heterosexual) and 9 were White British (5 MSM, 1 bisexual, 3 heterosexual). 1 patient was an IVDU.

Of the 39 late presenters, 9 had an HIV indicator disease (that should have prompted HIV testing) being managed by either their GP or other specialists in secondary care.

5 patients had AIDS at diagnosis (PCP, TB, Kaposi's sarcoma, cervical cancer, oesophageal candida).

Unexplained lymphadenopathy	2
Weight loss	1
Chronic parotitis / weight loss	1
Chronic microsporidia / weight loss	1
Cervical cancer	1
Bacterial pneumonia	1
Chronic diarrhoea, oral candida, lymphopaenia	1
Oral candida	1

**Conclusion:** Despite the widespread availability of HIV testing, late diagnosis continues to occur. A significant proportion of the late presenters had prior illnesses suggestive of HIV noted by other physicians yet were not tested.

The importance of diagnosing HIV in its early stages is well known and has important public health implications. In addition to speaking at hospital grand rounds local GPs have requested seminars aimed at increasing awareness of HIV testing.

#### P74

### Are general practitioners managing more patients with sexually transmitted infections: trends in diagnoses and treatment from 2000–2008

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**Background:** The National Strategy for Sexual Health and HIV (2001), proposed enhancement of sexually transmitted infection (STI) services in primary care. Here we assess data from a sentinel network of general practices (GPs) to determine whether there has been a shift towards increased management of STIs by GPs since then.

**Methods:** Data from 388 GP surgeries (General Practice Research Database) and all 206 Genitourinary Medicine (GUM) clinics (KC60 returns) were collated. STI diagnosis rates from 2000–2008 were analysed for selected STIs.

**Results:** Between 2000 and 2008, diagnosis rates of chlamydia, genital herpes and genital warts by GPs remained stable, in contrast to GUM clinics where they rose steadily. A greater proportion of viral STI diagnoses (herpes and warts) were made by GPs, than were bacterial STI diagnoses (chlamydia and gonorrhoea). There was a 20% increase in the proportion of diagnosed STIs that were treated by GPs between 2000 and 2008. In 2008 over 75% of patients diagnosed with chlamydia by GPs were prescribed treatment, while 51% of women and 47% of men diagnosed with gonorrhoea were prescribed treatment.

**Conclusion:** While this study found no evidence of increased rates of STI diagnosis by GPs since the launch of the sexual health strategy, the observed increase in GP patients receiving treatment over the study period suggests that GPs are more involved with managing STI patients. Other community-based sexual services, e.g., Brook clinics, contraceptive services and National Chlamydia Screening Programme venues will also account for an important proportion of STI patient care. Further investigation and validation of the treatment and management of STI patients by GPs is in progress and will be presented.

#### P75

### Cervical cytology in GUM clinics: are we missing important opportunities?

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**Background:** Departments of GU Medicine vary in the service they provide for cervical cytology. Some clinics no longer undertake any cytology tests. Others offer testing in selected cases only e.g. HIV positive women.

Nationally, uptake of cytology tests has fallen in the younger age groups (25 – 29 years). Inability to maintain adequate coverage may compromise the effectiveness of the screening programme.

This audit looks at the potential demand for provision of cytology in GUM clinics in HIV uninfected women.

**Methods:** 121 sets of notes for women over the age of 25 were reviewed (consecutive attendees for new or rebook appointments).

**Results:** 26/121 women (23.1%) reported being due or overdue for their cytology tests when they attended the clinic. Of these women 5/26 (19.2%) had never had a cytology test, and 4/26 (15.4%) stated they had already booked an appointment to have a test done. The results divided by age group are shown in Table 1.

26% of women age 25–29 reported at least one previously abnormal cytology test. Of those that were overdue for their tests (N=26), a high proportion (19.2%) had previously had a colposcopy examination.

Age range (years)	Number in age group	Number due/overdue for test	Percentage due/overdue test
25–29	46	13	28.3%
30–34	28	3	10.7%
35–39	26	5	19.2%
40–44	9	3	33%
45–49	4	0	0%
50–54	6	2	33%
55–59	2	0	0%

**Conclusions:** This audit shows that a significant proportion of women over 25 attending our clinic report they are due or overdue for a cytology test. Higher rates of cytological abnormalities have previously been reported amongst women tested at GUM clinics and this is reflected in our data.

We are currently seeing a wave of competition developing between sexual health care providers. In the current climate, can we afford to miss the opportunity to both improve coverage of the cervical screening programme and to offer a more comprehensive sexual health service? Is it time to reconsider offering routine cytology testing in GU clinics?

#### P76

### Cervical psychology screening practice in English genitourinary medicine clinics

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**Background:** The English NHS cervical screening programme (NHSCSP) is an opt-out call/recall system for women aged 25–64 registered with a GP. 80% coverage is expected to decrease deaths from cervical cancer by 95%. However, coverage is below this cut-off in urban areas and in the under 30s. Cervical smears performed in GUM clinics currently account for just 0.5% of all cervical screening but could play an important role in increasing coverage. GUM clinics are often based in urban centres, see large numbers of eligible women including those not registered with a GP, perform speculum examinations and yield a higher percentage of abnormal smears than primary care. Despite this, there are no published guidelines relating to cervical screening in GUM clinics and anecdotally practice varies between clinics.

**Methods:** To ascertain current policy and practice we audited cervical cytology screening in our GUM clinic and sent an online survey to the lead consultant of every GUM clinic in England.

**Results:** Local audit – women seen between 08/08 and 09/08.

In 100 randomly selected visits, 4 cervical screens were performed; 3 in women <30y, none registered with GP, 1 mild dyskaryosis detected. In 100 consecutively performed cervical smears, the majority were in priority population women; 54% <30y, 30% no GP. 9% were abnormal (5% borderline, 4% mild dyskaryosis). All smear results were communicated and all requiring recall and/or colposcopy were managed appropriately.

National survey – 08/09 to 01/10.

64% of clinics completed the survey. Of respondents, 98% perform cervical cytology, 88% take a cytology history from all women, but only 31% routinely offer screening to all women eligible by NHSCSP criteria.

Screening is performed outside the NHSCSP by some. 75% have a designated cytology lead clinician. All clinics arrange recall or referral to GP of patients with abnormal results, either directly or via the laboratory or NHSCSP. 98% have access to a local colposcopy service. The two clinics performing no cervical cytology cited concerns over quality assurance due to low numbers; one cited concerns about ability to link into the NHSCSP.

**Conclusions:** GUM clinics can play an important role in increasing cervical cytology screening coverage amongst women underrepresented in the NHSCSP. With appropriate infrastructure they can safely manage cytology results. Practice varies between clinics in England and there is a need for national guidelines to help inform practice.

### P77 Cervical screening in women with HIV: is our system working?

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**Background:** Studies have shown that women with HIV are at greater risk of developing cervical cancer. The BHIVA guidelines recommend that cervical screening for these women should be performed annually by or in conjunction with the medical team who manage their infection. In Scotland, a national cervical screening programme has been introduced to improve uptake of cervical screening. We were interested to know how many of our HIV cohort were up-to-date and if this system was recalling them accurately.

**Methods:** Retrospective data were collected during April 2009 for 225 HIV positive women who attend our HIV unit, using the national cervical screening programme database and our in-house lab reporting system. Variables assessed included most recent smear, date of recall and evidence of reminders. We determined whether women were 'up to date' with smears and whether they had received 'appropriate recall' according to the BHIVA guidelines.

**Results:** 55.5% of women were up to date with cervical screening. 36.7% of women were not up to date with their smears, due to non-attendance (27.5%), inappropriate recall (15.9%) or a combination of both (55.1%). Of the women who were up to date with their smear, 20% had a previous abnormality, compared with 32.3% who were not up to date (n=144, p=0.08). Women with an abnormality on last smear were at higher odds of having a CD4 count <200 (n=146, p<0.01). 37.8% of women were receiving inappropriate recall by the national cervical screening programme, 44.7% of whom were 'excluded' due to repeated non-attendance and given 5-yearly reminders.

**Conclusion:** One third of women were not up to date with their smears due to non-attendance or inappropriate recall. Those not up to date and those more severely immunocompromised, showed a tendency towards having an abnormal smear. One third were inappropriately recalled by the national cervical screening programme due to either unawareness of the patients' HIV status and the need for annual screening or inappropriate exclusion of frequent non-attenders. In response, our unit has updated its database to include screening data to allow clinicians to encourage patients to attend for smears or provide an on-site service for those who are 'non-compliant.' We have also contacted General Practitioners who are aware of HIV status to ensure the women are registered appropriately.

### P78 Comparative regional audit of urology and genito-urinary departments in the management of acute epididymo-orchitis

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**Introduction:** Adherence to guidelines for the management of acute epididymo-orchitis (E-O) by urologists has been historically poor. Genito-

urinary medicine (GUM) clinicians may show improved adherence, particularly in the management of younger patients with a likely sexually transmitted pathology. We sought to compare the management of E-O patients between the two departments, against European Guidelines.

**Methods:** Retrospective data collection from case notes was performed on 112 patients presenting with E-O to hospitals within the South-West Thames region between 2007-2009.

**Results:** 12 patients were omitted due to exclusion criteria. 48 patients were assessed within the GUM department, and 52 by urologists. Median age was 33.5 years in the GUM group, and 48 years in the urology group. A sexual history was taken in 67% of GUM patients compared to 29% of urology patients. Microbiological investigations were omitted in 29% of urology patients compared with 0% of GUM patients. The pathogen was confirmed in only 15% of the cohort overall; Coliforms in 11 urology patients, and Chlamydia in 4 GUM patients.

First-line antibiotic recommendations were prescribed in 92% of GUM patients and 72% of urology patients. However, treatment duration was inadequate in 25% and 33% of men in the GUM and urology groups, respectively. Appropriate follow-up was omitted in 13% of GUM patients compared with 15% of urology patients.

**Conclusions:** The pathogen was identified in only 15% of our patients which is low compared to identification rates of 45% - 95% reported in the literature. Management of patients with E-O, when compared to European guidelines, remains globally inadequate. However, GUM clinicians revealed an improved adherence in this study. With a rising rate in sexually transmitted diseases, and therefore E-O, collaboration between departments is likely to result in the best use of resources, and improved outcomes for these patients.

### P79 Growing older and living longer with HIV-1 – a qualitative study

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**Background:** There are an increasing number of older persons in the UK living with Human Immunodeficiency Virus (HIV). This is largely due to people living longer since the introduction of highly active antiretroviral therapy (HAART) but also reflects ongoing transmission in an older age group. The complex interaction between HIV, HAART and the multitude of physiological and social changes associated with ageing poses increasing challenges for service provision and health care demands from this cohort of patients. Due to this being a relatively new and increasing group of patients, there is a paucity of data and knowledge about their experiences, needs and concerns both medically and psychosocially. This study aims to gain insight into individual experiences of living with HIV at an older age through a qualitative analysis.

**Method:** One-to-one semi-structured interviews were carried out on 20 HIV-1 positive participants >=50 years of age attending an HIV out-patient department. Purposive sampling was used when recruiting these individuals in order to reflect a range of patient situations that could affect experiences. All data were digitally recorded and transcribed verbatim. Data were analysed using a framework analysis approach.

**Results:** Recurrent themes that emerged from the interviews specifically related to being older with HIV centred around; 1) Health, this included concerns about unknown effects of HIV and HAART with age, their relationship to co-morbidities, need for more psychosocial support, preference for the out-patient clinic over other services and continuity of care with the same doctor; 2) Survival, this included a feeling of living on borrowed time, outliving peers and memories of past stigma; 3) Self esteem and rejection, this included sexual dysfunction, change in physical appearance and role loss; 4) Coping, this included coping better with time and being diagnosed at an older age.

**Conclusion:** Patients described both positive and negative aspects of being older with HIV. The implications of this study for health service

provision suggest that older people with HIV are very satisfied with current services yet require more support of a psychosocial nature, smoother transitions and more liaison between HIV services and other specialities and more guidance on how and when to use particular services.

### P80

#### How accurately do patients report symptoms?

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**Background:** Patients attending genitourinary medicine clinics are asked to declare the presence of symptoms for completion of genitourinary medicine access monthly monitoring (GUMAMM) data. In our department, patients are asked this question at the reception desk.

We recently undertook a 12-month evaluation of our new Saturday service, which compared symptoms in the case notes with the GUMAMM data. From the case notes 428/755 [57%] had symptoms. From Saturday GUMAMM data 241/716 (39 did not answer) [34%] declared at the reception desk that they had symptoms ( $P < 0.0001$ ).

Saturday data showed there was significant under reporting of symptoms by patients at the reception desk. Did this hold true for all patients attending our clinic and why should this be?

**Methods:** We undertook a case note review of 1,000 consecutive patients for the presence of symptoms. Proportions with symptoms were compared with GUMAMM data for the same time period.

A qualitative service users' consultation revealed that there was a perception by our patients that the modern "light and airy" reception area afforded a lack of privacy. In the first week of July 2009, privacy screens were erected at the reception desk. Thus we were able to compare GUMAMM data for the first six months of the year with the second six months of the year to see if there had been a difference in patients declaring symptoms at the desk. Statistical analysis was performed using a two-tailed test of proportions.

Time period	Symptoms	Total	%	95% CI	P
Whole year	3,596	12,713	28.3%	27.5–29.1%	$P = 0.003$
January–June	1,758	6,482	27.1%	26.0–28.2%	
July–December	1,838	6,231	29.5%	28.4–30.6%	

**Results:** From 1,000 consecutive case notes 496[50%] had symptoms. Using GUMAMM data (which approximates to the same time period) 324/1,116[29%] had symptoms ( $P < 0.0005$ ).

The table compares GUMAMM symptom data for the whole year and the two six month periods - January to June and July to December.

**Conclusions:** We found a significant under-reporting of symptoms by patients, the reasons for which are worthy of further investigation. This may in part be due to embarrassment/fear of being overheard by other patients because, after privacy screens were erected in reception, there was a significant increase in the reporting of symptoms by patients.

### P81

#### Diagnosing HIV early: how effective have we been?

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**Background:** More widespread testing to enable earlier diagnosis of HIV has been vigorously advocated both locally and nationally for some years. We aim to investigate how effective these measures have been at our centre. We will also discuss the demographics of our patient population and whether there appears to be any recent change.

**Methods:** In the three years since January 2007 86 people with HIV have been diagnosed. Their case notes were reviewed and data collected on epidemiology, CD4 count at diagnosis, circumstances of diagnosis and risk factors. These have been analysed using a Microsoft Excel package.

**Results:** The average CD4 count at diagnosis has not changed over the past three years. Of the 86 new diagnoses 37% were made in GUM, 24% in secondary care, 20% in primary care, 7% antenatal and 12% 'other'. The proportion presenting late with a CD4 < 350 differed between ethnic groups. In Asians 5/5 (100%), Black Africans 18/27 (67%) and 22/48 (46%) White British presented late.

Of those presenting late 64% acquired their HIV heterosexually and 42% acquired it homosexually. Of those diagnosed 19 (22%) were either 'in patients' already or required admission shortly after diagnosis. Three patients (4%) died shortly after diagnosis as a result of their late diagnosis.

	2007	2008	2009
CD4 >350	13 (50%)	14 (52%)	13 (39%)
CD4 200-350	5 (19%)	3 (11%)	8 (24%)
CD4 <200	8 (31%)	10 (37%)	12 (36%)
GUM	39%	41%	36%
GP	15%	11%	24%
2 <sup>o</sup> care	15%	33%	24%
Antenatal	12%	7%	3%
Total diagnosed	26	27	33

**Conclusion:** Current interventions have not influenced the CD4 count at diagnosis. There does appear to be an increase in the diagnoses that are made in General Practice and 2<sup>o</sup> care. The message seems to be getting through but there is more work to be done.

We are planning new measures aimed at:

- 1) Increasing contact tracing
- 2) Focusing targeted education on HIV indicator conditions to other specialities.
- 3) Increasing HIV testing in those groups easily identified as 'high risk'.

### P82

#### HIV-infected Black and Minority Ethnic BME men who have sex with men (MSM): the experience of two treatment centres

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**Background:** The proportion of black and minority ethnic (BME) MSM living with HIV in England and Wales is higher than that of white MSM. Previous studies have highlighted that BME MSM report higher rates of sexual risk taking behaviour and are less likely to perceive themselves as being gay. Our objectives were to look for differences in presentation and follow-up between HIV-infected BME and white British (WB) MSM attending two large treatment centres.

**Methods:** We performed a retrospective case-control study between 1st January 2000 and 31st December 2008. BME MSM were those who self-identified as being of Black (Caribbean BC, African BA or Other BO), IPB (Indian, Pakistani, Bangladeshi or Sri Lankan), Chinese/South-East Asian (SA) or other non-white ethnicities. Self-identified WB MSM were used as a comparator group and matched for centre and time of first attendance. Data were collected on demographics, STI acquisition, reported drug use, mental illness, loss to FU rates, CD4 count and HIV treatment response.

**Results:** We identified 127 WB and 125 BME MSM (34% BC, 14% BA, 16% BO, 11%, IPB 5%, SA, 20% Other). BME MSM were younger, median age 40 years (IQR 35–45) v 43 years (IQR 38–47) in WB MSM ( $p < 0.012$ ). Class A and C recreational drug use were more commonly reported amongst white MSM compared to their BME counterparts 42/121 (34.7%) v 21/123 (17.0%) ( $p = 0.002$ ) and 36/114 (31.6%) and 22/124 (17.7%) ( $p = 0.004$ ). Numbers of STIs and mental illnesses diagnosed and loss to follow up (FU) rates were similar across the two groups. CD4 count at first diagnosis was similar between WB and BME groups (230 v

237 cells/mm<sup>3</sup>) However, at initiation of anti-retrovirals (ARVs) CD4 counts were lower amongst BME MSM (198 v 210 cells/mm<sup>3</sup>,  $p=0.038$ ). **Conclusions:** BME MSM are a heterogeneous group. They are younger and start ARVs at lower CD4 counts. Reported use of recreational drugs amongst BME is lower than that of WB MSM. The numbers of diagnosed STIs and loss to FU rates are similar. It is crucial that policy makers and specialist services are aware of risk behaviours of MSM of all ethnicities and the social and/or cultural reasons behind it if they hope to provide successful risk reducing sexual health interventions.

## Behaviour Sexual Dysfunction and Partner Management

P83

### Crystal mess: the damage crystal methamphetamine (Tina) is doing to men who have sex with men (MSM)

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**Background:** A marked increase in the number of health related issues in MSM, who identify crystal meth as a drug of choice, has been observed. For many years, club and party drugs have been used recreationally by MSM, often without resultant physical or psychological damage. Anecdotally, crystal meth appears to be affecting individuals to a greater extent than alternative recreational agents. It is also associated with unsafe, marathon sex with multiple partners. Crystal meth can have a dramatic impact on mental health leading to acute psychotic states with paranoid and persecutory delusions which are difficult to treat. Whilst we are aware of the individuals who admit to meth use and are asking for help, we were interested in investigating the prevalence in the general HIV clinic attendees who have not yet identified meth use as an issue.

**Method:** An anonymous questionnaire was distributed by to all attendees of a large London HIV centre during the month of October 2009. Data was collected and analysed using SAS v 9.1 statistical package.

**Results:** In total, there were 418 respondents, 375 (90%) male, of whom 319 (76%) identified as MSM. Of all responders, 85 (20%) stated that they have used crystal meth in the past year—all MSM. A minority, 63 (15%) reported having been asked about crystal meth use by a health professional. Only 16% (66) believe crystal meth affects their physical health and 12% (15) felt it affects mental health. When asked about sex, 12% (48) reported unprotected penetrative sex whilst using crystal meth, 1% (5) were not sure whether this had happened or not. When asked about antiretroviral use, 11% (45) stated they had not missed any doses because of crystal meth in the past year, one person reported missing more than 50 doses, 3% (13) reported missing between 1-10 times. Of those who reported crystal use, 13/85 (15.3%) reported missing at least one HIV Clinic appointment in the past year. Of those who missed at least one HIV Clinic appointment, 9/13 (69%) were using crystal either monthly or more frequently.

**Conclusion:** This data highlights the need for further investigation into the behaviour of MSM using crystal meth. We suspect this agent has a profound impact on both their physical and mental health including the development of serious psychiatric illness, acquisition of STI and Hepatitis C co-infection, poor adherence, clinic attendance and social disintegration.

P84

### Religious belief and uptake of or adherence to antiretroviral therapy among people living with HIV in London

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**Background:** There is conflicting evidence regarding the association between religious belief and uptake of or adherence to antiretroviral

therapy (ART). This paper examines the association between religious belief and uptake of or adherence to ART in people diagnosed with HIV in London.

**Methods:** Between June 2004-June 2005, 1687 people living with HIV (73% response) receiving treatment and care in London NHS outpatient clinics completed a confidential self-administered questionnaire. Respondents were asked about their uptake of antiretroviral therapy (ART); their adherence; their religious beliefs and religious attitudes. This analysis is restricted to gay/bisexual men and black African heterosexual men and women. These groups were analysed separately using logistic regression.

**Results:** 1364 people were eligible for this analysis. 429 were black African heterosexual women, 202 black African heterosexual men, 733 gay/bisexual men (624 white, 109 ethnic minority). 1055 people (77%) defined themselves as being religious. 74% respondents were on ART. Of those on treatment, 11% were poorly adhering to therapy. We found no evidence of an association between the uptake of ART and either the importance of religion or a belief that prayer can cure HIV in any of the four groups ( $p>0.1$ ). White gay men who said their religious beliefs affected their use of HIV medication were 8 times more likely to be on treatment compared to those whose beliefs did not affect their use of medication (adjusted Odds Ratio 8.1;  $p=0.05$ ). This association was not seen amongst ethnic minority gay men or heterosexual African men and women ( $p>0.1$ ). Neither religious beliefs nor the importance of religion were associated with poor adherence in any of the four groups ( $p>0.1$ ). Believing that prayer cures HIV was not associated with poor adherence in black African men ( $p=0.5$ ) or women ( $p=0.2$ ).

**Conclusion:** Among people living with HIV in London attending clinics, we found no evidence that religious beliefs affected uptake of or adherence to ART with one exception. White gay men who said their religious beliefs affected their use of medication were more likely to be on treatment, suggesting that religious belief could be a motivational factor for this group of men. This study demonstrates the complex interactions between religion, culture and HIV treatment for people living with HIV.

P85

### 'Getting to know you': how to better understand your patient population in order to provide better sexual health services: evidence from the MSTIC (Maximising STI Control in local populations) study

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**Background:** The National Strategy for Sexual Health and HIV, and recently the Medical Foundation for AIDS and Sexual Health/BASHH Standards for the Management of Sexually Transmitted Infections, called for expanding the role of primary care to increase access to sexual health services. As a result, a growth in Local Enhanced Services (LES) for sexual health in primary care has occurred but with little guidance for public health decision-makers including service commissioners on the optimal mixture of LES and GUM services for a population. We are developing a web-based tool to assist decision-makers in using local data to plan clinically- and cost-effective STI services for their population. To supplement existing routinely-collected data, we designed a 'Rapid Assessment Module' (RAM) patient survey aimed at providing finely grained data quickly for all STI testing settings.

**Methods:** The RAM is a 20-item questionnaire that reception staff at 4 geographically and sociodemographically contrasting GUM clinics across England offered to all patients attending over a 3-8 week period (depending on clinic size) between August and December 2009. These data were then linked (with consent) to routinely-collected clinical data, including STI diagnosis codes. The RAM is currently being run in LES services.

**Results:** 2,204 patients in the 4 GUM clinics completed the RAM and of these, 76% consented to linkage. The RAM collected data (with low item non-response) on: reason(s) for clinic attendance; care pathways to the service (including experience of other service providers, e.g. general practice); sexual risk behaviours in the last 3 months and since recognising a need to seek care; past STI diagnoses and experience of previous testing for *Chlamydia trachomatis* infection.

**Conclusions:** The RAM is quick and easy to administer in GUM clinics and we anticipate similar success in LES services. The RAM allows services to obtain a detailed profile of their patient population in the form of disaggregate data, which can be linked to testing and diagnoses data. There is great potential to use the RAM as an audit tool, supplementing the GUMCAD surveillance system at least for GUM clinics. Such a standardised tool can be useful for tracking changes in clinic populations and between services. Following completion of our study in December 2010, the RAM questionnaire will be made publicly available to use either with our web-tool or independently.

#### P86

### Early alcohol use and sexual activity in young people: a secondary analysis of the Ripple and Share school survey data

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**Background:** The relationship between alcohol and poor sexual health remains poorly understood. This study sought to compare associations between experience of drunkenness and being drunk at first sex with early outcomes and subsequent sexual behaviour.

**Methods:** Ripple (England) and Share (Scotland) were two large cluster randomised controlled trials of a sex education intervention in which year 9 (age 13-14) and year 11 (age 15-16) school pupils completed a pre- and post-intervention survey which included questions on a range of socio-demographic, behavioural and sexual health variables. A secondary analysis (N=14089) of the combined dataset was undertaken.

**Results:** Young people who had been drunk at least once at baseline (age 13-14) were more likely to admit other risk behaviours such as smoking (baseline) (OR 6.3) and sex under 16 (OR 2.97). 4985 young people recorded being sexually active at follow up. First sexual intercourse was more likely to have been unplanned (OR 1.4) in those that had been drunk at least once by age 13-14, but not necessarily regretted. Sex in this group was less likely to have been associated with use of a condom or other contraception (OR 1.3) and they were more likely to go on to have multiple sexual partners (OR 1.7) and to report having had a pregnancy at final follow up (OR 1.7, 1.1-2.5). Young people who had ever been drunk at baseline were more likely to have been drunk when they first had sex (OR 2.2) and if they were, it was more likely to be an unplanned encounter (OR 3.05) and regretted (OR 1.9). This group were also more likely to report not having used a condom or other contraception at first sex (OR 2.0 and 2.2 respectively) and an increased likelihood of multiple sexual partners and increase in risk of teenage pregnancy (OR 1.4, 1.0-1.8).

**Conclusion:** Young people who engage in one risk behaviour are more likely to engage in several. They report less condom use at first sex, and appear to be subsequently at greater sexual risk. Increased rates of teenage pregnancy are also reported and although this may be confounded by socioeconomic factors, it identifies a potential group where the negative impact of alcohol on poor sexual health outcomes may be potentiated.

#### P87

### Sexual risk behaviour among Central and Eastern European MSM in the UK

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**Background:** Since May 2004, ten Central and Eastern European (CEE) countries have joined the European Union leading to a large influx of CEE migrants to the UK. Homophobia is widely reported in this region, which may impact on the sexual knowledge, attitudes and behaviours of men who have sex with men (MSM). This paper examines risk behaviour of CEE MSM in the UK.

**Methods:** As part of the SALLEE project (Sexual Attitudes and Lifestyles of London's Eastern Europeans), CEE MSM were recruited from across the UK for an online questionnaire via two popular websites for MSM in the UK (March to May 2009).

**Results:** 691 men were recruited. 70.2% lived in London and the rest were distributed throughout the UK. The average age was 29 years; the majority were working (80.0%); educated to degree level (54.8%); and had been in the UK for more than a year (81.9%).

A quarter of men reported unprotected anal intercourse (UAI) with a casual partner of discordant or unknown HIV status in the past year (no significant difference by place of residence); this was more common in men known to be HIV positive (48.4%) than HIV negative or untested men (20.1%, 32.3% respectively).

Compared to men living outside of London, London men were more likely to have paid for sex with a man (15.0% vs 9.8%,  $p=0.07$ ), to report ever being diagnosed with an STI (34.1% vs 22.5%,  $p<0.01$ ), to have taken recreational drugs in the past year (41.5% vs 25.2%,  $p<0.001$ ), but not to have ever injected drugs (4.8% vs 4.1%,  $p=0.83$ ). London men were also more likely to have attended a GUM clinic in the UK (41.0% vs 27.3%,  $p<0.01$ ); to have tested for HIV (83.0% vs 68.3%,  $p<0.001$ ) and to be HIV positive (5.6% vs 3.1%,  $p<0.001$ ). 78.1% of HIV positive respondents had been diagnosed in the UK.

UAI with a casual partner was associated with being HIV positive (vs HIV negative: aOR=0.162,  $p<0.001$ ; untested: aOR=0.221,  $p<0.01$ ), ever injecting drugs (aOR=2.503,  $p<0.05$ ) and taking recreational drugs in the past year (aOR=1.836,  $p<0.01$ ).

**Conclusion:** The data suggest that CEE MSM in the UK are at significant risk for acquisition and transmission of HIV and other STIs through UAI with non-concordant partners, commercial sex and injecting drug use. Despite these high-risk behaviours, relatively few had attended a GUM clinic, especially men outside London. HIV testing was more widely reported and further work is needed to explore where this is occurring, along with CEE MSM's understanding of risk and service knowledge.

#### P88

### A review of 1676 patients with erectile dysfunction treated over a 10-year period

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**Objective:** To analyse the attendances and treatments at an erectile dysfunction clinic over a 10 year period.

**Methods:** A retrospective chart review of 1676 men attending Erectile Dysfunction clinic from 1999 to 2009 was conducted. Data collected included demographics, source of referral, duration of symptoms, aetiology and treatments initiated.

**Results:** The age of patients attending clinic ranged from 17 to 94 years, with a mean of 49.3. The duration of symptoms was up to 20 years with 66% of patients presenting within 1 year. Referrals were from general practitioners in 93%, cardiology 1%, neurology 1%, endocrinology 0.5% and other hospital specialties 4.5%. The principal aetiology of erectile dysfunction included vascular disease in 715 (43%), diabetes in 146 (9%), neurological diseases in 83 (5%) and psychological disorders in 553

(33%). Treatment was initiated in 1544 (92%) patients. Of the remaining patients, 106 (6%) were not suitable for treatment and 26 (2%) declined it. Phosphodiesterase-5 inhibitors were prescribed in 1093/1545 (71%) – of these 50% received tadalafil, 26% vardenafil, 24% sildenafil. Intracavernosal injections were first line treatment in 387 (25%). Of these, prostaglandin was used in 73% and papaverine and phentolamine combination in 27% patients. A vacuum device was given to 13 (0.8%) patients, 10(0.6%) patients were commenced on MUSE and 41 (3%) received apomorphine. The results of the full audit will be presented.

**Conclusion:** The management of erectile dysfunction was revolutionised by the availability of safe and effective oral treatment and has encouraged increased reporting of symptoms and referral to specialist clinics. The changing pattern of referrals will be presented with an increasing percentage having treatment initiated in primary care and therefore representing more appropriate referral.

P89

### Alcohol and sex – is there a link between hazardous and harmful drinking and poor sexual health?

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**Background:** Alcohol misuse in the UK is a major cause of physical and psychological morbidity, resulting in a significant financial cost to the NHS. Over the last 20 years, the trend of alcohol consumption in young people is illustrated by a near doubling in the amount of units consumed by this cohort, and a similar increase in acute admissions secondary to alcohol intoxication. A significant rise in the prevalence of sexually transmitted infections has also been observed within this time frame particularly in young people. This survey was designed to gauge the level of hazardous or harmful drinking within an inner city UK clinic population, to ascertain if there is a link between excessive alcohol consumption and poor sexual health.

**Method:** An anonymised questionnaire was given to all clinic attendees over 7 days in early December 2009. A validated assessment tool was used and data analysed using chi-squared test with Yate's correction and analysis using SAS V9.1 statistical package.

**Results:** In total, there were 183 respondents, 106 (59%) female, the modal age was 20-29 years 89 (49%) and 45 (25%) under 19 years. Altogether 91 (50%) of respondents report drinking above the Department of Health recommendations yet only 45 (25%) perceive they are drinking in a hazardous or harmful way. There was a statistically significant association between those who report regrettable ( $p < 0.001$ ) and unprotected sex ( $p < 0.002$ ) secondary to excessive alcohol consumption. Furthermore, 33 (18%) believe alcohol has a negative impact on their sexual health while 15 (8%) believe it had a positive impact, with 28 (15%) reporting that alcohol helped them to have sex. Nearly three quarters of respondents believe that information and advice regarding safe alcohol consumption should be available in sexual health settings. **Conclusion:** Our survey shows that a significant proportion of individuals drinking above recommended limits do not perceive themselves to be at risk. A statistically significant association was found between the cohort who report alcohol intake above recommended limits, and those who have unprotected or later regretted sex. Further studies are warranted to investigate the impact of a targeted alcohol reduction intervention on unwanted or unprotected sex in combination with raised public health awareness regarding alcohol misuse.

P90

### A study to assess acceptability of partner notification via Short Message Service text messaging (SMS)

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**Background:** Partner notification (PN) forms an essential part of diagnosing sexually transmitted infections (STI) within the community.

Sexual contacts are either notified by the index patient (patient referral) or by a health care provider (provider referral). Delivery of this information to the sexual contact is traditionally given verbally or using written text; the contact slip. SMS is the most widely used data application in the world with which to communicate. If considered generally acceptable PN via SMS to sexual contacts could form an alternative mode of delivery for patient initiated, provider enabling PN. We ran a questionnaire to assess patient perspective for this novel use of SMS.

**Methods:** GUM clinic attendees who were STI contacts (STI-C) or those newly diagnosed with a STI (STI-ND) were surveyed by anonymous questionnaire. The means and acceptability by which STI-C were informed by PN was captured. The acceptability of using SMS for PN generally and for individual STI in these patients was assessed. Acceptability was assessed using a score chart from 1 (very unacceptable) to 5 (very acceptable). Views on SMS via PN from those newly diagnosed with an STI were also surveyed.

**Results:** The questionnaire was returned by 106 patients. Of the 55 STI-C, 46 (84%) had been contacted via patient referral and 4 (7%) by provider referral. 53% were contacted in person by the index patient, 38% via telephone and 5% via SMS. 60% thought PN via SMS was acceptable and 25% thought it unacceptable. The majority of participants surveyed thought that SMS was acceptable to notify sexual contacts of Chlamydia (87%), Gonorrhoea (84%), Syphilis (71%) and Trichomonas (73%). However 60% viewed PN via SMS for HIV infection as inappropriate.

Of the 51 STI-ND patients, 41 (80%) chose patient referral as the preferred method of PN. In order of preference this would be in person (57%), via telephone (20%) or via SMS (17%) from the index patient.

**Summary:** PN via SMS is a novel method of patient initiated, provider enabling PN with which to communicate with sexual contacts. The majority of STI contacts viewed PN via SMS as being acceptable. SMS is already used by a small number of patients to notify possible STI-C. We have started a pilot of patient initiated, provider enabling PN via SMS as further choice for patients and to enhance capture of PN data.

P91

### An audit of 871 serum testosterone tests at a sexual dysfunction clinic

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**Objective:** To identify patients with erectile dysfunction who also have hypogonadism and compare management of hypogonadism against European Association of Urology (EAU) guidelines following their introduction at our Sexual Dysfunction clinic in 2009.

**Methods:** A 20 year retrospective audit of serum testosterone levels in a randomly selected cohort of patients was conducted.

**Results:** There were 871 patients with serum testosterone analysed from 1989 to 2009. 95 (11%) patients had serum testosterone levels less than or equal to 8.0nmol/L, 207 (24%) had levels between 8.0 - 12nmol/L and 569 (65%) were greater than 12nmol/L. There were only 4 patients with serum levels less than 1nmol/L. Of the 95 hypogonadal patients with testosterone levels less than 8.0nmol/L, 28 (29%) were treated with testosterone (16 received topical testosterone and 12 intramuscular testosterone). 13 of these patients remained on long term treatment. In the 8.0 - 12nmol/L group, 19 (9%) patients were treated with testosterone because of low libido (17 received topical and 2 intramuscular testosterone). Seven of these patients remained on long term treatment. In the group with testosterone levels greater than 12nmol/L, 13 (2%) patients who complained of persistent lack of libido were commenced on a trial of testosterone therapy. Only 1 of these patients went on to receive long term treatment. In all patients PSA and testosterone was measured 3 monthly for the first year and annually thereafter. Patients who defaulted were reminded to attend their general

practitioner and letters outlining all therapy were sent to general practitioners

**Conclusion:** Using the European guidelines, treatment was initiated in only 29% of possibly suitable patients and as a result our clinical practice was reviewed.

P92

### Sexual problems in two inner city London sexual health clinics: prevalence and need for psychosexual services

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**Background:** Healthy sexual functioning and sexual well-being are important sexual health priorities. Studies have indicated that psychosexual provision in sexual health clinics (SHC) across the UK is inconsistent and under-prioritised. Incorporation of psychosexual services (PS) into a service model requires clear characterisation of population need. This study aimed to examine the prevalence of sexual problems and establish the need for PS in men and women attending two cross-site London SHC.

**Methods:** A survey was conducted within patients attending two SHC in London over a two-week period. The self-completion questionnaire explored sexual problems, access to psychosexual services and preferences regarding future help.

**Results:** 868 patients participated in the survey and these represented 50% of the total number of patients attending both clinics over the data collection period. The response rate for patients those given a questionnaire was 93%. 48% were female and the mean age was 28 years (range = 15 - 68 years). 36% (n=321) of patients reported a current sexual problem. However, only 7% (n=22) of patients reporting a sexual problem were receiving help despite almost half of patients wanting this. The most common sexual problem was related to orgasm/ejaculation in both men and women, followed by reduced interest in sex (15%), difficulties with arousal (14%) and pain during sex (12%). The most common attribution made by patients about the cause of their sexual problem was an emotional cause. Other attributions included difficulty "letting go" or feeling safe during sex, a physical reason and a lack of sexual confidence. The majority (60%) of patients indicated a preference for treatment at sexual health clinics although a proportion (20%) wanted services to be available at their GP practice.

**Conclusions:** This study has confirmed that sexual problems are highly prevalent in our patient population and there is currently an unmet need. Given the competing demands for service provision, providing highly specialised psychosexual services is challenging, but needs to be addressed.

P93

### The impact of courses for people living with HIV on their knowledge, health and behaviour

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**Aim:** To monitor the impact of a course for people newly diagnosed with HIV and a residential weekend for people living with HIV.

**Methods:** Clients taking part in each course are asked to complete a questionnaire at three key stages: before the course; at a recall meeting 5 to 6 weeks after the course, and 12 months after the course. The questionnaires at each stage asks the same questions focusing on three broad areas: knowledge and understanding of HIV (for the newly diagnosed course only); emotional and physical health, sexual behaviour and substance use.

**Results:** As at January 2010, 42 clients have completed both an initial and recall questionnaire (27 for the newly diagnosed course and 15 for the residential weekend). The newly diagnosed course is significantly

improving people's knowledge and understanding of their condition. The table shows the results on two key indicators.

There is little change in physical health indicators between questionnaires but the results suggest that people have experienced improvement in their emotional health. For example, there is a drop (from 36 to 29) in the number saying that there had been times in the last month when they have felt down, depressed or hopeless. There has also been a drop (from 33 to 29) in the number saying there had been times in the last month when they had felt little interest or pleasure in doing things. The extent to which attendance at the courses caused the changes will need to be explored qualitatively. The results on behaviour are more equivocal and require further exploration. For example, the number reporting that they always tell one off sexual partners they are HIV positive is the same at both questionnaires but number saying they never do increased from 3 to 5, and the number saying it depends increased from 8 to 12.

Newly diagnosed course, increase in knowledge of HIV, key indicators (no. of respondents).

	Initial questionnaire	Recall questionnaire
<i>How well do you understand what CD4 count means?</i>		
Not at all	2	0
Partly	14	1
Completely	0	26
No answer	9	0
Total	16	27
<i>How well do you understand what viral load means?</i>		
Not at all	5	0
Partly	14	3
Completely	7	24
No answer	1	0
Total	26	27

**Conclusion:** The courses are successful in increasing clients' knowledge and understanding of their condition. Their impacts on physical and emotional health, and on sexual behaviour and substance use require further exploration. There is a programme of qualitative investigation to establish this.

P94

### Sexual behaviour is inadequately assessed in the routine clinical care of HIV-positive patients

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**Introduction:** A significant proportion of known HIV infected individuals continue to have unprotected sex leading to onward HIV transmission. BHIVA/BASHH guidelines recommend sexual history taking at HIV diagnosis and every 6 months thereafter to identify risk and offer safe sex counselling.

**Methods:** Retrospective case note review of new HIV diagnoses (57) and follow up patients (86) attending a London HIV unit July-August 2008, to evaluate documentation of sexual history at HIV diagnosis and at two 6-month intervals for follow up patients (172 visits).

**Results:** New diagnoses comprised 43 (75%) men who have sex with men (MSM) and 14 (25%) heterosexuals (HS) (5 male, 9 female) and chronic patients comprised 36 (42%) MSM and 50 (58%) HS (13 male, 37 female). Sexual history was documented at baseline in 50/57 (88%) new patients (36/43 MSM and 14/14 HS), but only in 85/172 (49%) 6-month period follow-up visits and only in 32/86 (37%) follow up patients over a 12-month period.

Sexual history was documented in 43% MSM, 46% HS men and 57% HS women follow up visits although content varied considerably: number of sexual partners (28/172; 16%), regular partner (74; 43%), HIV status of regular partner (12; 7%), disclosure to sexual partners (32; 19%), type of sex (12; 7%), condom use (40; 23%), genital symptoms (14; 8%), last STI screen (15; 9%), safe sex discussion (23; 13%) and condom provision

(9; 5%). MSM were significantly more likely to have documentation of number of partners, type of sex and last STI screen, but less likely to have documentation of regular partner, disclosure, condom use, safe sex discussion and condom provision than HS ( $p < 0.05$ ).

**Discussion:** We have shown that documentation of sexual history taking in new patients was satisfactory but in follow up patients was poor and content of history was varied. Within the time constraints of the HIV clinic appointment, particularly at follow up, physicians may focus on clinical and drug-related problems and important aspects of sexual history may be overlooked. Novel approaches are required to ensure a more uniform approach to sexual history taking in MSM and HS at both new and follow up visits.

## Pathogenesis, Transmission and Prevention

P95

### HIV acquired abroad by UK-born men

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**Background:** The majority of UK-born men who acquire HIV through sexual contact do so through sex between men within the UK. However, UK born men travelling abroad for sex and especially in high prevalence countries are also at risk of HIV. We investigate epidemiological trends of probable non-UK acquired HIV infections among UK-born men.

**Methods:** Data pertaining to UK-born men newly diagnosed with HIV between 2002 and 2008 and reported to the Health Protection Agency were analysed.

**Results:** Over the seven year period, 907 UK-born men were reported as having acquired their infection abroad, 389 (42.9%) of which in South East Asia. Of these, 89.2% were infected heterosexually, and 10.8% were infected through sex with men. 91% (353/389) acquired their infection in Thailand. Average age at diagnosis of UK-born men acquiring their infection in South-East Asia was 45 years (range 17 – 75); this is significantly older than the average age of UK-born men infected in the UK at 36 years. Where partner information was available (63.7%), it was shown that all partners of UK-born men infected in South-East Asia also acquired their infection in this region of the world. Other regions where UK-born men were infected abroad include Europe with 21.8% (198/907), Africa with 19.3% (175/907), Asia (non South East) with 7.3% (66/907), South America with 4.5% (41/907) and Western Pacific with 3.3% (30/907). The number of reports of UK-born men being infected abroad has increased steadily between 2002 and 2008.

**Conclusions:** A small but significant number of older UK-born men are acquiring HIV sexually in South-East Asia, particularly Thailand. That the partners of these men have also acquired their infection in South East Asia suggests sex tourism may account for a substantial number of these infections. These men may pose a risk to their partners in the UK Targeted prevention efforts should be aimed at heterosexual men who engage in sex abroad, including HIV testing.

P96

### Sexual behaviour and risk of STI transmission in patients attending GUM clinics: evidence from the MSTIC (Maximising STI Control in local populations) study

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**Background:** In recent years waiting times to access sexual healthcare have reduced considerably in the UK thus reducing the opportunity for STI transmission, especially if patients refrain from unprotected sex while

seeking care. This study examines the extent to which this is the case among people seeking care from GUM clinics across England.

**Methods:** Between August and December 2009, 2,204 patients at 4 geographically and sociodemographically contrasting GUM clinics completed a 20-item questionnaire including questions on reason(s) for attendance, recent sexual behaviour, presence and duration of symptoms, care pathways to the service and past service use. 76% of patients consented to us linking their questionnaire data to routinely-collected clinical data (including STI diagnosis data).

**Results:** 33% of men and 40% of women reported having had sex since they thought they might need to seek sexual health care. At study clinic visit, the median symptom duration was 3 days (IQR: 2–6 days). Among those reporting sex, the median number of partners in this time was 1 with 46% reporting sex with 1+ new partner(s). The median number of sex acts with all partner(s) was 4 (IQR: 2–10) and 70% of patients who reported sex had had 1+ occasions of unprotected sex. This proportion did not vary by whether or not patients reported symptoms. However, patients with and without acute STI diagnosis/es were equally likely to have continued having sex while awaiting care.

**Conclusions:** While patients are generally prompt in seeking sexual health care, there remains a need for health promotion to emphasise the need for individuals to cease sexual activity, especially with new partners, if a STI is suspected. Now that GUM clinic waiting times have decreased, the importance of patients' risk behaviour in hindering STI control has increased in relative terms. These factors need to be addressed both by health care professionals and broader health promotion campaigns.

P97

### HIV post-exposure prophylaxis prescribing after sexual assault in a sexual assault referral centre

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**Introduction:** In April 2007 Scotland's first sexual assault referral centre (SARC) opened. As part of their care clients may be offered HIV post exposure prophylaxis (PEPSE), HIV transmission may be increased in sexual assault due to increased trauma. In this new service we audited whether PEPSE was prescribed appropriately based on local and national PEPSE guidelines, if the client attended follow up and if they had any adverse effects.

**Methods:** A retrospective case note audit was performed of clients prescribed PEPSE seen between 12<sup>th</sup> October 2007–12<sup>th</sup> April 2009.

**Results:** 359 clients were seen, 24(7%) accepted PEPSE. 83% were female. Average age was 28 years, range 15–48 years. 29% were classed as vulnerable. Ethnicity of assailants were 58% White European, 25% African, 8% Asian, 4% Unknown, 4% Dark European. 46% were found to have genital injuries. Average time till received PEPSE was 17 hours (taken from time of assault until time of examination end). 13 returned for full course at 3 days, 5 attended review at 2 weeks, 4 completed the course. 3 attended for HIV test at 3 months and 2 at 6 months. No seroconversions were seen. 7 had nausea and 3 had diarrhoea, no association between completion and side effects. 1 client was prescribed Kaletra when on interacting medications which was corrected at follow up. 1 was admitted to hospital with lymphopaenia and lymphadenopathy, (HIV test negative) symptoms resolved within few days.

**Discussion:** Clients received PEPSE swiftly, appropriately and with few significant side-effects, however more care is needed with interacting medications. Clients are now always seen in senior GU clinics at day 3 to check for any contraindications. During the audit, 54% were given the full course however only 16% of patients are documented as completing the course and 8% attended for 6 month follow up. Data is only available for attendances at our clinic so clients may have attended other services for HIV test. When clients attend the SARC they are often in an emotional state and are more likely to be in vulnerable social situation. Low return rates may reflect not understanding or remembering the need for follow up. To help with this since the audit clients are given an information leaflet on PEPSE to take home.

P98

### Routine monitoring of bloods for toxicity when using modern post-exposure prophylaxis (PEP) regimens may be unnecessary

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**Background:** Historically, toxicity bloods were monitored during a course of PEP when hepatotoxic drugs, such as nevirapine, were included in the combination. In 2008, the Department of Health recommended changing the standard regime to Truvada and Kaletra to improve adherence and tolerability. As demand on HIV/GUM services rises and the number of patients receiving PEP continues to increase, there is need to evaluate and simplify pathways of care.

**Methods:** Inclusion criteria were: completion of a 28 day course of standard PEP regime during 2009; monitoring of both baseline and interim toxicity bloods. Any alteration to the PEP regime during the course was noted. Abnormal blood results were classified using the Division of AIDS grading table.

**Results:** 140 patients met the inclusion criteria. Of these: 104(74.3%) had normal baseline and interim bloods; 27(19.3%) had abnormal bloods at baseline; 10(7.1%) developed a new abnormality during PEP (of these, 9 had normal baseline bloods). Abnormal blood toxicities seen at baseline included: 6(4.3%) grade 1 (G1) abnormalities in Na<sup>+</sup> or K<sup>+</sup> levels; 5(3.6%) elevated ALT levels (G1-2); 1(0.7%) elevated ALP (G1); 16(11.4%) elevated bilirubin levels (G1-3). None of the bloods that were abnormal at baseline deteriorated during the course of PEP.

New blood abnormalities developed during PEP included: 1(0.7%) elevated Na<sup>+</sup> (G1); 2(1.4%) elevated creatinine levels (G1); 2(1.4%) elevated bilirubin levels (1x G1 and 1x G2); 4(2.8%) elevated ALT levels (2x G1, 1x G2 and 1x G3); 1 elevated ALT and creatinine (G1). PEP regime was altered in just 1 patient (with the G3 ALT rise) and all of the patients who had a rise in their ALT had repeat bloods showing their ALT had normalised within 10 days of finishing PEP. The patient with a grade 3 abnormality of ALT drank alcohol to excess and experienced difficulty with side effects throughout his course of PEP. The ALT result was found at day 24 of his course; his Kaletra was stopped and just Truvada continued to day 28.

**Conclusions:** With the current ARV regime for PEP, rates of toxicity seen are very low. PEP regime was altered in just 1(0.7%) case. Presence of low grade abnormalities in baseline bloods did not require any changes in treatment. We suggest it may not be necessary to undertake routine monitoring for toxicity during a course of PEP unless there are other concerns, such as, development of signs/symptoms of toxicity, significant co-morbidity or potential for drug interactions.

P99

### The impact of taking HIV post-exposure prophylaxis after sexual exposure (PEPSE) on sexual behaviour

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**Background:** There are now guidelines for the use of PEPSE to prevent HIV acquisition after sexual exposure. Demand for PEPSE has risen as the public became aware of its availability. There have been concerns that the risk taking behaviour of men who have sex with men (MSM) is increasing. If sexual risk behaviour increases, incident infections may increase as the number of exposures increases with the availability of PEPSE. Hypothesis: Individuals' sexual risk behaviour may be altered by the availability and use of PEPSE. In this GUM clinic, around 10% of MSM PEPSE patients are repeat users.

**Aims:** We aim to assess the risk behaviour of MSM PEPSE recipients, at baseline and at different time points after PEPSE. Primary endpoints (measured at baseline, 3, 6 and 12 months after start of PEPSE): 1.Prevalence of any self-reported high-risk behaviours (unprotected receptive anal intercourse or insertive anal sex with a partner of

unknown HIV or known HIV-positive status in the preceding 3 months) 2.Number of sexual partners in the preceding 3 months. 3.Number of new diagnoses of sexually transmitted infections (STIs).

**Methods:** This is an ongoing prospective questionnaire survey of consecutive HIV-negative MSM PEPSE recipients (criteria for starting are per the national guidelines) to assess sexual risk behaviour and acquisition of new STIs at baseline and at 3, 6 and 12 months follow-up. **Results:** 83 MSM have been recruited to date. The median age is 32 years old (range 20-58). Baseline, 3 and 6 month data were analysed to date. Loss-to-follow-up rates are 32% and 38% at 3 and 6 months.

	Baseline	3-months	6-months
In preceding 3 months	(95%CI); p value relative to baseline; median (IQR)		
No. self-reporting any high-risk behaviour	42/83 50.6% (39.4-61.4)	5/42 11.9% (2.1-21.7)	2/23 8.7% (-2.8-20.2)
		p=0.00003	p=0.0003
No. of regular partners	1 (IQR 1-2)	1 (0-1)	1 (1-2)
No. of casual partners	3 (IQR 1-8)	2 (0-4)	2 (0-5)
No. reporting STIs	14/83 16.9% (8.8-24.9)	7/42 16.7% (5.4-27.9)	2/23 8.7% (-2.8-20.2)
		p=0.98	p=0.33

**Conclusion:** The proportion reporting high-risk behaviour has decreased. There was a trend towards reduction in number of reported sexual partners and STIs at 3 and 6 month post PEPSE although this was not statistically significant. Follow-up at 12 months is crucial to see the impact of taking PEPSE. Behavioural interventions can be targeted to those with persistent high risk behaviour.

P100

### Willingness of men who have sex with men MSM to participate in trials of novel HIV prevention technologies

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**Introduction:** Diagnosed HIV continues to rise, and MSM are disproportionately affected. New approaches to reduce transmission of HIV are required, as are trials to evaluate the efficacy of promising interventions. Trials require successful recruitment of target populations. This study explores the willingness of MSM to participate in evaluation of novel approaches to HIV prevention.

**Methods:** A self-complete survey was administered in commercial gay venues in London between December 2008 and February 2009. This included questions on respondents' willingness to participate in vaccine, circumcision, anti-retroviral (ARV), rectal microbicide, and behavioural change trials. Multivariate logistic regression analysis examined age, education, employment status, ethnicity, HIV status, number of partners, sexual behaviour, and STI history as predictors of willingness to participate.

**Results:** Most respondents (968/1328; 73%) answered questions on HIV prevention. Of these, 53% were willing to participate in HIV vaccine trials, 35% in trials of ARV's and rectal microbicides, 49% in behavioural change trials and 8.4% in circumcision trials. Men reporting receptive anal intercourse were more likely to express willingness to participate in HIV prevention research (adjusted odds ratio, AOR:1.12;95% confidence interval, CI:1.02-1.23;p<0.05). This was the case for vaccine (AOR:1.17;-CI:1.05-1.29;p<0.01), ARV (AOR:1.16;CI:1.04-1.29;p<0.01) and rectal microbicide (AOR:1.15;CI:1.04-1.28;p<0.01) trials. MSM who were HIV positive or of unknown HIV status were more likely to express willingness to participate in ARV trials than HIV negative men (AOR:1.75;CI:1.14-2.69;p<0.01; AOR:1.80;CI:1.10-2.94;p<0.05; respectively).

**Discussion:** Receptive anal intercourse (RAI) is a primary risk factor for HIV acquisition in MSM. Men reporting RAI expressed greater willingness to participate in HIV prevention trials than men who are mainly or

exclusively the insertive partner, or who do not engage in anal intercourse. This may reflect increased awareness of risk. Similarly, HIV positive men and those of unknown status expressed greater willingness to participate in ARV trials. However, this does not apply to trials of male circumcision. Recruitment of high risk MSM to prevention trials is vital to determining the efficacy of promising interventions, and this study demonstrates that men in community settings are willing to participate in the evaluation of novel HIV prevention technologies.

**P101**  
**HIV prevention and sexual health promotion with gay and bisexual men involved in esoteric sexual practices – the HardCell web site**

**P Ward**

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**Background:** The Gay Mens Sex Survey 2006 showed increased risk of HIV infection amongst MSM with the highest levels (30+) of multiple partners, and those engaging in sexual practices such as fisting and water sports. The UK epidemics of lymphogranuloma venereum and sexually transmitted hepatitis C are also linked to these groups. Traditionally such men have received little attention from health promotion, often being assumed to be unreceptive.

**Methods:** Focus groups were held of men within the GMSS profile above. These demonstrated a need for information about a range of health and sexual topics and practices. Furthermore, the groups were able to advise not only on the appropriate information content of any resource, but also how it should be presented in order to best reach them.

**Results:** The men had strong views about the "voice" in which they should be addressed and on the stigma they felt subject to from both wider society and gay community norms. A website was created as a resource not only for MSM involved in esoteric sexual practices and high rates of partner exchange, but also for health professionals who engage with MSM on these topics. The HardCell website ([www.hardcell.org.uk](http://www.hardcell.org.uk)) is very different from most health promotion advice to gay men and covers, in plain language:

- 18 sexual practices, their risks and harm reduction
- 16 STIs, their symptoms and treatments
- 13 recreational drugs, including crystal meth, anabolic steroids and erection drugs
- Sexual dysfunction issues, including sex addiction

The site was promoted to men in the target audience through specialist subculture web sites, press ads in the appropriate gay press, and t-shirt, poster and postcard distribution in venues and events catering to this group.

**Conclusion:** A hard to reach and potentially unresponsive population can be reached by health promoters provided sensitivity is demonstrated to their needs and attitudinal norms around HIV, sexual health, drug use and sex.

**P102**  
**Post-exposure prophylaxis following sexual assault**

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**Introduction:** A Sexual Assault Referral Centre (SARC) is a centre that provides forensic, medical and psychosocial services to people who have experienced rape or other serious sexual offences regardless of whether or not they have reported to the police. Post-exposure prophylaxis (PEP) is offered to complainants of serious sexual assault (SA), where appropriate, as part of their immediate aftercare at a SARC. In sexual assault, however, the assailant risk is usually unknown.

**Methods:** Retrospective case notes review of all clients attending a SARC who were prescribed PEP between January 1<sup>st</sup> 2009 and 30<sup>th</sup> September 2009. Clients were divided into two groups based on their PEP

regime. Group 1 received Combivir and Kaletra (January–June 2009) and Group 2 received Truvada and Kaletra (June–September 2009) Data were collected on client and assailant demographics; nature of assault; time to PEP prescription; compliance on medication; frequency of side effects and HIV antibody test at three months.

**Results:** 77(19%) clients were prescribed PEP (Group 1 = 38; Group 2 = 39). Proportion of PEP prescriptions following recommended indications was 81% in Group 1 and 95% in Group 2 (BASHH standard = 90%). Proportion of PEP prescriptions administered within 72 hours of risk exposure was 92% in Group 1 and 95% in Group 2 (BASHH standard = 90%). Proportion of individuals completing 28 day course of PEP was 63% in Group 1 and 43% in Group 2 (BASHH standard = 75%). Proportion of individuals completing three month post-PEP HIV antibody test was 45% in Group 1 (BASHH standard = 75%). Clients on Truvada/Kaletra reported more side effects than those on Combivir/Kaletra. Nausea, fatigue and diarrhoea in the first week and nausea and fatigue in the fourth week of treatment were the most common side effects experienced by those taking Truvada/Kaletra. Of the clients followed up at the SARC, 63% of those on Combivir/Kaletra and 43% of those on Truvada/Kaletra completed the 28 day PEP course (BASHH standard = 75%).

**Conclusions:** The transmission of HIV is likely to be increased following aggravated sexual intercourse (anal or vaginal), such as that experienced during sexual assault. Clinicians therefore consider recommending PEPSE more readily in such situations. PEP side effects and complex psychosocial effects play an important part in compliance and completion of PEP following sexual assault.

**P103**  
**Embedded: evaluation of patients' HIV virological outcome following brief psychological interventions to aid antiretroviral adherence**

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**Background:** Optimal adherence to antiretroviral (ARV) regimes is necessary to maintain virological suppression. Some patients have considerable psychological difficulties in achieving this. A psychologist joined a specialist Treatment Advice Clinic (TAC) team, comprising doctors and specialist nurses, offering direct access to psychological interventions to aid adherence. We aim to describe the attendance rates and virological outcomes of HIV positive patients referred to the TAC Psychology service over a one year period.

**Methods:** All direct bookings and attendances for TAC psychology appointment throughout 2009 are included. Data was collected on viral loads before and after discharge from TAC psychology.

**Results:** Patients referred had complex and interwoven psychological issues: pills-swallowing phobias, pre-existing or CNS suspected side-effects like anxiety, depression and anger, strong negative beliefs about western pharmacological approaches, troublesome side-effects impairing their quality of life, personality issues or suspected psychosis. 68 appointments were offered, and were 35 attended. 6 patients were seen outside TAC psychology clinic times in routine clinic psychology time slots for longer interventions (42 sessions attended). Of 23 patients with persistent detectable HIV Viral Loads, 9 (40%) achieved HIV virological suppression after psychological intervention; 4 patients had suppression before and after psychology intervention.

**Conclusion:** Patients who have complex adherence issues, and are hard to reach in an outpatient setting, can benefit from an easy-access psychology service. Direct bookings can minimize time delays in seeing patients whose clinic attendance is problematic. However patients DNA or cancelled appointments in nearly 50% of all direct bookings. For many patients, the psychological intervention was successful in aiding adherence and provided valuable insights into the psychological issues affecting adherence to ARV.

P104

### Implementing NICE guidelines on one-to-one interventions to reduce the risk of sexually transmitted infections

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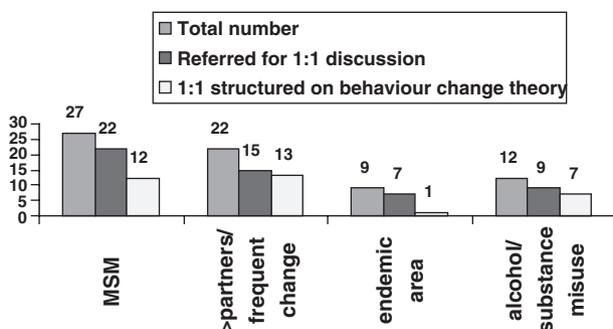
**Background:** NICE (2007) public health intervention guidance sets out recommendations for practice to reduce the risks of sexually transmitted infections. This is a service evaluation to determine whether the service was implementing, and in compliance with, the NICE public health intervention guidance.

**Method:** A retrospective case note review of all new and reregistered patients was completed for a two and a half month period from June to September 2009.

Outcomes were measured against NICE public health intervention guidance audit criteria 1,2,3,4,6,7 and 8.

**Results:** n=1969 case notes of new and reregistered case notes were reviewed between June and September 2009 of which 100% had a completed risk assessment. 74 patients were identified to be high risk falling into the categories as identified by NICE recommendations 1 and 2. n= 50/74 (68%) patients had arrangements made for one to one structured discussions and 31/50 (62%) of patients seen had discussions that were structured on the basis of behaviour change theories.

There were 227 diagnoses of STI's which warranted partner notification. Out of these 174 sexual contacts were confirmed as being screened and treated where necessary (76%). 132/227(58%) of patients with an STI had infection specific information including advice about re-infection documented in their client records.



**Discussion:** 9 young people aged under 18 were identified as vulnerable and 8 of these had been provided with one to one sexual health advice (89%). N=6/9 (66%) of vulnerable young people were provided with supporting information on sexual health in a format accessible to them.

P105

### Post-exposure prophylaxis following sexual exposure to HIV (PEPSE): a retrospective analysis in a regional centre

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**Background:** Post exposure prophylaxis is increasingly used as a method of reducing HIV acquisition following sexual exposure. It relies on thorough risk assessment, timely treatment and adherence to medication. The aim of this study is to assess the 6 year experience of PEPSE in a regional centre.

**Methods:** A retrospective chart review of patients receiving PEPSE in Genitourinary Medicine department from January 2003 to August 2009 inclusive. Details collected included demographics, indications for PEPSE, time to initiation, adherence and follow-up.

**Results:** 72 individuals received PEPSE, 42 (58%) prescriptions were within last 2 years. 37(51%) patients were MSM, 13 (18%) were

heterosexual males and 22 (31%) were heterosexual females. The principal indication for PEPSE included 27 (38%) patients who had unprotected intercourse (56% vaginal and 44% anal) with a known HIV positive individual, 20 (28%) unprotected anal sex with male partner of unknown status, 17 (24%) following sexual assault and 3 (4%) unprotected sex with partner from an endemic country. The remaining 4 (6%) patients received PEPSE after having unprotected vaginal sex with unconfirmed HIV positive individual. PEPSE was commenced within 72 hours of exposure in 83% (23.6% within 12 hours). Concurrent sexually transmitted infection was diagnosed in 6 (8.3%) patients (7% non-gonococcal urethritis and 1% rectal chlamydia). 50 (69%) patients attended for follow-up and only 8% of these did not complete treatment. 25 (35%) patients attended for repeat serology at 3 months and 18 (25%) at 6 months. All of the patients followed-up remained HIV negative.

**Discussion:** Recently there has been increasing use of PEPSE. It is well tolerated and efficacious. Providing PEPSE creates opportunity to test for other STIs and facilitates discussion regarding risk reduction and safer sex.

P106

### The awareness of post-exposure prophylaxis for HIV infection following sexual exposure (PEPSE) in emergency departments in a regional HIV network

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**Background:** The introduction of UK clinical guidelines in 2006 set clear standards for the provision of PEPSE to patients who present to health care settings. The CMO wrote to all Primary Care Trusts and Strategic Health Authorities to ensure local availability of PEPSE. However, some patients have reported wide inequities in provision of PEPSE.

**Methods:** We carried out a service evaluation of PEPSE provision in three major emergency departments in the region. All appropriate staff i.e. triage nurses, senior nurses and doctors, were asked to complete a questionnaire to determine their awareness and delivery of PEPSE in various situations.

**Results:** 33 doctors and 58 nurses completed the questionnaire. 58/83 (70%) had heard of PEPSE but only 24/83 (29%) were aware of local protocols. Only 10/83 (12%) recalled receiving specific training on its use. Only half the respondents knew that PEP packs were available in their department (51%) or who to contact for further advice (54%).

A greater proportion of medical than nursing staff gave correct responses. Factors associated with a better performance were previous training about PEPSE, awareness of a local protocol and seniority amongst medical staff. 61/83 (73%) were aware of the optimal window period of 72 hours.

Proportion of participants giving 'correct' recommendation for PEPSE according to UK guidelines (all scenarios unprotected and outside the setting of assault)

Female scenarios	n (%) correct	Male scenarios	n (%) correct
Vaginal sex with caucasian male	32/83 (39%)	Insertive vaginal sex with caucasian female	32/83 (39%)
Vaginal sex with HIV+ve male	81/83 (98%)	Insertive vaginal sex with HIV+ve female	81/83 (98%)
Anal sex with black african male	49/83 (59%)	Insertive anal sex with HIV+ve male	80/83 (96%)
Anal sex with HIV+ve male	79/83 (95%)	Receptive anal sex with caucasian male	43/83 (52%)
		Receptive anal sex with HIV+ve male	77/83 (93%)

**Conclusion:** This service evaluation highlighted some deficits in awareness and knowledge of PEPSE amongst emergency department health-care workers. This raises serious concerns about patients' access to this intervention. We plan to implement local training to address these issues and raise awareness of the local GUM/HIV services as a source of advice.

P107

### Use of multidisciplinary PEPSE proforma improves adherence to national standards in most areas despite rising demand: re-audit of PEPSE delivery in an inner city GUM service

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**Background:** A previous audit performed against BASHH PEPSE guidelines in 2006 revealed areas for improvement within our clinic. As a result we designed a proforma with multidisciplinary input, reassessed our clinic guidelines and re-audited the results.

**Methods:** A retrospective case note review of 106 episodes of PEPSE from Sept 2007–Sept 2008 was carried out and standards measured against BASHH guidelines and some additional locally set standards.

**Results:** An increase in episodes by 66% was seen despite a decreased time period being analysed (106 in 12 months 07/08 vs 64 in 19 months 05/06). Prescriptions fitting within recommended indications showed a further improvement on a previously met standard (99% vs 90%). Documentation of time period between exposure and initiation of PEPSE was vastly improved (84% vs 48%) and in 99%, PEPSE was given within 72 hours thus meeting BASHH guidelines (90%) in those documented. Baseline HIV testing increased (95% vs 79%) as did HIV tests at 3 months (44% vs 23%) and 6 months (34% vs 11%) however the latter figure still falls below the BASHH standard set at 60%. One person was identified as HIV-infected on their initial HIV test and PEPSE was stopped. All HIV tests at 3 and 6 months were HIV antibody negative. STI screening at follow up was enhanced (57.5% vs 42%) but didn't meet a self set standard of 90%. However we performed better with Hepatitis B vaccination (84% vs 62% previously) and surpassed a self set standard of 75%.

**Conclusion:** Despite increasing demand, use of the PEPSE proforma has consistently improved our performance across nationally and locally set standards resulting in improved quality and safety of care.

P108

### Review of HIV post-exposure prophylaxis provision at a GUM department

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**Introduction:** Post-exposure prophylaxis (PEP) with anti-retroviral therapy is now an accepted part of HIV prevention strategy. In this study we reviewed the presentation and management of individuals presenting for PEP at our clinic, during 2006–2008 inclusive.

**Methods:** Case notes were reviewed and data collated on patient demographics, and type and source of their exposure. Clinician initial management was noted (recommendations on PEP, whether PEP was taken and time to initiation) and compared with guideline recommendations for each scenario. Where relevant, provision of sexually transmitted infection (STI) screening and Hepatitis B vaccination was reviewed. Patient review for blood tests (for monitoring for side effects of PEP and identifying sero-conversion) was noted.

**Results:** Of the 86 study patients, a majority were male (70%), white ethnicity (93%) and had a median age of 29 years (range 15–61). A majority of exposures were sexual (52%). For all exposures, 43% of source contacts were known to be HIV positive. This percentage was higher (57%) for sexual exposures.

97% of patients presented for medical review within 72 hours of exposure. Of those who presented late, 89% were following sexual exposure. Where PEP was initiated, 91% was within 72 hours of exposure. 44% of all patients received a baseline HIV test (95% of these were following a non-occupational exposure): only one person tested positive.

PEP was recommended in 58% of cases, considered in 10.5% and not recommended in 31%. Where PEP was recommended, 98% of patients were started. Only 45% of PEP recommendations were consistent with guidelines. The commonest PEP regimen prescribed was Combivir and Kaletra (44%). Among those who started PEP, only 30% reported full adherence. In 44% of cases, completion status was undocumented. 89.5% patients attended routine monitoring blood tests during their PEP course. 54% patients attended HIV testing at 3-months post PEP completion. Where PEP was not initiated, 34.5% patients received testing at 3-months post exposure. No patient contracted HIV following exposure. Hepatitis B vaccination or booster was required in 42% of patients, and all bar one received this. Of the sexual exposures, 74% patients had an STI screen within 4-weeks of exposure.

**Discussion:** In the majority of cases, PEP prescriptions were using approved drug regimens and were initiated within 72 hours. However, only 45% of PEP recommendations were in accordance with guidelines.

P109

### Standards of care and subsequent follow-up for survivors of sexual assault presenting to a genitourinary medicine clinic

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**Background:** The Cross Government Action Plan on Sexual Violence and Abuse recommends improved access to support and health services, emphasising the importance of cooperation between Statutory Health Services and sexual assault referral centres (SARCs). Genitourinary medicine (GUM) clinics remain an important point of access for survivors of sexual assault (SA). The management of all survivors of SA presenting to two linked GUM clinics and their subsequent access to a local SARC was audited. Outcomes are compared with those reported in 2007 for the dedicated SA service within the same GUM clinics.

**Methods:** Retrospective case note review of all clients reporting SA seen by GUM between August 2008 and March 2009; cases identified using local code. Local and BASHH standards (aim >90%) were applied.

**Results:** 46 cases were reviewed. 40/46 (87%) were female and median age was 27yrs (range 15–58). 14/46 (30%) were of black/minority ethnicity. 24/40 (60%) women reported vaginal rape with six of these reporting both vaginal and anal rape. All six men reported anal rape. The perpetrator was known in 27/43 (63%) cases where documentation was available. Six of 46 (13%) clients suspected drug-facilitated SA. Forensic examination was offered to eight of nine eligible clients and accepted by three.

Table 1: Comparison of national and local standards

	Dedicated SA clinic 2007 (%)	All GUM 2009 (%)
National Standard		
STI screen first visit	78	85
Emergency contraception	75	100
Local Standard		
Health Advisor seen	88	87
SA proforma completed	72	67
Risk assessment completed in notes	58	11
SARC/dedicated SA clinic referral offered	94	87
Hepatitis B virus vaccination offered	46	71
HIV post-exposure prophylaxis offered	40	50
Police involvement discussed	-	35

**Conclusion:** Essential areas for improvement are the completion of risk assessment (including mental health, safety and safeguarding of children), discussion of police involvement and appropriate offer of PEP. Joint working between the SARC and GUM must continue to be prioritised with respect to staff training, cross-site working and referral pathways. These standards should apply to all clients reporting sexual assault within GUM.

#### P110

##### HIV contact tracing: is it too late?

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**Background:** Contact tracing in HIV has been historically ignored or performed with a less than vigorous approach. We believe that contact tracing and especially provider referral are neglected by most centres with serious consequences. There is a need to detect undiagnosed HIV infection as early as possible to avoid the morbidity associated with late diagnosis and to reduce onward transmission. Following HIV diagnosis sexual behaviour is adapted to reduce onward HIV transmission.

**Method:** We have developed an information sheet and returnable form that explains provider referral and gives those with HIV the opportunity to inform previous partners whilst preserving their anonymity.

All patients attending were given one of these forms and if necessary a stamped addressed envelope.

**Results:** We are currently gathering this having rolled out a strategy recently. We will present data from the use of this form in more than 200 patients. Already it has permitted us to document contact tracing as being complete. In other cases it has given us new contacts to trace. We will demonstrate how many new contacts have been identified and whether any of these have yet been found to be infected with HIV.

**Conclusion:** Our approach is easy for other units to adopt. This system empowers patients by giving them the opportunity to let others know they are at risk without placing them in the impossible situation of having to divulge their own status. We feel HIV exists in identifiable people and we need to make every effort to identify them whilst preserving our existing patients' anonymity.

## Infection and Malignancy

#### P111

##### Estimated HIV-related mortality preventable by early diagnosis

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**Background:** The 2008 BHIVA guidelines redefined the threshold for late diagnosis (HIV diagnosis at a time after which antiretroviral therapy should have started) from a CD4 cell count of <200 per mm<sup>3</sup> to <350 cells per mm<sup>3</sup>. Late diagnosis is the most important cause of HIV related morbidity and preventable mortality. This study aims to describe the proportion of individuals diagnosed with a CD4 <350 cells per mm<sup>3</sup> and estimate the level of preventable HIV related mortality if individuals were diagnosed earlier.

**Methods:** New HIV diagnosis, AIDS, and deaths data reported to the Health Protection Agency among adults aged 15 years and above were analysed. Patients with a CD4 result within 91 days of HIV diagnosis from the CD4 Surveillance System were included in analysis. Late diagnosis is defined as a CD4 cell count less than 350 cells mm<sup>3</sup>. Five year follow up mortality rates were calculated.

**Results:** In 2008, over half (55%) of newly diagnosed individuals were diagnosed late, including 32% with CD4<200. Ninety percent [461/511] of AIDS cases and 72.5% [259/357] of deaths reported in 2008 were diagnosed late. The corresponding figure for MSM and heterosexual men was 63% and 85% respectively. Late diagnosis accounted for 93% and 81% of deaths and 1 year and 5 year follow up among adults diagnosed between 2002 and 2004. Five year mortality rate in late presenters was

6.3% compared to 2.0% in others. If the mortality rate was reduced to 2.0%, we estimate that 399 deaths would be prevented by being diagnosed early.

**Conclusions:** Increasing the threshold for late diagnosis included a quarter more new HIV diagnoses eligible for treatment at diagnosis. Five year mortality was three times higher in late presenters compared to others. Earlier testing and prompt treatment before CD4 cell count reaches 350 will eliminate almost all HIV deaths within 1 year of diagnosis. The task remains to better target these hard-to-reach populations, possibly through non-traditional HIV testing initiatives.

#### P112

##### H1N1 influenza in the Glasgow HIV cohort

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**Background:** There are no formal guidelines for the management of suspected H1N1 infection in HIV-infected patients, and little clinical data has been published. The Brownlee Centre is the Regional Infectious Diseases unit for the West of Scotland, and currently has 1226 HIV patients attending. We conducted a retrospective review of all patients who were investigated for suspected H1N1 influenza.

**Methods:** We reviewed the case notes of all HIV patients who were tested for the H1N1 virus by real-time reverse-transcriptase polymerase chain reaction (RT-PCR) assay on nasopharyngeal swabs between April 2009 and January 2010.

**Results:** Eighteen patients presented with suspected H1N1 infection during the period of the study, of whom 12 were H1N1 positive by RT-PCR. Median age was 45 years (range 15 – 62). The CD4 range was 165 – 1002 cells/mm<sup>3</sup> (median 561) and 10 patients were on antiretroviral treatment, all of whom had a viral load of <40 copies/ml. All except 3 patients had presented prior to the commencement of the H1N1 vaccination programme, 2 of whom had one dose of the inactivated H1N1 vaccine (Pandemrix®). Five H1N1 positive patients were admitted to hospital, 3 of whom had other co-morbidities (non-HIV immunosuppression x2, chronic hepatitis C x1). Complications arising from H1N1 infection were pneumonitis (1); bacterial pneumonia (2); renal impairment (1); myocarditis (1). All 5 hospitalised patients were treated with oseltamivir and antibiotics. The duration of admission ranged from 3–25 days and none required high dependency or intensive care support. In the 6 patients found to be H1N1 negative the alternative diagnoses were non-H1N1 viral infection (2); abacavir hypersensitivity reaction in the absence of HLA B-5701 (1); efavirenz toxicity (1); and bacterial LRTI (2).

**Conclusion:** The incidence of proven H1N1 infection in our HIV patient cohort is 1%. This is likely to underestimate the true incidence as other patients may have been managed empirically in primary care without virological investigations being undertaken. The clinical features and severity of H1N1 infection were not dissimilar to the non-HIV population. We did not encounter any drug interactions between antiretrovirals and oseltamivir.

#### P113

##### HIV enteropathy: HAART reduces HIV-induced crypt hyperproliferation, crypt cell population and crypt hypertrophy to normal levels in jejunal mucosa

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**Background:** Diarrhoea and malnutrition commonly occur in AIDS. We have previously described shortening of villi (villous atrophy) and increased proliferation (hyperplasia) of crypt cells in the jejunum as the predominant abnormality in HIV-induced small bowel disease (HIV enteropathy). This study aims to achieve greater understanding of this process by investigating small intestinal crypt cell kinetics in HIV positive patients receiving highly active antiretroviral therapy and untreated patients.

**Methods:** Small intestinal proliferating cells stained using MIB-1 monoclonal antibody were analysed in relation to crypt cell position and a proliferative index (PI) computed. Crypts were sectioned in longitudinal axis to include the base, middle and mouth (crypt-villus junction). Crypt length was measured by counting column cells along the crypt side from base to the crypt-villus junction, and mean crypt length (CL) calculated. Arithmetic means of PI and CL were compared between 34 HIV+ cases receiving highly active antiretroviral therapy (HAART), 9 HIV+ and Microsporidia - infected (Test) cases, and 13 Control cases.

**Results:** Column counts were greatly increased in Test compared to Control intestinal crypts. The most marked difference in PI between these two groups was seen at crypt cell positions 15 and 18-68. Pooling the PI data for all crypts examined in the 3 groups, revealed that within the HAART group, proliferation was inhibited compared to Test cases, with proliferation returning below Control levels at cell positions 4-19. Test case crypts were significantly longer than Control cases (Test = 47.3, 11.2; Control = 31.1, 4.7, respectively). There was no significant difference in CL between HAART and Control cases.

**Conclusion:** HAART reduces HIV-induced crypt elongation to normal in small intestinal mucosa by promoting epithelial cell hypoproliferation in the basal crypt. Our data are consistent with the hypothesis that crypt cell hyperplasia in HIV enteropathy is driven by viral infection *per se*. Whether this is via specific HIV gene product(s) or cytokine response remains to be elucidated.

#### P114 Changes in HIV testing rates among patients with tuberculosis in a large multiethnic city in the United Kingdom in 2008/09

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**Background:** Mycobacterium tuberculosis (TB) is an AIDS defining illness. In September 2008, the British HIV Association (BHIVA) published guidelines on HIV testing in UK which recommended HIV testing in all TB patients as part of routine care. The aim of the audit is to evaluate rates of HIV testing among TB patients within a large multiethnic city cohort in the UK before and after the implementation of BHIVA guidelines and comparing the results with a similar audit conducted in 2005.

**Method:** Sample included all adult new TB patients resident in the region as recorded on local TB notification database from 1<sup>st</sup> April 2008 to 31<sup>st</sup> March 2009 and in the previous audit from 1<sup>st</sup> January 2005 to 31<sup>st</sup> December 2005. Data collected included routine demographic details, date and type of diagnosis (respiratory or non-respiratory), hospital attended and laboratory system record of HIV testing six months before or after TB notifications. The data was analysed using SPSS. Chi square tests (Fisher's Exact where assumptions not met) were used to determine any differences in testing rates between variables.

**Results:** Following exclusions there were 407 patients in 2008/9 and 371 patients in 2005. Across both cohorts 318 (41%) were aged between 18-34 years, the male: female and respiratory: non-respiratory ratios were 1:1. The most prevalent ethnic group was south Asian (61%) followed by black African (18%) and white (12%). 576 (74%) were born outside the UK. Demographics changed little over both the audit periods. The observed rate of HIV testing increased dramatically from 14% in 2005 to 43% in 2008/9 ( $p < 0.001$ ), particularly in age groups 18-34 yrs (19% vs. 63%,  $p < 0.01$ ) and black Africans (39% vs. 53%,  $p < 0.001$ ). In 2008/9 the testing rates between age groups remained significant ( $p < 0.001$ ). Analysis of the 2008/9 cohort before and after the publication of BHIVA guidelines revealed no significant difference in testing rates (40% vs. 47%,  $p = 0.18$ ).

**Conclusion:** The increase in HIV testing rates from 2005 to 2008/9 could reflect the general increase in awareness among clinicians of the association between HIV and TB. However, in 2008/9 nearly half the

patients with TB in this cohort were not tested for HIV. This missed opportunity emphasize that more work needs to be done in overcoming the barriers to universal 'Opt Out' HIV testing outside GU Medicine settings.

**Reference:** 1. UK National Guidelines for HIV Testing 2008. BHIVA, BASHH and BIS, September 2008.

#### P115 Cryptococcal antigen and CNS disease in the HAART era in a UK inner city population

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**Background:** The incidence of Cryptococcal disease has declined in the era of highly active anti-retroviral therapy (HAART) but remains an important cause of morbidity. It predominantly affects patients with HIV but can occur in other immunosuppressed groups. This study reviews the nature of these infections.

**Methods:** We retrospectively identified all cryptococcal antigen (CrAg) positive patients between 2002 and 2010 from a hospital with an HIV cohort of 2650. We collated data from electronic and clinical records.

**Results:** 35 CrAg positive patients were identified, 4 did not have HIV. Of the HIV negative patients 2 had malignancy, 2 had autoimmune disease. 13/31 HIV positive patients had proven CNS disease; 11 India Ink positive and 2 India Ink negative (1 culture positive, 1 CSF CrAg positive). 8/13 were Caucasian (6 MSM) and 5/13 were black African. 3/13 were female and 10/13 male. The median CD4 count at diagnosis was 27/ $\mu$ l (8-305) and viral load (VL) 253,007 (37,269- 380,000) copies/ml. 2/13 had Cryptococcal fungaemia, 3/13 had Cryptococcal lymphoid infection. Median lumbar puncture (LP) opening pressure (OP) was 34cmH<sub>2</sub>O (14-40). The median number of LPs done was 5 (1-32). 1/13 had a lumboperitoneal shunt and 1/13 received steroids and acetazolamide (initiated in Brazil) to manage high intracranial pressure (ICP). 10/13 were HAART naïve at presentation. 2/13 presented within 1 week of starting/restarting HAART and 1 after 112 days of HAART.

In naïve patients, HAART was commenced a median of 27 days (8-49) after presentation. 2/10 had worsening of symptoms consistent with Immune Reconstitution Syndrome (IRIS). Both cases had sustained high ICP on the initial presentation. HAART was commenced at 34 and 45 days after presentation, IRIS occurred at 15 and 18 days after starting HAART. At IRIS mean LP OP was 53.5cmH<sub>2</sub>O, mean CD4 count 47/ $\mu$ l and VL 547 copies/ml. Both were CSF culture negative.

Of those with CNS disease, 3 died within 6 months of diagnosis (cause of death PCP, PML and HCV liver failure). HAART was commenced 20-60 days after diagnosis in these patients.

**Conclusion:** Cryptococcal disease continues to cause significant morbidity and mortality in late presenters. When to initiate HAART is debated. 80% of our cases did not experience IRIS when HAART was commenced a median of 27 days after presentation. The cases complicated by IRIS had sustained high ICP on initial presentation suggesting this may be a predictor of IRIS.

#### P116 Outcome of treatment of chronic hepatitis C in HIV-coinfected patients

A Furco

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**Background:** Treatment of chronic hepatitis C with pegylated interferon (pegIFN) and ribavirin (RBV) is now standard of care (2009 BHIVA Guidelines), and becoming more widely available. In clinical trials the sustained virological response (SVR - 6 months post-treatment) is 14-29% in genotype 1 and 4, and 44-73% in genotype 2-3; about 60% of the clearance rate seen in HIV-negatives. The outcome in routine practice

remains uncertain. We report the results from one large clinical centre with an integrated co-infection clinic.

**Methods:** retrospective record review of consecutive patients starting treatment since 2001, followed to SVR by end 2009.

**Results:** 70 patients were eligible for review. Median age at diagnosis 34 years (range 13-53); 64% male; 64% white. Risks for HCV infection were MSM (38.5%), IVDU (18.5%), MSM/IVDU (12.8%) and MSM/non-injecting drug use (12.8%). HCV genotype 1 or 4 represented 63.8%, and 2 or 3, 35.7% cases. Median HCV viral load at baseline was  $\log_{10}$  6.27 (range 3.4-7.6); median CD4 count 510/mm<sup>3</sup> (range 80-1380); 63.8% patients were on ART; median ALT was 105 UI/L (range 24-778); 14% had cirrhosis. The median age at treatment was 40 (range 22-58). PegIFN alpha-2a was used in 55.7%; alpha-2b in 44.3%. For pegIFN alpha-2b, the median dose was 100 mcg (range 50-150). The median dose of RBV was 800mg (range 400-1200) per day. RBV was stopped in 2 cases (1 for side-effects, 1 for patient choice - continued pegIFN alone). From 2006, treatment policy changed to a weight-based dosing of RBV (previously 800mg daily). The median duration of treatment was 26.5 (range 5-72) weeks. Among genotype 1-4, 56.8% completed 48 weeks of treatment (2 stopped for toxicity, remainder for non response) and among genotype 2-3, 92% completed 24 weeks. Growth factors were used in 8 patients (G-CSF: 6, EPO: 2). The overall SVR rate was 52.9%. The SVR for genotype 1-4 was 40.9% and for genotype 2-3 was 76% ( $p=0.005$ ). The SVR among patients treated with higher dose of ribavirin was higher (60%) compared to the low dose (45.7%), but not statistically significant ( $p=0.23$ ).

**Conclusion:** in routine clinical practice it is possible to achieve similar response rates to that seen in clinical trials. Response rates have improved since the use of weight-based RBV dosing, with growth factors to avoid dose reductions.

#### P117 HIV testing in patients treated for tuberculosis

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**Background:** UK 2008 national guidelines recommend universal testing for patients with Tuberculosis (TB). We decided to audit HIV testing in patients treated for tuberculosis in 2008 in a large tertiary centre. Our aim was to identify areas, which needed improvement as tuberculosis is a potential presenting illness for HIV and the opportunity for early diagnosis and treatment should not be missed.

**Methods:** Electronic patient records (EPR) of 158 patients treated for TB in 2008 were reviewed. Data was collected on gender, age, ethnicity (Irish/Non-Irish), inpatient Vs outpatient, primary team responsible for care (respiratory/ID/other), pulmonary Vs extra-pulmonary and whether HIV test was done and result.

**Results:** A total of 158 patients were treated for TB over a one-year period. 62.6% were male, 48% were of Irish origin, and 84% had pulmonary TB.

101 patients were cared for by respiratory services, 19 by ID and 38 by other services.

50% were inpatients and 50% were outpatients.

A total of 100 patients were tested for HIV. 16 were diagnosed HIV positive prior to TB treatment. 83 were negative and 1 was a new positive diagnosis.

58 patients were not tested. Mean age of those tested was 36.5 years and of those not tested was 40.8 years.

51% of patients under respiratory services were tested, 78% of patients under other services and 94% of ID patients were tested.

82% of inpatients were tested but only 44% of outpatients were tested.

**Conclusion:** A significant number of outpatients under respiratory services were not tested for HIV. Factors potentially contributing to this may be time constraints in a busy outpatients department and lack of staff awareness.

As our study was limited to an electronic database and didn't include a chart review we could not identify those patients that were offered testing and declined. However the low numbers being tested gives cause for concern, given that early HIV diagnosis and treatment can prevent many of the long-term complications. To improve services, we've planned a number of interventions.

1) Staff education on guidelines for testing and counselling for HIV testing.

2) Introducing an automatic HIV test as part of a 'TB first bloods' on the EPR ordering system.

This would serve both as a reminder to staff and provide an opt out service, offering universal testing, and facilitating re audit in the future.

#### P118 Impact of rifamycin selection on treatment response in TB/HIV-coinfected patients

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**Background:** Effective short course anti-tuberculosis treatment (TB Rx) requires use of a rifamycin, typically rifampicin (RIF). However, in patients with TB/HIV co-infection it has significant drug interactions; and rifabutin (RBT) is often substituted in those on anti-retrovirals (ARVs). Recent work has suggested that the recommended RBT dosage may be inadequate in such patients & that there is risk of subsequent rifamycin resistance following apparent successful treatment. We reviewed our TB/HIV co-infected population to determine the impact of rifamycin type on outcome.

**Methods:** Single site retrospective data collection on all adults with TB/HIV co-infection diagnosed in 2003-2008 receiving a rifamycin as part of TB Rx. Subgroup analysis of population characteristics by rifamycin and ARV use was undertaken.

**Results:** 76 patients had a median age of 33 years. 48% were male & 70% Black African; 38 started RIF & 38 RBT. Drug dosage was in line with BHIVA guidance. Of 59 pts with culture positive disease, 3 had drug resistance (isoniazid). All patients completed TB Rx. Demographic data, severe adverse event and outcome information are given in the table (note: ARV+ denotes subjects on ARVs at start of TB Rx). No difference was found in duration of TB Rx across study groups. CD4 counts were higher in the ARV- RIF group. Median follow up of the cohort was 27 months [range 14-39]. One subject relapsed with a drug sensitive organism at month 30 post TB Rx.

**Conclusions:** Within our study population, the choice of rifamycin does not influence short term outcome or appear to predispose to the development of drug resistance at the current recommended rifamycin dosage.

#### P119 HIV-associated colorectal cancer and the immunological effects of treatment

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**Background:** Since the introduction of highly active antiretroviral therapy (HAART), non-AIDS defining malignancies including colorectal cancer (CRC) have emerged as major health concerns for people living with HIV.

**Methods:** From a prospective database of 11,112 HIV seropositive individuals, we identified 11 with CRC. Clinicopathological details on the presentation, treatment and outcomes were collected.

**Results:** All were male, median age 50 years (range 36-67) and median duration of HIV infection 7.2 years (range 0-21). Five had metastatic

disease at presentation, including one patient with a small cell cancer of the rectum. Patients were treated along conventional lines for CRC with concomitant HAART and opportunistic infection prophylaxis. During treatment, median CD4 cell count fell from 357/mm<sup>3</sup> at CRC diagnosis to 199/mm<sup>3</sup>, although no opportunistic infections were recorded. Three patients have died and the 5-year overall survival is 65% (95% confidence interval 32-98%).

**Conclusions:** Treatment for CRC reduces cellular immunity and potentially puts HIV patients at risk of opportunistic infections, so knowledge of HIV status prior to starting treatment is essential. This risk for HIV associated CRC may be reduced by concomitant HAART and prophylaxis. Clinicians managing CRC should consider screening all patients for HIV before starting chemotherapy or radiotherapy.

**P120**  
**Lymph node sampling in HIV outcomes and waiting times for different methods**

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**Introduction:** Investigation of lymphadenopathy often requires sampling of the involved lymph nodes (LN) either by fine needle aspiration (FNA), core (CB) or excision biopsy (EB). Appropriate biopsy method is imperative to make a diagnosis with minimal risk to the patient. This study reviews current practice in two major HIV centres.

**Method:** Data was collected from consecutive patients admitted under the HIV teams at one hospital from January 2008-December 2009, the other from July 2008-June 2009, using computer records, ward lists and hospital notes: patient demographics, CD4 count and HIV viral load (VL), method and site of biopsy, time from request to biopsy, complications, duration of hospital admission, final diagnosis and time until initiation of treatment.

**Results:** 5 patients required a total of 48 biopsies. The mean age was 41 years and 26 (74%) of patients were male. Mean CD4 at time of biopsy request was 352cells/ul; 14 patients had an undetectable VL, and the mean VL of the remaining 21 patients was 371,263copies/ml.

Mean wait for a radiologically guided biopsy, either FNA or CB, was 5 days (range 1-21 days). Mean wait for EB was 11 days (range 2-135 days). 18 patients started appropriate treatment after biopsy at a mean time of 39 days after initial biopsy request (range 2-158 days), 9 patients were already on treatment, for 7 patients treatment was not indicated and 1 patient died prior to treatment. There was a statistically significant treatment delay (p=0.046) comparing patients that had a non-diagnostic FNA or CB versus those that had either a diagnostic FNA or an EB first-line. There were no significant complications.

Method	Number performed	Diagnoses for those with non-diagnostic biopsy
FNA	Diagnostic (D) 7	7 malignancy,
	Non-diagnostic (N-D) 10	2 mycobacterial disease
CB	D 3, N-D 8	6 malignancy,
		2 mycobacterial disease
EB	D 17, N-D 1	Malignancy

**Conclusion:** In HIV, LN sampling can be crucial to making a diagnosis and starting appropriate and timely treatment. Although FNAs and CBs are a rapid and less invasive method of sampling, both this and previous studies show a higher incidence of non-diagnostic sampling compared to EB. Formalising referral for surgical LN biopsy in HIV patients, should lead to a shorter waiting times and a higher proportion of more diagnostic biopsies being performed.

**P121**  
**Hepatitis C testing should be performed routinely in all patients attending sexual health services**

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**Background:** UK is a low prevalence country for Hepatitis C (HCV) as such testing for HCV is not routine clinical practice for all clients attending a sexual health service. It is estimated that there are 60,000 unidentified cases of HCV within the UK. Testing for HCV is performed usually in those patients who admit to sexual risk, illicit drug use, infection with another blood borne virus (BBV) or possible blood contact on history taking.

**Method:** We used an "opt out" policy of routine testing for HIV, syphilis, Hepatitis B (HBV) and HCV in all patients (independent of the risk assessment) for all patients attending our integrated sexual and reproductive health service.

**Results:** Calendar year 2008. Pre existing cases of BBV are excluded. 5468 blood samples were tested.

HIV 15 Syphilis 12 HBV 1 HCV 8  
 1 male had a history of previous intravenous drug use. 2 men who have sex with men (MSM) had a history of snorting illicit drugs. 2 males were born outside UK, but had no other specific risk factors. 1 male denied any risk factors but also tested positive for HIV. 1 male denied any risk factors. 1 female denied any risk factors.

At follow up appointments 1 female and 1 male (who both denied risk factors) had consulted their GP numerous times over a period of several years with symptoms all of which could have been related to HCV. One male had acute HCV on the basis of a previous negative HCV test, recent risk and deranged liver enzymes.

**Conclusion:** 5 out of 8 people with HCV would not have been diagnosed if testing was based on risk assessment alone.

Hepatitis C testing should become routine practice in all settings where other BBV are being tested. Risk assessments are helpful to modify future risk behaviour but rely on truthful and accurate history provision and did not accurately predict positive hepatitis C results in this setting.

All clinicians outside settings screening for BBV should consider testing for BBV including HCV in all patients who persist with vague non specific symptoms when routine investigations are normal.

**P122**  
**Routine HIV testing in lymphoma patients – overcoming the challenges**

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**Background:** UK National Guidelines 2008 recommend universal HIV testing in healthcare services managing lymphoma. Specialists participating in the local lymphoma MDT (which serves 5 cities across 2 Strategic Health Authorities) were sceptical about the value of routine HIV testing in their predominantly elderly patient cohort.

**Methods:** The GUM HIV lead presented this recommendation to the lymphoma MDT meeting. A number of queries were addressed. A 6 month pilot project was agreed with routine testing of all new lymphoma patients prior to treatment followed by an audit.

**Results:** Reasons given for not routinely screening for HIV prior to pilot: The patient cohort were perceived to be at very low risk of HIV  
 It was felt insensitive to burden their sick and anxious patients further  
 Concerns about pre-test counselling (time and competencies involved)  
 Potential distress associated with false positives

These issues were discussed at the MDT where the following were accepted:

HIV is a modifiable prognostic factor for lymphoma  
 Partner notification can identify others who could benefit from HIV therapy

Knowledge of HIV status may reduce future sexual transmission  
A patient care pathway for reactive HIV tests was provided by the HIV specialist in addition to guidance on the information required to gain consent for testing

Audit results:

Of 215 lymphoma patients seen across the MDT in the 6 month pilot period,

1 was already known to be HIV positive

Only 27 new HIV tests were performed (12.6% of the unknown status patients), 26 of these were negative. There was 1 indeterminate result which was repeated and found to be negative.

Results were presented to the MDT who agreed to increase HIV testing and to start routine testing in patients with non-lymphoma lymphadenopathy.

**Conclusion:** HIV is a modifiable prognostic factor in lymphoma patients and non-Hodgkin's lymphoma is an AIDS defining condition, however the vast majority of lymphoma patients will not have HIV. Lymphoma specialists may therefore be reluctant to adopt universal testing. False positives in low prevalence groups remain a risk that must be managed properly by early referral of any reactive HIV tests to HIV specialists for confirmation.

### P123

#### Six cases of gestational trophoblastic tumours in women living with HIV

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**Background:** Gestational trophoblastic tumours (GTT) form a spectrum of malignancies associated with pregnancy, each characterised by the production of human Chorionic Gonadotrophin (hCG) and in most instances are highly curable.

**Aims and Methods:** There is no evidence to suggest that there is a higher incidence of GTT in the HIV population; however, its predilection for individuals from Sub-Saharan Africa may result in more common concurrent diagnoses. Data regarding the optimal management of patients with HIV who are diagnosed with GTT is limited.

**Results:** We report the cases of six women, 3 with choriocarcinoma and 3 with GTT following a molar pregnancy, who safely received antiretroviral therapy and OI prophylaxis, in parallel with cytotoxic chemotherapy for GTT, without a significant increase in bone marrow or other toxicity. Four of the six women had an HIV diagnosis prior to the detection of their GTT, in the other two instances HIV and GTT were diagnosed at the same time.

**Conclusions:** The presence of HIV infection can influence the course of treatment and outcomes in individuals with cancer. Our cases highlight the benefits of screening for HIV, in patients with GTD and the importance of multidisciplinary management by specialist Oncology and HIV teams, from the outset, of patients with a diagnosis of HIV and GTD (and other malignancies).

### P124

#### Time to HAART in patients admitted to hospital with acute opportunistic infections and serious bacterial infections

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**Background:** Despite the availability of anti-retroviral therapy (HAART), HIV positive patients still present with acute opportunistic infections (OIs). The ACTG's 5164 study reported benefit in starting HAART early (14 days) rather than late (45 days) after treatment for OIs or serious bacterial infections (BI).

**Methods:** We audited the time from inpatient OI/BI treatment initiation to HAART initiation for our service over 12 months (01/05/2008 – 31/04/2009). The hospital database was used to identify HIV positive cases admitted with OI/BIs. Discharge summary and case note review identified those cases not receiving HAART within 3 months prior to admission. The hospital and clinic notes of such patients were reviewed to identify time from initiating treatment for the infection to starting HAART, delaying factors, patient characteristics and subsequent adverse events.

**Results:** We identified 43 cases (median age: 39.2 years, males: 76.7%). 11 cases started HAART by day 14 (11/43 = 25.6%). In 22 (22/43 = 51.2%), delaying HAART was an active clinical decision due to OI severity (4), OI treatment toxicity (8), second OI (4), social (2) or other medical (4) problems. In 3, system delays played a role. 2 cases did not start HAART and 5 were followed up at another treatment centre and thus the outcome was unknown. Median time to HAART initiation was 24 days (range: 3 – 216 days, inter-quartile range: 14 – 49 days). Substance misusers were more likely to start HAART early ( $p = 0.04$ ).

**Conclusions:** In the majority of patients with OI/BIs, the 14 day target to start HAART was not achieved, predominantly due to medical factors.

### P125

#### Timing of antiretrovirals in opportunistic infections – how are we doing?

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**Background:** Recent data supports the early initiation of antiretroviral therapy (ART) in patients presenting with acute AIDS-related OI (opportunistic infections). ACTG A5163 reported early ART resulted in less AIDS progression/death with no increase in adverse events or loss of virologic response compared to deferred ART. Guidelines for starting ARVS in those with TB relate to CD4. We assessed current practice in a London HIV centre on initiation of ART in those with OIs.

**Methods:** Case notes and computerised discharge summaries of all patients with OI who were admitted to the HIV ward over a 12 month period were retrospectively reviewed. OIs included were Community Acquired Pneumonia (CAP), Tuberculosis (TB), PCP, Cryptococcal disease, CMV, MAI, and Toxoplasmosis. The definition of 'early ART' was commencement of ART within 14 days of OI diagnosis and 'late ART' was more than 14 days after diagnosis (as per ACTG A5163). CAP (requiring hospitalisation) was included as an OI.

**Results:** A total of 40 patients presenting with an OI were identified. TB was the presenting OI in 13/40 (32.5%) of cases. 12/40 (30%) had PCP. 15/40 (37.5%) had already been commenced on ART at time of OI diagnosis. In this group the OI diagnosed was TB in 5/15 (33.3%) and CAP in 5/15 (33.3%). 62.5% (25/40) were ARV naive. Of these 5/25 (20%) were commenced on early ART. Only one patient commenced on early ART had TB as their presenting OI. Of those who did not receive early ART 10 had PCP. The reason for delay was not documented in the majority of cases, followed by delay while awaiting GART (genotype resistance test) (n=3). Other reasons for delay included TB (2) and drug rash (1). One IRIS was noted in a patient with TB in whom ART had been deferred.

36/40 (90%) had CD4 counts <200. The mean CD 4 was 83.75, median 68.5 with a range of 0 to 507.

	PCP	TB	CAP	Toxo	Other
On ARVS	2	5	5	0	4
Early ARV <14d	1	1	2	1	1
Delayed ARV >14d	10	7	0	2	4

\*Note: Multiple OIs in the same patient were included individually

**Conclusions:** Our results suggest that commencement of ART in those with OIs in our clinical setting has been delayed in the majority of cases. The most common identifiable reason was due to unavailable GART. Clear national guidelines in development will direct use of early ART in those without a clear contraindication.

P126

### Why are HIV-positive patients hospitalized with severe infections not on highly active antiretroviral therapy?

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**Background:** In the era of highly active antiretroviral therapy (HAART), HIV positive patients are still hospitalised with severe infections. We investigated why such patients were not on HAART at the time of hospitalisation.

**Methods:** A retrospective notes review identified patients who were not on HAART when admitted to hospital with opportunistic infections and serious bacterial infections between 1<sup>st</sup> May 2008 – 31<sup>st</sup> April 2009. We compared the characteristics of two patient sub-groups: Newly Diagnosed patients (ND group) for whom the presenting infection led to the diagnosis of HIV infection & Previously Diagnosed patients (PD group) who presented with a severe infection but were not on HAART at the time of presentation.

**Results:** We identified 40 cases: 23 in the ND group and 17 in the PD group. PCP (18 cases), community acquired pneumonia (7) TB (5) and cerebral Toxoplasmosis (3) were the most common serious infections overall. Traditional OIs were diagnosed in 20/23 in the ND group vs 10/17 in the PD group ( $p=0.07$ ). Compared to the PD group, the ND group were less likely to be MSM (26% vs 59%  $p=0.09$ ), or drug users (13% vs 41%) but more likely to be from countries of high HIV prevalence (48% vs 29%  $p=0.117$ ). In the 6 months prior to admission, no PD patients had had confirmed CD4 counts <350 but 9/17 had been lost to follow up (for a mean 18.6 months); 3 had CD4 confirmed >350, 3 had one CD4 below and one above 350. Data was missing for 2 who had HIV care elsewhere prior to hospitalisation.

**Conclusions:** Patients not on HAART, hospitalised with severe infections are predominantly newly diagnosed, patients lost to follow up, or those with CD4 above the 350 cut off to start HAART.

P127

### Analysis of seroprevalence of MMR and VZV in HIV-positive adults attending an infectious diseases unit

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**Background:** The British HIV Association guidelines recommend serological screening for Measles, Mumps, Rubella (MMR) and Varicella Zoster Virus (VZV) to identify susceptible HIV positive patients. Little data exists regarding sero-prevalence for MMR and VZV in the adult HIV positive population, or whether infection produces increased risk of sequelae. The aim of this study was to ascertain sero-prevalence rates in our HIV cohort to evaluate whether screening would be cost effective.

**Method:** We retrospectively tested 90 HIV positive women of child bearing age (16–40 yrs) who attend the Infectious Diseases Department, with CD4 counts >200 who would be eligible for vaccination. Patient demographics were obtained from the HIV database and MMR/VZV serostatus determined by testing stored sera. The HIV viral load at time of diagnosis and CD4 count were noted.

**Results:** 90 females aged 17–40 were tested, mean age of 37 years. Average CD4 count at diagnosis was 365 (22–1120) and HIV viral load 34,528 (undetectable–499,000). 90% were from Africa, 72.1% E.Africa, 5.5% W.Africa, 7.7% C.Africa and 3.3% from S.Africa. 8% were from the UK, 1% from Asia and 1% from Europe. 96% (86/90) were seropositive for Rubella, 3% (3/90) negative and 1% (1/90) equivocal. 93% (83/90) were seropositive for Measles, 4% (4/90) negative and 3% (3/90) equivocal. 82% (72/90) were seropositive for Mumps, 11% (10/90)

negative and 9% (8/90) equivocal. 94% (84/90) were seropositive for VZV, 4% (4/90) negative and 2% (2/90) equivocal. All those who were seronegative were offered vaccination.

**Conclusions:** Results for this cohort demonstrate high levels of seropositivity to all four viruses. Rubella screening will continue as is recommended for all women of child bearing age prior to pregnancy. Considering the high rates of sero-positivity for measles and mumps, and the relatively low incidence in this age group in the UK, and the potential for vaccine associated adverse events, routine screening may not be cost effective. Despite high sero-positive rates for VZV some evidence suggests that vaccination may reduce zoster incidence in this cohort. When further supportive evidence is available, routine screening may be beneficial. Currently, if patients have a history of VZV, it seems IgG is maintained and screening not required. These results are specific to our cohort, with different demographics to other parts of the UK. Local evaluation is important prior to implementing screening guidelines.

P128

### Chronic hepatitis E infection associated with cirrhosis in an immunocompromised HIV-positive patient

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**Background:** Hepatitis E virus (HEV) is a recognised cause of acute hepatitis. Recently, chronic infection has been described in patients receiving immunosuppressive therapy. We describe the case of an HIV positive man with persistent HEV replication associated with cirrhotic liver disease.

**Case Report:** A 48 year old HIV positive man was found to have a persistently elevated alanine transaminase, up to 3 times the upper limit of normal, since transferring his care to our centre in July 2007. He was diagnosed with HIV in January 2007 (CD4 30 cells/cm, HIV viral load >80,000 copies/ml). Serological and molecular tests were repeatedly negative for hepatitis B, C and syphilis. He was hepatitis A immune. His HIV viral load has been fully suppressed since July 2007 on antiretroviral therapy but his CD4 count remained below 200.

In January 2009, hepatitis E (HEV) IgM and IgG were detected and HEV (genotype 3) infection was confirmed by the detection of HEV RNA in his serum. Liver biopsy was performed in March 2009 and revealed stage 5 fibrosis with piecemeal necrosis. Testing of stored plasma samples for HEV RNA revealed the patient had been persistently viraemic since July 2007 with a gradual reduction of HEV RNA levels over time. However, plasma samples from July 2007 were negative for both HEV IgM and IgG when performed on a Biokit assay and remained so until December 2008. The alternative Wantai HEV serology assay was positive in the earliest samples. Lumbar puncture, performed in July 2009 because of ongoing peripheral neuropathy, revealed HEV RNA in the CSF. The patient continued to deteriorate clinically with generalised malaise and persistently elevated transaminases. Therefore, in July 2009, after detailed discussion with the patient, a trial of pegylated interferon (Peg IFN) (off-license) was commenced to endeavor to treat his HEV infection. After 6 weeks of Peg IFN, his plasma HEV RNA levels had significantly decreased, his ALT normalised and his symptoms were greatly improved.

**Discussion:** This patient demonstrates, for the first time, that chronic HEV infection may occur in patients with immunocompromise due to HIV infection and should be considered as a cause of unexplained liver dysfunction in these patients. His serological and PCR results were discrepant at the outset which demonstrates the importance of considering molecular techniques to exclude HEV infection. An update of his treatment and progress will be provided.

P129

**HIV-infected patients admitted to ITU: causes and short-term outcome****K Manavi***University Hospitals Birmingham, Birmingham, UK*

**Background:** The advent of highly active antiretroviral therapy (HAART) has significantly improved the survival rate of HIV infected patients. Data on the outcome of ITU admission of HIV infected patients is scanty.

**Methods:** retrospective study on all HIV infected patients admitted to ITU in a tertiary HIV centre between February 2004 and February 2008.

**Results:** 19 patients had 21 ITU admissions during the study period. The interval between HIV diagnosis and ITU admission was less than 12 weeks for 9 (47%) patients. For 11 (52%) admission episodes, CD4 counts were less than 200 cells/mm<sup>3</sup>. Five (24%) admissions related to patients with viral load count of less than 50 copies/mL on HAART. Nine patients started HAART during their ITU admission.

Myocardial infarction (n=4), renal failure secondary to HIVAN (n=3), pulmonary hypertension (n=3), infection with PCP (n=3), toxoplasmosis (n=3) and TB (n=2) were the most common diagnoses on discharge of patients from ITU.

Average length of stay of HIV patients in ITU was 14.1 discharge days. Two patients admitted to ITU died (toxoplasmosis=1, PCP=1). One patient died from renal failure 18 months after discharge from hospital. 16 patients were alive in 2009. In study centre, ITU survival of HIV infected patients was 19 (90%).

**Conclusion:** With prompt start of HAART, close collaboration of ITU and HIV specialists, ITU admission of HIV infected patients may be associated with excellent short term outcome comparable with that of non-HIV infected patients. Late diagnosis of HIV accounted for near half of ITU admissions in this cohort.

P130

**Hospital admissions for HIV-infected patients in the era of HAART****K Manavi***University Hospitals Birmingham, Birmingham, UK*

**Background:** Although HAART has significantly improved the prognosis of HIV infected patients, a proportion of HIV infected patients still need hospital admission.

**Aim:** To investigate the causes of hospital admission of HIV infected patients in a tertiary HIV centre in the UK.

**Methods:** Retrospective analysis of episodes of hospital admissions of HIV infected patients between April and December 2009. Patients' demography, information on their CD4, HIV viral load counts, and their diagnosis on discharge were recorded.

**Results:** During the study period, 24 hospital admissions for AIDS related diseases and 65 admissions for non-AIDS related diseases took place. No statistical difference between the proportions of genders, ethnicities, and routes of HIV infection was noted amongst patients in the two admission groups.

Surgical operation (n=18), chest infection (n=11), and renal failure (n=8) were the most common non-AIDS related hospital admissions. Bacterial sepsis (n=8), tuberculosis (n=4), PCP (n=4), and lymphoma (n=3) were the most common AIDS related admissions.

The average length of stay for AIDS related admissions was 19.3 discharge days and for non AIDS related admissions was 2.3 discharge days (P<0.0001). Four AIDS related admission episodes ended with patients' death. None of the patients with non-AIDS related hospital admissions died during their admission. Hospital survival of AIDS related admissions was 86%; this was 100% for non-AIDS related admissions.

**Conclusion:** In study centre 27% of all hospital admissions of HIV infected patients were AIDS related that had significantly longer episodes compared to non-AIDS related hospital admissions. In-patient care of AIDS related diseases is significantly more expensive than provision of

HIV out-patient care. The impact of late HIV diagnosis on health economics in the UK may be substantial and can be reduced by earlier diagnosis of HIV infected patients.

P131

**Increasing prevalence of pulmonary tuberculosis (TB) in HIV-infected individuals in Kampala, Uganda****J Willson<sup>1</sup>, E Devitt<sup>1</sup>, T Rampling<sup>1</sup>, E Namulema<sup>2</sup>, M Bower<sup>1</sup> and M Nelson<sup>1</sup>***<sup>1</sup>Chelsea and Westminster Hospital, London, UK and <sup>2</sup>Mengo Hospital, Kampala, Uganda*

**Background:** In Uganda the prevalence of HIV infection is estimated at 4-8% (AIDS 2008). The prevalence of tuberculosis (TB) is 343 per 100,000 population (WHO). Percentage of incident TB cases who are HIV positive 47-71% (WHO). In a previous study of a clinic cohort in Kampala the prevalence of TB co-infection in new HIV cases during 2001-2003 was 5%. The aim of this study was to investigate any change in the prevalence of HIV/TB co-infection in a similar urban cohort. Mengo Hospital is a 300 bed NGO Health care complex in Kampala, Uganda.

**Methods:** A retrospective review of all patients newly diagnosed with HIV at an urban hospital in Kampala between 1/5/08 and 30/4/09 was undertaken. Those individuals co-diagnosed with TB were included in analysis. Timing of TB diagnosis in relation to the HIV diagnosis was classified as either within the six weeks preceding the HIV positive result or the six weeks thereafter. Screening for TB was performed using a standardised World Health Organisation questionnaire which identifies fever, night sweats, weight loss, productive cough >2 weeks and haemoptysis. Individuals identified using these questionnaires were then further evaluated with a chest x-ray and sputum examination for acid fast bacilli.

**Results:** Over this 12 month period, 16,668 patients were tested for HIV. 1293 (7.8%) tested positive. All were screened for active TB. Of these new HIV cases, 151 (12%) were also diagnosed with pulmonary TB within 6 weeks of HIV diagnosis. Of these, 58% were female; the mean age was 33 years (range 1-67). A further 26 (2%) individuals were diagnosed with TB >6 weeks before or after HIV diagnosis. Baseline CD4 count was measured in 78% (118) of patients with a median CD4 count of 106 cells/mm<sup>3</sup> (range 1-1640 cells/mm<sup>3</sup>). All patients commenced triple antiretroviral therapy with 2 nucleoside analogues and either efavirenz or nevirapine. Empiric TB treatment based on standard 3 or 4 drug regimen was initiated in all patients.

**Conclusion:** This study has identified the prevalence of TB co-infection at HIV diagnosis in this population to be 12% in 2008-2009. This represents an increase from previously published data from a comparable population in 2001-2003 (5%). Due to the high rates of co-infection, all patients presenting with TB should be tested for HIV. Similarly, active TB screening within the HIV population, and the use of appropriate prophylactic agents may reduce morbidity and mortality associated with co-infection.

P132

**Ocular syphilis as the first presentation of HIV infection****R Dhairyawan<sup>1</sup>, M Westcott<sup>2</sup>, C Parvesio<sup>2</sup> and B Goh<sup>1</sup>***<sup>1</sup>Barts and The London NHS Trust, London, UK and <sup>2</sup>Moorfields NHS Trust, London, UK*

**Background:** Neuro-ophthalmic syphilis is increasingly reported in HIV-positive patients, particularly those with a CD4 count of <350 and a rapid plasma reagin (RPR)/ venereal disease research laboratory (VDRL) titre of >1:32. We report three cases of new HIV infection diagnosed as a consequence of ocular syphilis presenting initially to an ophthalmic hospital in 2009. All had oral steroid therapy prior to syphilis diagnosis.

**Case 1:** A 33 year old heterosexual man who presented with a two week history of a painful, red eye, was diagnosed with panuveitis and retinal occlusive vasculitis. He had a rash on his lower legs and soles, and perianal ulcers. Dark field microscopy (DFM) showed one non-motile

treponem. Treponemal EIA and RPR (1:516) were positive. A salivary HIV point of care test (POCT) was positive. Initial CD4 count was 219 (12%) and viral load was 147,649 copies/ml. He was treated with IV aqueous benzylpenicillin initially and then IM procaine benzylpenicillin and oral probenecid for 17 days. At one month review, clinical symptoms had resolved, RPR was 1:32 and antiretroviral therapy (ART) was commenced.

**Case 2:** A 20 year old homosexual man presenting with 2 weeks of eye discomfort and "black spots" in his vision, was diagnosed with retinovasculitis. Positive DFM of perianal lesions and treponemal EIA and RPR (1:128) confirmed secondary syphilis. HIV POCT was positive with a CD4 count of 223 (16%) and viral load 69,813 copies/ml. He was treated as Case 1. At three months, RPR was negative and visual symptoms had resolved. He was started on ART.

**Case 3:** A 39 year old homosexual man with declining visual acuity was diagnosed with optic neuritis and retinovasculitis. Treponemal EIA and RPR (1:256) were positive. There were no other features of secondary syphilis and treatment was with prednisolone followed by IM procaine benzylpenicillin and oral probenecid for 17 days. HIV POCT was positive with a CD4 count of 611(28%) and viral load of 687 copies/ml. At one month, visual symptoms had improved with a RPR of 1:128.

**Conclusion:** Syphilis should be excluded in cases of uveitis and optic neuritis; other features of secondary syphilis may be absent. All our patients had improving visual symptoms after neurosyphilis therapy, and had preceding oral steroids to prevent Jarisch-Herxheimer reaction, as this can worsen ocular symptoms. Early diagnosis is important as ocular syphilis can rapidly cause blindness. HIV coinfection should be excluded in such patients.

P133

### Progressive outer retinal necrosis: poor prognosis despite treatment

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**Background:** Progressive outer retinal necrosis (PORN), a rapidly progressive, necrotising retinitis due to varicella zoster virus (VZV), is a rare cause of painless visual loss in advanced HIV infection and has been reported in both adults and children. We aimed to better define the clinical course and optimal management of VZV-associated PORN in the setting of combination antiretroviral therapy (cART) through review of a series of cases presenting in the last 2 years.

**Methods:** Individuals with HIV infection and a final ophthalmological diagnosis of PORN from two UK HIV treatment centres were identified with case note and laboratory review.

**Results:** Three cases of PORN (6 eyes involved) were identified, all black African females (median age 40: range 30-44) and all with significant immunodeficiency (median CD4 count 6 cells/mm<sup>3</sup>; range 3-28): in all cases it was part of the presenting HIV-associated illness. Two had had recent primary or reactivated VZV infection and all had VZV detected in their CSF: two of two tested were also positive in vitreal aspirate. One received steroids as part of empirical treatment for tuberculous meningitis, after the initiation of intravenous (IV) acyclovir. Despite aggressive and prompt treatment with IV/oral (acyclovir then famciclovir/cidofovir 1, acyclovir then ganciclovir/foscarnet 2) and intravitreal (ganciclovir 1, ganciclovir/foscarnet 1) antivirals and early cART, all 3 patients suffered profound progressive visual loss (complete blindness in one [without intravitreal treatment], hand movement only in one eye and 6/12 vision in the other in the second and blindness in one eye [with retinal detachment] and light perception only in the other eye of the third).

**Conclusions:** Our cases are consistent with the published pre- and post-cART literature and confirm the rapid and severe loss of vision typically occurring with PORN. Early recognition and diagnosis with initiation of antivirals (IV and intravitreal) and a multidisciplinary approach to

management are paramount and have been reported to preserve sight. The role of corticosteroids and early cART and the potential for immune reconstitution syndrome have not been defined.

P134

### Toxoplasma gondii infection in pregnancy: experience from a single HIV centre

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**Background:** Acute infection with *Toxoplasma gondii* or reactivation of chronic infection in the immunocompromised patient during pregnancy can result in transplacental transmission with potentially devastating foetal outcomes. Diagnosis is usually made serologically using antibody tests. In a HIV negative pregnancy amniocentesis is the next diagnostic step. This is rarely performed in an HIV positive pregnancy, posing the clinician a significant clinical dilemma.

**Methods:** We discuss the management of positive *Toxoplasma gondii* serology in pregnancy at a single HIV centre via a retrospective review of the diagnosis, management and foetal outcome in four HIV positive women.

**Case 1:** Reactivation of Toxoplasmosis in pregnancy, Early diagnosis. A 21 year old British woman diagnosed HIV-1 infection at 16 weeks gestation (16/40). CD4 count 196 cells/ $\mu$ l. Initial Toxoplasmosis serology: Toxo latex positive >1024, Dye test 2000IU/ml, ISGA IgM negative, EIA IgM negative, Toxo PCR positive. Pregnancy treatment: HAART and Spiramycin 1g orally three times daily. Neonatal outcome: Toxoplasmosis negative (HIV negative).

**Case 2:** Reactivation of Toxoplasmosis in Pregnancy, Post-delivery diagnosis. A 37 year old African woman diagnosed with HIV-1 infection at 18/40. CD4 count 285 cells/ $\mu$ l. Initial Toxoplasmosis serology: Latex positive >1024, Dye 125IU/l, ISGA IgM negative, EIA IgM negative, Toxo PCR negative. Pregnancy treatment: HAART only. Neonatal outcome: Congenital Toxoplasmosis (HIV negative).

**Case 3:** Positive Toxoplasmosis serology in Pregnancy. A 37 year old African woman diagnosed HIV-1 on antenatal screen. CD4 292 cells/ $\mu$ l. Initial Toxoplasmosis serology: Latex positive >1024, Dye 1000IU/ml, Toxo PCR negative, ISGA IgM negative, EIA IgM negative. Pregnancy Treatment: HAART + Spiramycin. Neonatal outcome: Toxoplasmosis negative (HIV negative).

**Case 4:** Primary Toxoplasmosis in Pregnancy. A 43 year old African woman, known HIV-1 infection and on HAART, Toxoplasmosis latex six months prior to the pregnancy was <16. Initial Toxoplasmosis serology (20/40): Latex positive, >1024, Dye test 2000IU/ml, ISGA IgM positive, EIA IgM positive, IgG Avidity 31%, Toxo PCR Negative. Pregnancy treatment: Spiramycin + HAART. Neonatal outcome: Congenital Toxoplasmosis (HIV Negative).

**Conclusion:** We discuss these cases in detail, specifically highlighting difficult clinical management issues associated with positive toxoplasmosis serology in pregnancy.

P135

### HIV and human betaretrovirus coinfection: a case report

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**Background:** Human betaretrovirus has been isolated from perihepatic lymph nodes in 73 percent of individuals with primary biliary cirrhosis (PBC), and is increasingly being implicated in the pathogenesis of PBC as a potential trigger. Small randomised controlled trials have shown that this virus is susceptible to anti-retroviral therapy (ART).

**Methods:** We describe a case of a 57 year old HIV positive man who developed biopsy proven PBC, and its subsequent response to ART alone.

**Results:** Prior to the introduction of ART, alkaline phosphatase (ALP) and alanine transaminase (ALT) increased from normal values in September

2008 to 709 iu/L (normal range 40-130 iu/L) and 192 iu/L (normal range 2-53 iu/L) respectively in May 2009. His total bilirubin was 15  $\mu\text{mol/L}$  (normal range 3-17  $\mu\text{mol/L}$ ). By December 2009, after 8 months of treatment with Truvada and Kaletra, his ALP and ALT decreased to 275 iu/L and 72 iu/L respectively. His HIV virus is completely suppressed and his CD4 count increased from 360 cells/mm<sup>3</sup> to 580 cells/mm<sup>3</sup>.

**Conclusion:** PBC is a progressive disease with median survival duration from the time of diagnosis of 7.5 years for patients who are symptomatic and 16 years for asymptomatic patients. The significant improvement in liver function in our patient following the introduction of ART suggests that ART could be used to treat patients with PBC.

P136

### Voltage-gated potassium channel antibody-related limbic encephalitis in an HIV-positive female with dialysis-dependent renal failure

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**Background:** Limbic encephalitis (LE) is an increasingly recognised autoimmune, paraneoplastic encephalitis. In recent years, a non-paraneoplastic form associated with voltage-gated potassium channel (VGKC) antibodies has been identified. VGKCs are transmembrane channels crucial in nerve action potentials. VGKC antibody-associated LE (VGKC-LE) is a potentially treatable encephalitis. We present the first reported case of VGKC-LE in a HIV positive patient.

**Case:** A 34 year old Ghanaian lady with a five year history of HIV 1 infection and dialysis-dependent renal failure presented to A+E with a two day history of a left-sided headache and increasing confusion, characterised by altered behaviour, incoherent speech, disorientation and marked agitation. She was on abacavir, lamivudine and boosted saquinavir (viral load <40 copies/ml and CD4 count 257). Her last dialysis was two days earlier. Physical examination was unremarkable.

**Management:** CT brain revealed chronic small vessel disease (basal ganglia). MRI brain (incomplete) revealed old infarcts. An electroencephalogram showed mild cortical dysfunction. Cerebrospinal fluid (CSF) analysis revealed a protein of 0.6g/l with a white cell count of <1x10<sup>6</sup>/l. The patient was commenced on IV aciclovir. Over the following week, she became less agitated, but cognition was still poor. Her mental test score (MTS) was 2/10, with a receptive dysphasia. CSF viral PCR, STS, TB PCR and JC virus were negative. A repeat MRI reported sub-cortical white matter change in the right temporal lobe ?LE. After three weeks of aciclovir, repeat CSF was unchanged and she was slow to improve with fluctuating cognition and aggressiveness. At this point, results confirmed the presence of serum VGKC antibodies at a level of 479pmol/l (normal level <100 pmol/l). A five day course of plasma exchange (PEX) was commenced. After the first there was a significant improvement in cognition, memory and affect. Her MTS increased to 6/10. PEX was followed by a tapering course of oral prednisolone. A full body CT and PET scan both suggested no underlying malignancy. Her improvement was sustained and her personality returned to normal.

**Conclusion:** This B cell-mediated dysregulation of VGKC function adds to the spectrum of autoimmune phenomena associated with HIV. Encephalopathy is a common diagnostic problem facing HIV physicians. This case highlights a potentially reversible and under-recognised cause which should be actively considered by clinicians.

P137

### Who is offered a hepatitis C test – a regional questionnaire survey

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**Background:** The objective of this analysis was to determine whether there is consistent practice in GUM clinics across the West Midlands as

to who is offered testing for Hepatitis C according to the level of risk as recommended by BASHH guidelines.

**Methods:** A regional questionnaire survey was sent both to Medical Consultants and Lead Nurses in 15 West Midlands GUM clinics. Respondents were asked whether they would offer a test to patients whose history suggested known risk factors as identified by BASHH and Department of Health (DH) guidelines e.g. contact with an injecting drug user (IDU) and men who have sex with men (MSM), both positive and negative for HIV.

**Results:** The response rate was 69% (21/30 of Consultants and 10/15 of lead nurses). 96% would offer a test to patients with a history of IDU. 81% would offer a test to sexual partners of IDU; whereas 80% would test partners of known HCV patients. 93% would test those sustaining a needle stick injury. In relation to HIV positive patients, 87% and 84% would offer a test to MSM and heterosexuals respectively. In contrast, 61% would offer a test to MSM who were HIV negative (10/21 Consultants, 3/10 Lead Nurses ( $p>0.45$ )). 48% would offer a test to Commercial Sex Workers (CSW) and 22% to contacts of CSW. Individuals disclosing a history of an unregistered tattoo would be tested by 67% while 51% would test current prisoners. Some variation in testing practice was noted within GUM clinics both among Consultants and between Consultants and Lead nurses.

**Conclusion:** The survey demonstrates inconsistent practice in West Midlands GUM clinics amongst Healthcare Professionals as to who is offered testing for Hepatitis C. Of particular concern is the variation in testing patterns in MSM who are HIV negative across the region.

P138

### Outcomes and safety of adefovir-entecavir combination as a rescue therapy in experienced HBV/HIV coinfecting patients intolerant of tenofovir

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**Background:** Truvada (emtricitabine, tenofovir) is recommended as first line treatment for HBV/HIV co-infected patients. Small number of HIV patients (up to 1%) can develop renal impairment/ renal tubular dysfunction on tenofovir. Using entecavir (ETV) in naïve patients have good outcomes and very low resistance but not in lamivudine (LAM) experienced patients. Although suggested by BHIVA, there are no data using adefovir (ADV) with ETV in this group of patients.

**Aims:** To assess virological outcomes and safety of using ADV with ETV in LAM experienced TDF intolerant HBV/HIV co-infected patients.

**Methodology:** Prospective observational study

**Results:** 3 patients identified (All white, 2 males, median age 48years old, median time of HIV diagnosis 14 years, all eAg positive, all had ADV added to ETV). Median previous anti-HBV therapy (LAM, TDF, ETV) was 120 months (range 11-133); previous LAM (median time 84 months, range 37-105), TDF (median time 27 months, range 5-60), ETV monotherapy (range 1-23months). All had to switch from TDF because of renal impairment. 2/3 patients had cirrhosis, 67% had underlying HBV resistance. At the time of analysis, all received combination of ADV + ETV for median 34 weeks (range 25-48). Two patients had detectable HBV VL prior to adding ADV to ETV, and both achieved HBV decline (2.83-3.94 log<sub>10</sub> IU/L). In one patient ADV was added to prevent developing ETV resistance as patient prior LAM experienced. All patients had ALT within normal limits at the end of the study. All patient experienced e-GFR decline on ADV (median 23mL/min, range 13-27). One patient developed Fanconi's syndrome.

**Conclusions:** ADV in combination with ETV has influence on HBV decline and ALT normalisation in HBV/HIV co-infected patients intolerant of TDF but can exacerbate renal impairment and renal tubular dysfunction in those patients and therefore limits the use in this group of patients. Other strategies such using reduce dose of tenofovir might be less toxic than the currently recommended one.

P139

### A case of metastatic leiomyosarcoma in an HIV-positive woman

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**Background:** Leiomyosarcoma is a rare malignant tumour of smooth muscle origin that is usually unifocal and involves the genitourinary or gastrointestinal tracts. It has been associated with HIV infection in children. It is extremely rare in adults, where it is more likely to be multifocal and involve the central nervous system. An association with Epstein-Barr virus (EBV) has been suggested, but the role of this is unclear.

**Case report:** We report a 35 year old female, presenting with two weeks of right sided weakness, neck and right shoulder pain. She was diagnosed with HIV nine months previously when admitted with bacterial pneumonia, but had disengaged from follow up. On examination she had a Brown-Séquard syndrome with power 4/5 on the right with left sided loss of temperature and vibration sense.

**Investigations/management:** Magnetic resonance imaging (MRI) of the brain and spine revealed an intradural, extramedullary mass at C3/C4, suggestive of a neurofibroma. It was displacing the spinal cord, but not compressing it. CT scan revealed a 2.6x2x2cm lesion in her right kidney and throughout both lung fields there were multiple nodules <1cm diameter and small cysts.

She was started on oral steroids to reduce inflammation and subsequently underwent a laminectomy. CT-guided biopsy of the renal mass was also undertaken. It was felt that the lung nodules were too small to biopsy and that the cysts were likely to be due to previous *Pneumocystis jirovecii* infection. CD4 count was 167(9%) and HIV viral load 223,640 copies/ml. She was commenced on antiretroviral therapy.

Histology from the spinal and renal lesions was consistent with metastatic leiomyosarcoma. Positron emission tomography (PET) showed successful resection, but did not reveal a primary site. Plasma EBV DNA was <250 copies/ml. She was referred to the regional sarcoma unit, where she underwent adjuvant radiotherapy. She was also admitted to a neurorehabilitation unit for intensive therapy. It is not yet clear if the lung nodules represent metastatic disease, and she awaits review for adjuvant chemotherapy.

**Discussion:** Although leiomyosarcoma is more common in HIV infected children, it can occur in adults and can be a diagnostic challenge. It should be considered when a neurofibroma is indicated on imaging. Early biopsy is recommended due to rapid growth of the tumour. Our case suggests a possible association with immunosuppression.

P140

### Chronic diarrhoea in an HIV-positive patient: a novel cause

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**Background:** Noroviruses (NoV) are highly contagious and represent a significant public health risk in outbreaks. Despite high rates of acute, enteric NoV infection in HIV positive individuals, there is no documented case of HIV associated, chronic NoV infection. We present a unique case of chronic NoV infection over an 8-month period in a man with advanced HIV disease, poor adherence to antiretrovirals and persistent diarrhoea.

**Methods:** Extensive counselling was given to promote adherence to therapy. Virus load, genotypic resistance assays and CD4 count were monitored frequently. A trial of intravenous immunoglobulin therapy (IVIg) was given and alternative gastrointestinal pathogens were actively sought. Genotype sequencing of S and P2 domain region of the NoV capsid was performed to establish if our patient's symptoms were due to a single mutating virus or infection with multiple strains.

**Results:** CD4 count did not exceed 30 cells x10<sup>6</sup>/L during gastroenteric illness and virus load was often >1000 copies/mL with no known resistance mutations detectable. Norovirus was the only pathogen found in faeces. There was only transient reduction in stool frequency lasting a few days following IVIg. Initial genotyping of the gene encoding S domain region of the NoV capsid indicated that strain SPA-MS1 (14/11/8) may be similar to SPA-MS2 and MS3 (15/3/9 and 6/4/9, respectively); however in this region it can be seen that strains SPA-MS1, MS2 and MS3 are also identical to two un-related outbreak strains (6944/2009/UK and 914081/2009/UK). SPA-MS4 strain is different in this region, indicating it could be responsible for separate or new NoV infection. Sequence analysis of the gene encoding the hyper-variable P2 domain region of the capsid shows the patient may have excreted 3 different NoV strains over 8 months. S domain region, however, is not suitable for transmission studies and capsid sequencing is unable to assess if S/P2 domains amplified from each cDNA were from the same virus.

**Conclusion:** IVIg had no significant clinical benefit. NoV evolution and recombination has previously been described in hospitalised patients with non-HIV related, chronic NoV excretion, but our patient's single clinical episode of diarrhoea may be the first recorded case of HIV associated chronic NoV infection. DNA sequencing was unable to provide a definitive answer as to whether our patient was infected with a mixture of NoV strains, recombinant strains or a single evolving strain.

P141

### H1N1 – is swine flu a new cause of vulval ulceration?

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**Introduction:** During the 6 week period from mid-June to late July 2009 the epidemic of Swine Flu in the UK reached its peak. In this period 3 female patients were seen in our unit with significant vulval ulcers which proved Herpes Simplex negative. We believed these ulcers maybe a secondary symptom of infection with the H1N1 virus.

**Patient 1:** Presented 9/6/09

25 year old medical student, unwell 3 days, swollen vulva with blisters, fever, cough and nausea. Had returned from New York the previous day from elective in a busy Accident and Emergency department. Examination findings clinically suggested Primary HSV which was treated with Aciclovir and she was advised to contact her student health department as possible flu. Swine Flu was confirmed on viral swabbing and Tamiflu Osteltamivir commenced. HSV 1 and 2 PCR were negative as was HSV serology and EBV IgM. The ulcers had fully healed within a week and not subsequently recurred.

**Patient 2:** Presented 6/7/09

15 year old girl with no history of sexual exposure had a 6 day history of headache, fever and joint pain. On the second day developed vulval soreness. Commenced Tamiflu on day 3 and Aciclovir on day 4 as frank ulceration. When seen in clinic had deep sloughy ulcers which did not have a typical HSV appearance. HSV PCR was negative and the ulcers resolved within 10 days.

**Patient 3:** Presented 26/7/09

11 year old girl on holiday in the UK from Italy presented to paediatric department with a 5 day history of severe vulval pain, fever and sore throat. Had large atypical vulval ulcers again negative for HSV PCR which resolved within a week.

**Discussion:** These 3 patients may represent a possible complication of H1N1 Infection. While it is recognised that Epstein Barr virus may cause vulval ulceration, we think this is the first report of influenza viruses causing this.

P142

**Poor uptake of swine flu vaccination in an HIV-infected cohort – what is it about vaccines?**K Sharrocks<sup>1</sup> and J Fox<sup>2</sup><sup>1</sup>Guy's, King's and St Thomas' School of Medicine, London, UK and <sup>2</sup>Guy's and St Thomas' NHS Foundation Trust, London, UK

**Background:** The government has undertaken a large scale, non-compulsory campaign of vaccination against the A/H1N1 virus which represents the largest of such programmes in the UK for more than 40 years.

To date the vaccination has been available for priority groups including healthcare workers, HIV-infected individuals, pregnant women and children with an estimated 3 million doses of vaccine administered so far. Patients have been proactively contacted by their GPs if they fall into one of the at-risk categories and Sir Liam Donaldson, the chief medical officer, has urged everyone who is offered the vaccine to accept it.

Despite such proactive measures from our government and cash incentives for GPs, it is unknown how widely accepted the programme has been in these high priority cohorts.

**Methods:** In a cohort of HIV-infected individuals attending a large HIV centre, London between Dec 17-24<sup>th</sup> 2009 for routine appointments, 100 consecutive individuals were asked whether they had had the swine flu vaccination.

**Results:** Two individuals declined answering. Of the remaining 98, 39 (40%) had undergone vaccination and all knew that they were eligible for vaccination. Qualitative analysis is underway investigating barriers to vaccination.

**Conclusion:** This represents a disconnect between government policy and public participation. Since the MMR vaccination debacle, uptake of vaccinations declined dramatically with only a blunted rise more recently. In order for future vaccination programmes to benefit from widespread uptake it is essential that public confidence is restored.

## Mothers and Children

P143

**Don't forget the children – early results from implementing the guidance**

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**Background:** In 2009 BHIVA, BASHH and CHIVA issued a mission statement that: "The HIV status of all children born to HIV-positive adults in the UK should be known as a matter of clinical urgency". We report early results from implementing this policy in our unit.

**Methods:** A multi-sector multidisciplinary steering group was created, linking the HIV clinicians, health advisors, specialist nurses, paediatric colleagues and patient representatives. A clinic policy was formulated. Referral pathways for children found in need of HIV testing were written. For all children identified at risk a virtual clinic was set up. This clinic monitors progress of referrals, identifies cases which need to be referred for further action, advises on the management of difficult cases and follows-up testing outcome.

To identify parents, a prompt was added to our assessment proforma for all newly diagnosed/ transfer patients as to whether they have children and their potential risk of HIV. A questionnaire was placed on the notes of all patients attending the clinic for routine HIV care asking about children potentially at risk for clinicians to complete. All patients attending clinic receive a patient information leaflet explaining the rationale for gathering this information. Data collection commenced on 1/10/09, we present 4 month interim results.

**Results:** From a cohort of 3672 patients, data from 1413 patients (38%) are available, 1133 (80%) male, 280 (20%) female. 281 (20%) have responded as having children, 112 (40%) male, 169 (60%) female. Of the 281 with children, 259 patients have a total of 536 children, (incomplete data of 22). Of the 536 children identified 335 (62.5%) are resident in the

UK, 119 (22.2%) resident abroad, 82 (15.3%) missing data. Of those resident in UK data on HIV status were available on 318. 210 (66%) known HIV negative, 21 (6.6%) known HIV positive, 45 (14.2%) not felt to be at risk, 26 (8.2%) in need of testing, 12 (3.8%), more information required, 4 (1.2%) children having postnatal tests. All children in need of testing or where more information is required are under active monitoring.

**Conclusion:** Our policy so far identified at least 26 children in need of testing and highlights the need to implement robust systems to remember testing the children of adults with HIV infection.

P144

**Pregnancy outcomes in women growing up with HIV acquired perinatally or in early childhood**B Williams<sup>1</sup>, J Kenny<sup>1</sup>, P Tookey<sup>2</sup> and C Foster<sup>1</sup><sup>1</sup>Imperial College NHS Healthcare Trust, London, UK and <sup>2</sup>UCL Institute of Child Health, London, UK

**Background:** The first generation of women infected with HIV perinatally or in early childhood are becoming pregnant, with little published data for fertility and pregnancy outcomes in these women. We present multi-centre audit data on pregnancy outcomes in this population.

**Methods:** Case note audit across participating centres in the UK and Ireland of a cohort of women who were reported to have been infected with HIV perinatally or in early childhood and who conceived prior to September 2009.

**Results:** From 172 women aged 12+ yrs under follow up in 19 centres, 36 pregnancies were reported in 27 women (15.6%). 19 (70%) were black African, 5 (19%) caucasian and 3 other ethnicities. 14 women (56%) had previous AIDS defining diagnoses. Median age at first pregnancy was 18 yrs (range 14-29). 18 women (67%) had involvement with social services. Of the 36 reported pregnancies: 27 (75%) were unplanned, 7 (19%) planned and 2 unknown. 31/36 (86%) involved regular partners (4 casual, 1 unknown), 22 (61%) of whom were reported to be aware of maternal HIV status. The pregnancies resulted in 5 (14%) 1<sup>st</sup> trimester miscarriages, 9 (25%) elective terminations, 18 (50%) live births and 4 (11%) pregnancies were ongoing. Data nearest to conception gave a median CD4 count of 244 cells/ul (range 0-837), and 4/27 and 3/27 had dual and triple class resistance respectively. 17 (47%) were on HAART, although 8 of the 10 women not on HAART had CD4 counts below 200 cells/ul.

At delivery, 16/18 (89%) mothers were on HAART, with a median CD4 count of 252 cells/ul (range 54-437), median viral load 79 c/ml (range < 50 to 588,844). 7 women delivered with VL <50 cells/ul, four had VL >1,000c/ml. 2 women were admitted for Directly observed therapy and 2 were non-adherent to HAART at delivery. Mode of delivery was 9 elective and 5 emergency C-sections with 4 vaginal deliveries. 6 (33%) infants delivered at <37/40, five of whom required Neonatal Intensive Care. All babies are uninfected with HIV, 5 (28%) are fostered and 3 have ongoing developmental concerns. No congenital anomalies are reported.

**Conclusion:** Despite access to contraceptive services young women growing up with HIV have significant rates of unplanned pregnancy with complex social needs and increased rates of premature delivery. Reassuringly prevention of mother-to-child transmission was successful despite advanced disease and suboptimal virological control in a proportion of women.

P145

**Repeat antenatal HIV testing in the third trimester: a feasibility study**

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**Background:** Our local 1<sup>st</sup> trimester antenatal HIV testing rates are >98%. A UK audit of children infected perinatally with HIV diagnosed between 2002 and 2005 estimated that 20% were born to mothers who

tested HIV negative in the 1<sup>st</sup> trimester of pregnancy. In 2006 we observed 2 cases of HIV seroconversion during pregnancy. US guidelines recommend universal repeat 3<sup>rd</sup> trimester HIV testing for women receiving care in facilities with at least one diagnosed HIV case per 1000 pregnant women. Our local prevalence of diagnosed HIV was 3.76 per 1000 adults aged 15–59 yrs in 2007 and similar in our antenatal population. We set up this pilot study to assess if 3<sup>rd</sup> trimester antenatal HIV testing was feasible in and acceptable to our population.

**Methods:** We audited routine local antenatal care and an HIV test concurrent with the 3<sup>rd</sup> trimester full blood count was deemed practicable. An electronic laboratory and antenatal medical record database was constructed to allow monitoring and ensure separation of data from routine 1<sup>st</sup> trimester testing. A hospital & community staff, and patient, awareness & information programme was instigated. Since September 2008, at first antenatal attendance, all pregnant women are offered and if accepted, consented for 1<sup>st</sup> and 3<sup>rd</sup> trimester HIV testing. **Results:** Between Sept 08 and April 09, 3,935 women were offered 1<sup>st</sup> & 3<sup>rd</sup> trimester HIV testing and 2 women declined all HIV testing. In this group the 1<sup>st</sup> trimester testing rate is >99% but the monthly 3<sup>rd</sup> trimester testing rates range from 32.7% to 67.8% of those originally consented. Testing rates increased progressively. Barriers to third trimester testing were; staff forgetting to perform test due to time between consent and eligibility, perceived extra workload, test not deemed by staff as essential or mandatory nor a national recommendation. Factors associated with increased testing included practical triggers to remind staff to do test, presence of an HIV testing "champion", and feedback on performance.

**Conclusion:** Repeat testing for HIV in the 3<sup>rd</sup> trimester of pregnancy is feasible in and acceptable to our population. The 3<sup>rd</sup> trimester pilot appears to have augmented routine 1<sup>st</sup> trimester testing performance.

#### P146

### Testing children of mothers with HIV: experience from three southwest London HIV clinics

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**Background:** There is little data available on the number of children yet untested for HIV, born to HIV positive mothers in the UK. A consensus statement jointly produced by BHIVA, CHIVA and BASHH in December 2008 stated that 'The HIV status of all the children of known HIV-positive adults in the UK should be known as a matter of clinical urgency'. Early diagnosis of vertically infected children would enable appropriate treatment and improve health outcomes. It would also help to prevent horizontal transmission as the children, including long term non-progressors, become sexually active.

**Methods:** Case notes of women attending three South West London HIV clinics from January to June 2009 were retrospectively reviewed, using a structured proforma, to identify untested children. Where data was incomplete, patients were prospectively interviewed at a subsequent visit. **Results:** 609 women attended the 3 HIV services over the study period. Case notes of 511/609 (84%) women were reviewed and 183/609 (30%) interviewed. 393 mothers with 909 children were identified; 313/393 (79%) were Black African, 36/393 (9%) White British, 20/393 (5%) Black Caribbean and 24/393 (7%) other ethnicities. 126/393 (32%) mothers had been diagnosed with HIV ≤5 years, 164/393 (42%) 6–10 years and 103/393 (26%) >10 years. 580/909 (64%) children had been tested for HIV of which 63/580 (11%) tested HIV positive. 329/909 (36%) children were identified as 'untested for HIV' or 'HIV status unknown'. 82/329 (25%) were untested children aged ≤18 years with 36/82 (44%) identified as living in the UK. The 82 untested children were born to 57/393 (15%) mothers. There was no significant difference in ethnicity or years since diagnosis of the 57 mothers with untested children compared to the overall clinic cohort of 393 mothers, during the study period. Data

on reasons for not testing children ≤18yrs was available in 24/82 (29%) cases; 15/82 (18%) were perceived as low risk for HIV as the mother had had a negative antenatal test, 5/82 (6%) had lost contact with their mother, 4/82 (5%) mothers feared disclosure and retribution from family. **Conclusions:** In our cohort, 64% of children born to HIV positive mothers have already been tested for HIV. 1 in 10 of the children is untested and aged ≤18yrs. Nearly half of these untested children aged ≤18yrs live in the UK. There is now an urgent need to work with the parents of these untested children to facilitate testing.

#### P147

### Achieving rapid reduction of HIV-1 viral load in HIV-positive pregnant women close to term – an obstetric and medical emergency

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**Background:** Mother-to-Child Transmission (MTCT) of HIV infection is now uncommon in the UK. The management of HIV positive pregnant women is often relatively straightforward. However, HIV virological control may be difficult to achieve pre-partum for late presenters and women with poor adherence to antiretroviral therapy (ART). These women are at higher risk of HIV MTCT.

**Methods:** We describe the cases of three HIV positive pregnant women who attended our unit recently and required admission to hospital near term because of high, uncontrolled Viral Loads (VLs). All 3 were of African origin and two of the women spoke limited English. Case 1 was diagnosed HIV positive during routine antenatal testing with a CD4 count of 350 cells/ml and VL of 35,000 copies/ml. Cases 2 and 3 were diagnosed HIV positive during prior pregnancies and had CD4 counts of 10 cells/ml and 50 cells/ml, with VLs of 90,000 and 76,000 copies/ml respectively. Cases 2 and 3 were irregular clinic attendees, tolerated ART poorly and were non-adherent. All three failed to adhere to medication despite intensive outpatient and community support and had detectable VLs in the final 2 weeks approaching term. All three women agreed to come into hospital, at approximately 38 weeks for rapid reduction of their VL by intensification of ART and directly observed therapy (DOT). At the time of admission to hospital the VLs were 5,745; 37,843 and 28,364 copies/ml respectively. All 3 patients continued on their original ART and it was intensified with two fully active agents in new classes – raltegravir and enfurvitide. Case 3 also had tenofovir added. All 3 women had elective Caesarean sections and the infants had triple ART for 1 month post-partum.

**Results:** All 3 women accepted the intervention and were adherent to ART in hospital. They each had VL drops of approx 2 logs within a maximum of 11 days of admission. All babies were born healthy and were HIV proviral DNA negative at 12 weeks post partum. No serious adverse events were reported for mothers or babies.

**Conclusion:** We have shown that hospitalisation and DOT can be acceptable and effective in HIV positive pregnant women requiring rapid reduction of HIV VL near to term. We also believe that introducing new classes of ART (including specifically raltegravir) may help achieve optimal speed of VL reduction required to reduce the risk of MTCT in these difficult cases where there may not be time to obtain up-to-date resistance test results.

#### P148

### Don't forget the children – ongoing experience of a paediatric HIV unit using point-of-care tests in children born to HIV-positive parents – how far have we come?

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**Background:** Following an audit between adult and paediatric HIV services in 2008, a multidisciplinary parent pathway was established with the aim of identifying and testing children at risk of HIV. In 2008 the

paediatric Clinical Nurse Specialists implemented Point of Care Tests (POCT) for rapid testing of children of HIV positive parents. We audited our testing against the pathway which suggests children over one year of age should be tested within a year of referral. Families were asked to complete an anonymous questionnaire regarding the acceptability of our practice. **Methods:** We reviewed all children who were referred to the paediatric service since the introduction of POCT in August 2008. We analysed: source of referral; time from first contact to test; and cases where reluctance to testing led to social services referral. We reviewed who consented to the test and age of the child at testing. Family's opinions were recorded on: the use of POCT; same day results; and attending a Nurse Led Service.

**Results:** Over 18 months, there were 34 referrals, 23 children were tested, 2 were HIV positive, aged 12 and 15 yrs, both of whom gave informed consent. Of those tested, 18(78%) were referred by adult services, and 5(22%) were from families with newly diagnosed infected siblings. The majority tested in less than 3 months (19 {83%}), but in 9% it took 6-12 months, and in a further 9% over 1 year (13 & 16 months). There remain 11 untested children. Social services involvement occurred in 2 cases which then led to testing of the child. Most children were aged between 1 -11 years (14 {61%}), of whom 2 gave informed consent. All 9 children aged between 12 and 15 yrs gave informed consent. An acceptability questionnaire was completed by 10 families. They all stated that testing their children was highly stressful, and having access to same day results made the process more acceptable.

**Conclusion:** As stated at the BHIVA / CHIVA "Don't forget the children" Conference (2008), all children of positive parents should be HIV tested, regardless of age. Reassuringly, of those who consented to test their child 83% of families did so within 3 months of referral, but some took longer than the recommended "Ticking Clock" (6 to-12 months). The importance of informed consent is relevant as both children who tested HIV positive were Fraser competent. The use of POCT was highly acceptable in 100% of families. We believe this should be routine practice for children as it is for adults.

P149

### Tenofovir, perinatally acquired HIV-1 infection and adolescent kidneys

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**Background:** Tenofovir disoproxil fumarate (TDF) is a nucleotide analogue reverse transcriptase inhibitor widely used in first line antiretroviral therapy in adults. Off licence use of TDF is increasing in paediatric HAART because of its tolerability, efficacy and resistance profile. Renal tubular dysfunction associated with TDF use is described in adult populations, however paediatric data is limited.

**Method:** Retrospective case note of children with perinatally acquired HIV infection attending a single UK centre, who had ever received TDF-based HAART. All patients on TDF therapy are prospectively monitored with 3 monthly serum electrolytes and albumin/creatinine (Alb/Cr) or retinol binding protein/creatinine (RBP/Cr) ratios.

**Results:** Of 148 HAART experienced children 55 (37%) had ever received TDF since 2002. 7(13%) patients, 6 female, developed proteinuria and increased albumin/Cr or RBP/Cr ratios. Median age at time of renal leak was 14yrs (range 12-16). Ethnicity: Black African (5), Caucasian(1) and Asian(1). 1 patient had a family history of nephrocalcinosis but none had prior renal disease. Median duration of HAART pre TDF initiation was 8 years (range 3-12). No patients had hepatitis B or C coinfection. TDF based HAART was commenced at a median CD4 count of 150cells/ul (range 106-538) median viral load 121c/ml (range <50-1245) and median weight 35.5kg (range 25-60). All regimens included a boosted protease inhibitor Lopinavir (6), atazanavir (1). A median duration of 25 months (range 9-60) exposure to TDF occurred prior to renal tubular dysfunction. All 7 patients had normal baseline urine and plasma biochemistry, were asymptomatic, identified by routine screening and

had biochemical resolution within 4 months (2-6) of TDF withdrawal. 4 had hypophosphataemia and 2 hypokalaemia. Median RBP/Cr ratio was 2680mmol/l (range 44-5403), median Alb/Cr was 12 (range 2-25). All patients received 300mg TDF daily, dose range 6-9 mg/kg, with the recommended paediatric dose of 8 mg/kg/OD.

**Conclusions:** Urine monitoring detects early, reversible, renal tubular dysfunction associated with TDF use. Rates of TDF-associated renal leak were higher in this paediatric cohort (13%) than is typically described for adults. Lopinavir /rtv increases plasma levels of TDF by upto one third in adults and requires further pharmacokinetic analysis in adolescent populations.

P150

### Use of a clinic-wide survey to promote HIV testing of at-risk children

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**Background:** BHIVA HIV testing guidelines 2008 state that all children at risk of vertical transmission should be offered an HIV test. As vertically infected children can remain asymptomatic well into adolescence it is important to identify all the children of HIV-positive women and men and offer them an HIV test.

**Methods:** All HIV-positive patients attending an adult HIV clinic have been surveyed about their children since February 2009 using a standardised proforma. All parents with at-risk children are encouraged to test their children with appropriate support from the multidisciplinary team. Feedback from staff administering the survey was gathered informally. Data are presented from the first 4 months of the survey and analysed using Excel.

**Results:** 531 patients, representing 60% of the clinic cohort, were questioned. 374 parents with 878 children were identified. Data on 599 children were analysed, excluding those aged above 21 and duplicate children. Information on previous discussion around testing children was available for 560 children. 421 children's parents had been previously offered testing for their children and of these, 112 (27%) children remained untested. 139 parents had not previously been offered testing and of these, 120 children (86%) remained untested. (p<0.001) Data on country of residence were available for 576 children. 186 children were living outside the UK and 124 (67%) remained untested. 390 children were living in the UK and 124 (32%) remained untested. (p<0.001) Age of children was available for all 599 children. Of 148 children aged 0-5, 13 (9%) were untested. Of 133 children aged 6-10, 51(38%) were untested. Of 153 children aged 11-15, 82(54%) were untested. Of 165 children aged 16-21, 108(65%) were untested. Parents advised to test their children following questionnaire completion were usually happy to comply for younger children, but were more reluctant to test older children because of concerns around disclosure. No children tested for HIV subsequently in the UK have been positive.

**Conclusion:** A significant proportion of at-risk children have not been tested for HIV. Children were more likely to be tested if they were younger, resident within the UK, and if the issue has been previously discussed with parents. Performing a clinic-wide survey is feasible and prompts discussion around testing children. Parents are often reluctant to test older children.

P151

### Infants with Pneumocystis jiroveci pneumonia – mortality unchanged in the HAART era

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**Background:** Despite successful interventions to reduce mother-to-child-transmission (MTCT), a small proportion of mothers in the UK

continue to transmit HIV to their children perinatally. Presentation of the child with an opportunistic infection is often the sentinel presentation of HIV for both mother and child.

**Methods:** We present data from a retrospective case series of children aged under two years who presented to a single UK paediatric intensive care centre with *Pneumocystis jirovecii* pneumonia (PCP) between January 1999 and January 2009.

**Results:** 19 infants, 84% black African ethnicity, presenting with respiratory failure had confirmed PCP on BAL, 6 also had failure to thrive. Median age at presentation was 4 months (range 3 – 24), with a median CD4 count of 270 cells/mm<sup>3</sup> [16%] (range 40-1,000 [2-74%]), viral load median 500,000 c/ml (range 6,264 – 2 million). In all cases, the positive HIV status was unknown in mother and child at presentation. In 4 cases, early antenatal HIV status indicated maternal HIV seroconversion during later pregnancy/breastfeeding. Where documented (n=13), all but one infant was breastfed. All received high dose cotrimoxazole, systemic steroids and mechanical ventilation (median 6 days, range 1–64), 10/19 required HFOV. 11 (58%) had CMV co-infection requiring ganciclovir. 15 commenced "Baby Cocktail"- HAART (AZT, 3TC, ABC, NVP) at a median of 22 days (range 10–37) after presentation. 7/19 (38%) children died acutely, 4 prior to HAART initiation. Death was associated with a prolonged stay on intensive care ( $p=0.037$ ). There was no significant trend towards death with initial viral load, CD4 count, CMV status or time to starting antiretrovirals.

**Conclusion:** Despite the introduction of HAART, HIV-infected children presenting with *Pneumocystis jirovecii* pneumonia in the UK, continue to have a high mortality, with survival data similar to those from the previous decade<sup>1</sup>. Effective interventions to prevent MTCT are only available to women who are tested antenatally; a small number of transmissions continue in women who decline testing, receive limited antenatal care or seroconvert in the later stages of pregnancy/breast feeding.

**Reference:** 1. Cooper S., Lyall H., Walters S., et al. Children with human immunodeficiency virus admitted to a paediatric intensive care unit in the United Kingdom over a 10-year period. *Intensive Care Med* (2004) 30:113–118.

P152

### Opt-out HIV testing pilot in termination of pregnancy services – 11-month service evaluation

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**Background:** Predating the 2008 BHIVA HIV testing guidelines opt-out HIV testing was commissioned in one large termination of pregnancy (ToP) provider, in a high prevalence PCT. This study analyses patterns of 11 months opt-out HIV testing in ToP as part of the formative pilot evaluation.

**Methods:** From November 2008 all attendees to the ToP service were recommended HIV tests as part of routine consultation. With support from local GUM department training sessions around HIV and HIV testing were delivered, and robust referral pathways developed. No additional staff were used to deliver the intervention after initial training. For the initial 5 months serological testing was first line with point of care testing (POCT) offered as an alternative. In the latter 6 months POCT was used as first line. Anonymised records on consultations were obtained in retrospect, cleaned, de-duplicated.

**Results:** Of the 2,831 women attending the service between November 2008 and September 2009, 36.9% (n=1044) had a HIV test documented. No results were available for 6.9% (n=72) of tests undertaken. Of those where results were available, 0.52% (5/972) were newly diagnosed HIV positives (age range 18-31, 2 Black-African, 1 Black-Caribbean, 1 White-Other, 1 other ethnic group). One of the new diagnoses was in a repeat service user who had declined testing on her first attendance. Uptake increased during the first 3 months but did not vary significantly after that from the trial median of 36.9%. Uptake was higher in women aged

18-24 compared to other ages (42.7% (377/882) vs 34.1% (669/1960),  $p<0.001$ ). No significant differences were found between the main ethnic groups (Black-African 40.3% (374/928), White-British 34.1% (200/587), Black-Caribbean 35.4% (167/472), other groups 35.7% (305/855)). The change from serology to POCT as first line did not affect uptake once established (37.4% (311/832) vs. 41.6% (297/714),  $p>0.05$ ).

**Conclusion:** The introduction of opt-out HIV testing in this setting was feasible and acceptable across different age and ethnic groups. The positive diagnostic yield shows the intervention effective and cost effective in detecting undiagnosed HIV infections in this population group, however uptake remained limited after one off training sessions. In this study POCT did not significantly improve uptake compared to serology. The qualitative element of the evaluation will look the real and perceived barriers to opt-out HIV testing among patients and staff.

P153

### Analysis of risk factors and HIV knowledge of an adolescent cohort using emergency department (ED)-based multimedia HIV testing and counselling

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**Background:** This study seeks to determine the receptiveness of an ED based rapid HIV testing program using integrated video counseling and computer-assisted data collection in adolescents (age 13-21) and to evaluate the adolescents' risk behavior profiles.

**Methods:** A prospective observational study on a convenience sample of stable ED patients was conducted from 10/1/05-7/31/08. Demographics, HIV knowledge and sexual history were collected. The number of patients tested, identified HIV infections, patient satisfaction, and HIV knowledge conveyed were determined to assess the acceptability of this testing model. Population characteristics were analyzed using descriptive statistics. Means and standard deviations were calculated for continuous variables and proportions for categorical variables.

**Results:** Of the 14690 patients tested, 2223 were 21 and under. Demographics were male 45%, Hispanic 46% and black 32%. Mean age was 19.6, SD  $\pm$  1.4 years. This cohort engaged in risky sexual behavior: 8.7% were MSM; 75% of males and 78% of females engaged in unprotected sex; 50% of the cohort had multiple partners; 13% of the cohort engaged in anal sex. Ninety-five percent of eligible patients accepted testing and 60% had been previously tested for HIV. Prevalence of HIV was less than 1%. Two out of three HIV positive patients were linked to care. Of the patients who completed a post-intervention satisfaction survey, most (99%) felt rapid HIV testing in the ED was helpful, 81% learned a moderate to large amount of new information and 81% felt influenced to change their sexual practices. On average, patients scored 78% on the post-intervention HIV knowledge measure.

**Conclusions:** Adolescents were highly receptive to an integrated ED-based HIV testing program as indicated by their high uptake of testing. This intervention conveyed quality counseling measured by standards of satisfaction and education to high-risk adolescents. The effectiveness of this video model should be prospectively evaluated to assess its ability to increase testing rates and change behavior in a high-risk adolescent cohort.

P154

### Use of antiretroviral therapy during and after pregnancy among HIV-infected women already aware of their infection before conceiving

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**Background:** BHIVA guidelines for management of HIV-infected pregnant women recommend that women conceiving on antiretroviral

therapy (ART) continue therapy during and after pregnancy. Some drugs, notably efavirenz (EFV), are not recommended for women planning or at risk of pregnancy.

**Methods:** Clinical and treatment patterns of women conceiving on ART were analysed using data from the UK CHIC Study linked with pregnancy data from the National Study of HIV in Pregnancy & Childhood (NSHPC). For 1996-2008, 1617 women were matched between datasets, of whom 699 had been seen at a participating CHIC clinic before first conception.

**Results:** Most (90%, 626/699) women had heterosexual acquisition of HIV and 67% were of black-African ethnicity. Median age at delivery was 33 (IQR: 29, 36) years. At conception, median CD4 count was 379 (267, 570) cells/mm<sup>3</sup>, 55% (n=384) women were receiving ART, and 53% (213) had VL>50 copies/ml (including 94 women on ART). At least 74 (19%) conceived on EFV. A third of women switched treatment during pregnancy (46% of those on EFV) and 97% were receiving ART at delivery. After delivery, 223 (60%) women switched regimen at a median<sup>1</sup> of 1.2 (1.1, 1.7) years; 19 (9%) stopped therapy altogether, 155 (70%) switched regimen and 49 (22%) interrupted therapy before restarting at a later date. The remaining 150 women continued on the same regimen until most recent follow up.

Table: Treatment status during and after pregnancy of PW on ART at conception

Regimen received N (%)	NNRTI-based	204 (53)
	PI-based	124 (32)
	Other	56 (15)
Time since start of current regimen N (%)	<6 months	118 (31)
	6-12 months	69 (18)
	>1 year	197 (51)
Regimen change whilst pregnant N (%)		130 (34)
CD4 at switch (cells/mm <sup>3</sup> )	Median (IQR)	294 (190, 480)
VL>50 copies/ml at switch N (%)		48 (37)
Receiving ART at delivery N (%)		373 (97)
CD4 at delivery (cells/mm <sup>3</sup> )	Median (IQR)	396 (281, 530)
VL>50 copies/ml at delivery N (%)		63 (16)
Percentage of women who changed regimen after delivery (Kaplan Meier)	1 yr	42
	2 yr	60
	3 yr	80

**Discussion:** Although mother-to-child transmission rates remain low in the UK, the high rates of treatment switching and substantial minority of patients with a detectable viral load at delivery emphasise the continued importance of clinical and adherence support for women before and during pregnancy, to ensure that they receive appropriate care for both their own and the baby's health.

### P155

#### A 3-year review of infections in pregnancy at a busy inner city maternity hospital

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**Background:** Ireland's changing demographics have contributed to a significant shift in the landscape of infectious diseases in pregnancy, posing a new challenge for antenatal services. Early identification of infections such as HIV, Hepatitis B, Hepatitis C and syphilis enables prompt intervention and treatment benefiting both mother and child. In light of this a dedicated infectious diseases clinic (Dove clinic) was set up to look after the specific needs of pregnant women who have or are at risk of blood and sexually transmitted bacterial and viral infections. This study reviewed the patients attending the Dove clinic from January 2007 to December 2009\*.

**Methods:** Data were retrospectively collected and included demographics, laboratory and antenatal registration. Data were inputted and maintained on a secure dedicated database.

**Results:** Over the 3-year period, 842 women booked for antenatal care with the Dove clinic, including:

- 223 women (27%) were Hep B sAg positive; the majority of these women were from countries of high prevalence such as China (21%) and Nigeria (16%).
- 204 women (24%) were Hep C antibody positive; most of these women were Irish (73%) with a history of injecting drug use (IDU). Several women had no identifiable/disclosed risk factor for infection.
- 140 women (16%) were positive for HIV infection; 21 (15%) were newly diagnosed at antenatal screening.
- 91 women (11%) had positive treponemal serology; subsequent screening of partners allowed identification of both active and latent infections.

**Conclusions:** Antenatal screening is essential for identifying infected women and reducing the risk of vertical transmission. It also provides the opportunity to identify asymptomatic infections that may not have otherwise been identified enabling contact tracing and treatment/vaccination as appropriate. A dedicated infectious diseases clinic assists greatly in the provision of care for these women and their partners and has resulted in good obstetric outcomes.

\* 2009 data is provisional at this stage

### P156

#### Are we forgetting the children? Testing the children of HIV-positive parents

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**Background:** UK HIV testing guidelines recommend testing all children at risk of HIV infection, in particular children of HIV positive parents. Children born abroad are at increased risk of undiagnosed infection if their mothers were not offered HIV testing in pregnancy and appropriate interventions. Our clinic policy is to determine the HIV status of all children born to our HIV positive patients. In April 2008 revised clinic proformas were introduced including documentation of all children's HIV status. Here we present an audit of our clinic's performance with reference to the national guidelines.

**Methods:** The case notes of HIV positive patients new to our service from April 2008 to December 2009 were reviewed. All patients identifying themselves as hetero- or bi-sexual were included together with a random sample of men who have sex with men (MSM). Information gathered included gender, sexual orientation, ethnicity and details of their children including their location and HIV status. In cases where the child's HIV status was unknown we assessed whether appropriate action had been taken.

**Results:** A total of 163 patients were included in the audit; 83 men and 80 women. Of the 80 women 68 (85%) were from black ethnic groups and 76 (95%) had been asked about children. A total of 115 children of HIV positive women were identified (ages 4 months to 27 years); 36 children were living in the UK and 34 had been tested with two adult children considering testing. All untested children were living in African countries. There were 35 hetero- or bi-sexual men (80% from black ethnic groups) and 24 (69%) were asked about their children. We identified 11 children where HIV testing was required; of these only one is in this country but untested. For MSM 48 case notes were reviewed (90% were of white British origin). Of these, 18 (37.5%) reported sex with a female partner, but only two had been asked about children.

**Conclusions:** This audit demonstrated that within our clinic the HIV status of children living with their HIV positive mothers in the UK is almost always determined. For hetero- or bisexual men this is less frequently determined and in MSM only a small proportion is asked about any children. The HIV status of children living abroad is generally undetermined. This audit has demonstrated a need to ask all men about the need to test any children for HIV and to determine the HIV status of children living abroad wherever possible.

P157

### Experience of a regional HIV network in the management of HIV-positive pregnant women

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**Background:** BHIVA guidelines for the management of HIV-positive pregnant women support the use of zidovudine (AZT) monotherapy plus pre-labour Caesarean section (PLCS) in selected women. Planned vaginal delivery is now an option for women who are undetectable on highly active antiretroviral therapy (HAART). An audit was carried out to evaluate the management of HIV-positive pregnant women in a regional HIV network.

**Methods:** Retrospective case notes review of all HIV-positive pregnant women between August 2007 and August 2009 in five participating centres. Data was collected on maternal demographics, laboratory parameters, partner testing and sexually transmitted infections (STI) screening. We also analysed other factors affecting mother to child transmission (MTCT) including antiretroviral therapy (ART) initiation, regimen used, mode of delivery, infant prophylaxis and feeding.

**Results:** 58 women delivered in the region during the study period. 3 women had a termination, 4 miscarried and one had an ectopic pregnancy requiring surgery. Three women were lost to follow-up in late pregnancy. All pregnancies were managed through a multidisciplinary team. Mean age of the cohort was 31 (range 19-44) and majority were black African (68%). HIV status was unknown in 19 out of 69 partners of pregnant women (28%). Antenatal diagnosis was made in 24 women (35%) of which one was at term gestation. Only 54% of women had routine STI screen at presentation. ART was initiated in pregnancy in 36 women of whom 30 had baseline resistance testing (83%). AZT monotherapy was used in two women in accordance with guidelines. Viral load was undetectable prior to delivery in 54 women (93%). Delivery by caesarean section was elective in 26 (45%) women and emergency in 8 (14%) women. 24 women (41%) delivered vaginally. Women with detectable viraemia were managed with PLCS and intrapartum AZT. 3 infants had congenital anomalies (2x cardiac defects, 1x cleft palate and lip). Mothers of these infants received non-efavirenz based regimens. All infants were bottle-fed and remain HIV-negative to date.

**Conclusions:** Multidisciplinary approach in conjunction with effective ART has resulted in good outcomes and significant vaginal delivery rate with no cases of MTCT. The audit has highlighted the need to improve STI screening rate in pregnancy. Almost a third of partners had unknown HIV status. Targeted interventions should be aimed to increase testing of partners.

P158

### HIV testing of children born to HIV-positive mothers – could we do better?

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**Background:** A recent consensus document produced by BHIVA, CHIVA and BASHH recommends that HIV units perform a "look back" to establish the HIV status of any children whose HIV positive parents attend that service. Just prior to its publication our unit performed such a survey.

**Method:** A retrospective case note review of all HIV positive women attending our clinic between January 2008 and June 2009 was undertaken. Documentation of the HIV status of children of these women was surveyed.

**Results:** 89 HIV positive women were seen during this period. Four women attended the clinic once only and were receiving their regular HIV care elsewhere, 8 women were known to be infected after childbearing age and 19 were nulliparous. 58 women had children of whom 110 were at risk of vertical infection and under the age of 20 years. 44 (40%) of the 110 children were not resident in the UK.

Of the 66 children living in the UK, 4 (6%) children were reported to be HIV positive by their mothers, 35 (53%) had confirmed documentation of HIV negative status in the mothers' notes, 23 (35%) had been tested HIV negative according to their mothers but no written confirmation was evident; (18 of these 23 children were known to have received neonatal treatment from paediatricians in our hospital and 5/23 were reported to have undergone testing elsewhere in the UK). The HIV status of 4/66 (6%) children was unknown; their mothers failed to attend adult follow-up post delivery although both mothers and babies had received appropriate antiretroviral therapy.

**Conclusions:** Only 35(53%) of 66 children had confirmatory documentation of HIV status in their mother's notes, although 61(92%) children living in the UK were known to have had paediatric assessment within our hospital. A substantial proportion (40%) of children at risk were living abroad.

Following this review a multidisciplinary team including paediatricians and HIV specialists has been set-up to meet periodically and address the issues of testing, documentation and correspondence between paediatric and HIV departments. Further enquiry into testing performed on children elsewhere in the UK has been undertaken.

We will endeavour to regularly enquire about children who may migrate to the UK and will extend our survey to include male patients.

P159

### Vitamin D deficiency in children with perinatally acquired HIV-1 infection living in the UK

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**Background:** Both HIV infection and vitamin D deficiency adversely affect immune function, bone mineral density and cardiovascular risk in adults. Vitamin D deficiency is common in healthy children living in the UK. HIV infected children have lower bone mass compared to healthy controls. Data are lacking on the prevalence of vitamin D deficiency in HIV infected children living in Northern Europe. We describe the prevalence of vitamin D deficiency in a cohort of HIV infected children and determine risk factors for deficiency.

**Methods:** Audit of plasma bone biochemistry, 25(OH) vitamin D and PTH levels in HIV infected children receiving routine clinical care at a single UK centre between January and December 2009. Vitamin D levels  $\leq 25\text{nmol/L}$  were considered deficient and 25-50nmol/L were considered insufficient.

**Results:** From a cohort of 142 children, 131 (92.3%) had plasma 25(OH) vitamin D assayed. Median age was 12 yrs (IQR 9, 15). 67 (51.2%) were female. Ethnicity: African/Caribbean 111 (84.7%), Caucasian 17 (13.0%), Asian 3 (2.3%). Median CD4 count (%) was 760 (32%). 104 children (79.4%) were on HAART. Median vitamin D level was 25nmol/L (IQR <15, 38) and median ALP level was 258U/L (IQR 186, 339). 64 children (48.9%) were vitamin D deficient, a further 37 children (28.2%) had insufficient levels and 22 (16.8%) of the most deficient were commenced on supplements. Abnormal PTH levels ( $>6.8\text{pmol/L}$ ) were seen in 15/52 children (28.9%). No child had clinical rickets. In univariate analysis vitamin D deficiency was associated with age ( $P=0.005$ ), ethnic group ( $P=0.03$ ) and season ( $P=0.04$ ), but not with sex ( $P=0.66$ ), HAART ( $P=0.92$ ), PTH ( $P=0.43$ ) or ALP levels (0.22). NNRTI-treated patients had twice the risk of vitamin D deficiency compared to PI-treated patients (OR 2.2; 0.99-4.78;  $P=0.05$ ), but TDF therapy did not alter risk. CD4% and viral load did not differ in vitamin D deficient patients. After multivariable adjustment 25(OH) vitamin D deficiency was associated with older age ( $P=0.001$ ), African/Caribbean ethnic group ( $P=0.04$ ), winter season (0.008) and NNRTI use ( $P=0.01$ ).

**Discussion:** Vitamin D deficiency and insufficiency is very common in children with HIV. Risk factors include older age, African/Caribbean descent, winter season and NNRTI therapy. Maximising bone health is increasingly important as this population enter adult life and the role of vitamin D supplementation requires further elucidation.

P160

### A re-audit of the care of HIV-positive pregnant women and their babies: how the launch of a pregnancy database and clinic proformas has improved adherence to BHIVA guidelines

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**Background:** In 2004-2005 a regional audit examining the care of HIV-positive women and their babies revealed areas for improvement. To address this in our centre we designed and launched an electronic database and clinic note proformas. We completed the audit cycle by re-auditing practice following these interventions.

**Methods:** We conducted a retrospective case note review of the medical, obstetric and paediatric notes of HIV-positive women and their babies delivered at our trust from 01/05/2006-31/12/2008 according to BHIVA guidelines.

**Results:** A total of 63 women had 66 pregnancies during the audit period of 31 months (compared to 31 in 24 months previously) of these, 22 were newly diagnosed all of whom received their diagnosis from the HIV specialist midwife (100%, compared to 61% in the previous audit). Only 10 women were seen within 14 days of diagnosis by an HIV physician (a decrease from 61% to 39%). The 41 women already known to be HIV positive comprised an increased proportion of the total cohort (65% compared to 46%), and 22 of these were on antiretrovirals at the time of conception.

Baseline resistance testing was carried out at time of pregnancy (or at initial HIV diagnosis in those with VL<40) in 56/66 pregnancies in total (85%) including in 13/14 of those who subsequently had detectable viraemia on therapy. Rates of screening for genital tract infections was much improved (91% compared to 55%), with all 28 women in whom infections were identified receiving treatment. Out of 66 pregnancies; in 52 VL was undetectable by delivery (79% compared to 72% previously) at a median of 9.5 weeks after starting therapy.

The most frequently used regimen was Lopinavir/Ritonavir and Combivir in 20 (30%) reflecting a general protocol change from Saquinavir/Ritonavir and Combivir which was used in 46% in the previous audit period.

Information on delivery was available in 64 pregnancies out of which 38 were vaginal deliveries (59% vs.57% previously).

Prophylactic antiretrovirals were prescribed appropriately to infants. No babies delivered in this cohort have acquired HIV infection.

**Conclusion:** Despite an increasing workload we have achieved improved adherence to the BHIVA guidelines for the care of HIV positive women and their babies in most domains through implementing a HIV pregnancy database, clinic proformas and collaborative working relationships.

P161

### A snapshot of HIV antenatal clinic service users – what do we know about partners?

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**Introduction:** Targeted HIV testing of the male partners of HIV-infected pregnant women offers a useful opportunity to potentially reduce late presentation in this otherwise difficult to reach population. We describe the characteristics of the male partners of HIV positive women attending a dedicated antenatal service.

**Methods:** Retrospective notes review of service users from 01/01/08 until 31/12/08.

**Results:** 48 women accessed antenatal care in the HIV clinic over this period and 20% were newly-diagnosed HIV positive in this pregnancy.

90% were black-African and 38% were originally from Nigeria. The median age of these women was 30 years (range 22-45 years).

Information about the male partner was available in 30/40 cases. 83% shared country of origin with their partner. Male partners were on average 7 years older than their female partners with a maximum age difference of 28 years. 23 men (58%) accepted HIV testing in our clinic and 6 (26%) were found to be HIV positive. A further 3 were said to have tested HIV+ elsewhere. 30% of men went untested – 5 were living overseas, 4 declined testing and 2 had not been made aware of their partners' status. In 5 cases no discussion regarding the male partner was evident. Of the 18 men who had tested HIV negative 12 (67%) would have required a re-test as their most recent negative test either pre-dated the pregnancy or would not have captured infection acquired at the time of conception.

**Conclusions:** Antenatal clinic offers HIV testing opportunities to black African men. However HIV testing of partners is often overlooked or declined. Additional barriers to testing include non-disclosure of HIV status to male partners and residence overseas. Subsequent repeat testing of previously negative men who have been exposed at time of conception is often omitted.

P162

### Assisting HIV testing of children of HIV-infected mothers in an adult HIV centre

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**Background:** Vertical transmission of HIV infection has been a significant route of HIV infection in some areas with high HIV prevalence. This is particularly relevant for children born to HIV infected mothers prior to availability of mother to child HIV prevention programs. Early identification of HIV infected children may prevent deterioration of their health. Adult HIV centres should facilitate HIV testing of children of HIV infected mothers.

**Methods:** In our centre children of HIV infected mothers residing in the UK are routinely identified; and confirmation of their children's HIV testing by paediatricians and the test results are recorded in mothers' files. HIV infected mothers are counselled and supported for arranging HIV testing for children through close collaboration of health advisors, HIV nurses and social workers.

In our centre, we aim to test all children of HIV infected mothers within six months. HIV infected mothers are informed of our policy of involving child protection agency should a child remained untested after an agreed period of time (normally less than six months).

**Results:** Amongst the HIV infected women attending our department, we have identified 178 children living in the UK. A total of 126 (71%) have been tested and 118 (93%) were HIV negative.

All eight HIV infected children were asymptomatic at the time of their diagnosis. The oldest child that tested positive for HIV was 17 years old who had not had sexual intercourse before his diagnosis.

Amongst 52 children remained to be tested for HIV, 19 were awaiting their final negative HIV test at age 18 months. Currently we have to assist in testing 33 children of HIV infected mothers.

**Conclusion:** Adult HIV centres need to assist HIV infected mothers to test their children for HIV infection. In our cohort, 7% of children of HIV infected mothers tested positive for HIV infection. Use of age limits for HIV testing of children may miss HIV infected children.

P163

### Does adherence to antiretroviral therapy run in families?

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**Background:** HIV infected children often live with infected family members. Adherence to antiretroviral treatment (ART) is influenced by

social factors. This study investigates adherence patterns within families cared for at our hospital.

**Methods:** We identified all HIV-infected patients under 16 years at our hospital and included those on ART with at least one parent also on ART under our care. Families were also included if a parent died under our care within the last 5 years. Demographic and disease attributes were recorded. All HIV viral loads (VL) from the last 12 months or the four most recent values were obtained. Each family member was classified as adherent if there were no two consecutive VL >50, no single VL >1000, and no non-planned stops of therapy. Patients were also classified as adherent if ART was started within the last 12 months and the VL declined to undetectable.

**Results:** Of 122 children, 48 met inclusion criteria. The majority excluded were due to parents receiving care at other hospitals, parents not being on ART, and children living with extended families, foster carers or adoptive parents.

Of the children included, 26/48 were girls, 38/48 were of black African ethnicity and median age was 11 years. 19/48 had an AIDS-defining diagnosis. 26 were from a single parent home, and 11 families had child protection concerns. 10 children had non-planned stops of therapy.

We identified multiple patterns of family adherence:

- 1) In 35 families all members were adherent.
- 2) In 3 families, all members were non-adherent.
- 3) In 6 families the parent(s) were adherent but the children (median age 14.5 years) were not. All had non-planned stops of therapy.
- 4) In one family the parent was non-adherent but the child adhered.
- 5) In one family one parent was adherent although the other parent was not, and the child was adherent.
- 6) In 2 families where a parent under our care had died: in one family the child was adherent and in the other family the child was not.

**Conclusion:** In most families both parents and children were adherent. In an important minority, the child was non-adherent whilst the parents were adherent. There may be an association with non-planned stops of therapy in adolescence. Inclusion in this study required engagement with care, so adherence may be overestimated. This study highlights the complex social context in which HIV infection exists, and the importance of a holistic approach to the family.

#### P164 Abstract withdrawn

#### P165 A qualitative study to explore factors influencing the beliefs and behaviour of HIV-positive pregnant women

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**Background:** The HIV prevalence in pregnant women living outside London increased seven-fold between 1997 and 2007. More than 90% of HIV-positive pregnant women are aware of their HIV status and interventions have reduced mother-to-child transmission rate of HIV to <2%. There is little qualitative data exploring how being HIV positive has influenced the decisions of women regarding conception and pregnancy.

**Method:** A qualitative study was under-taken using semi-structured in-depth interviews. Criteria for inclusion were HIV-positive English-speaking women, over 18 years old, who were currently or who had been pregnant since their HIV diagnosis; identified from a HIV cohort of 1700 patients in SE England. The interviews were recorded and transcribed verbatim. Analysis identified key issues and themes allowing comparison between cases.

**Results:** 8 women were interviewed and a total of 15 will be interviewed for the study. 5 were from Sub-Saharan Africa, 3 from Europe (1 UK-born). Many women had misconceptions about HIV at time of diagnosis

and the majority were shocked that they were HIV positive. They expressed a strong desire for motherhood, but feared passing HIV to their child. All women embraced interventions (antiretrovirals and avoidance of breastfeeding) to reduce HIV transmission but found the interventions difficult. Attitudes to support offered by the HIV clinic varied; the beneficial support of the Health Advisor was emphasised and some found the HIV community support organisations helpful as they could talk openly without fear of stigma. Following initial interviews, all pregnant women are now referred for community support. Health beliefs were positively influenced by detailed explanation about treatment and prognosis; and many women felt having a child gave them motivation to move forward with their own lives and look to the future.

**Conclusion:** A growing population of HIV positive women in the UK face complex decisions about having children and there are multiple factors which influence their experience of pregnancy. Access to non-judgemental support is essential with availability of relevant information. Health care professionals need to be aware of women's differing needs for support and the positive influence that their encouragement can have on a woman's optimism for her own and her baby's health.

#### P166 Sexual health of HIV-infected pregnant women in the United Kingdom

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**Background:** Genitourinary (GU) infections increase the risk of complications in pregnancy. Rates of GU infections in HIV-infected pregnant women in the United Kingdom (UK) have not been reported. The British HIV Association (BHIVA) Guidelines recommend that all pregnant HIV-infected women undergo screening for GU infections at presentation and that re-screening be considered in the third trimester. The purpose of this study was to audit our adherence to these guidelines and to ascertain the rates of GU infections in a cohort of HIV-infected pregnant women attending a UK HIV centre.

**Methods:** Case notes for all pregnancies delivered between March 2007 and December 2009 were included and reviewed. Data collected include: demographics, HIV history, obstetric history, GU screens and GU diagnoses. Women who delivered more than once in the study period were considered as separate subjects.

**Results:** Complete data were available for 75 pregnancies to 72 women which all resulted in live births. Mean age was 30 years. 88% were Black African. Mean CD4 count was 392. 40% were diagnosed with HIV antenatally in this pregnancy. 83% had at least one GU screen and 26% of these had a second screen. Of those screened 61% had at least one GU diagnosis: *Candida sp.* 37%, bacterial vaginosis (BV) 27%, genital warts 10%, *Chlamydia trachomatis* 8%, recurrent herpes simplex virus 2 (HSV) 3%, molluscum contagiosum 2%, *Neisseria gonorrhoeae* 0% and *Trichomonas vaginalis* 0%. 27% had a history of genital HSV, 70% of which were on Aciclovir suppression. 1/75 had untreated syphilis. The average age of women with *C. trachomatis* was 31 years, 4/5 were Black African, 1/5 was diagnosed antenatally, 3/5 had BV and all had a negative test of cure. Data from more pregnancies during the study period will become available and be presented.

**Conclusions:** The large majority of women in this cohort undergo at least one GU screen during pregnancy in-keeping with BHIVA guidelines. Most of these women had at least one genital infection and the prevalence of *C. trachomatis* is higher than would be expected in their age-matched HIV-negative counterparts. This raises concerns about unsafe sex in this group of patients. GU infections increase the risk of chorioamnionitis and premature delivery which are risk factors for mother to child transmission of HIV. Routine screening for and adequate treatment of GU infections is therefore of particular importance for HIV-infected pregnant women.

P167

### Syphilis in pregnancy: a multi-specialty audit of the management of syphilis in pregnant women attending an inner city GUM clinic

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**Background:** Serological testing for syphilis (STS) forms part of routine antenatal (AN) screening in UK. We conducted an audit to look at management of those women who were found to have a positive STS in pregnancy. The main aims of our audit were to determine the AN screening uptake rate for syphilis in our hospital, to determine whether women who tested positive for syphilis were referred to a specialist midwife and/or Genito-Urinary Medicine (GUM) and to look at whether appropriate partner and children testing was arranged and follow-up of the newborn carried out.

**Methods:** Retrospective review of notes and data collection for all women who tested positive for syphilis during AN screening over a 2 year period.

**Results:** Average uptake of STS in pregnancy over the 2 years was 97.6%. During this period, 37 patients tested positive and 27 were included in this audit. Four women were primigravida, in 5 gravid status was unknown and in the rest (18), there had been a total of 52 pregnancies. Only 6 of these 18 women had documentation of their previous STS. In those women where information was available, the average time between a positive test and review in AN clinic was 25 days and that between positive test and review in GUM was 35 days. Following review in GUM, 15 women were diagnosed with late latent syphilis, 4 with early latent, 1 with secondary and 7 were found to have been treated previously. A written management plan was communicated from GUM to the AN team in 17/27 women and to GP in only 10. Of the 24 traceable partners of these women, 12 (50%) were tested with 2 new positive diagnoses. In those women where information was available (20), 11 needed other children to be tested but this was documented to have been carried out in only 4. Of the newborn children, 13 were documented to have had their STS checked and amongst these there were no diagnoses of congenital syphilis. Newborn follow-up at 4, 8 and 12 weeks with serology, was documented to have been carried out in only 3, 4 and 4 children respectively.

**Conclusions:** Syphilis in pregnancy is a significant clinical problem requiring a multidisciplinary approach. Careful documentation and robust communication between the teams is paramount to ensure that patients, their partners and children are correctly tested and treated, and adequate follow up of the newborn carried out. This audit has resulted in drawing up of strict clinic protocols and communication strategies to address these issues.

P168

### Untested children of newly diagnosed HIV-infected women – the size of the problem

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**Introduction:** Implementation of universal opt-out antenatal testing for HIV has had a significant impact on vertical transmission of HIV in the UK. However HIV testing of children born prior to the maternal HIV diagnosis may be overlooked with the potential for late presentation and a range of poor outcomes in these children. We reviewed all cases of first HIV diagnosis in women over a 12-month period to determine the number of children potentially at risk of HIV, the location of these children and the number that remained untested 6 months after maternal diagnosis.

**Methods:** Notes review of all newly diagnosed women between 01/07/08 and 30/06/09.

**Results:** 31 women were newly diagnosed HIV positive in this period. 97% were black-African, median age was 35 years (range 16-58) and 15 (48%) had a baseline CD4 count of less than 200. 39% tested positive in the GUM clinic, 32% tested during an inpatient admission and 23% tested as part of the antenatal screening programme. 86% of women testing positive in the antenatal clinic did so during their first pregnancy. 13/31 (42%) of women had children born prior to their HIV diagnosis and there were a total of 26 potentially exposed children. Ages of these children were not routinely recorded. At the time of data collection 6/26 (23%) had undergone HIV testing and all tested negative. Therefore 20 children were untested and of these 70% lived outside the UK, in 25% the location of the child was unknown and one child resided in the UK. **Conclusions:** Our snapshot suggests a substantial number of children born to newly diagnosed HIV positive go untested and collection of data on these children is frequently incomplete. A significant number may reside overseas adding to the complexity of ensuring that testing occurs. We are currently exploring some of the other barriers to HIV testing of children of HIV positive individuals and are offering a range of testing options including POCT testing in the home.

P169

### Vertical HIV infection in young adults presenting with HIV-associated dementia

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**Background:** There are increasing numbers of reports of young adults presenting with previously undiagnosed vertical HIV infection. Diagnosis may occur secondary to the diagnosis of a relative, or as a consequence of presentation with HIV related symptoms, including AIDS defining illnesses. Increasing levels of neurocognitive impairment are being recognised in adults with HIV infection. However, young adults with HIV associated dementia as the presenting feature of previously undiagnosed vertical HIV infection have not been described in the UK(1).

**Methods:** A review of the hospital database for patients under the age of 25 with a diagnosis of HIV related neurocognitive impairment and subsequent retrospective case notes review.

**Results:** 2 cases were identified. Case 1 was a 20 year-old Ugandan male who presented with cough, night sweats, fever, cachexia, and marked behavioural difficulties. He was diagnosed with mycobacterium avium intracellulare and HIV associated dementia. HIV associated dementia was diagnosed with imaging and neuropsychological testing. His baseline CD4 count was 17 and baseline HIV viral load 1000000 copies per ml. His clinical course was characterised by poor adherence, further cognitive decline with features of a frontal lobe syndrome. Maternal HIV infection was identified, and all previous sexual contacts were HIV negative, making a diagnosis of vertical transmission most likely. Case 2 was a 20 year-old Ugandan female who presented with urinary retention, bilateral leg weakness, memory difficulties and increasing behavioural difficulties. She was diagnosed with miliary tuberculosis and HIV associated dementia. Her baseline CD4 count was 211 and baseline HIV viral load 19571 copies per ml. Her clinical course was characterised by a slow response to treatment with poor adherence. Maternal HIV infection was identified, and she had never been sexually active, making a diagnosis of vertical transmission most likely.

**Conclusion:** Both cases had developed behavioural change prior to the diagnosis of HIV infection that had been attributed to a difficult adolescence. They show the importance of early HIV testing in young adults when behaviour change occurs to affect earlier treatment interventions.

**Reference:** (1) Judd A et al. Vertically acquired HIV diagnosed in adolescence and early adulthood in the UK and Ireland: findings from national surveillance. *HIV Medicine* 2009; 10: 253-256

P170

### A review of the under-16 care provided by standalone GUM and FP services

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**Background:** Young people engaging in sexual intercourse are at higher risk of sexual ill health and have multiple health needs. It is important therefore that sexual health services dealing with young people are able to fulfil these multiple needs. In this study we reviewed the demographics, attendance reasons and standards of care received by under-16 patients attending the main Genitourinary Medicine (GUM) clinic and Family Planning (FP) clinic in X (city).

**Methods:** A case note review was conducted of all under-16 patients who attended either the principle GUM clinic or the FP Clinic in X (city), during 2008. Data gathered included: patient demographics, reasons for attendance, STI tests performed at clinic review and results, current use of contraception and initiation of contraception at clinic review.

**Results:** During 2008, 133 and 89 under-16 patients attended the GUM clinic and FP clinic respectively. 80% of the attendees at GUM were female, compared to 98% at FP. For a majority (120, 90%) of attendees at GUM, the principle reasons for attendance were STI related concerns or sexual assault. In FP, for a majority (64, 72%), attendance was primarily contraception or pregnancy related.

112 (84%) of the patients aged 15 and under attending GUM, and 27 (30%) of those attending FP, had a Chlamydia test performed. 51 (38%) of those attending GUM and none of those attending FP had a HIV test performed. 25 (19%) of under-15s attending GUM and 3 (3%) of those attending FP had a STI diagnosed.

Of the female patients, 10 (11%) of those attending FP and 36 (34%) of those attending GUM were using regular contraception (excluding condoms). 34% of those attending FP and 19% of those attending GUM required a pregnancy test. Of those not on regular contraception, 35 (45%) at FP (majority oral contraceptive pill, followed by Implanon) and 3 (4%) at GUM were started on a new method.

**Conclusion:** Our data suggests that young people attend GUM and FP clinics for different reasons. However, they often have sexual health needs beyond the primary reasons leading to that clinic attendance. Despite this, the specialist sexual health services too often concentrate only on their specific areas of expertise. It is hoped that these inconsistencies of care provided will be removed by the increasing integration of specialist sexual health services.

## Bacterial and Viral STIs

P171

### A mountain out of a molehill? How common is recurrent/ persistent non-gonococcal urethritis following treatment?

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**Background:** The aim of this study was to define the prevalence of recurrent/ persistent non-gonococcal, non chlamydial urethritis (NGU) in a clinic cohort retrospectively. The BASHH guidelines for the management of NGU suggest that the prevalence of recurrent/ persistent NGU is 10-20%. It was felt that this was higher than that observed in our clinical practice.

**Methods:** All cases of gonorrhoea and chlamydia were excluded. Cases of NGU were defined as symptomatic men having 5 or more pus cells per high per field (hpf) on urethral smear microscopy. Cases of recurrent/ persistent NGU were defined as men with NGU who went on to have microscopically proven NGU between 30 and 90 days after their initial diagnosis despite recommended treatment, as per the

BASHH guidelines. A prevalence study sample size calculation suggested that 180 cases could demonstrate a true difference from 10% prevalence, if such a difference existed, with 80% power. A total of 224 case notes coded as NGU between 1/1/2007 and 31/09/09 were identified and 190 of these had microscopically proven NGU. A data collection form was constructed to document how these cases of NGU and their partners were treated, how many return visits they made and why, whether they had been re-exposed and what management was required at return visit.

**Results:** 2 men out of 190 (1% [0.1-3.7 95% CI]) fitted the strict case definition of recurrent/ persistent NGU (see above). A further 5 men returned within the 30 to 90 day period with symptoms suggestive of NGU but a urethral microscopy result was not available; because the patient declined examination (3), because the symptom was dysuria only (1), or because the result was not documented (1). Including these 5 men in the analysis gives a prevalence of 3.7% [1.5-7.4 95% CI]. These estimates of 1% and 3.7% prevalence of recurrence/ persistence are well below the 10-20% suggested by BASHH. A further 4 men with microscopically proven NGU were seen in clinic outside the 30 to 90 day window (3, 8, 22 and 28 days respectively) and 1 man was seen with a discharge after 21 days but laboratory facilities were not available. Even if all 12 men identified here are included as cases, the point estimate for prevalence in this population is 6.3% [3.3-10.7 95% CI] with the upper boundary of the confidence interval just exceeding 10%.

**Conclusions:** In this cohort of patients, even with the broadest definition of what constitutes recurrent/ persistent NGU, the prevalence was lower than that stated in the BASHH guidelines. Further work needs to be done on the definition of this clinical presentation, its significance and its management.

P172

### Three weeks of doxycycline is an effective treatment for rectal lymphogranuloma venereum

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**Background:** Since the beginning of the lymphogranuloma venereum (LGV) epidemic in the UK in 2004, more than 1000 cases have been diagnosed nationally in men who have sex with men (MSM). The BASHH LGV treatment guideline recommends doxycycline 100 mg bd for 3 weeks and a test of cure (TOC) 4 weeks after completion of treatment, however, robust evidence is lacking. We assessed the efficacy of doxycycline in achieving clinical cure and microbiological clearance of rectal LGV in a large MSM cohort.

**Methods:** A retrospective case note review was conducted in 6 GUM/HIV clinics in London. All LGV cases diagnosed between December 2004 and November 2008 were identified. The standard test used for detecting *Chlamydia trachomatis* (CT) was the Becton Dickinson ProbeTec™ ET assay. DNA extracts of selected CT-positive rectal samples were referred to the UK Sexually Transmitted Bacteria Reference Laboratory in Colindale for confirmation of CT and LGV-specific molecular serovar typing. All patients were offered a TOC 4 weeks after cessation of treatment. Data collected included demographics, symptoms, site of LGV infection, other STI diagnoses, treatment received, time to and result of TOC. Tests of cure more than 6 months after treatment were excluded from this analysis.

**Results:** We identified 226 LGV cases, of these 99 (44%) had a TOC within 6 months. Median age was 36 yrs (range 20-66), 57% were White British, 79% were HIV positive and 19% were hepatitis C antibody positive. Genital symptoms were present in 21%; rectal symptoms in 81% and 8% were asymptomatic at time of test. Co-infection with rectal

GC was present in 19%. New HIV, hepatitis C and syphilis infections were diagnosed in 3%, 2% and 2%, respectively. The vast majority (94%) were treated with the recommended regimen of doxycycline; 1% received a 7-day course and 5% a 14-day course. The Median time post treatment to TOC was 68 days (range 17-185). The TOC was negative in 98%; all of them achieved clinical cure. One patient had an indeterminate test and one an equivocal result with high suspicion of re-infection: both tests were done before the recommended time.

**Conclusion:** Our findings show the recommended doxycycline regimen is a highly effective treatment for rectal LGV, achieving clearance of LGV in at least 98%. Of concern is the high rate of late or non-attendance for TOC which may also suggest poor adherence to treatment and abstinence advice: this may in part explain the continuing epidemic in the UK.

P173

### Vitamin D and lower reproductive tract infections in women: National Health and Nutrition Examination Survey (NHANES) 2001-2004

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**Background:** Vitamin D has been shown to modulate vaginal immune function and deficiency has been associated with increased prevalence of bacterial vaginosis in pregnant women. We aimed to investigate whether this association was present in the general population and whether increased susceptibility was also seen for other lower reproductive tract infections.

**Methods:** NHANES is a nationally representative cross-sectional study of the non-institutionalised American population. Primary analysis was the odds ratio (OR) of having laboratory diagnosed bacterial vaginosis, trichomoniasis or chlamydia against tertile of serum 25-hydroxyvitamin D (25-OHD) concentration. Secondary analysis was the OR of having symptomatic bacterial vaginosis (defined as Nugent's score 7-10 with vaginal malodour, itch or discharge) and the OR of bacterial vaginosis in single ethnic groups. Models were adjusted for demographic factors, body mass index, smoking and sexual behaviour. We included women aged 20 to 49 years for bacterial vaginosis and trichomoniasis, and women aged 20 to 39 years for chlamydia. Participants with incomplete covariate data were excluded.

**Results:** The proportion (and number) of participants with each condition were; 30.1% (521/1732) for bacterial vaginosis, 4.9% (83/1691) for trichomoniasis and 1.9% (25/1319) for chlamydia. Lowest tertile 25-OHD concentrations were associated with bacterial vaginosis (vs highest tertile, OR=1.70 95% CI 1.16-2.48, trend across tertiles  $p=0.008$ ) and symptomatic bacterial vaginosis (vs highest tertile OR 6.56 CI 1.87-23.01, trend  $p=0.002$ ). This association was seen in black and white but not Hispanic ethnic groups. Trichomoniasis and chlamydia were not associated with vitamin D concentration.

**Conclusion:** In a representative sample of the US female population aged 20 to 49 years, low serum vitamin D concentrations is associated with bacterial vaginosis, particularly the symptomatic form. Vitamin D deficiency may be an important, modifiable risk factor for the development or recurrence of bacterial vaginosis.

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### Female *Trichomonas vaginalis* infection – a look at risks and resources

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**Background:** A high *Trichomonas vaginalis* (TV) positivity had been noted in a prison population, so therefore an opportunity to use a new

Nucleic Acid Amplification Test (NAAT)- the Gen-Probe Aptima TV assay-prompted a local study of TV positivity in various clinical settings and a survey of existing and newly collected data on TV diagnoses.

**Methods:** From June - Oct 2009, women attending clinics in Genitourinary Medicine (GUM), a prison GUM service and in community settings were offered TV NAAT tests on the residual portion of vulvovaginal swabs or first-catch urines that had been collected for routine *Chlamydia trachomatis* / *Neisseria gonorrhoea* dual testing. Descriptive data were gathered from the GUM records for women with a TV positive result. In addition a questionnaire survey was circulated nationally to enquire of existing practice in TV diagnosis in GUM clinics and any prison populations served.

**Results:** TV positivity rates by NAAT at community clinics and GUM, were respectively 0/382 (0%) and 3/358 (0.8%), but positivity was significantly higher, 29/269 (10.8%) - Odds Ratio 14.3 (4.11 < OR < 59.55) - in those tested at the prison. Questionnaire responses covered clinics accounting for the investigation of a total of 150975 women with 1386 (0.92%) positive cases (cf a yearly figure of 4967 positive cases extrapolated from all GUM clinical activity dataset returns for 2008). Higher positive rates were noted at all three London clinics (mean 2.64%,  $p<0.001$ ); with use of Acridine Orange (AO) tests (1.95%,  $p<0.001$ ) and for two prison populations (2.70%,  $p=0.053$  and 5.90%,  $p<0.001$ ). Amongst the 34 clinics responding, test usages were Wet Film (WF) 28, High Vaginal Swab (HVS) culture 10, WF plus HVS culture 10, AO 1 and NAAT 0. Whilst earlier questionnaire routine results by AO showed a substantial positivity in our prison (31/525 = 5.9%), positivity was significantly higher (29/269=10.8%,  $p=0.02$ ) in study group females tested by NAAT.

**Conclusions:** Results here relate to TV positivity in those tested in different clinical situations and are not a measure of population prevalence. Although positivity is generally low it may vary significantly depending on testing approach or populations tested. Implementation of TV NAAT testing might be desirable in populations with a high positivity rate.

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### Multicentre evaluation of the VERSANT® CT/GC DNA 1.0 Assay (kPCR) with the VERSANT® kPCR Molecular System

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**Background:** The Siemens VERSANT® CT/GC DNA 1.0 Assay (kPCR)\* (VERSANT assay) is a real-time kinetic polymerase chain reaction (kPCR) assay for detecting *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) DNA in samples from both symptomatic and asymptomatic individuals, using the VERSANT® kPCR Molecular System, a semiautomated system combining a fully automated sample preparation module and a fully automated amplification and detection module. This study examined the performance of the VERSANT assay compared to the GEN-PROBE APTIMA COMBO 2® assay (AC2).

**Methods:** Assay performance was established using endocervical and urethral swabs, and urine specimens prospectively collected from 1460 symptomatic and asymptomatic male and female subjects from six clinical sites located in the US and Europe. The swab collection order was randomized to minimize bias. Subjects did not urinate within 1 hour prior to specimen collection. Specimens were collected, processed and tested according to manufacturer's instructions. Specimens were tested once using each assay. Discordant results were retested according to discordant resolution algorithm and final results were

used for data analysis. Assay sensitivity and specificity were determined using panels from high-titer CT cell stock with target concentrations from 0 to 5,000 DNA c/mL. Panel members were tested in multiple replicates per run.

**Results:** Detection rates were above 95% for panels with CT or GC concentration of  $\geq 1500$  c/mL or  $\geq 900$  c/mL, respectively. Specificity was above 95.83% across sites and above 97.90% across lots.

CT Urine				CT Swab			
AC2				AC2			
+				+			
-				-			
VERSANT	+	160	0	VERSANT	+	161	1
	-	6	1291		-	13	1283
Overall % agreement (95% CI <sup>a</sup> ): 99.59% (99.11%, 99.85%)				Overall % agreement (95% CI <sup>a</sup> ): 99.04% (98.39%, 99.47%)			
Positive % agreement: 96.39%				Positive % agreement: 92.53%			
Negative % agreement: 100.00%				Negative % agreement: 99.92%			

GC Urine				GC Swab			
AC2				AC2			
+				+			
-				-			
VERSANT	+	59	2	VERSANT	+	60	2
	-	0	1397		-	1	1394
Overall % agreement (95% CI <sup>a</sup> ): 99.86% (99.51%, 99.98%)				Overall % agreement (95% CI <sup>a</sup> ): 99.79% (99.4%, 99.96%)			
Positive % agreement: 100.00%				Positive % agreement: 98.36%			
Negative % agreement: 99.86%				Negative % agreement: 99.86%			

<sup>a</sup> CI: confidence interval

**Conclusions:** The VERSANT assay, together with the VERSANT kPCR Molecular System, is a reliable and accurate assay for the detection of CT and GC infected individuals.

\* The VERSANT CT/GC DNA 1.0 Assay (kPCR) is not commercially available.

P176

**High sensitivity and specificity of the BioStar® Optical ImmunoAssay OIA point-of-care test (POCT) in diagnosing Neisseria gonorrhoeae (GC) from male urine specimens**

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**Background:** The BioStar® OIA GC POCT detects the L7/L12 ribosomal protein which according to the manufacturer is specific for GC. A previous laboratory-based evaluation of this test revealed good correlation with most clinical isolates of GC. We aimed to compare the performance of this POCT to routinely used GC nucleic acid amplification testing (NAAT) and culture.

**Methods:** Men attending the GUM clinic were randomly chosen. Symptomatic males had either urethral discharge and/or dysuria. Urine samples were collected and tested using the POCT and NAAT. Urethral microscopy and GC culture were also performed. Results of the POCT were compared with GC NAAT and culture to calculate its sensitivity and specificity.

**Results:** Of 52 males (54% Black, 83% heterosexual, median age 32 years), 67% were symptomatic (49% urethral discharge, 26% dysuria). None were GC contacts and 19% had been previously diagnosed with GC. 5 patients tested positive for GC on the POCT and NAAT, and 4 of these were also GC culture positive. In 1 case, POCT and NAAT were positive, but GC culture was negative. 11 patients were diagnosed with chlamydia, 2 of whom were also GC positive. The POCT was compared to NAAT (Table 1) and GC culture (Table 2).

		NAAT		
		Positive	Negative	Total
POCT	Positive	5	1	6
	Negative	0	46	46
	Total	5	47	52

Sensitivity, specificity, PPV and NPV were 100%, 98%, 83% and 100% respectively.

		GC culture		
		Positive	Negative	Total
POCT	Positive	4	2	6
	Negative	0	26	26
	Total	4	28	32

Sensitivity, specificity, PPV and NPV were 100%, 93%, 67% and 100% respectively

**Conclusion:** This small study shows that when diagnosing GC from male urine specimens, the BioStar® OIA GC POCT correlates well with both GC culture and NAAT, and best with NAAT. A larger study is warranted to ensure these results are reproducible with a statistically powered sample size.

P177

**Patient financial incentives for chlamydia screening: a national comparative study using routinely collected data**

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**Background:** The use of patient financial incentives to increase chlamydia screening uptake rates is common in England, but remains controversial. A recent review found no evidence of an effect on either screening uptake or the rate of chlamydia positivity. The aim of this study was to evaluate the impact of financial initiatives schemes in England to inform future policy development by comparing uptake and positivity rate changes in Primary Care Trusts (PCTs) that had or had not used patient financial incentives.

**Methods:** PCTs that had employed patient financial incentives were identified from a national marketing audit and further details were collected during subsequent telephone interviews. Uptake per thousand of 15-24 year olds and positivity rates were calculated using data from the National Chlamydia Screening Programme (NCSP). PCTs that had employed incentives were matched by Office National Statistics super group area and initial uptake with those that had not. The differences between the quarter before and the quarter during the incentive were calculated for each PCT. The average difference between the matched PCTs was our estimate of the average effect of financial incentives. Multivariate analysis controlled estimates for PCT-level explanatory variables.

**Results:** We identified a total of 65 incentive schemes in 46 PCTs between January 2005 and June 2009 (62% prize draws, 29% goodie bags and 9% voucher schemes). Preliminary analysis of financial incentives (i.e. not goodie bag schemes) demonstrated a small effect on uptake rates (rate difference 0.6%, p=0.03), which were more pronounced in females (0.8%, p=0.02) and younger ages (aged 15-19, 0.75%, p=0.02). Effect sizes of voucher schemes were larger compared with prize draws. We did not find significant changes in positivity rates (-0.1%, p=0.9).

**Conclusions:** The increase in chlamydia screening uptake was greater by a small but significant amount in those PCTs that used financial incentives compared to those that did not and this was most evident in

younger and female groups. However, we lacked data on other major interventions employed contemporaneously by PCTs that did not use financial incentives. We were thus unable to control fully for the impact of major health promotion initiatives may have had on uptake over and above the incentive. This study is an important step in informing recommendations and policy regarding the use of patient financial incentives to promote chlamydia screening.

### P178 Prevalence of cytological abnormalities has significantly improved during the HAART era

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**Background:** HIV+ women have a 20 – 40% prevalence of abnormal cytology and are more likely to develop cervical cancer. The impact of HAART on CIN development/regression is unclear. In response, 2007 national cervical screening guidelines recommend annual cytology for HIV+ women. We performed an audit against these guidelines and assessed the current prevalence of cytological abnormalities. Comparisons were made with a previous audit from 1999.

**Methods:** Audit standards included: HIV+ women require annual smears between the ages of 25 and 65 yrs and the results should be documented in HIV case notes, regardless of where they were performed. Cytology results performed within our hospital, between 1/1/1988 and 28/9/2009, from HIV+ women were analysed. Case notes of the last 91 women to attend our HIV clinic were reviewed to identify if cytology was documented within the previous 12 months and which setting their last smear was performed.

**Results:** 1327 women had attended our HIV unit and 1449 smears were performed during the study period. 27/1449(2%) smears were performed outside the recommended ages: 24 <25yrs, 3 >65yrs. 807/1327 patients had attended the service in the last 24 months. Of these 236(30%) and 187(24%) women had a smear within 2 years and 14 months respectively. Cytology results during the last 2 years were: 192 negative; 23 borderline; 17 mild dyskaryosis; 4 inadequate. Rates of high grade cytology have improved since 1999. See Table.

65/91(72%) notes had a reference to cytology within the last year. 35/91(39%) women were due/overdue a smear at last review. Of these women 23/35(66%) were reminded of this, but only 12/23(53%) had one performed thereafter. 9/91(10%) women had their last smear with the GP.

	Prevalence per 100 patients		p-value
	1999 N=150	2009 N=236	
Dyskaryosis			
Low grade (B/line/mild)	n=33; 22.0 (15.4-28.6)	n=40; 16.9 (12.2-21.7)	0.271
High grade (Mod/severe)	n=9; 6.0 (2.8 to 1.1)	n=0; 0.0 (0.0-1.6)	<0.001

**Conclusion:** Prevalence of high grade abnormal cytology has significantly improved throughout the HAART era. Even estimating for GP activity the overall annual smear rate is very low (34%) and likely to be due to clinician omission or poor patient uptake. The importance of smears needs promoting and improvements are required in systematic recall and opportunistic smear taking in HIV consultations.

### P179 Treponemal IgM in syphilis re-infection should be interpreted with caution

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**Background:** There has been a significant increase in the number of new cases or re-infections of syphilis diagnosed in our centre. This follows a

decline in cases after a large outbreak in 2001-2003. This review focused on patients presenting with syphilis re-infection.

**Methods:** All patients with positive syphilis serology from 2007 to September 2009 were identified. Patients were identified as having early infection or re-infection using conventional criteria. Statistical analysis was performed using commercially available SPSS 17.0 software.

**Results:** 250 diagnoses of syphilis were identified. The mean age at diagnosis was 37.06 years (median 36, range 18-68). 91.6% were men, 203/251 (98.5%) men who have sex with men (MSM). 104/251 (41.9%) were HIV positive, 32/104 (30.5%) had newly diagnosed HIV.

45 (17.9%) cases represented a second or subsequent syphilis infection. Mean age in this group 42.87 years (median 44, range 26-55). Patients with previous syphilis infection had between 1 and 3 previous episodes. 75.6% had 1 previous episode and 19.5% and 4.9% had 2 and 3 previous episodes respectively. 35 (77.8%) of patients with a previous syphilis infection were HIV positive. All patients with a second or subsequent infection knew their HIV diagnosis at the time of their syphilis diagnosis. Of those with a first documented syphilis infection the syphilis IgM was positive in 156/206 cases (63.8%) where as in those with a second or subsequent infection only 24/45 (25%) had a positive IgM, chi-square p=0.002.

**Conclusions:** A large number of syphilis diagnoses are being made among HIV positive MSM and many have had a previous episode of syphilis infection. Syphilis IgM appears to be less reliable in second or subsequent infection. This highlights the need for regular syphilis serology in follow up care of HIV positive patients particularly MSM and the need to interpret a negative IgM with caution.

### P180 Use of Aptima Combo 2 (AC2) at extragenital sites to increase diagnoses of Neisseria gonorrhoeae in high-risk groups

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**Background:** The dual nucleic acid amplification test (NAAT) AC2 was introduced locally on 01/04/06 with confirmation of positive *N. gonorrhoeae* results using Aptima NG. The test is not currently validated for use in throat or rectum but is frequently used at these sites. A growing body of evidence suggests that use of NAATs at extragenital sites increases the detection rate of *N. gonorrhoeae*.

**Method:** Case notes of males with *N. gonorrhoeae* positive urethral, rectal or throat samples (AC2 and/ or culture) were reviewed. All cases from 01/04/06 to 31/03/08 in 2 local GU clinics were found using pathology records. Data was collected using a standard pro-forma.

**Results:** 20908 men were tested, of these 251(1.2%) were *N. gonorrhoeae* positive at one or more site. Demographics reflected national trends for age and ethnicity. 125/251(50%) were heterosexual and 109/251(43%) were men who have sex with men (MSM). No sexuality data for 17 males.

34 men (all MSM) had AC2 throat swabs and 17(50%) were confirmed AC2 *N. gonorrhoeae* positive. Of these 17, 2(12%) had *N. gonorrhoeae* positive throat culture. Of the remaining 15, 9 were *N. gonorrhoeae* positive at another site, 2 were contacts of *N. gonorrhoeae* and 2 had had sex abroad.

54 men (all MSM) had rectal AC2 sampling of which 37(69%) were confirmed AC2 *N. gonorrhoeae* positive. Of these, 14(38%) were culture positive. Of the remaining 23 patients, 12 were *N. gonorrhoeae* positive at another site. Of the remaining 11, 2 were *N. gonorrhoeae* contacts, 9

had had 2 or more partners in the last 3 months and 2 had had sex abroad.

**Conclusions:** The AC2 was superior to culture for detecting *N. gonorrhoeae* at non-genital sites (100% vs. 30% [16/54] sensitive) as confirmed by Aptima NG. It is recommended that prior to routinely using a NAAT to detect *N. gonorrhoeae* at an extra-genital site local validation should be undertaken as there is a theoretical risk of the NAAT detecting other *Neisseria* species. As Aptima NG uses primers to a different target it provides further evidence of detection (this has been independently verified at a reference laboratory). We believe our data suggests that AC2 *N. gonorrhoeae* positives are likely to be true positives. Although the majority (70%) of AC2 *N. gonorrhoeae* positives were culture negative, of these 25/38(66%) were either *N. gonorrhoeae* positive at another site or the patient was a *N. gonorrhoeae* contact. Of the remaining 13 men, the majority were at high risk of *N. gonorrhoeae*.

P181

### Current costs of chlamydia screening in the community using a top-down and a bottom-up approach

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**Background:** The National Chlamydia Screening Programme (NCSP) has been implemented across England since 2004, yet the costs of screening had not been updated since initial estimates in 2001. In 2009, the NCSP conducted a costing review, commissioned by the Department of Health. The objective of the review was to improve consistency in costs nationally and to reduce the variations observed in different Primary Care Trusts PCTs.

**Method:** The costing review used a top-down and a bottom-up approach, to determine the costs of various stages in the pathway: screening activity, laboratory processing, negative client notification, positive client management and partner notification.

The top down looked at actual spending on chlamydia screening among nine "best performing" PCTs, selected from across England for having achieved 17% testing coverage, having high positivity and high proportion of screens undertaken in primary care and community health services.

The bottom up approach looked at the costing of different operational pathways at five screening sites and initiatives that generated high screening volumes in 2008-09.

Semi-structured interviews with staff from each PCT and venue were used to elicit information on resource use.

**Results:** The average cost per chlamydia screening episode from top down approach is £45 : screening activity £16, laboratory processing £10, negative client notification £1, positive client management and partner notification £4.5, local coordination £13.4. The cost per positive client of positive client management and partner notification is £46.

If we consider the best unit costs per each stage of pathway from top down approach, the cost per chlamydia screening episode comes down to £33 : screening activity £12.5, laboratory processing £9, negative client notification £0.5, positive client notification, management and partner notification £4.5, local coordination £6 . This finding is consistent with the average cost of the 5 pathways costed through the bottom up approach (£33).

**Conclusion:** An estimated cost of £33 per screening episode should be achievable, as screening volumes increase, chlamydia screening is better integrated in the community, sexual health networks develop and regions move to collaborative procurement.

This represents possible economies of around 25%, mostly around the screening activity and the local coordination costs.

P182

### An audit of adherence to BASHH guidelines for the investigation of *Neisseria gonorrhoea* infections in an urban sexual health clinic – are all the current recommended tests really necessary?

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**Background:** Recently, the increasing use of nucleic acid amplification tests (NAATs) to diagnose *Neisseria gonorrhoeae* (GC) infections have been implemented in many sexual health clinics to try to increase the throughput of patients and cost effectiveness. Some clinics have even reduced the number of specimen collected from women. The aim of this study is to monitor the adherence of an urban clinic to BASHH guidelines in diagnosing GC in female patients. A secondary aim is to compare the diagnostic yield of microscopy, culture and NAAT for GC in women.

**Method:** Retrospective analysis of 175 female patients diagnosed with GC between 2006 and 2009 was carried out. Data collected included patient demographic, sexual history, site of infection and testing methods.

**Results:** The mean age was 23 years (range 14–51). 55% were White British, 12% Caribbean, 7% African, 6% Asian. 97% were heterosexual. 41% were asymptomatic. 64% of patients had a concurrent STI of which 83% had Chlamydia. 86% had endocervical and 86% urethral cultures taken. Based on sexual history 33/74 (45%) of those who gave oral sex had pharyngeal swabs and 9/15 (60%) of those who received anal sex had rectal swabs taken. 85% of GC contacts had endocervical and urethral cultures.

67% of endocervical cultures were positive. This compares to 56% of urethral, 33% of vaginal, 10% of pharyngeal and 19% of rectal samples. 25% endocervical and 14% urethral samples were positive on microscopy. 3% of patients were diagnosed on urethral samples alone.

86%(82/95), 100%(5/5) and 83%(10/12) of endocervical, vaginal and urine samples were positive on NAAT testing. 2% of endocervical samples tested negative by NAAT but positive on culture compared to 26% of samples tested negative by culture but positive by NAAT.

**Conclusion:** We are adherent to guidelines in obtaining endocervical and urethral GC cultures. Even in this high prevalence population, urethral microscopy examination for GC has a low yield. NAAT testing has a higher yield on all samples compared to culture and an additional 26% of cases were diagnosed on a positive TMA but negative culture test. However, until further advances in the ability to test for anti-microbial resistance by gene sequencing becomes available, cultures remain a crucial tool in monitoring the epidemiology and treatment response to GC infection.

P183

### How much duplication is there in chlamydia testing?

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**Background:** The National Chlamydia Screening Programme (NCSP) aims to test sexually active people aged 16 to 25. To influence the prevalence of Chlamydia infection, modelling suggests that 35% - 50% of young people need to be screened. The NCSP set incremental targets for screening in 08/09 at 17%, for 09/10 25% and for 10/11 35%. Since screens are performed outside the screening programme, previous work has allowed non screening programme Chlamydia diagnostic tests from GP and hospital sites (GP/hosp) to be included but has excluded tests performed within GUM clinics. We investigate the rates of duplication between GUM, NCSP and GP/hosp.

**Methods:** Chlamydia testing data for the calendar year 2008 was obtained from the 3 potential sources: GUM, NCSP and GP/hosp. A unique patient identifier was created by concatenating the patient postcode and date of birth. It was assumed this represented an individual person. Only one test per person per source during 2008 was counted

within the data set. The number of repeat tests between different sources was calculated.

**Results:** The data set identified 11,427 uniquely identified patients screened within the year. There were 521 duplicated screens in which the same patient identifier was found from more than one source.

There were 208 screens for which the postcode was not provided and therefore the unique identifier consisted only of the date of birth. If any of these patients had attended at another time or at another place and provided their postcode there was the potential for duplication. Of these 208 screens, 48 belonged to patients for whom the date of birth and gender were unique and therefore could not be duplicates leaving 160 possible further duplicates:

If all patients who failed to give their post code were genuinely unique attenders, the duplication rate was 521/11,948 (4.4%). If they were not all unique attenders a maximum of 681 (521 plus 160) of 11,948 (5.7%). The range of duplicate testing between GUM and all other sources was 5.2% - 6.7%. Of screens performed between GUM and NCSP 1.5% - 3.3% were duplicates. Of GUM and Dx screens 1.5% - 3.8% were duplicates. Similarly 4.0% - 5.3% of screens were duplicated between NCSP and GP/hosp.

**Conclusion:** In our area the GUM data could be included within the statistical data collection for the Chlamydia screening campaign without any more fear of duplication than already exists between NCSP and GP/hosp.

#### P184

### Prevalence, serovar distribution and treatment of pharyngeal *Chlamydia trachomatis* infection in London MSM

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**Background:** The prevalence of pharyngeal *Chlamydia trachomatis* (CT) infection in UK, American and Australian men who have sex with men (MSM) has been shown to be low with rates of 1%-1.4% recorded. The proportion of lymphogranuloma venereum (LGV)-associated serovars and treatment efficacy have not been determined.

**Methods:** All MSM attending a large London GUM clinic were offered screening for pharyngeal CT as part of a full sexual health screen. Nurse-collected throat swabs were tested for CT RNA using the Gen-Probe Aptima Combo 2<sup>®</sup> (AC2) assay. All CT-positive samples were referred to the UK Sexually Transmitted Bacteria Reference Laboratory (STBRL) for confirmation of CT and specific molecular serovar typing. Pharyngeal CT-positive cases diagnosed from January to December 2009 were identified. Data collected included demographics, treatment given and test of cure (TOC) result.

**Results:** The prevalence of pharyngeal CT in MSM by AC2 was 1.2%. 59 cases of pharyngeal CT were seen in 56 MSM during the study period. Median age was 32 years (IQR 26-40), 69% were Caucasian, 34% were HIV-positive and unprotected receptive oral sex was reported by 90%. 14% were contacts of CT, 47% were asymptomatic, 12% had throat symptoms and 39% had either genital or rectal symptoms. 46% (27/59) had concurrent rectal CT, 3 of which were rectal LGV infections. 15% had urethral CT and 5/59 (8%) MSM had CT detected at all three sites. STBRL confirmed the presence of CT DNA in 89% (51/57) of the throat samples: 50/51 were non-LGV serovar infections but one MSM with symptomatic rectal LGV also had LGV detected in the throat. 29 patients had a TOC at a median of 42 days (IQR 34-99) after treatment. 24/29 had taken doxycycline for one week and 5/29 took azithromycin 1g stat. 28/29 TOC were negative. One patient, treated with doxycycline, had a positive TOC but had a high likelihood of re-infection.

**Conclusion:** The prevalence of pharyngeal CT in MSM is low at 1.2% and is mostly non-LGV infection. In high risk MSM the throat might act as reservoir for CT and possibly LGV and consideration should be given to routine screening at this site for MSM. 47% of these MSM had no evidence of CT infection elsewhere and their infections would have been

missed if a routine screen was not offered. Doxycycline for one week and azithromycin 1g stat were both effective in clearing infection but larger studies are needed to determine efficacy.

#### P185

### The effect of electronic patient records (EPR) on the time taken to treat patients with genital chlamydia infection

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**Background:** The shorter the interval between diagnosis and treatment for any STI, the less chance there is of onward transmission and of clinical complications arising. We looked at the times taken to recall and treat patients with a positive Chlamydia test before and after the introduction of EPR into our clinic in August 2007.

**Methods:** Patients who had Chlamydia infection and were not treated on the day the test was taken were identified for the periods Jan-Mar 2007 (paper case records used) and Jan-Mar 2009 (EPR). For each patient, the following time intervals were measured- first positive result received to first attempted patient contact; first positive result received to attendance for treatment; first attendance to receipt of result; first attendance to treatment.

**Results:** 52 consecutive qualifying patients were included for each period. The measured intervals are given in the table. The 'result to treatment' interval improved by an average of 11.5 days and 'first attendance to treatment' interval by 9.5 days despite results taking 2 days longer to arrive at the clinic from the lab. in the second period. The proportion of patients treated within 2 weeks of receipt of a positive result rose from 38% in 2007 to 94% in 2009.

Interval Measured	2007 (N=52) Median (range) in days	2009 (N=52) Median (range) in days	P value
Result to treatment	15 (1-112)	3.5 (0-30)	<0.0001
Result to 1st attempted contact	7 (1-20)	0 (0-7)	<0.0001
1st attendance to treatment	21 (6-117)	11.5 (3-39)	<0.0001
1st attendance to 1st attempted contact	13 (6-45)	8 (3-12)	<0.0001
1 <sup>st</sup> Attendance to Result	5 (1-32)	7 (3-12)	

**Conclusions:** The time to treat interval was dramatically reduced following the introduction of EPR. This was due to more rapid and efficient patient contact processes following the arrival of a positive result. Clinics using paper case records should consider introducing EPR as a means of improving the effectiveness of STI recall and treatment.

#### P186

### VERSANT<sup>®</sup> CT/GC DNA 1.0 Assay kPCR method comparison with Gen-Probe APTIMA COMBO 2 Assay using VERSANT Urine Transport Kit and VERSANT Swab Collection Kit

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**Background:** The objective of this study was to compare the performance of the VERSANT CT/GC DNA 1.0 Assay\* with that of the commercially available Gen-Probe<sup>®</sup> APTIMA COMBO 2 (AC2) Assay. The VERSANT CT/GC DNA 1.0 Assay (kPCR) is designed to detect the presence of *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) in vaginal swabs, endocervical swabs and first-catch urine specimens (FCU)

collected using VERSANT sample collection devices. VERSANT sample collection devices include the VERSANT Male Swab Collection Kit and VERSANT Female Swab Collection Kit (VERSANT SCK kits) for both male and female clinical swab specimens and the VERSANT Urine Transport Kit (VERSANT UTK) for male and female urine specimens.

**Methods:** A total of over 700 urine and over 1,700 swab specimens were prospectively collected using Siemens VERSANT Urine Transport Kits\* (UTK) and the VERSANT Swab Collection Kits\* (SCK), respectively. The swab samples included urethral swabs for male subjects and both endocervical and vaginal swabs for the female subjects. These specimens were tested on the VERSANT<sup>®</sup> kPCR Molecular System\* with two lots of VERSANT CT/GC DNA 1.0 Assay (kPCR) reagents. The AC2 assay was used as the CE marked comparative method. Percent concordance of the VERSANT CT/GC DNA 1.0 Assay (kPCR) with the AC2 assay was determined.

**Results:** Data indicated that the estimated overall percent agreement between the VERSANT CT/GC DNA 1.0 Assay (kPCR) and the AC2 assay for CT and GC detection was greater than 98% in both urine and swab specimens. The negative percent agreement and positive percent agreement between the VERSANT CT/GC DNA 1.0 Assay (kPCR) and the AC2 assay for CT and GC detection were greater than 90% in both urine and swab specimens.

**Conclusion:** These results demonstrate that the VERSANT CT/GC DNA 1.0 Assay (kPCR) is both sensitive and specific for detecting CT and GC targets in vaginal, endocervical and urethral swab specimens and in male and female urine specimens. Performance of the VERSANT CT/GC DNA 1.0 Assay (kPCR) is comparable to that of the Gen-Probe APTIMA COMBO 2 assay.

\* The VERSANT CT/GC DNA 1.0 Assay, the VERSANT Swab Collection Kit and Urine Transport Kit are not commercially available. The VERSANT kPCR Molecular System (CE marked) is not commercially available in the US.

#### P187

### Screening for asymptomatic LGV coinfection in MSM newly diagnosed with HIV, hepatitis C or infectious syphilis

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**Background:** Previous studies have shown that patients with lymphogranuloma venereum (LGV) infection have high rates of co-infection with HIV, Hepatitis C and syphilis. However it is not routine practice to screen asymptomatic MSM for LGV-serovars of Chlamydia, and it may be a proportion of LGV diagnoses are missed, resulting in inadequate treatment and onward transmission. Whilst LGV is thought to be predominantly symptomatic, studies have shown it can take several weeks for symptoms to develop and up to 15% may be asymptomatic or have constitutional symptoms only.

**Objective:** To establish a six month pilot LGV screening service for all asymptomatic MSM newly diagnosed with HIV, infectious Syphilis (IS) or hepatitis C, where a screening service for asymptomatic rectal Chlamydia already exists for MSM.

**Methods:** Asymptomatic MSM attending one of the five centres with a new diagnosis of HIV, hepatitis C or IS are routinely offered screening for urethral and, if indicated, rectal Chlamydia. Patients were included if the screen was performed at the time or within 4 weeks of the new diagnosis. Since September 2009 all positive samples have been sent to the UK Sexually Transmitted Bacteria Reference Laboratory in Colindale for LGV sub-typing. Asymptomatic

was defined as being asymptomatic in respect of symptoms consistent with Chlamydia infection.

**Results:** To date there have been 98 new diagnoses in asymptomatic MSM of whom 82 (84%) were screened within 4 weeks; 40 (49%) HIV, 36 (44%) IS and 8 (10%) Hepatitis C. Of the 82 patients, 13 (16%) patients were diagnosed with rectal Chlamydia, of whom one also had urethral Chlamydia, and 2 with urethral Chlamydia, however none had LGV.

**Conclusion:** To date we have not found any cases of asymptomatic LGV infection in patients newly diagnosed with HIV, Hepatitis C or infectious Syphilis. We did however find a higher rate of asymptomatic rectal Chlamydia compared to that found in the routine screening of unselected asymptomatic MSM. Our preliminary data suggests we are not missing an asymptomatic pool of infection in those MSM recently diagnosed with HIV, hepatitis C and IS.

#### P188

### Mapping gonorrhoea: a comparison of two techniques for reducing random variation

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**Background:** Since 2003, there has been a 35% decrease in the number of gonorrhoea diagnoses reported at GUM clinics in England. However, high rates still persist among core populations. Disease mapping can be utilised to identify clusters of infection in the population and to direct effective interventions. The technique of smoothing is used to improve the data accuracy by reducing the effects due to random variation and consequently improve the quality of the map. We present two smoothing techniques to map gonorrhoea.

**Methods:** Five years (2004–2008) of patient level data on gonorrhoea diagnoses from of a large urban GUM clinic in England were analysed. Gonorrhoea rates were mapped using the patient's area of residence to the lower super output area (LSOA) level of geography in the Primary Care Trust (PCT). Smoothing of the data was performed using (i) a modification of the shrunken estimate formula from the England Indices of Multiple Deprivation and (ii) an empirical best linear unbiased prediction (EBLUP) method that smoothed the rate to the fitted values of a model with fixed effects for covariates and random effects for each LSOA. Mapping results using crude rates of gonorrhoea and the two smoothing techniques were compared.

**Results:** Data were available on 1693 gonorrhoea diagnoses among 1484 patients residing in the PCT. Patients were from 90% (305/339) of LSOAs in the PCT of which 30% of patients resided in 7% of LSOAs. Crude rates across LSOAs varied between 0 and 340/100,000 population. After the shrunken estimate formula was applied, the smooth rate of gonorrhoea diagnoses varied between 0 and 200/100,000. Rates were unevenly smoothed, with strong smoothing on the higher rates and weak smoothing on the low rates. Where EBLUP method was applied, the smoothed rate varied between 0 and 300/100,000 and followed a frequency distribution which was similar to that of the crude rate. All the disease maps show gonorrhoea clusters in the most deprived areas of the PCT.

**Conclusion:** Improvements in representativeness of the distribution of gonorrhoea rates were shown when the map was smoothed. The shrunken estimate formula may not be appropriate for smoothing gonorrhoea because of very small numbers of diagnoses. EBLUP removed random variations but may be improved by including more covariate information. As gonorrhoea incidence declines at a time of financial constraints, the maps suggest localities where future prevention efforts should be targeted.

P189

### NO CONTACT SLIP = NO TREATMENT (the impact of not treating asymptomatic patients who claim they are contacts of genital *Chlamydia trachomatis* infection)

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**Background:** The treatment of contacts of genital *Chlamydia Trachomatis* infection (CT) is recommended to prevent symptoms and onward transmission. Effective partner notification (PN) involves patient education and the provision of a contact slip(s) so that the partner(s) receives accurate treatment and transmission across the sexual network can be evaluated. However, many contacts present to Sexual Health services without a contact slip expecting, and in most cases receiving, treatment. We therefore evaluated whether reported contacts of CT had a supporting nucleic acid amplification test (NAAT) diagnosis that was consistent with their history.

**Methods:** In 2009, 1152 patients were coded as contacts of CT in two metropolitan GUM clinics. The notes and NAAT result of 582 (51%) of these patients were reviewed. A male-female and female-male transmission frequency of 68% was used\*. Male-male transmission frequencies were assumed to be the same and NAAT testing almost 100% sensitive & specific. The observed and expected numbers were compared using a Chi-squared statistic with one degree of freedom. Unnecessary treatment was defined as CT negative contacts. One gram of Azithromycin was estimated to cost £8.96.

**Results:** A total of 582 CT contacts were reviewed (409 male, 173 female). The overall CT prevalence in this group of patients was 22.6%. The number of patients observed to have a CT infection was significantly less than expected ( $\chi^2=551, p<0.0001$ ) and 450 (77%) of patients received unnecessary treatment. If treatment was delayed until the result was ready, £4032 of treatment costs would have been saved.

Diagnosis	Observed	Expected CT positive using transmission frequency of 68%*
CT positive	132	396
CT negative	450	186
Total	582	582

**Conclusion:** Over three quarters of patients presenting as CT 'contacts' did not have the infection. Since many clinics can process and report results within days, a delay in treatment for asymptomatic contacts without a slip would save money and allow effective targeting of secondary PN. If adopted, this approach would benefit from using an SMS or email format to verify actual contacts.

\* Quinn et al JAMA Epidemiological and Microbiological Correlates of *Chlamydia trachomatis* infection in sexual partnerships. 1996; 276: 1737-1742

P190

### Prevalence of *Neisseria gonorrhoea* and *Chlamydia trachomatis* in female GU clinic attendees including commercial sex workers diagnosed with pelvic inflammatory disease post introduction of NAAT testing

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**Background:** The most recent BASHH guidelines on pelvic inflammatory disease (PID) published in 2005 recommend an intramuscular cephalosporin in settings with high *Neisseria Gonorrhoea* (GC) prevalence. A previous local audit in 2006 of women diagnosed with PID revealed a prevalence of *Chlamydia Trachomatis* (CT) of 6.5%. No cases of GC were diagnosed when GC culture was the main method of detection.

We assessed all cases of PID presenting in 2009 for GC and CT prevalence after introduction of NAAT testing and concurrently we assessed records of commercial sex workers (CSW) presenting with PID during the same time period.

**Methods:** A database search of all female cases coded as C5, B5 and C4b and presenting to our centre between 1<sup>st</sup> January and 31<sup>st</sup> December 2009 was conducted. Date of diagnosis and previous diagnosis was confirmed by cross-linking coding records with pathology database. CSW were identified by local codes. Statistical test of two sample proportions were carried out.

**Results:** 550 women were coded as PID in our service in 2009. The mean age was 29 years with 31.8% less than 25 years. Women were from mixed ethnic backgrounds. 94 (17.1%) of women with PID were coded as CSW.

The prevalence of CT among non-CSW women diagnosed with PID (n=456) was 8.1% and 8.5% among CSW (p=0.89). The prevalence of GC was 2.1% and 1.1% among CSW (p=0.52). Only one CSW presented with PID and GC and her GC status had already been known before PID was diagnosed. There was no evidence for an important difference in prevalence of either infection between non-CSW and CSW attending the clinic.

Among non-CSW women 56.7% of those with CT and 50.0% with GC were under 25 year-old. Among CSW 75.0% of those with CT and 100% with GC were under 25 year-old. Of those diagnosed with CT 16.2% (non-CSW) and 25.0% (CSW) had a diagnosis of CT in the previous year.

**Conclusions:** A large number of women were diagnosed with PID in our service in 2009. The prevalence of CT was relatively high, while GC prevalence was only 1.9%. This raises the question whether routine administration of intramuscular cephalosporin is indicated in our cohort. Furthermore, surprisingly, there was no evidence for a difference in CT and GC prevalence between non-CSW and CSW.

P191

### Targeting chlamydia screening for maximum public benefit

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**Background:** The targets for Chlamydia are increasing on an annual basis. There is a belief that only when 35% of the at risk population undergo testing will the screening programme become effective at reducing the rates of infection in our population. There is a need to target efforts to those areas where the effect will be greatest.

**Method:** From the latest Office of National Statistics data we calculated the number of people eligible for Chlamydia screening in defined static geographic areas called major super output areas (MSOA).

We identified all those in the target age group who had undergone testing for Chlamydia. We included those tested at their GP, hospital out patient sites, Chlamydia screening and GU clinics. We matched those tested to their respective MSOA.

By subtraction we identified how many eligible people remain to be tested in each MSOA.

**Results:** These demonstrate that the number of eligible young people remaining to be tested in discrete MSOA's varies widely between just 307 untested to 1848 untested young people. The % age of young people who had been tested also varied widely between just 6% and 41%.

These results of eligible untested young people can be mapped with an overlay of Ordnance Survey and the location of general practice surgeries included.

**Conclusion:** Using these maps screening efforts can be targeted effectively to areas where there are many young people who have not yet been tested. We also demonstrate that although GU data is not permitted to be included in the chlamydia screening target there is sense in avoiding those areas that are well serviced by existing GU services as take up in them is likely to be poor. From a public health perspective we

can target efforts for maximum effect and thereby speed up the benefit to the population.

P192

### Testing of MSM for *Chlamydia trachomatis* and *Neisseria gonorrhoea* using nucleic acid amplification tests: current UK practice

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**Background:** Studies demonstrate that nucleic acid amplification testing (NAATs) perform well for detecting *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) from pharyngeal (PH) and rectal specimens (R) in men who have sex with men (MSM) although they are not licensed for testing at these sites. This survey was undertaken to establish the current use of NAATs to detect CT and GC among MSM attending genitourinary medicine (GUM) clinics in the UK.

**Methods:** An on-line questionnaire was advertised through BASHH networks to all UK GUM clinics inviting a lead clinician from each clinic to complete. Information regarding the testing platforms routinely used to test for CT and GC at different anatomical sites for different clinical scenarios was collected. Likert scales were used to identify barriers to the routine use of NAATs for CT/GC among MSM.

**Results:** Of 90 respondents, 42% were based in the Thames region and 9.6% in Scotland. The median number of total GUM and MSM attendances per year was 11000 (1500-130000) and 500 (30-11000) respectively. The most common platform used by clinicians was strand displacement amplification. For asymptomatic MSM, 38% reported using combined NAATs to test first void urine samples (FVU) for CT and GC. However, culture for GC was reported to be routinely used to test the majority of urethral, PH and R specimens (>88%) among symptomatic MSM. In all clinical scenarios routine use of NAATs to detect CT and GC from PH specimens was reported by less than 31% and 17% of clinicians respectively. CT and GC NAATs from R specimens were reported by more than 80% and less than 25% of clinicians respectively. Evidence was felt to be insufficient to support testing using NAATs to detect CT and GC from PH by 52% and 40% of respondents respectively and R by 10% and 29% respectively. Cost and additional work load for clinic and laboratory staff were not felt to be barriers to use. Overall, 32% reported either planning/considering introduction of routine NAATs testing for CT and GC. Over 40% said they would only use CT and GC NAATs from PH and R sites if advised by national guidelines.

**Conclusions:** Combined CT and GC NAATs are performed commonly on FVU specimens among asymptomatic MSM, however their use from extra-genital specimens and in other clinical scenarios is variable. Concerns regarding the validity of NAATs at these sites are commonly reported. National guidelines need to address the use of NAATs in specific clinical situations.

P193

### Is it necessary to perform a chest X-ray in patients with latent syphilis with no symptoms or signs of cardiovascular disease?

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**Background:** As part of the evaluation for cardiovascular involvement in late latent syphilis a chest X-ray is recommended as per BASHH Guidelines 2008.

**Aims and Methods:** The first part of this project was to conduct an audit at our department to see if the national guidelines were being followed. Notes dating back from 1994 to include patients with a diagnosis of late latent syphilis were audited to see if a chest X-ray had been requested.

The second part was to determine whether performing a chest X-ray was necessary in evaluating complications of late latent syphilis.

**Results:** To date 310 notes out of 596 have been reviewed. A chest X-ray was requested in 203 patients. One hundred and twenty six chest X-rays were reported as normal. Of these, 100 had a documented normal examination. Results were not available for 43, 4 patients declined and 18 defaulted. One chest X-ray showed dilatation of the ascending aorta and the patient had aortic regurgitation.

Cardiovascular complications of syphilis occur after a latent period of 15-30 years. These complications include aortic aneurysms, aortic insufficiency, coronary artery stenosis and rarely myocarditis.

**Discussion:** Previous reported findings indicate that calcification of the ascending aorta is a nearly specific sign of syphilitic aortitis. It rarely occurs in severe atherosclerosis and hypertension and if so is likely to be widespread and to occur only at a slight degree in the ascending portion of the aorta.

The current guidelines suggest that in evaluation of cardiovascular involvement a chest X-ray should be performed in late latent syphilis or if there are any signs of aortic disease. The previous studies have found calcification in the ascending aorta in patients who were symptomatic or had signs of aortic incompetence.

In view of the lack of positive chest X-ray findings in asymptomatic patients found in this audit there should be a change in the current guidelines to recommend that a chest X-ray be requested only if there are symptoms or clinical signs of cardiovascular disease.

P194

### Coordinating local chlamydia screening programmes to achieve the national target: learning from a community perspective

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**Background:** In 2007/08 the first charity coordinated Local Chlamydia Screening Programmes (LCSPs) began, with 9 LCSPs community coordinated by Mar 2008. This provides the chance to assess a different approach to LCSP coordination & identify policy issues ahead of separation of PCT commissioning & provision in 2010.

**Methods:** A review of screening numbers & audit of documentation & meetings within VCO coordinated LCSPs was undertaken between Aug 2007 & Dec 2008

**Results:** Performance 1. In VCO coordinated LCSPs activity lagged behind plan during the first two quarters 2. In the following quarters activity has increased to hit or exceed the 17% target in 6 of 9 PCTs 3. Average performance in the VCO coordinated LCSPs has been higher than in other Year 5 programmes. The HPA mid year performance for 2009/10 showed the average performance for the VCO is 11.2% of the 15-24 yo population screened, compared with an average performance for the NCSP of 8.6%. Average positivity rates for the VCO equalled 6.7% marginally above the national average. Experience 1. VCO coordinators experienced challenges in getting NHS providers to engage with LCSPs. These were greatest where local providers had bid unsuccessfully to coordinate the LCSP 2. VCO coordinators have fewer levers than schemes coordinated by PCT commissioners & a close working relationship with commissioners has been important 3. PCT expectations that VCOs should innovate encouraged the development of new approaches, eg, Screening Assistant outreach. 4. Payments 'per screen' proved effective in encouraging NHS & VCO provider performance. 5. VCO social marketing & media management experience proved of value in raising awareness of LCSP work with 15-24yos.

**Conclusions:** 1. VCO coordinated LCSPs are effective in achieving national CSP targets. 2. For maximum impact, the combined approach should be pursued of full use of a) PCT contractual levers & financial incentives b) coordinator innovation & leadership c) strong PCT performance management d) sharing of learning across partner organisations e) development of spoke settings to actively contribute to

targets. 3. The successful introduction of a VCO as LCSP coordinator needs change management by the PCT & VCO from the beginning. Alongside this partnership working across the locality needs to be developed & embedded. 4. The learning from this review has broader implications for LCSPs once PCT commissioning & provision functions are separated in 2010 & the effect of increased targets for 2010/11

P195

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### Going down under: chlamydial infection among young international backpackers in Sydney, Australia

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**Background:** Surveys have found that the sexual behaviour of many young travellers is high risk for STIs. Clinic-based prevalence of chlamydia among international travellers in Sydney has been higher compared with local Australians. However, no community-based prevalence study has been conducted. We aimed to determine the prevalence of genital chlamydial infection among a community sample of young international travellers staying in "backpacker" accommodation in Sydney and determine associations with chlamydia.

**Methods:** The study population was self-identified international travellers, aged 18-30 and staying in backpacker accommodation in Sydney. After completing a questionnaire in the hostels on socio-demographic characteristics and sexual behaviour, male participants provided urine samples and women provided self-collected vaginal swabs.

**Results:** Over 4 months in 2009, we recruited 225 men and 207 women who provided samples. Mean age was 24.0 years for the men; and 23.4 years for the women. The majority were residents of western European countries (50% from UK and Ireland), and had been travelling for an average of 4.9 months. Approximately 50% of both men and women who were approached, participated. A history of recent testing for chlamydia was the commonest reason given for declining participation. Approximately 40% of those recruited also reported having had a past test for chlamydia. During the previous three months, the mean number of sexual partners was 2.8 for the men (range 0-20) and 1.7 for the women (range 0-10). Seven chlamydial infections were detected in the men (prevalence 3.1%) and eight in the women (prevalence 3.9%). Many participants reported high alcohol consumption (men: mean of 3.8 standard drinks of alcohol per day, range 0-26; women mean 1.8, range 0-21). No statistically significant associations were found with chlamydial infection. The strongest associations were having had sex with a local Australian (OR 2.19,  $P=0.15$ ), and staying in a beachside backpacker hostel (OR 2.18,  $P=0.10$ ).

**Conclusion:** While the prevalence of *Chlamydia trachomatis* was lower than expected, sexual risk behaviour and alcohol intake was high in many participants. Future health promotion for this population could focus on both sexual and alcohol risks.

P198

### Is microscopy a useful tool for detecting STIs in local enhanced services?

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**Background:** Since the publication of the National Strategy for Sexual Health in 2001, local enhanced/level 2 sexual health services (LES) have

been introduced. In 2009, our level 3 service was commissioned by the local PCT to provide microscopy services for the 5 LES in our area, at a cost of £29,345 per annum. Microscopy of genital specimens provides point of care diagnosis of STIs, allowing prompt treatment and accelerated partner notification. However, its usefulness in patients presenting to LES has not yet been determined.

**Method:** Data were collected prospectively on patients attending the 5 LES between October and December 2009. Microscopy findings, treatment and KC60 code diagnoses made on the day of presentation were recorded. Notes were reviewed after 3 weeks and any changes in KC60 code diagnoses, in response to *N.gonorrhoeae* (GC) or *T.vaginalis* (TV) culture or *C.trachomatis* (CT) NAAT result, were documented.

**Results:** 126 patients were included. Gram staining and microscopy was performed on a urethral smear in 30/40 (75%) male patients and on a urethral, cervical and vaginal smear in 69/86 (80%) female patients. 7/29 (24%) male patients were found to have a urethritis ( $\geq 5$  PMNL per hpf). GC was seen on 2 of these smears. All male patients with GC/non-gonococcal urethritis (NGU) received treatment on the day of presentation. 1 patient with NGU was found to be CT positive on NAAT. No other male patients were subsequently diagnosed with CT or GC. 5 female patients received treatment for CT on the day of presentation but none on the basis of microscopy findings; 2 were diagnosed prior to attendance, 2 were CT contacts and 1 was attending after a sexual assault. 1 other female patient was found to be CT positive on NAAT. Microscopy of her genital specimens had been unremarkable and she had not received treatment on the day of presentation. No female patient was diagnosed with GC or TV on microscopy or culture.

**Conclusion:** Microscopy led to early detection and treatment of all male patients with CT or GC attending during the study period. No female patients were diagnosed or treated for an STI on the basis on microscopy findings. This suggests that microscopy may have some value in male patients attending LES. However, the financial cost of providing this service is prohibitive, with only 7 STI diagnoses during the study period at a cost of over £7000. 4 cases of CT-negative NGU were detected but the significance of this diagnosis is uncertain.

P199

### Repeat infection with *Chlamydia trachomatis* after treatment: a systematic review

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**Background:** The effectiveness of asymptomatic testing and treatment for *Chlamydia trachomatis* depends, in part, on the probability of repeat infection. We conducted a systematic review of published studies in order to describe the frequency of repeat infections observed in different populations and by different methods, and to identify risk factors associated with repeat infection after treatment.

**Methods:** Electronic databases including Medline, EMBASE and the Cochrane library were searched to identify relevant papers. Studies were included if they reported frequency of repeat infection following treatment. Inclusion was not restricted by country. Repeat infections were defined as diagnoses following a test of cure or  $\geq 3$  weeks after a prior diagnosis. Information was also collected on populations tested, diagnostic tests, treatments, partner treatment and the duration and methods of follow up.

**Results:** Thirty seven papers fulfilled the eligibility criteria and were included in the review. The proportion of people experiencing repeat infection following treatment in these studies ranged from 0% to 38%. Follow up varied hugely, both in total duration (from 2 weeks to 15 years) and in the frequency of testing within this time. Method of follow up, study type, and detection method, had little influence on the range of repeat infection frequency reported (active follow up 0% to 38%; passive follow up 7.2% to 26%; RCT/non-randomised intervention study 3.2% - 21%; prospective cohort 0% - 38%; Retrospective cohort 7.2% - 26%;

NAAT 0% – 26%; culture 1.5% – 38%; Mixed/other 5% – 18%). Younger age was significantly associated with repeat infection in 12 out of 26 studies which investigated risk factors.

**Conclusion:** Studies reporting the frequency of repeat infection with CT have not reported sufficient data on the follow-up period to enable calculation and comparison of rates of re-infection, and were too heterogeneous to allow meta-analysis. We will explore disaggregate data from routinely collected sources (GUM clinic reports and laboratory reported diagnoses) in order to further our understanding of rates of repeat infection.

## P200

### Workload, costs and outcomes for managing positive results and partner notification for chlamydia by telephone

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**Background:** Support with management of positive results and partner notification (PN) for a Chlamydia Screening Programme (CSP) was provided by Genitourinary Medicine (GUM) for a two month period in 2009 to enable the CSP to concentrate resources on increasing coverage to meet the screening target. The aim of this study was to measure workload and estimate costs as accurately as possible, to inform future planning and tariff setting. Quality was assessed in terms of patient treatment and PN outcomes

**Methods:** *Workload:* activities were recorded and timed by a health adviser and clerical officer for 57/90 positives referred February to April 2009. Categories included: clerical administration, results phone calls, provider referrals, follow-up phone calls to index patients and / or other services to verify treatment, and data management.

*Costs* included mid band hourly rates for a health adviser (band 7) and Clerical officer (band 3) including on costs (11%). Service overheads of 30% were added for building costs and consumables.

*Outcome measures* based on NCSP standards were: the percentage of patients treated within 30 days and the number of partners with clinician confirmed treatment per index case

**Results:** All 57 patients were informed of results by telephone. Eight subsequently attended GUM where further PN discussion took place face to face

This cost of £22.8 is comparable with costs estimated for NCSP venues of £24.2

Workload and costs: Table 1

Category	Average minutes per case	Average cost per case £
Administration	13.2	£2.3
Results/PN phone calls	15.9	£5.7
Provider referrals	3.4	£1.2
Follow-up phone calls	5.4	£1.9
Calls to other services	10.6	£3.8
Data management	7.4	£2.6
Staff costs per case		£17.5
Overheads per case		£ 5.3
Overall cost per case		£ 22.8

**Outcomes:** The percentage treated within 30 days was 55/57 (96.5%), compared with the NCSP standard of 90%. The number of partners with clinician confirmed treatment per case was 0.91 (52/57) compared with the NCSP standard of 0.6

**Conclusion:** Management of positive results and PN for the CSP by a GUM health adviser working mainly by telephone appears to be good value for money: outcomes exceeded NCSP standards; costs were modest, and comparable to CSP costs.

Collaboration between CSP and GUM should be considered to make the best use of resources and PN expertise.

## P201

### Antibiotic resistance profiles of *Neisseria gonorrhoeae*: a comparison of data 2007–2009

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**Objectives:** This was a retrospective analysis of antibiotic use and resistance profiles of *Neisseria gonorrhoeae* (GC) at a GU Medicine Clinic in the UK.

**Methods:** All cases of GC diagnosed at our clinic between 1<sup>st</sup> January – 30<sup>th</sup> June 2007 and 1<sup>st</sup> January – 30<sup>th</sup> June 2009 were identified. Using case notes, data was collected on age, ethnicity, sexual orientation, antibiotic treatment(s) used and antibiotic resistance profiles. The number of cases identified was 41 and 78 for 2007 and 2009 respectively. Data on diagnostic method was also collected from the 2009 cohort.

**Results:** 63% and 56% of patients diagnosed with GC were male in 2007 and 2009 respectively. Age and ethnic origin were similar between both cohorts. 19.5% and 8% were men who have sex with men (MSM) in 2007 and 2009 respectively. Amoxicillin and Probenecid was the most common antibiotic treatment used in 2007, whereas Cefixime was first line during the 2009.

In 2009, 36% of GC diagnoses were not confirmed by culture. Of these, 37% were positive by gram stain only and 59% were positive by Nucleic Acid Amplification Test (NAAT) only. 1 sample was positive by both gram stain and NAAT. Of those positive by NAAT alone, 75% were female and 47% had a concurrent positive *Chlamydia trachomatis* NAAT result. 69% of females and 80% of males diagnosed with GC were NAAT positive. Comparative data is not available for the 2007 cohort.

Antibiotic Resistance Profiles	2007	2009
Percentage of GC fully sensitive to antibiotic testing panel	46%	67%
Reduced susceptibility to 1 antibiotic group	27%	15%
Reduced susceptibility to 2 antibiotic groups	15%	10%
Reduced susceptibility to 3 or more antibiotic groups	12%	2%

**Conclusions:** This data suggests that the level of resistant gonorrhoea within our clinic has reduced between 2007 and 2009. This may reflect a change in first line antibiotics made following the 2007 audit. However, it could reflect the decreased proportion of MSM in the 2009 cohort. The 2009 data suggests a large proportion of patients diagnosed with GC are culture negative. This may reflect the high sensitivity of NAAT or a high rate of false positive NAAT and microscopy results. It is interesting that a large proportion of those positive by NAAT alone are co-infected or female. This area requires further investigation.

## P202

### Are you missing your *Trichomonas*?

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**Background:** Most clinics in the UK perform direct microscopy on a wet preparation to diagnose *Trichomonas* and enhance the sensitivity of their testing by using a second test. The most commonly used additional tests are either acridine orange staining and microscopy or culture. We aim to demonstrate the diagnostic cost of using acridine orange and propose a virtually cost neutral alternative to improve patient care for those who feel unable to move to culture.

**Method:** We reviewed the case notes of all patients diagnosed with *Trichomonas* at two GU centres. One uses acridine orange and the other uses culture as its second test.

**Results:** If we assume microscopy has equivalent sensitivity and both culture and acridine orange have no false positives. The sensitivity of acridine orange is  $37/67 = 55\%$  (95% CI 43–67%) compared to culture  $41/51 = 80\%$  (66–89%)  $p=0.004$ . Of note microscopy identifies additional women who are culture negative. This last surprising anomaly may be related to storage conditions that we will discuss further. Culture identified an additional 37% and acridine orange identified an additional 18% of cases that would have been missed by wet prep microscopy alone. We calculate that 19% (37–18) more true infections would be detected using culture alongside microscopy.

	First centre N = 67		Second centre N = 51	
	AO positive	AO negative	Culture positive	Culture negative
Direct microscopy positive	25 (37%)	30 (45%)	22 (43%)	10 (20)
Direct microscopy negative	12 (18%)	2929	19 (37%)	

**Conclusion:** Culture appears to be a better additional test to use. In areas where cost would be prohibitive we advocate at least those with persistent symptoms should undergo culture as their second test.

## P203

### Case report: asymptomatic LGV detected from the pharynx of a London MSM

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**Case:** A 26-year old man who has sex with men (MSM) from London presented in April 2009 with rectal discharge and constipation. He denied symptoms of urethritis or sore throat. Sexual history included recent protected anal and unprotected oral receptive and insertive sex with casual male partners. He was HIV-positive on antiretroviral therapy with a CD4 count of 627 cells/uL and HIV viral load <40copies/ml.

On examination he had florid proctitis with haemopurulent exudate. A sexual health screen was conducted including rectal, urine and pharyngeal specimens for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* RNA using the Gen-Probe Aptima Combo 2® (AC2) assay. He was treated for proctitis with cefixime 400mg stat and a 21-day course of doxycycline 100mg bd. The rectal AC2 swab was positive for CT and pharyngeal AC2 showed an equivocal CT result. Both specimens were sent to the Sexually Transmitted Bacteria Reference Laboratory and both had lymphogranuloma venereum (LGV)-specific DNA detected. Tests for syphilis and herpes were negative. His rectal symptoms resolved with treatment and a pharyngeal CT test of cure at 6 weeks was negative.

**Discussion:** LGV has re-emerged as a significant sexually transmitted infection in MSM in the UK where most cases have been rectal with fewer from inguinal sites. This is the first documented case of LGV-associated CT DNA detected from the pharynx in the current outbreak. Reported risk factors for LGV acquisition suggest that transmission is predominantly rectal-to-rectal via intermediate carriage on hands or fomites. This case highlights possible transmission via orogenital contact. In the UK, CT serovar typing is only performed on specimens from patients with clinical syndromes suggestive of LGV. Pharyngeal CT infection seems to be mostly asymptomatic and whilst urethral and rectal CT testing is generally offered to UK MSM, pharyngeal CT screening is not routine. Past studies suggest that oropharyngeal screening for CT is not worthwhile due to low prevalence, although in high risk MSM this site may act as reservoir for CT and possibly

LGV. Currently, no nucleic acid amplification tests (NAATs) have FDA approval for diagnosis of pharyngeal CT, and only culture or direct fluorescent antibody testing is recommended. This case illustrates that NAATs may be useful in detection and typing of pharyngeal CT. There are no guidelines for treating pharyngeal CT or LGV infection but in this case infection responded to standard LGV therapy.

## P204

### Chlamydia trachomatis screening practices at military bases in England

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**Background:** In England the National Chlamydia Screening Programme (NCSP) provides screening and treatment for under 25 year olds for chlamydia, including military personnel at English bases.

**Aims:** To review chlamydia screening practices in a convenience sample of military bases in England and to estimate coverage at these bases in order to formulate recommendations for screening of chlamydia in the Armed Forces (Army, Royal Navy and Royal Air Force).

**Methods:** Semi-structured telephone interviews were conducted with medical centre directors at 11 military bases to assess chlamydia screening services in 2009. Screening coverage at these bases was calculated using routine NCSP data (April 2008–March 2009) and Ministry of Defence estimates of population of all ages at the bases – the best available data. Coverage was analysed by the training phase of each base and by screening practices.

**Results:** At the majority of bases (7/11) screening was conducted primarily at events and fairs and not through standard medical practice, although no significant difference in coverage was found depending on the method of service delivery. Coverage was significantly higher in Phase I basic training bases (median 57.8%, range 6.2–84.9%) compared to Phase II advanced training bases (median 3.2%, range 0.9–7.8%), ( $p \leq 0.05$ ). The majority of military medical centres offered a results service (7/11) and treatment (8/11) onsite. However, the provision of follow up services by the military, including partner notification (1/11), was limited.

**Conclusion:** A wide variation in screening practices and follow up services was found among the 11 bases, with a high reliance on screening through special events. High estimated coverage at Phase I bases highlights the practical opportunities they offer for screening as well as the provision of other sexual health services within military settings. The sustainability and long-term effectiveness of relying on such events needs further review. The lack of follow up services, including partner notification, at bases should be addressed.

## P205

### Do patients with diabetes have a harder time with genital warts?

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**Background:** There is a perception among Genitourinary physicians that genital warts are more common and often more difficult to treat in patients with diabetes. The current study was therefore set up, firstly to see if genital warts was more common in our patients with diabetes than in the general population and secondly to see whether female patients with diabetes and genital warts required more treatment than patients without diabetes.

**Methods:** We identified all patients with genital warts diagnosis through KC60 coding within a selected time frame and looked through

the case sheets to determine if the patient was also diabetic. Data collected on the patients were then compared to other audit data on patients with warts.

**Results:** 12 out of 562 patients had diabetes. The median age is 32. Genital warts seem to be more common in older age group. 8 out of 12 of the patients with diabetes had moderate to extensive number of warts. The non diabetic cohort tended to have single or few warts. 41% (5 out of 12) of the diabetic patients had perianal involvement in comparison to 12% of the non diabetic population. 60% of the diabetic patients took 12 weeks or less to clear their genital warts. 40% of patients took more than 3 months, with a clearance time ranging between 20 to 28 weeks. 1 patient has yet to clear her warts and requires surgical resection but due to her co morbidities and extensiveness of warts, requires a defunctioning colostomy and major flap surgery. The majority patients took less than or 3 visits to completely clear their warts for an episode. Number of visits to clearance of genital warts in patients who took more than 12 weeks was not reflected in the number of visits due to modality of treatment.

**Conclusions:** The incidence of diabetes in our patients with genital warts was 2%. This incidence is lower than the general population (4–5%). It does not suggest that patients with genital warts have a higher rate of diabetes. Although the number of diabetic patients in our study is small, these data suggest that patients with diabetes did far worse than the non diabetic patients. They had more extensive disease and recurrences, required more treatments and in some cases the warts lasted for a prolonged period of time. It seems that the cost for treating genital warts in diabetic patients is higher. There may be some role in considering the quadrivalent vaccine Gardasil when patients attend Diabetes Young Person's clinic for preconception planning.

## P206

### Effective use of the TIC or Treponemal Infection Care audit tool, devised to optimise the management of syphilis in a GUM clinic

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**Background:** To audit the management of syphilis in a GUM clinic according to National BASHH guidelines using the "TIC" or "Treponemal Infection Care" audit tool devised by our clinic.

**Method:** The case notes of patients diagnosed with all stages of syphilis over 18 months from 01/01/2008 to 30/06/2009 were reviewed. At the time of diagnosis, the departmental TIC proforma was filled-in and attached to the inside cover of case notes. This proforma details BASHH auditable outcomes including VDRL on diagnosis, details of treatment given, VDRL results at subsequent visits and contact tracing outcomes. The proforma is subsequently updated at each further appointment.

**Results:** Case notes of all 83 patients diagnosed with syphilis during the audit period were reviewed. No cases of neurosyphilis were diagnosed during the audit.

All patients had a baseline VDRL titre at the start of treatment (target 100%) and 97% of diagnosed patients completed treatment (target 95%).

We judged 'response to treatment' according to the decrease in VDRL. A minimum of a four-fold titre decrease in the VDRL was demonstrated by within three to six months after treatment in 46 (56%) patients. However 19 (23%) patients failed to return for their VDRL tests before they had achieved the criteria of a response to treatment, despite repeated attempts to contact them by letter and telephone. The remainder either transferred their care to another provider (12%) or were not due for follow-up VDRL titres at the time of writing (9%).

Fifty-four patients had at least 50% of their partners documented as traceable. Of those who were contactable 100% attended for screening or treatment (Target: 60%).

**Conclusion:** Our department achieved greater than the BASHH auditable outcome targets. The 'Treponemal Infection Care' proforma greatly facilitated the ease of audit and is a valuable tool in the clinic setting. Further action is required to highlight the importance of follow-up VDRLs to patients. Additional appointment reminders in both text and paper form are being devised.

## P207

### Imiquimod 5% use in adolescents – unlicensed but effective

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**Background:** Imiquimod 5% is an immune response modifier that is widely used in genitourinary medicine clinics as a home therapy and is popular with patients. It is however, only licensed in the United Kingdom in adult patients (18 or over). There is a paucity of evidence on tolerability in the use of Imiquimod on patients aged under 18 for treatment of genital warts. With such a huge case load of genital warts it is inevitable that medical staff use Imiquimod in this group, although it is unlicensed. We reviewed our use of Imiquimod in a group of adolescents to look at tolerability, outcome and success rates.

**Methods:** We chronologically selected 50 patients who are diagnosed with genital warts and under 18 years of age, who had been prescribed Imiquimod.

**Results:** Patients were an age range of 13 to 17 with the majority being 17 years old. Three patients were diabetic. Majority of patients required 1 to 2 boxes of Imiquimod for complete clearance of genital warts. Imiquimod alone was the first treatment choice in 21 cases and in two cases were used at the same session in conjunction with cryotherapy or trichloroacetic acid. 45 out of 50 patients were successfully treated with Imiquimod and only 3 reported any recurrence since. Only 5 patients were unable to tolerate Imiquimod and switched to alternative therapy. However, all 5 rapidly cleared their warts with further alternative treatment. Of the 45 patients successfully treated with Imiquimod, 66% had full clearance in less than two months and 86% had full clearance in less than six months. The side effects were as expected using Imiquimod. Of the 45 patients, three reported slight soreness, one patient noted headaches after Imiquimod use. These patients continued with the treatment until wart clearance.

**Conclusions:** Our review showed Imiquimod to be just as effective in the under 18 population. It is remarkable that so many of the patients cleared with just one box of Imiquimod and almost 70% were clear within two months. Combining destructive therapy like TCA or cryotherapy with Imiquimod treatment can speed up the process but is often unnecessary. The five patients who experienced significant erythema from Imiquimod may, of course, still have benefited from the treatment, as all five patients who went on to have further therapy with other treatment modalities cleared within three months of first visit.

## P208

### Missed opportunities for chlamydia screening: an audit of community pharmacy activity

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**Background:** Community pharmacies (CP) are a potentially popular location for *Chlamydia trachomatis* screening (CS) due to easy access for young people, availability of skilled health professionals and existing delivery of sexual health services such as emergency hormonal contraception (EHC) for young women. Young women aged under 21

years are eligible for free EHC from pharmacies in Greenwich, London. The same women are suitable for participation in the National Chlamydia Screening Programme (NCSP) due to their age and potential exposure of unprotected sex. The uptake of self-administered postal Chlamydia screening kits by women receiving free EHC in Greenwich, was audited to gauge the success of screening in CP.

**Method:** A retrospective audit of the 1<sup>st</sup> financial quarter of 2009–2010 was undertaken of CP documentation for free EHC. These documents were examined for evidence of offers and acceptance of CS kits. This was related to numbers of returned screening kits, as recorded in the CS database.

**Results:** In the time period studied, 215 EHC doses were dispensed free to young women in Greenwich. Of these, only 12 (5.9%) women were documented as being offered CS kits. Only 8 accepted kits, equivalent to 12% of all women receiving free EHC. Overall, only 7 CS kits were received, representing 3.5% of all women receiving free EHC.

	Total Women receiving free EHC in CP	Women offered CS kit	Women accepting CS kit	Returned CS kits
number	215	12	8	7
% all women receiving free EHC in CP	100	5.9	4	3.5

**Conclusions:** This audit has indicated that only a small proportion of free EHC users are offered CS kits and a much smaller proportion return CS kits. This represents significant missed opportunities for CS in young women who are sexually active and accessing healthcare. These findings may help explain the low contribution of CP to Chlamydia screening nationally, and indicates significant missed opportunities for improving CS uptake. Our next steps will be to implement changes to promote CS among pharmacists, through education and alterations to local EHC service specification and monitoring arrangements. We will then aim to re-audit provision of CS kits to women receiving free EHC in CP, to evaluate the success of this approach.

## P209

### "She came in my eye" – a case of chlamydia conjunctivitis following female-to-male direct contact into affected eye

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**Introduction:** *Chlamydia trachomatis* is a well known cause of conjunctivitis in adults. Non-specialist often overlooks its significance as a sexually transmitted infection.

Majority of the conjunctivitis caused by *Chlamydia* in sexually active young adults are thought to be due to autoinoculation from the genital secretions. Recently four cases of chlamydial conjunctivitis occurred following ejaculation of semen directly into the affected patients eyes by their male sexual partners were reported.

We report a case of Chlamydia eye infection occurred following direct contact of sexual secretion from female to male affected eye.

**Case:** A 25 year old male patient attended requesting for sexual health screening as advised by local eye clinic, where he was seen 5 days ago with history of red eye on right side. Patient told eye clinic that Vodka spilled into his right eye and, it became red and sore a day later. However he informed GUM clinic that his female partner "ejaculated in to his right eye" during oral sex. On examination mild partial ptosis of right eye noted with conjunctivitis. Review of clinical notes from eye clinic indicated unilateral follicular keratoconjunctivitis and the possibility of Chlamydia eye infection was suspected even without clues from sexual history due to strictly unilateral symptoms. This patient's eye swab was

reported as *C. trachomatis* strand displacement assay (SDA) detected and confirmed positive on repeat SDA testing. He was tested negative for chlamydia on the first void urine sample. The regular female partner was tested positive for chlamydia on endocervical swab with SDA testing. Patient was treated with doxycycline 100 mg twice a day for 7 days and made a good recovery of eye symptoms and partner was given azithromycin 1 g stat.

**Discussion:** An association of chlamydia eye infection and oral sex has been reported before, however we are not aware of any reported cases of Chlamydia conjunctivitis due to direct inoculation from female secretion into affected eye of a male partner. It is interesting to note patient gave two different histories in different specialities but the possible cause was suspected on classical presentation even without proper clues.

We suggest that detail sexual history should be part of diagnostic work up of patients with unilateral conjunctivitis in sexually active adults.

## P210

### A second audit of improved management of syphilis – closing the loop

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**Background:** Performance against auditable outcome measures outlined in the revised syphilis guideline 2008 was presented at BASHH/ISSTDR 2009 (87 cases). Three outcome measures were achieved and two were not achieved. We achieved only 71% for the required four-fold drop in dilution of VDRL/RPR (79% for HIV positive [+ve] patients and 67% for HIV negative [-ve] patients). The contact tracing standard of 60% was narrowly missed at 55% (64% was achieved when index patients were HIV+ve and 52% when indices HIV-ve). Results were better for HIV +ve patients as they were regularly re-attending the department for their HIV care anyway, but less good for the HIV -ve patients who were failing to re-attend for follow up. We designed a case-note proforma for HIV-ve patients with the aim of increasing follow up attendance. We then undertook a second audit to see whether this simple change in practice had resulted in improved patient outcomes.

**Methods:** A retrospective case notes review was undertaken for all HIV -ve patients diagnosed with syphilis from 1 February 2008 to 1 December 2009.

**Results:** A total of 28 (18 male: 10 female) cases were reviewed in the second audit (one patient did not have a proforma completed). Overall 9 were men who have sex with men and 19 were heterosexual. Early syphilis was diagnosed in 18, late syphilis in 10 and there were no cases of neurosyphilis. The table shows the auditable clinical outcome measures, comparing the results of the first audit with the second audit.

Outcome Measures	Audit 1 (N = 87)		Audit 2 (N = 28)	
VDRL before treatment	100%	Achieved	100%	Achieved
Resolution of lesions	100%	Achieved	100%	Achieved
Treatment completed	100%	Achieved	100%	Achieved
4X drop/serofast/neg VDRL	71%	Not achieved	100%*	Achieved
60% contacts seen/ treated	55%	Almost	76%**	Achieved

\*25/25 achieved, three moved away (confirmed)\*\* 28/37 traceable partners seen

**Conclusions:** The value of audit is to measure performance against set standards and if there is failure to meet those standards to identify how to change practice in order to improve performance. The first audit demonstrated that we were only achieving three out of five auditable outcomes. The simple measure of adding an A4 proforma into the case notes to track/improve patient follow up has translated into achieving five out of five auditable outcomes and, more importantly, improved patient outcomes.

P211

### If you don't take a temperature you don't find a fever! Rectal chlamydia in an urban clinic for MSM

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**Background:** Little is known about the prevalence of rectal Chlamydia infection amongst men who have sex with men. Previous studies using culture taken under proctoscopy suggested a prevalence of between 4–6%. The use of nucleic acid amplification tests has significantly increased the sensitivity and specificity of Chlamydia detection. Although these tests are not licensed for rectal sampling they give us an opportunity to estimate the prevalence of rectal CT more accurately.

**Method:** A prospective cross sectional study involving 107 MSM attending an urban clinic for MSM generated 111 samples over a 5 week period in 2008. Rectal swabs were obtained on all attendees at an evening clinic there. A "blind" swab was taken using the abbot multi-collect, along with routine STI screening. These samples were processed in the microbiology labs of a large urban teaching hospital. Those with rectal Chlamydia were treated with Azithromycin 1g Stat and invited to attend for a Test of Cure.

**Findings:** Rectal Chlamydia was isolated in 10 (9.3%) of the 107 individuals sampled. Of those who tested positive for Chlamydia none presented with rectal symptoms, 5 (50%) was diagnosed with a concurrent STI, only 3 (30%) were diagnosed with concurrent urethral Chlamydia, one of whom (10%) was given his primary HIV diagnosis at this presentation.

**Conclusion:** With a prevalence of 9.3% Rectal Chlamydia was the most common STI diagnosed. As all patients were asymptomatic, I would recommend all MSM be offered screening for Rectal Chlamydia.

P212

### Reasons for low uptake of chlamydia screening in Tameside

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**Background:** The uptake of chlamydia screening across Tameside remains low. Chlamydia screening is undertaken in all young people's (9 sessions) and Family Planning (8 sessions) services. The target of 17% for 2008/09 was achieved through many short-term initiatives. To meet the challenge of a 25% target for 2009/10, 1500 cases would need to be screened. To improve uptake rate, new initiatives such as 3 additional sessions at the local college were introduced.

**Aims:** To identify reasons for declining chlamydia screening.

**Methods:** Ethics Committee approval was not needed. To monitor the uptake rate, performance management of all main stream services was introduced. The performance management takes the form of weekly data collection on the number of under 25 attendees (except GUM), the number offered a screen, who declined a screen and the reasons for declining

**Results:** A total of 3744 young people attended. Screening was offered to 98% (3663) cases, of whom 75.6% (2769) declined and 24.4% (894) accepted. Data on reasons for declining was available for analysis on 936 cases.

**Summary:** This survey highlighted that the chlamydia screening uptake rate in Tameside continues to be low (24%). Over 2/3rd (70%) of people declined screening because they did not perceive themselves at further risk since last test. In other words, the same clients re-attended these services and a proportion of young people are not in contact with the system. Introduction of an "opt out" policy for screening all young people attending the services is being considered. In this population, screening on each visit would neither have the desired impact of the screening programme nor be cost effective. Currently there is no guidance on the screening interval and criteria on re-screening in the national programme. Incentives to improving uptake among 15% of attendees who declined because

either they were in a hurry (9%) or were not interested (6.5%) would be a better approach.

Table 1: Reasons for declining chlamydia screening

	Number (%)
No change of partner since last test	539 (58%)
Had a test in the last 6 weeks	117(12.5%)
Not sexually active at present	85(9%)
In a hurry	61 (6.5%)
Not interested	68 (7%)
Other	66 (7.0%)
Total	936 (100%)

**Conclusions:** We need to find better ways to reach young people particularly who do not attend all mainstream services through initiatives such as local campaigns, introduction of on-line service, new incentives and more involvement of GPs and Pharmacists.

P213

### Acceptability of self-taken vaginal swab in an asymptomatic clinic

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**Background:** A Health care Assistant (HCA) led asymptomatic clinic was set up in the sexual health clinic for female patients using self-taken vaginal swabs to screen for gonorrhoea and chlamydia by NAAT testing. Women eligible for asymptomatic screening when initially offered this quicker clinic were not aware that they would have to take their own swabs rather than a Health care worker (HCW) take it for them. This study was designed to assess if this method of screening was acceptable to the women presenting to this clinic.

**Methods:** A questionnaire survey was administered to the first 100 female patients seen from Sept 2009 in this clinic. The questions related to preferences for swab taking by the women, whether they thought they had been given enough information about a self taken vaginal swab, whether they would recommend the clinic to others and questions about the time it took to be seen in clinic.

**Results:** All 100 questionnaires were completed and showed 69 (69%) of respondents preferred taking their own swab, 29 (29%) did not express a preference for a traditional HCW-taken swab or for a self-taken swab and only 2 (2%) preferred a HCW-taken swab. Almost all the women (99%) felt they were given enough information to take the swab correctly themselves. Most (98%) of the women would recommend self-taken swabs to other members of the public and 2% were unsure.

**Conclusion:** A Self-taken vaginal swab is an acceptable method of screening asymptomatic women for gonorrhoea and chlamydia. Providing women with enough information about taking a vaginal swab themselves both verbally and via leaflets may increase uptake and acceptability.

P214

### Case report of a rare complication of Neisseria gonorrhoea eye infection

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We present a case of severe *Neisseria gonorrhoea* (*N. gonorrhoea*) conjunctivitis associated with corneal perforation of the right eye in a 25 year-old homosexual man.

**Background:** Conjunctival *N. gonorrhoea* infection may closely resemble conjunctivitis of another aetiology and often presents to non-GUM settings where sexual histories are not routinely taken.

*N. gonorrhoea* is unlikely to be sensitive to standard bacterial conjunctivitis antibiotics and treatment delay can result in sight-threatening complications.

**Case Report:** A 25-year-old man presented to eye casualty with a three-day history of right eye irritation and discharge.

He was diagnosed with a chemical eye injury and treated with dexamethasone, cyclopentolate and chloramphenicol drops.

He re-presented 7 days later with an increasingly painful eye. Examination revealed: intense corneal injection; copious pus; corneal abscess, melt and perforation. Vision was 6/36 unaided.

Culture results had revealed *N. gonorrhoea* and the patient was referred for sexual health screening which found concomitant urethral *N. gonorrhoea*; urethral *Chlamydia trachomatis* and HIV-1 infection.

He was admitted for intensive intravenous and topical antibiotic therapy and underwent corneal grafting on day 7 of admission.

He was followed up closely in outpatients and vision improved to 6/18 unaided. His CD4 count was measured at 180 (22%).

**Discussion:** *N. gonorrhoea* conjunctivitis can lead rapidly to corneal ulceration and perforation. It is not readily associated with genital symptoms by patients who often present outside of GU clinics (e.g. A&E, GP, pharmacies).

Fortunately, this patient attended a specialist eye hospital where identification was relatively prompt and sight-saving corneal grafting was available.

GUM physicians must be aware of this severe complication and involve ophthalmologists early. Moreover, a copious mucopurulent conjunctival discharge should always prompt sexual history taking and consideration of *N. gonorrhoea* infection.

## P215

### Compare and contrast – a comparison of the demographics of patients diagnosed with either syphilis or gonorrhoea in a GUM clinic

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**Background:** To compare the demographics of those diagnosed with either syphilis or gonorrhoea in a GUM clinic in order to optimise health promotion strategies.

**Method:** The case notes of those diagnosed with gonorrhoea or syphilis for 18 months from 01/01/2008 to 30/06/2009 were reviewed.

**Results:** Eighty-three diagnoses of syphilis and 213 of gonorrhoea were made over the study period. All case notes were reviewed. Ten patients were diagnosed with both infections, 3 of whom also had HIV.

Those diagnosed with syphilis were more likely than those with gonorrhoea to be male (92% vs. 64%,  $p < 0.001$ ), men who have sex with men (MSM) (83% vs. 23%,  $p < 0.001$ ), and be co-infected with HIV (29% vs. 4%,  $p < 0.001$ ) respectively. Those diagnosed with gonorrhoea were on average younger (mean 28 years vs. 35 years,  $p < 0.001$ ) and had fewer sexual partners (mean 1.7 vs. 2.6 contacts per patient,  $p < 0.001$ ) than those diagnosed with syphilis. The majority of patients were born in the UK with no significant difference between the nationalities of those diagnosed with either infection.

Of those patients diagnosed with syphilis who had HIV, 30% practiced unprotected oral intercourse only as they felt this was a safe sex practice.

**Conclusion:** This comparison demonstrates marked differences in the demographics of those diagnosed with syphilis as compared to gonorrhoea in our clinic. Local health promotion strategies aimed at gonorrhoea prevention should advise safe sex in all patients attending the clinic. Strategies need to target syphilis awareness amongst MSMs, especially those already diagnosed with HIV, highlighting oral sex as a route of syphilis transmission and continuing to promote condom use.

## P216

### Is persistent NGU a thing of the past?

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**Background:** Following adoption of the recommendations in the updated BASHH NGU guideline of December 2008 doctors at our clinic noted seeing very few cases following treatment for NGU. Prior to this guidelines publication all patients diagnosed with NGU at our clinic were treated with a one week course of doxycycline and asked to attend for a follow-up urethral smear regardless of symptoms. We decided to formally assess whether changing to treatment with a stat dose of azithromycin and only asking those patients who reported symptoms at telephone follow-up to re-attend had an impact on our diagnosis of persistent NGU or on contact tracing.

**Method:** A retrospective case note review of 50 male patients diagnosed with C4H before and 50 after the change of clinic practice was undertaken.

**Results:** results are summarised in the table below

Management	Doxycycline therapy and urethral smear performed at clinic follow-up (n=50)	Azithromycin therapy, initial phone follow-up then clinic attendance for urethral smear if symptomatic (n=50)
Age range	17-59 years	18-52 years
Symptomatic at initial presentation	24	27
Other STI's	6	3
Patients attending or phoning for followed up	40	37
Patients with symptoms of NGU at follow-up	0	3
Patients who attended clinic after phone follow-up recommendation	Not applicable	0 (of 3)
Persistent NGU diagnosed	6	0 (P= 0.012)
Contacts treated at GUM	25	21 (P=0.654)

**Conclusions:** Our study has shown a significant reduction in the diagnosis of persistent urethritis following the adoption of new NGU guideline recommendations. It is interesting to note that persistent urethritis was diagnosed in asymptomatic patients routinely having urethral smear at follow-up and that those patients initially followed-up by phone failed to reattend even when they had persistent symptoms. Both these factors would conspire against making a diagnosis of persistent urethritis under current recommendations. We are encouraged to see that telephone follow-up did not appear to adversely affect rates of successful contact tracing. This study indicates that cases of persistent urethritis following treatment for NSU will remain undiagnosed when current guidelines are followed; however the clinical significance of this remains a subject of debate.

## P217

### Managing lichen sclerosus – how well do we do?

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**Background:** Lichen sclerosus is a chronic inflammatory skin condition. Presenting features vary and the condition may remain undetected for a long period of time. If untreated, the condition can lead to long term problems. The condition requires careful management and long-term ongoing monitoring as there is a risk of developing squamous cell carcinoma. Patients may present to different specialties, including dermatology and genitourinary medicine (GUM). In some units joint

specialist clinics are available involving GUM and dermatology. We aimed to evaluate the practice of different services against the available national guidelines from the British Association of Dermatologists (BAD) and the British Association for Sexual Health and HIV (BASHH).

**Methods:** We conducted a retrospective audit on patients with lichen sclerosus seen within 3 clinical areas - GUM clinic, a joint specialist GUM/dermatology clinic, a single vulval dermatology clinic. The management was audited against that recommended in national guidelines and between clinical areas.

**Results:** Case notes from 40 men and women from the GUM clinic and joint specialist GUM/dermatology clinic and 20 women from the vulval dermatology clinic were identified for inclusion in the audit. Patients were aged 17-81 years and were predominantly white, British ethnicity. Most patients (85%) had the benefit of specialist dermatology input. Almost 50% of those who were seen exclusively in the GUM clinic did not receive a standard treatment regime with an ultra-potent topical corticosteroid. In many cases an autoimmune screen was not performed. A biopsy was performed in all cases which were unresponsive to appropriate treatment. Follow-up arrangements were in place for over 90% of patients. Documentation of advice given to patients was low at 25% in the GUM clinic, compared to over three fold that rate in specialist services.

**Conclusion:** Specialist care of patients with lichen sclerosus enhances their management and joint specialist clinics can facilitate this. Training elements for the GUM service have been identified and improved patient information and documentation is required to improve the quality of care. Ways to address this have been introduced.

#### P218 Problematic partner notification for gonorrhoea in a city GUM clinic

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**Background:** To audit the management of gonorrhoea in a GUM clinic according to National BASHH guidelines.

**Method:** The case notes of those diagnosed with gonorrhoea for 18 months from 01/01/2008 to 30/06/2009 were reviewed.

**Results:** 213 patients were diagnosed with gonorrhoea during the audit. All case notes were reviewed. Two hundred and seven (97%) cases of gonorrhoea were cured by first line therapy (Target >95%). All patients with gonorrhoea were screened for genital infection with *Chlamydia trachomatis* (Target 100%). All patients identified with genital gonorrhoea had at least one documented interview with a health adviser or other health professional trained in partner notification and their action was documented (Target 100%). Only 129 (61%) had at least 0.6 sexual partners verified as having been satisfactorily managed within four weeks (Target 100%). A further 32 (15%) had 0.5 sexual partners contact traced. Guidelines state that the suggested rate of management of 0.6 sexual partners may not be achievable in city-based departments. All partners for whom treatment could not be verified were untraceable by conventional partner notification methods. Only 122 (57%) of patients identified with gonorrhoea were documented as having received written information about sexually transmitted infections and their prevention (Target 100%). Leaflets are handed out to those diagnosed with gonorrhoea as standard practice within the clinic but staff may have omitted to document their action, having not previously been aware that this was an auditable outcome within BASHH guidelines.

**Conclusion:** 100% of treatment and screening targets were attained by our clinic. Partner notification was significantly below the target despite the best efforts of the department. BASHH guidelines continue to provide a gold standard which help to optimise clinical care. Following this audit, our history proforma has been altered to ensure provision of written information is documented as evidence of good practice.

#### P219

#### Rectal chlamydia: an underdiagnosed infection in MSMs attending a busy urban genito-urinary medicine clinic

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**Objective:** To determine the number of rectal chlamydia screens carried out in men who have sex with men (MSM) attending a busy urban sexually transmitted infections (STI) clinic, between the 1st January 2005 and the 30th of June 2009. Also to determine the prevalence of rectal chlamydia (CT), the indication for screening, concurrent STIs and HIV status in the patients tested.

**Methods:** A retrospective analysis of all MSM screens sent from the clinic was carried out. All positive rectal chlamydia samples were identified and the medical notes were reviewed to determine the indication for rectal CT testing, HIV status and concurrent STDs.

**Results:** A total of 1991 MSM STI screens were carried out. 310 (15.6%) were tested for rectal CT. Of those tested, 33(10.6%) were positive for rectal CT. The majority, 22/33(67%) were asymptomatic. Only 2/33 (6%) had concurrent urethral CT. However 32/33 (97%) had a concurrent STI. 12/33 (36.3%) were HIV positive.

**Conclusion:** Our data shows a high prevalence of rectal CT in the cohort of MSM's screened, the majority of which were asymptomatic.

It identified that routine rectal CT screening has not been carried out on this population, but would now be recommended.

We also identified a high rate of rectal CT occurring with concurrent STD's, including HIV.

#### P220

#### Screening for chlamydia and gonorrhoea in abortion services – an opportunity not to be missed

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**Background:** Bacterial sexually transmitted infections (STIs) are risk factors for post-abortion infection. We report the preliminary outcomes of a partnership between charity abortion organisation BPAS (British Pregnancy Advisory Service) and an NHS genito-urinary medicine (GUM) provider to introduce routine screening for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoea* (GC) into abortion services.

**Methods:** Training on STIs for BPAS staff and advice on guideline development was provided by a South London GU Medicine clinic. Women < 25 years old from Lambeth, Southwark or Lewisham Primary Care Trusts attending BPAS were offered GC and CT screening of self-taken vulval-vaginal swabs by nucleic acid amplification tests (NAATs; Roche Diagnostics). This was introduced into the service on 16<sup>th</sup> August 2009. Women having abortions were treated prophylactically with 1g azithromycin and those having surgical abortions also received 1g metronidazole. Results took 3-4 working days. Women with positive results were contacted by telephone and those with GC were treated with 400mg cefixime. Partner notification was performed. Demographic and obstetric history was extracted from an electronic database. Those accepting/declining tests and those with positive/negative CT results were compared.

**Results:** Preliminary data from 16<sup>th</sup> August – 31<sup>st</sup> December 2009: 234/431 (54%) eligible women were offered screening. Basic demographics of this cohort: 27% Caucasian, 27% Black African and 17% Black Caribbean, 42% GP referral and 35% self-referral, 27% had a prior abortion. 212/234 (90%) accepted testing. 11 tests were unprocessed due to handling errors and 27(13%) were equivocal. Of tests with definitive results, 14/174 (8.0%) were CT positive and 5/174(2.9%) GC positive, with dual infection in 3 cases. Partner notification was successful in 5/5 GC cases and 12/14

CT cases. There were no significant differences in age, ethnicity, referral source or obstetric history in women who accepted or declined tests, or in those who had positive or negative results.

**Conclusion:** Increased collaboration between independent and NHS agencies potentially enables improved screening for STIs. Routine screening for CT has been demonstrated as feasible in inner-London termination clinics. The prevalence of CT and GC in this setting is significant. The opportunity to screen for both infections with NAATs and ensure partner notification should not be missed.

## P221

### Ten years of syphilis – what have we learnt?

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**Background:** Cases of infectious syphilis have increased dramatically since 1997 with outbreaks occurring predominantly amongst men who have sex with men (MSM) in major cities. Management has evolved during the epidemic. Local outbreaks provide insight into factors underlying the changing UK epidemic.

**Method:** Retrospective case note review of all syphilis infections in a teaching hospital Genito-Urinary Medicine clinic in one of the syphilis endemic cities from 1999 to 2009. Data including demographics, stage of infection, HIV testing, contact tracing, treatment and serological outcomes were collected.

**Results:** In 1999 there were 18 cases of syphilis, 8 (44%) infectious and 10(56%) late latent. 3 MSM and 5 heterosexuals (2 M; 3 F) had infectious syphilis. Median age was 27. Number of partners in last 3 months ranged from 1 to 2. HIV testing was offered to 6 patients (33%) all of whom accepted and 2 were positive. 6 were serofast (75%), 2 lost to follow-up (25%) and none were re- infected.

In 2008, 170 cases were diagnosed (159 M; 11 F).132 (78%) were infectious syphilis, all were male. Late latent syphilis accounted for 38 (22%) cases. Median age was 32. Number of partners in 3 months ranged from 0-80. 48 were known to be HIV positive. HIV testing was offered to 110 (90%), 101 (92%) accepted and 12 (12%) tested positive. 48% were serofast, 48% lost to follow up. 4% were re-infected, all of whom were HIV positive.

Detailed data including contact tracing and social networks in each year will be presented at the meeting.

**Conclusions:** We have seen large increases in cases of infectious syphilis, occurring predominantly in MSM compared with 10 years ago when heterosexuals were mainly affected. Increased proportions of known HIV positive patients presented with syphilis and were more likely to become re-infected. There is significant increase in partner number and a high number of patients were lost to follow up. This has major implication in terms of onward transmission of HIV in the MSM population with concerns of epidemic synergy. Different treatment regimes were used with similar outcomes. Routine syphilis testing in HIV patient follow ups, HIV/STS testing in GUM clinic and targeted intervention particularly outreach testing are important in controlling the endemic.

## Access and Service Delivery

### P222

#### DIY sexual health care: the user experience

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**Background:** Easy access to sexual health services helps control sexually transmitted infections. Self management options within sexual health services may increase access by providing infection screening without the need to see a clinician. We describe client experience of self

management within a busy, sexual health service. Self management in this context is self registration using a touch screen system and take home pregnancy tests, chlamydia and gonorrhoea tests or condoms dispensed from a free vending machine.

**Methods:** We undertook 24 in-depth, semi-structured interviews with users of the self management option and 19 structured, written reports from mystery shoppers who were paid to visit the service and report their experience. Demographic details of those using the self management option were collected from the clinic database and 40 hours of recorded observations were made in the clinic waiting room.

**Results:** Between 02/09/08 and 02/09/09, 18,642 people used the clinical service of which 2756 (14.8%) were eligible for self management and 1931 (10.4%) chose to use the self management service. Of those who were offered the opportunity to self manage, 70.1% chose this option. Of those who self managed 35% obtained a chlamydia and gonorrhoea test only, 32% obtained condoms only and 26% obtained a pregnancy test only. Users valued the opportunity to self manage because of the reduced waiting times, autonomy, and privacy that such a service offers. Others prefer the additional support offered within a clinical consultation. These groups are not mutually exclusive and those who chose to self manage described situations where they would prefer a consultation. Users made personalised strategic decisions about self management based on time pressure, need for additional services and preferred source of support. Few users completed the self management process without some help from client support workers (CSWs) who provide advice in the waiting room. This created problems with confidentiality as discussions often happened in front of other clients. Clients value the accessibility of the client support workers and the informal nature of the help they provide.

**Conclusions:** Self management is an acceptable option within sexual health services as long as informal support is available. Self management options in clinical services could mean that 10% of clients do not need to see a clinician, thus freeing up clinical capacity.

### P223

#### The STIPP study: patient-centred preferences for STI testing services: a qualitative perspective

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**Background:** A key feature of the national strategy to improve sexual health is that STI services should be shaped around patient preferences. However, there is little research in this area.

**Method:** Ten focus groups were run, with 65 STI patients aged 16-59 (mean age 29), to gain an understanding of patient preferences (attributes) for STI testing services: -

Heterosexual (Het') women ≤24years old; Het' men ≤24 yrs; Gay men ≤24 yrs; Lesbian women ≤24 yrs; Het' women >24 yrs; Het' men >24 yrs; Gay men >24 yrs; Lesbian women >24 yrs; Overseas Migrants; People with HIV.

The sampling framework included patients who had experienced a variety of referral routes and services, such as Primary Care, GUM, and community-based services. Participants were recruited from community sources in Brighton, and were asked to discuss past experiences and suggestions for improvements and alternatives. Digital recordings were transcribed and analysed by framework analysis.

**Results:** 5 *a priori* attributes were isolated from the literature and taken to the focus groups: - Accessibility of appointments; GPs as a site for STI testing; methods of delivering Results; Opt-out HIV testing; and Home Sampling Kits for STIs. There were high levels of confusion about access; diverse attitudes to testing in GPs; dissatisfaction with 'No news is good news' results; general acceptance of opt-out HIV testing; and conflicted attitudes to Home Sampling Kits for STIs.

A further 31 themes were generated by participants, revealing dynamic tensions between: - GUM clinics or Primary Care services; centralised or

dispersed services; subjective assessments of service 'friendliness'; services in community settings; patient record confidentiality; range of tests available; perception of staff skill levels; anonymity; and waiting times.

These attributes were additionally moderated by patients' perception of service environments, location, and, significantly, by patients' anxiety/symptom status.

**Conclusion:** Generalisations based on demographics were not as descriptive of patient preferences as these detailed findings. These attributes offer a more detailed understanding of patients' decision-making - including deciding where to test - than a simplistic hierarchy of ideal service elements.

These findings have specific application in (re)structuring both administrative and clinical services in-line with patient preferences. In particular, in designing a diversity of service options, and improved communication with patients.

## P224

### Characteristics of high frequency attenders of genitourinary medicine (GUM) services

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**Background:** Patients who frequently seek medical care consume a disproportionate share of health care resources. With the target-driven need to increase clinic capacity whilst utilising resources efficiently, we decided to characterise frequent attenders of walk-in GUM services provided by a large hospital-based clinic in S W London.

**Methods:** High Frequency Attenders (HFAs) were defined as clients attending >7 times/calendar year. All HFA in 2008 were identified and data collected for gender, ethnicity, age, postcode of residence and KC60 diagnoses.

**Results:** 243 HFAs were identified. The demographic profile of the majority of HFAs were female (60%, 145/243), aged between 25-34 years (31%) and of white UK ethnicity (36%). Most HFAs attended 7-13 times/year (94%, 228/243) and only 6% between 14-26 times. Those attending 7-13 times were largely females of white ethnicity, aged 25-34. 61% of HFAs identified in 2008 had also attended prior to 2008, and 69% subsequently re-attended in 2009.

The most common KC60 diagnoses in HFAs were genital warts (all C11, 14%, 97/693), uncomplicated *Chlamydia trachomatis* infection (CT, 12%), bacterial vaginosis (BV, 10%), family planning advice (8%), vulvovaginal candidiasis (VVC, 7%), NGU/cervicitis (6%) and uncomplicated gonorrhoea (GC, 5%).

Two HFA groups were identified: a small STI group who were at high risk of bacterial STIs (17%; diagnosed with CT, GC); and a larger grouping of clients with chronic, recurrent or persistent conditions accounting for 37% of diagnoses (BV, VVC, NGU, all genital warts). In line with national epidemiology of GC and CT; those in the STI group were young women (75%, 89/118) aged 16-19 (49%, 44/89); in men most diagnoses were in 25-34 year olds. The second group of HFAs were also predominantly women (70%, 181/259), aged 20-24 years and most commonly diagnosed with BV or VVC (63%). Men within this group aged 25-34, most commonly had genital warts (51%, 40/78) or NGU (49%, 35/78).

**Conclusion:** HFAs occupy a significant number of clinic appointments and have the potential to limit capacity of routine GUM services. Earlier identification and targeting of HFAs at risk of STIs should allow health advisors to prioritise intervention and promotion of safer sex; whilst HFAs identified with chronic problems would be better served by referral to specialist clinics instead of attending the routine walk-in GUM service for their care.

## P225

### Patients accessing HIV treatment via GUM services – what are the risks of the dual case note system?

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**Background:** The requirement to secure sexual health information imposed by the NHS (Venereal Diseases) Regulations 1974 led to separate records for HIV patients. Despite being superseded by legislation allowing access by treating medical practitioners, many NHS trusts continue to operate a dual case note system. Since illness in HIV patients often presents to or requires input from other specialties, dual case notes pose a significant risk for error, duplication or bad clinical practice. Joint case notes are recommended in the British HIV Association (BHIVA) Standards for HIV Clinical Care and are preferred by two thirds of surveyed Genitourinary (GUM) consultants, but are in place in only 12% of surveyed UK GUM departments. We sought to assess accuracy of medication recording in HIV patients with both GUM and hospital case notes. Since HIV patients often take complicated regimens of agents with high propensity for drug interactions, we assessed clinical risk arising from incorrect or incomplete recording of medication which could lead to significant interactions.

**Methods:** Retrospective case note review of medication information recorded in both GUM and hospital case notes within three months of a patient attending a non-GUM hospital specialty as an inpatient or outpatient during 2008-09. Patients included were accessing HIV outpatient care via GUM services and taking antiretroviral (ARV) therapy. **Results:** 100 episodes of care were reviewed from 59 case note pairs. Recorded medication was discordant in 56 (56%) episodes, with a total of 106 discrepancies. Of these, 9 (9%) discrepancies were judged as serious, potentially adversely impacting patient care. They were classified as follows: discontinuation of medication not communicated, possibly causing inappropriate prescribing (2); delay in optimisation of a non ARV (3); interaction with potential to decrease ARV efficacy (1); interaction with potential to increase levels of a non ARV (2); interaction with potential to decrease efficacy of a non ARV (1). The Fisher test showed no significant difference in frequency of medication recording discrepancies or serious discrepancies between infectious diseases and non-infectious disease specialties.

**Conclusion:** The dual case note system represents significant risk to patient care. We recommend that NHS Trusts which continue to operate this system urgently consider amalgamation of HIV care records into hospital case sheets, in line with BHIVA clinical standards.

## P226

### Answering the phone: a measure of accessibility

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**Background:** In March 2008 a Department of Health (DH) target was introduced in England and Wales that all patients should be offered an appointment within 48 hours of initial contact. This target assumes clinics can be easily contacted. Our aim was to elicit the time taken to book an appointment by telephone, as a measure of accessibility.

**Methods:** All telephone numbers and opening hours of Genitourinary Medicine (GUM) clinics on the BASHH national website were checked for accuracy. Using the amended contact numbers each clinic was called by researchers posing as 16 year olds, using both symptomatic and asymptomatic cases, during confirmed opening times.

**Results:** Preliminary results show 75% (219/294) of first telephone attempts resulted in a successful contact. The remaining 25% ranged from 2 to 9 calls to make successful contact with 3% (14/294) requiring over 4 attempts. The median time to complete a call was 1:33min with no significant difference between symptomatic and asymptomatic callers (P=0.69). However, if the receptionist did enquire about symptoms then

there was a significant increase ( $P=0.04$ ) of 33secs in the mean time taken to complete a booking. Having an automated message before speaking to a receptionist also increased the mean time taken to complete a call by 30secs. There was no significant difference between time taken to complete a call for clinics that offered a walk-in service only and those who offered appointments as well.

**Conclusion:** To achieve 48 hour access targets many services have focused on clinical aspects of service delivery. However, clinic receptions are the interface between clinics and the public, and as the first point of contact they project an image of the service. As a measure of accessibility 25% of clinics fail to answer a call at first attempt. There was great variability across the UK. Although automated messages are cheaper than reception staff they do not necessarily help achieve this target and may not be in the best interest of the public.

P227

### How has the economic downturn affected attendance at the BHIVA conference?

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**Background:** The BHIVA conference is a highly successful event drawing large numbers of clinical, industry and community attendees. In August 2008 economic instability was manifested by the near collapse of Northern Rock and there was talk of the worst slump since the 1930s. This economic downturn may lead to reduced attendance at BHIVA Conferences reducing its effectiveness at disseminating information if clinicians and industry representatives seek to rationalise their financial outlay.

**Methods:** The delegate list produced for each of the last 5 BHIVA conferences (3 Autumn and 2 Spring) was reviewed. Numbers of industry (pharmaceutical sector, diagnostics, delivery companies, etc) and community/NGO (Non-governmental organisations) registrations were compared.

**Results:** Total registrations at the Autumn Conferences were almost identical in 2007 and 2008 (550) with a 5% drop in for 2009. Attendances at the Spring Conference have remained consistent (670). Clinical attendance has reduced slightly while total industry registrations have risen gradually since 2008. Pharmaceutical sector registrations have remained consistent at 20% with slight increases for both events in 2009. Diagnostics company attendance increased significantly at the last Autumn Conference and delivery companies have a marked preference for attending the Autumn rather than Spring events. Community and NGO registrations have increased but by less than 1% over the three years with greater attendance at the larger Spring Conferences.

**Conclusion:** The BHIVA Conferences remains an important event well attended by clinicians, industry and the community for the dissemination of information and the opportunity to exchange ideas. The drop in attendance at the last Autumn 2009 conference may however signify the impact of budget pressures within the NHS. Although there has been a reduction in the number of major sponsors over the past three years the conferences continue to be an important draw for industry. Despite concerns that easier to take regimes and decreasing side-effect profiles may reduce interest by patients and patient organisations in clinical issues the BHIVA conference remains a popular event for the community and NGOs.

P228

### Engagement with primary care services: are persons living with HIV satisfied with the care they receive?

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**Aim:** Published HIV standards underline the importance of primary care (PC) in patient management. Traditionally, many GP services have been

provided by HIV physicians because of lack of patient engagement with PC resulting from fears of prejudice and discrimination, disclosure, and doubts over competency in care. This study explores changes in service provision, and the interaction between patients living with HIV and their GP.

**Method:** Data was collected from 100 unselected consecutive patients attending out-patients. A non-validated questionnaire was used to ascertain PC registration and disclosure, general and HIV demographic data, assessment of patient understanding of a GPs' role and the range of PC services offered. Further details included the patients' experiences and perceptions of discrimination, potential for disclosure, GPs' knowledge of HIV, psychosexual and immigration issues, and preference for provision of services (hospital or PC). Questions were either dichotomous or patients ranked their agreement on a 5-point Likert scale. Analysis was by SPSS and StatsDirect.

**Results:** 97% had registered with a GP and of these 93% had disclosed their HIV status, 54% said they felt comfortable with their GP managing HIV-related problems, and 80% did not feel that confidentiality issues posed a barrier to communication. 74% agreed that GPs had more experience in dealing with minor illnesses but 88% still preferred to have the management of their HIV at the specialist unit. Only 41% thought their GP had a good understanding about HIV and 11% still felt that minor illnesses should be dealt with in secondary care.

**Conclusion:** As HIV becomes a chronic illness, there is a need for a change in the care model from secondary facilities to a shared-care approach where GPs take on more of the responsibility for HIV care. This is dependent upon PCT preparedness, patient pathways, and PC education programmes, as well as increasing patient knowledge as to the importance of disclosure and benefits of PC. This study has demonstrated that most patients are happy to register with a GP and disclose their status, that patients recognise that GPs are best qualified to deal with PC problems, and that fear of discrimination and disclosure are rarely held beliefs. However, there are concerns over GPs' knowledge of HIV and a desire for the continued management of HIV through specialist units.

P229

### Experience of undergraduate medical students in genitourinary medicine (GUM) teaching clinics

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**Background:** There are minimal data specifically about medical student teaching in the GUM outpatient setting. We describe the experiences of students from a large UK medical school, and associations with student and supervisor gender.

**Method:** Students are allocated 3 GUM clinic sessions during their Communicable Diseases module. Clinics are mixed or single gender and occur across 3 sites during daytime or evening. The student's log book, documenting patients clerked and examined, is completed by the supervising clinician after each clinic. We analysed the first 100 log books for the academic year 2009/10.

**Results:** 2 log books had no GUM clinic data, 1 had data for 1 clinic and 15 for 2 clinics. Data were available for 277 clinic sessions. Data from daytime clinics are presented.

**Sexual Histories:** The mean number of histories taken per clinic was 3.8. In female clinics the mean number of histories taken was similar for female and male students (3.4 v 3.3). However more male students (12%) than female (3%) left clinic without taking a history and male students took fewer histories if with a male doctor than with a female (means 2.7 v 3.4). In male clinics male and female students took a mean of 3.8 and 4.3 histories per clinic respectively and were equally likely to leave clinic without taking a history (7%). Students attending 1 clinic took a mean of 3.6 histories, 9% took no history. Those attending 2 clinics took a mean

of 7.2 histories, 1% took no history. Students attending 3 clinics all took a history and clerked a mean total of 11.6 patients.

**Genital Examination:** In single-gender clinics female students examined more patients per clinic than male students (mean 1.69 v 1.09). The mean number of speculum and bimanual examinations performed by female students per clinic were 0.97 and 0.56 respectively compared with 0.43 and 0.23 for male students. Male students were more likely to perform a bimanual examination if with a male than female doctor (means 0.45 v 0.16). In male clinics the mean number of examinations per clinic was 1.92 and 1.64 for female and male students respectively.

**Conclusion:** The student gender affects the likelihood of being able to take a female sexual history and of performing genital examinations as does the gender of their supervising doctor. Considering the gender of students and doctors when allocating students to clinics, and allocating an appropriate number of clinics for each student may maximise potential opportunities.

P230

### Care pathways to GUM: is general practice now helping or hindering? Evidence from the MSTIC (Maximising STI Control in local populations) study

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**Background:** A key goal of the National Strategy for Sexual Health and HIV, and recently the Medical Foundation for AIDS and Sexual Health/BASHH *Standards for the Management of Sexually Transmitted Infections*, is to improve access to sexual health care, in part by expanding the role of general practice in the diagnosis and treatment of STIs. We examine the care pathways of patients attending contrasting GUM clinics, including their experience of general practice.

**Methods:** Between August and December 2009, 2,204 patients at 4 geographically and sociodemographically contrasting GUM clinics in England completed a 20-item questionnaire including questions on reason(s) for attendance, recent sexual behaviour, presence and duration of symptoms, care pathways to the service and past service use. 76% of patients consented to us linking their questionnaire data to routinely-collected clinical data.

**Results:** 47% of patients reported seeking care due to symptoms (median symptom duration: 3 days; IQR: 2-6 days). 35% of patients reported no symptoms but wanted a check-up. 75% of patients were seen in the study clinic within 2 days of first seeking care, but the 21% who first sought care elsewhere took a day longer on average to be seen in GUM (75% were seen in the study clinic within 10 days). 53% of patients who had sought care elsewhere before attending the clinic had used/tried to use general practice. Among these patients, 37% had seen a GP or practice nurse, 19% had been treated or received a prescription in general practice, and 34% had been advised to go to GUM. Patients who had used/tried to use general practice were more likely to have acute STIs diagnosed in GUM: 27% vs. 18% ( $p < 0.01$ ), but those with STIs diagnosed took less time to get to the study clinic from general practice (median time: 1 day vs. 7 days,  $p = 0.03$ ).

**Conclusions:** This study found that GUM patients are prompt to both seek and receive care. While patients who first seek care from general practice but do not complete their care there tend to have extended care pathways, those most likely to have STIs do seem to be getting to GUM quicker than patients not having STIs diagnosed. This is encouraging and is likely to be due to changes made by services in order to meet the 48-hour access time target. Nonetheless, duplication of workload is an issue,

raising questions as to the most effective way of delivering sexual health services, in terms of public health, clinical-, and cost-effectiveness.

P231

### Does symptom declaration at patient registration predict treatment need in GUM clinic attenders?

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**Background:** It has been suggested that GUM workload pressures can be reduced by diverting asymptomatic patients to alternative care providers.

**Patients and Methods:** Diagnostic data in 1000 patients was reviewed. They were consecutive patients presenting for a first-ever care episode to a large urban GUM clinic during April – June 2009. They were separated by gender into those declaring symptoms at registration (SY) and those who were asymptomatic (ASY). Diagnostic and treatment requirement were compared in each of the four groups.

**Results:** The mean age and age distribution of SY and ASY patients for each sex was similar. Although SY patients in both sexes were significantly more likely to have STI (Odds ratio (OR) 2.5) and other conditions requiring treatment (OR 2.8), >40% of both male and female ASY patients also required treatment. The major STI diagnoses (syphilis, gonorrhoea, chlamydia and HIV) were no less common in ASY patients. Viral STIs, notably genital warts (OR 4.6), and vaginal infections were principally responsible for the excess of treated conditions in SY patients. HIV test acceptance was >90% overall but refusal was significantly more likely (OR 1.9) in SY female patients.

**Conclusion:** The declaration of symptoms at registration does not reliably differentiate between treatment needs of GUM clinic attenders. The reasons for higher HIV test refusal in females are unclear.

P232

### Improving patient experience in GUM and HIV outpatient services – novel use of electronic patient experience tracking devices and implementation of a courtesy plan

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**Introduction:** Electronic Patient Experience Tracker [PET] devices were introduced in our GUM and HIV outpatient services in February 2009. A PET is an electronic, mobile patient feedback device which measures patient satisfaction at the point of delivery.

Patients are asked to anonymously respond to five short questions at the end of their clinic visit:

1. How would you rate the courtesy of our staff?
2. How much information about your condition or treatment has been given to you?
3. Have you been given enough privacy when discussing your condition or treatment?
4. Were you given enough privacy when being examined or treated?
5. Did a member of staff explain why you had to wait?

Responses are uploaded live to Dr Foster Intelligence and reported at the end of each week. From implementation patients consistently responded positively to questions 2, 3 and 4 [quality of information about condition or treatment, privacy and dignity during consultation and examination]. However, slightly less positive responses to questions 1 and 5, relating to overall courtesy and explanation of the reasons for waits in clinic, indicated the need for targeted improvement work in these areas.

**Method:** We implemented 'The Perfect Welcome', a bespoke courtesy training plan. Training was undertaken by all staff groups and a commitment gained from the whole clinic team to improve patient experience through changes in our working practice. In addition in October 2009 an electronic walk-in GUM clinic patient transit system was introduced providing real-time waiting time and patient journey information for patients.

**Results:** In total we received 4754 responses between February & October 2009 from approximately 10% of our patients. We increased the number of responses by 14% between February & October. The 'Courtesy' score has improved from 90% 'Good/Excellent' average to 93% 'Good/Excellent' average in the same period (72% 'Excellent' rose to 83% 'Excellent'). Positive responses in 'Explaining the wait' score improved from 72% to 78% over the same period.

**Conclusion:** PET is a valuable continuous measure of patient experience enabling objective identification of service weaknesses and improvements in real time. Staff courtesy is a critical component of positive patient experience and a whole team approach to courtesy training is recommended.

### P233

#### A network approach to measuring user satisfaction across diverse sexual health services

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**Background:** For commissioners, engaging with users is one of 11 World Class Commissioning competencies. For providers, seeking and responding to user feedback is a statutory requirement (Local Government & Public Involvement in Health Act 2007). Without a validated tool for use across diverse services, measuring user satisfaction can result in patchy data and inappropriate comparisons due to bias, poor uptake and variations in user demographics. North East London Sexual Health & HIV Network (NELNET), spanning 7 PCTs in inner and outer London, set out to develop and pilot a satisfaction survey appropriate for use across the sector's sexual health services.

**Methods:** a locally developed questionnaire seeking user opinion on demographics, clinic environment, access, staff communication, privacy and overall treatment and care was adapted by a facilitated multi-professional, multi-user group. NELNET supported services to participate in the survey, which took place over an 8 week period, during which NELNET provided progress reports. 400 responses were sought and sampling sizes for each service were calculated on % contribution to total attendances. Paper surveys were distributed by receptionists or by clinicians at consultations. Data were centrally analysed and rated against Picker survey averages.

**Results:** 405 responses were collected from 6 acute and 3 community services. Demographics of respondents broadly resembled that of the local user population. 5 of 9 participating services achieved their target sample size and a further 3 achieved >75%.

Some of the key findings are:

Preferred access	Appointment 43% Walk-in 33% No preference 22%
Preferred opening	Evening 27% Weekday morning 21% Saturday 20%
Waiting area felt clean, comfortable & safe (Picker average >90%)	87% (range 77-96%)
Given enough privacy while being examined (Picker average >90%)	95% (range 78-100%)
Care rated excellent or good (Picker average >93%)	93% (range 83-100%)

**Conclusions:** Achieving a meaningful user survey across a network is feasible with support and provides useful information at both network and local levels, allowing for peer-group comparison which is helpful to commissioners and providers in improving services. This survey provided assurance on the quality of the clinical service experienced but provides further challenge on access and environment. Local and NELNET action plans will be developed to address these issues.

### P234

#### Emergency contraception prescribing in a genitourinary medicine (GUM) clinic – missed opportunities for improving sexual and reproductive health

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**Background:** GUM clinic attendance for emergency contraception (EC) is an ideal opportunity to address patients' sexual and reproductive health. In our clinic EC is prescribed as levonorgestrel (LNG) with referral to a local family planning clinic for intrauterine device (IUD) insertion. We aimed to assess whether our prescribing of LNG is accompanied by sexually transmitted infection (STI) screening and provision of advice on reliable options for future contraception.

**Methods:** The case notes of all clinic patients prescribed LNG for EC over a 24-month period ending 30 June 2009 were reviewed. Data gathered included: patients' reasons for requiring EC, whether IUD insertion was offered as an alternative to LNG, whether a sexual history was taken and STI screen offered and whether options for future contraception were discussed.

**Results:** 293 patients were prescribed LNG. 80% of patients were 25 and under (range 14-49). IUD insertion was discussed as an alternative in 18% of patients. Prior to taking LNG 71% of patients used condoms for contraception, 14% oral contraceptive pill (OCP) and 15% no contraception. Reasons for requiring EC were: 48% no condom, 28% condom split/burst, 10% condom came off, 11% missed OCP and 3% antibiotics with OCP.

All patients had a sexual history taken. 24% of patients had a previous STI (13% Chlamydia, 7% warts, 3% HSV, 0.5% GC, 0.5% HIV). 71% of patients were offered STI screening within 2 weeks of LNG prescribing and 57% of these accepted. 10% of patients screened were diagnosed with an STI (9% Chlamydia, 1% warts).

52% of patients were advised to attend the local family planning clinic to discuss future contraception, 14% of patients continued on the OCP and 3% of patients were started on the OCP in clinic. 30% of patients received no advice on future contraception.

**Conclusions:** Patients attending GUM clinic for EC are at high risk of STIs and efforts should be made to increase the offer and uptake of STI screening in this group. Most patients attending for EC were using inadequate or no contraception and provision of contraceptive advice was poor. In addition very few patients had IUD insertion discussed as alternative EC. This highlights a need for training of GUM professionals in reproductive health and supports the integration of sexual health services to promote skill mixing.

### P235

#### What older women want from genito-urinary services – an analysis of KC60 diagnosis trends during 1998–2008 in two clinics

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**Background:** Rates of sexually transmitted infections (STI) in older women have increased over the past ten years, with proportional increases of bacterial and viral STI in the 45-64 year old age group being comparable to those seen in 16-25 year olds. There is currently no data on how GUM services should adapt to the needs of older women.

**Aims:** To identify why older women (defined as aged 46 and over) attended the clinic and whether this was STI-related or not.

**Methods:** We gathered KC 60 diagnosis data of all older women who presented to two GUM clinics (Clinic 1 and Clinic 2) during 1998-2008. We analyzed attendance trends for those due to acute STI, non-STI vaginal infections, other reasons for attending GUM services and type of GUM screening requested. A detailed retrospective case note review of 120 females attending Clinic 2 in 2008 was also performed.

**Results:** There were 6800 older women attendances in Clinic 1 and 4767 in clinic 2 during the study period, which was proportionally less than men in the same age group (22% and 32% respectively). The numbers of women attending with an acute STI increased in both clinics ( $p=0.057$  Clinic 1 and  $p<0.01$  Clinic 2), but there was no increase over time in women presenting with non-STI vaginal infections during the same period. In clinic 1 but not clinic 2 there was a significant increase in women attending GUM for other reasons (D2B and D3 codes). There were differences in KC 60 diagnoses by ethnic background ( $p=0.014$ ), with Black Caribbean and White British women being most likely to decline a HIV test. In a random sample of 120 female patients aged 46–74 (mode 47), almost half had never tested for HIV previously and 45% were not on any contraception even though this would have been applicable. More than 60% had been sexually active in the past 3 months. 30/120 received an STI diagnosis and 18/120 received gynecological or dermatological diagnoses. **Conclusion:** Older women access GUM services for acute STIs as well as for a wide range of gynecological and dermatological advice. Their high rates of STIs and poor previous HIV testing may suggest a need for focused prevention efforts in this group. Detailed diagnosis and ethnicity data will be presented.

P236  
Abstract withdrawn

P237  
HIV services in Ireland – the patients' perspective

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**Background:** This study is based on research undertaken in response to the Report by the Care and Management Sub-Committee of National AIDS Strategy Committee on HIV/STI Services in Ireland (2004) that failed to seek service users' opinions of HIV/STI services in Ireland.

The key objective of the study was to elicit views of HIV service users in Ireland with a view to improving services

**Methodology:** The study presents both quantitative and qualitative data, collected from completed questionnaires (N=401), distributed through participating clinics to HIV+ service users in the second and third quarter of 2008. Of the 5 hospitals invited to take part, 3 participated.

**Results:** A total of 2,161 people living with HIV attend the 3 participating hospitals, of those 19% (N=401) responded which represents approximately 10% of the total number of the HIV population in Ireland.

The majority of respondents were under 40 years (N=222). Understandably, the larger clinics garnered more criticism, with the smallest clinic proving more personable to patients.

Overall 75% were satisfied or very satisfied with clinic accessibility and environment. 64% were satisfied or very satisfied with reading material while only 35% were satisfied with childcare facilities.

42% respondents stated they were generally seen within an hour, 25% waited for between 1-2 hours while 23% waited between 2-3 hours before been seen.

Staff satisfaction - Reception (89%), nursing staff (89%) Dr's (85%) Pharmacy (61%) social workers (59%), however one clinic did not have a social work service which skewed the result.

Several areas of dissatisfaction were highlighted, 36% were not aware of PEP, only 54% respondents were aware of the availability of free condoms to HIV+ users. Other criticisms included waiting time, lack of confidentiality and inadequate premises.

**Conclusion:** Overall the study indicates that the vast majority of service users attending the three clinics receive a satisfactory or highly satisfactory level of care from all members of the multidisciplinary team. The challenges facing health care staff in meeting the needs of a diverse patient group with varying and occasionally conflicting needs were also apparent from the research findings. There is much that can be

done to improve the clinic environment and the research respondents have come up with several very useful practical solutions that have been passed onto the clinics concerned.

P238  
Are asymptomatic patients uncomplicated and low risk?  
Retrospective case note analysis

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**Background:** Patients using genitourinary medicine (GUM) clinics are generally thought to be a high risk group in terms of sexual behaviour and substance use. However, it is often assumed that asymptomatic patients are a lower risk group with less complex needs. Reflecting this assumption, many GUM clinics employ triage methods with fast-track care pathways for asymptomatic patients who are processed by inexperienced staff with minimal further consultation. We evaluated risk profiles and complexity of need in asymptomatic patients attending one GUM clinic.

**Methods:** Retrospective case note analysis of consecutive asymptomatic patients (M=50, F=50) seen in a GUM clinic from 1<sup>st</sup> September 2009. Cases were identified using self administered patient triage forms. Data was transferred to Excel for analysis.

**Results:** Of 365 newly registered patients, 100 (27%) identified as asymptomatic with no other concerns. Mean age was 33y (males), 25y (females). 80/100 were white, 12/100 were of black/minority ethnicity with no ethnicity documented in eight cases. 54/100 reported a new partner in the last three months with 27/100 having two or more partners in this time. 12/48 (25%) reported anal intercourse (no documentation in 52 cases). 8/50 (16%) women were at risk of pregnancy. 9/28 (32%) reported alcohol intake above recommended limits (no documentation in 72 cases) and 8/56 (14%) reported illicit drug use including cannabis, MDMA and/or ketamine (no documentation in 44 cases). 13/100 disclosed symptoms and 35/100 expressed sexual health and/or other concerns during the consultation. 19/100 required non-routine tests and 6/100 required senior clinical review within the clinic. 5/100 had a sexually transmitted infection (STI) and 3/100 were contacts of an STI. 63/100 required additional information (verbal/leaflet) or counselling and 3/100 required referral beyond GUM. A full HIV risk assessment was completed in the notes in 37/100; 67/100 underwent HIV testing. Only 17/100 patients were documented to be low risk asymptomatic cases with no underlying concerns, requiring routine STI testing only and with no pathology detected. This equates to 17/365 (5%) of all GUM patients seen during the study period.

**Conclusion:** Lack of presenting symptoms at triage is not a reliable indicator of low risk and low complexity of need amongst patients attending GUM. A sexual history and risk assessment should be obtained from all patients regardless of symptomatology.

P239  
How accurate is the information on triage forms?

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**Background:** The BASHH asymptomatic screening audit of 2009 defined an asymptomatic case as a person who offered no symptoms on presentation, either on a triage form, or similar form, or on direct questioning by a healthcare worker. Clearly, if decisions regarding the tests taken are based on the information supplied on a triage form, then the accuracy of this information is of importance. At our clinic triage forms are used to direct patients to appropriate health care professionals who then take a clinical history. We decided to compare the information supplied on a triage form to that given in a face-to-face consultation and assess the accuracy of our form.

**Methods:** Patients attending our clinic are asked to complete a form with tick boxes to identify symptoms, signs, if they are the contact of infection or if they "just want a check-up and have no problems" and a free text space for "other problems". The forms of 330 consecutively attending patients were assessed for accuracy by the health care worker who saw the patient. Inaccurate forms were further scrutinized by the authors to identify common themes.

**Results:** 281(85%) of the 330 forms analysed were assessed as giving accurate information. 49(15%) of triage forms were found to be inaccurate, 15(4.5%) of patients who had indicated that they just wanted a check-up where found to have significant symptoms to direct question. 22(7%) of patients who reported problems on the triage form, did not have symptoms on direct questioning nor abnormal findings. 12 (3%) of patients reported problems on the triage form but were found to have different problems when seen by the health care worker.

**Conclusion:** Although 15% of our triage forms give inaccurate information, significant symptoms would have been missed in only 4.5% of cases if triage forms only were used to manage patient. It is of interest that patients were more likely to overstate problems on a triage sheet. With new and diverse patient pathways being developed in sexual health services this study demonstrates the importance of assessing the use of patient completed triage forms, and of face-to-face history taking.

## P240

### Is 48-hour access for young people a reality?

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**Background:** Young people (YP) are a vulnerable group; those aged 16-24 have the highest risk of being diagnosed with an STI in the UK. In March 2008 the Department of Health (DH) set a target that GUM services offer 100% of patients an appointment to be seen within 48 hours whilst the 2007 DH 'You're Welcome quality criteria' recommends that YP should be able to access services outside of school and college hours. Based on these recommendations this study aims to assess the variability in time for a 16-year old to be seen in a GUM clinic outside of school hours.

**Methods:** This was a 2 part prospective study. In December 2009 a postal questionnaire was sent to Lead Clinicians of UK GUM clinics asking specifically about services for young people, and whether patients would be seen in certain clinical scenarios. In phase 2, healthcare personnel posing as 16-year-old patients telephoned clinics during known opening hours and requested an appointment to be seen after 3pm.

**Results:** Preliminary data shows that although clinics expect to offer a 16-year old an appointment within 48 hours and 94% expect that this could be after school; in reality fewer clinics could achieve this. Only 83% (275/330) of clinics could see patients within 48 hours and 70% overall could see patients at the specifically requested time. There was significant variation between areas ( $p < 0.01$ ). In England 213/282 (76%) could meet the 48 hour target when restricted times were requested compared with 7/16 (44%) in Wales. Notably Scotland and Northern Ireland could only offer 5/16 (24%) and 0/4 (0%) respectively. Full analysis by region will be presented.

**Conclusion:** Only 75% of those clinics who think they meet the 'You're Welcome' accessibility target actually achieve this. The high levels of variation between similar clinics suggests that models of service delivery are available that may better achieve this aim. The dramatically lower rate outside of England and Wales may reflect a low priority for these criteria outside of DH control.

## P241

### Do Saturday sexual health clinics in North East Essex attract greater rates of chlamydia in young people?

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**Introduction:** Patient choice is a key message for the Darzi vision of the NHS. The Saturday sexual health clinic began in 2008 as a pilot to establish a permanent service.

**Methods:** Colchester and the Tendring area serve a population of 450,000; we describe an audit of the service from 2008, comparing the population attending on a Saturday to the established mid week service, analysing rates of sexual infection and staff mix required.

**Results:**

	Number patients	Age groups	New patients & Rebook patients	Symptomatic patients
Mid week	m=50, f=50	16-25yrs=44%, 26-35yrs=37%, 36-49=18%	98%	m=21%, f=22% n=43%
Saturday	m=47, f=53	16-25=53%, 26-35=27%, 36-49=16%	69%	M=20%, f=27% (n=47%)

	HIV test uptake	Gonorrhoea Culture +	Chlamydia NAAT +	Chlamydia Age 16-25	Referral to doctors	Genital HPV
Mid week	73%	2%	9%	13%	7%	16%
Saturday	70%	1%	15%	24%	20%	18%

**Conclusion:** We found a higher proportion of overall Chlamydia rates at the weekend clinic which was attributable to real time partner notification; sexual partners were able to accompany each other at weekend in mixed sex waiting rooms and have an unplanned screen, when suggested by staff. This appeared predominantly in the 16-25 year old age group.

Further studies could evaluate client satisfaction for a Saturday service vs midweek clinics. Higher rates of referrals from experienced nursing staff could reflect more complex case mix.

## P242

### Is it possible to distinguish patient characteristics at initial registration that will predict those with treatment needs?

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**Background:** About 40% of GUM patients self-described as being asymptomatic at registration require treatment. Identification of those most likely to need treatment could support efforts to divert other patients to alternative care providers.

**Patients and Methods:** The clinical notes of 250 males and 250 females who were consecutive patients presenting for first-ever care episodes to a large urban GUM clinic were reviewed. Demographic, behavioural and clinical data were collected and compared in those requiring treatment (RT) and those with no treatment needs (NRT). The data was analysed by Chi square statistics and assessment of Odds ratios (OR).

**Results:** Patient gender, sexual orientation, age, number of reported sexual partners in the preceding 12 months, and whether full examination or rapid screening alone were performed did not distinguish between groups. There were significantly higher proportions of RT patients who reported 2 or more partners in the preceding 3 months (OR 2.4), were Asian (OR 5.5), who were referred by a sexual partner (OR 11.2) or another agency (OR 4.0), and who had clinician elicited

symptoms (OR 3.3). Clinician elicited symptoms not declared at registration occurred in 40% of females, almost twice as commonly as in males ( $p < 0.001$ ).

**Conclusion:** Clinician elicited symptoms not reported at patient registration are common and assist in predicting treatment need. Patient referral methods, ethnicity, and recent sexual behaviour can also contribute. These distinguishing features are only likely to become apparent during clinician assessment and are neither readily apparent nor reliably disclosed to a receptionist at patient registration.

P243

### Should contraception and cervical smears be offered in addition to sexual health screening within genitourinary medicine (GUM) clinics?

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**Background:** To determine the acceptability of accessing a 'one-stop shop' providing contraception and cervical smear testing alongside sexual health services within 2 GUM clinics.

**Methods:** A prospective questionnaire was offered to consecutive female attendees aged  $\geq 16$  yrs attending a walk-in GUM clinic, between 24/11/09-4/12/09, at two sites run by an inner city teaching hospital. Questionnaires were excluded if they were  $< 50\%$  completed.

**Results:** Denominators for the results below are variable as some questionnaires were  $> 50\%$  but  $< 100\%$  completed. 429/466 questionnaires were returned (response rate 92%). 46/429 (11%) of these were excluded as they did not meet inclusion criteria. 267/376 (71%) women were 20-34yrs (range 16-49yrs). 136/379 (36%) had previously been pregnant and 73/382 (19%) had had a termination of pregnancy (TOP). 15/380 (4%) reported currently trying to conceive. 10/384 had an infertile partner or were not currently sexually active. 17/363 (4.6%) reported using no contraception. 147/363 (40.5%) were using condoms only with 119/147 using condoms 'every time' or 'most of the time'. 121/360 (34%) were using the oral contraceptive pill; 102 combined preparations and 19 progesterone only pill. 48/360 (13%) were using Long Acting Reversible Contraception; 29 an intrauterine device, 11 Depo Provera and 8 Implanon. 2/360 were using the contraceptive patch and 3 women other methods including natural family planning. Using a Likert scale, 142/189 (75%) women would be happy accessing contraception at a GUM clinic and 8/189 (4%) would be unhappy doing this. The main reasons that would discourage women from using a contraceptive service at a GUM clinic were long waiting times (68/205), inconvenient location (39/205) and restrictive opening hours (38/205). 136/177 (77%) said they would be likely to use such a service if it existed. 159/390 (41%) of women were  $< 25$ yrs and therefore not eligible for routine cervical screening. 46/249 (18%) eligible for smears had not had one in the last 3 years. 149/185 (81%) women were happy to have their smears taken at the GUM clinic and 135/168 (80%) would use such a service if it existed.

**Conclusion:** There is clear patient support and a need to offer a more integrated service by the provision of 'one-stop shops' embracing both sexual health screening and provision of contraception in GUM clinics. Cervical smear taking in this setting is less clear due to the practicalities of recall.

P244

### eHIV-STI: an evaluation by genitourinary medicine (GUM) specialist trainees of trial sessions for a web-based electronic learning package

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**Background:** The UK department of Health, in partnership with professional bodies is developing a series of e-learning programmes to deliver training to healthcare professionals. The "e-Learning for Healthcare (eLFH) - Sexual Health and HIV (eHIV-STI)" project aims to deliver a web-based learning programme comprising all the knowledge components of the GUM specialty curriculum. In order to develop a useful educational resource, early trial e-learning sessions were made available to trainees for evaluation. Comparisons were specifically sought with existing lecture based teaching methods, in particular the British Association for Sexual Health and HIV (BASHH) STI & HIV course.

**Methods:** All UK current Specialty/ Specialist Registrars in GUM were invited to register with a trial web-based Learning Management System (LMS). After the completion of at least one e-learning session (tutorial) registrars were asked to complete an online questionnaire.

**Results:** 32 trainees registered for the LMS and completed the online questionnaire, giving a reasonable mix over both years of and region of training. The majority of respondents were satisfied with the overall session design, legibility and speed of access. Around a third of respondents had experienced technical problems in accessing the learning, examples of which will be given. The majority of respondents had previously attended the BASHH STI & HIV course. Likert scores (1-5) to evaluate perceived impact of trial sessions on understanding and clinical practice were generally slightly lower than the equivalent scores for the BASHH STI & HIV course. There was, however strong support for a number of possible alterations to the content and format of this course planned once eHIV-STI is fully available.

**Conclusions:** Although the response rate was low some useful information was obtained. Overall satisfaction with the e-learning sessions experienced was high as was approval for the integration of these teaching methods with an existing conventional lecture-based course. There were however slightly lower educational satisfaction scores than for the lecture course and a few respondents experiencing technical difficulties. The results of this evaluation have been presented to the project executive to aid final project design pending full launch.

P245

### Questioning quality in the HIV clinic: a patients' perspective

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**Background:** Outpatient service provision has become increasingly important in the chronic disease model of care for HIV. High patient satisfaction levels in the outpatient setting can modify clinical outcomes by improving adherence and follow-up. Quantifying patient satisfaction has also emerged as an important tool in monitoring performance. To evaluate the quality of care in our HIV clinics we conducted a patient satisfaction survey based on a validated questionnaire designed for use in HIV ambulatory care.

**Methods:** Patients attending clinic over a 4 week period were invited to complete a modified patient satisfaction survey from the New York Department of Health AIDS Institute. A convenience sample of 75 from a cohort of 350 patients was taken. The survey utilised the Likert scale, yes/no answers and short comments relating to accessibility, waiting times, environment and facilities, information and education, staff skills and attitudes and overall satisfaction.

**Results:** Participants were representative of the overall clinic population. Seventy percent of patients utilised the telephone helpline but 35% received a busy signal or answering machine service when ringing. While 79% were never or rarely upset with waiting times a frequent suggestion was to improve waiting times. A sizable proportion wanted their provider to spend more time with them (31%) and felt that they wanted to be more involved in their healthcare (20%). The majority were asked about their emotional wellbeing (87%), if they required help telling partners about their HIV status (78%), about their life situation (72%) and about their diet (67%). Fewer patients were asked about drug and alcohol issues (59%) and dentition (40%). Fifteen percent had a question that they did not ask their provider, although 88% never or rarely felt uncomfortable discussing personal/intimate issues. Fourteen percent of those on medication found it hard to obtain their medication when required and concerns with access to an off-site pharmacy and lack of confidentiality at the pharmacy were raised. Seventy five percent rated the overall quality of care provided as the same, better or much better compared to other clinics and 90% would definitely recommend the clinic to friends with similar needs.

**Conclusion:** The survey emphasised areas of good practice and identified areas for improvement. It is a useful tool in planning service development using patient involvement.

#### P246

##### Reaching men in saunas

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**Background:** Men-only sex-on-premise venues (saunas) are in operation in most major cities. Men engaging in high-risk sexual behaviour are less likely to test in conventional settings. An outreach programme was thus developed in our city in order to target these venues for HIV and STI testing.

**Methods:** Monthly outreach sessions to the two sauna venues occurred. Tests offered included serological testing for HIV, syphilis, hepatitis B and C and first void urine for Chlamydia PCR. All were offered vaccination for hepatitis A and B. Follow up was arranged.

**Results:** 12 sessions have taken place. 193 assessments have been made including 20 patients who re-attended. 73/173 (42%) had never had a HIV test, 56/173 (32%) men were last HIV tested more than 1 year ago and 86/173 (50%) never hepatitis B vaccinated. Of the 111/173 (64%) men reporting anal intercourse at last sex, 40/111 (36%) events were unprotected. Of the 16 men married to a female, 12 had sex with a casual partner at last intercourse. 3 (2%) were found to be positive for HIV infection, 14 (8%) cases of untreated syphilis and 5 (3%) cases of urethral Chlamydia. 55% attended our genitourinary service for follow up.

**Discussion:** The sauna outreach clinic is reaching high risk men who often would not have been tested. There was a high rate of infection diagnosed. It is highly cost effective at £110/patient. The clinic has increased access and raised the profile of the health services offered by the local genitourinary medicine clinic. The men attending the clinic found it to be beneficial and welcoming, and all would recommend it to others.

#### P247

##### Deliverance – home delivery of antiretrovirals in Newcastle

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**Background:** In order to improve patient care and provide financial saving, a Home Delivery (HD) Service (which provides anti-virals for HIV, HBV, HCV and certain antimicrobials) was introduced for the 604 HIV positive patients on ART cared for by the Department of Infectious

Diseases in Newcastle. Patients could choose *when* (2 hour window between 0800–1800 Mon–Fri), *where* (home/alternative address or local pharmacy) and *to whom* the medication was delivered. Eligibility criteria for HD included stable social circumstances, good clinic attendance and a fully suppressed viral load for more than 6 months. We assessed uptake rates and patient satisfaction during the first six months of the scheme.

**Methods:** An audit assessing suitability for HD was conducted on all HIV positive patients on ART attending clinic during an 8 week period. A patient satisfaction survey was sent to those patients who had received two or more deliveries (n = 51). Service elements (communication, customer service, and delivery times) were scored on a scale 1–5, the results multiplied by a factor, derived by how important the patient rated each particular element on a scale 1–5, and expressed as a percentage of total achievable.

**Results:** 57% (158/350) of HIV positive patients assessed during the initial 8 week period were eligible of whom 70% (110/158) took up the service. 30% refused, with concerns regarding confidentiality predominating. At 6 month 252 patients were receiving HD (42% of total) which equates to 90% of those meeting suitability criteria. 45% of satisfaction surveys were returned. Communication, customer service and overall experience achieved satisfaction rates of 88%, 90%, 85% respectively. Three 'near misses' occurred with respect to confidentiality when deliveries made to people unauthorised to receive them. No actual breach of confidentiality occurred and these patients continue on the scheme. Cost savings are estimated at £100,000 over six months.

**Conclusion:** Introduction of the HD service has provided greater patient choice and convenience whilst improving service efficiency by freeing resources in the dispensary. Substantial financial savings enable the employment of a dedicated HIV pharmacist. Initial patient concerns regarding confidentiality were overcome and patient satisfaction is excellent. Home delivery should be considered for all eligible patients on ART.

#### P248

##### Distribution and characteristics of enhanced sexual health services offering STI management in England

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**Background:** Many primary care trusts (PCTs) now commission a variety of enhanced sexual health services (ESHSs) to offer testing, diagnosis and treatment for STIs; the need to ensure service quality has recently been highlighted. We carried out a survey to determine the distribution and characteristics of these services to better understand service provision in this sector and the population they serve.

**Methods:** All PCT sexual health leads in England were contacted by phone and asked to provide information about the number and types of ESHSs commissioned. A regionally representative sample provided additional information about number of patients seen, population groups targeted and services offered through a follow-up email survey.

**Results:** Over 450 ESHSs have been commissioned across England; the types of services include enhanced general practices (GPs) (56%), sexual and reproductive health (SRH) services (35%), integrated (joint SRH and GUM) services (4%) and Brook clinics (2%). London was the strategic health authority (SHA) with the highest percentage of ESHSs (34%) and the South East had the lowest (2%). 52 sites provided responses to the follow-up survey; overall the median number of patients seen per month was 80 (range 6 to 5,000 patients). Brook clinics and enhanced GPs saw the lowest numbers (approximately 50 patients/month), followed by integrated services (250/month) and SRH clinics (1300/month).

Specific groups targeted included young people/students (71% of ESHSs), men who have sex with men (MSM) (6%) and Black and Minority Ethnic (BME) groups (10%); a quarter of sites did not target services. There was a wide variation in the tests offered as part of a routine sexual health screen: 98% of sites offered chlamydia testing and 81% gonorrhoea

testing. 65% of sites routinely offered chlamydia, gonorrhoea, syphilis and HIV testing. 65% of clinics provided partner notification (PN) for at least chlamydia and/or gonorrhoea; 33% of clinics did not provide PN and referred all diagnoses to GUM clinics.

**Conclusions:** There is considerable diversity in the distribution, size and service provision of ESHs commissioned in England, highlighting the importance of ensuring common standards in STI management. Routine capture of STI surveillance data from Primary and Community Care could help monitor standards of service provision and be used to better inform STI control measures.

P249

### Do we need dedicated HIV clinics?

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**Background:** Many genitourinary (GU) medicine clinics provide both GU and HIV services to their patients. There are increasing numbers of HIV positive patients as well as pressure to achieve 48 hour access targets for GU services. In small GU centres any extra HIV clinics will erode available time for GU patients to be seen. This study explored HIV patients' willingness to be seen for their HIV care within a general GU clinic as opposed to a dedicated HIV clinic.

**Methods:** An anonymous questionnaire was sent to all HIV positive patients in our service who indicated they were prepared to receive letters to their given address.

Those who preferred 'no post' were telephoned and asked the same questions. Those who indicated neither method of communication were given the questionnaire if seen in clinic within the timeframe of the study. Questionnaires were posted 01/11/08 and closing date for replies was 01/02/09.

The questionnaire contained no mention of HIV; it stated that the usual clinic they attend might have to be changed. It asked whether they 'would mind' or 'would not mind' being seen in a general GU 'Booked' or 'Walk In' clinic.

**Results:** Of 113 HIV positive patients attending our service, 105 (93%) were sent or asked the questionnaire. Of these 61/105 (58%) responded. Non parametric data was analysed using the Mann-Whitney U test. 31/61 (51%) indicated they 'would not mind' being seen for HIV care in a booked general GU clinic and 7/61 (11%) expressed no preference. 23/61 (38%) 'would mind' being seen in a booked GU clinic. ( $p=0.019$ )

In contrast only 22/61 (36%) said they 'would not mind' being seen in a Walk In GU clinic with 10/61 not expressing a preference. 29/61 (48%) said they 'would mind'. ( $p=0.64$ )

Comments included 'the current clinic is not very anonymous', 'if there was a walk in clinic running at the same time it would no longer be confidential' and 'as long as we get our regular [HIV] treatment and consultation'.

**Conclusion:** The response rate to the questionnaire was very good.

A significant proportion of patients were prepared to be seen outside dedicated HIV clinics provided they received the same standard of HIV care. The preference is for review within a booked GU clinic rather than a walk in service.

This increases the options for small GU services to deal with increasing numbers of HIV patients in parallel with meeting 48 hour access targets for general GU patients.

These findings will help to inform future service developments.

P250

Abstract withdrawn

P251

### Gay men, what do they expect from sexual health clinics?

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**Background:** Improved access for men who have sex with men (MSM) to sexual health clinics has been recommended by the Health Protection Agency 2008 report 'Sexually transmitted infections (STIs) and MSMs in the UK'

**Methods:** A questionnaire survey was carried out in a GUM Clinic and Satellite clinics across Birmingham UK area for all MSMs who attended for sexual health testing.

The survey asked a variety of questions regarding preference of location, use of Satellite clinics, access and reasons for not attending.

**Results:** A total of 160 MSM participated in the survey the majority 75.6% (121) of the respondents identified as White British and 87.5% (140) as 'gay', while 10% (16) identified as bisexual.

Attending the main GUM clinic in the city centre was acceptable by 85.6% (137) whereas 12.5% (20) said they would not be happy to attend. Attending a clinic specifically aimed at MSM at the main GUM clinic was preferred by a significant minority 43.6% (69) however 43% (70) did not prefer such clinic.

When it comes to attending Satellite clinics, 42.5% (68) of respondents said that they would use such a service whereas 43.9% (70) said that they would not.

74.4% (119) said they did not mind seeing staff of either sex. 13.8% (22) preferred seeing male staff and 5.6% (9) preferred female staff.

When given the choice over what times are most suitable to attending clinic, most preferable was Monday to Friday evenings 33.97% (439 responses). Monday to Friday afternoons were the least preferable with 18.65% (241). Monday to Friday mornings achieved 20.89% (270) while weekend clinics were preferred by 26.47% (342).

A small proportion cited reasons for not attending a clinic; these included judgemental staff 3% (5), restrictive opening hours 4% (6), accessibility 6% (10), busy clinic 6% (10), and long waiting times 6% (10).

**Conclusion:** The majority of respondents were happy to attend the main GUM Clinic and approximately half preferred a clinic run specifically for MSMs. Half of the respondents would attend Satellite clinics.

As the majority of the workforce is female, it was fortunate that a large proportion had no preference to seeing either male or female staff.

Weekday evening clinics were the most preferred clinical sessions.

This study will be used to re-evaluate the services offered for MSMs in the hope of increasing the uptake of screening for STIs including HIV.

P252

### Implementation of a nurse-led asymptomatic screening clinic within a London HIV service

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**Background:** The 2008 UK BHIVA guidelines for the management of sexual health of people living with HIV were a response to the wider health needs of this population. As part of service redesign a nurse-led sexual health (SH) initiative has been developed to formally integrate SH screening and awareness into our HIV service. We report our experience of implementing nurse-led, asymptomatic screening of HIV positive patients.

**Methods:** A dedicated asymptomatic patient pathway was developed within our HIV service. As part of workforce development, in addition to two sexual health clinical nurse specialists (CNS), all nursing staff (band three and above) were trained to perform asymptomatic SH screens over a one year period. From August 2009, sexually transmitted infection (STI) screening was actively promoted by reception and clinical staff. On arrival for routine appointments, patients self-triaged using a standardised proforma. Those identified as asymptomatic were offered

screening by available nursing staff. Those symptomatic were referred to a CNS.

**Results:** Over a five month period, 162 men and 62 women completed the proforma. Of the men, 83% (135/162) identified as MSM, 25 as heterosexual and two as bisexual. 20% (32/162) reported > three sexual partners in the last three months. Previous STI screen was > six months in 25%. 23% (37/162) were not aware of PEPSE. 70% (114/162) accepted screening. Eight cases of chlamydia were identified; five rectal, three pharyngeal. Two cases of gonorrhoea were identified; one rectal, one pharyngeal. 28/114 (25%) were unsure of their hepatitis B status; only eight required vaccination. Of the women, 52% (32/62) had a regular partner. 22/32 (69%) were part of a discordant couple or the partner's status was unknown; 50% had not disclosed. 38/62 (61%) accepted STI screening. No STIs were identified. Cervical cytology had been performed in only 39% within the last year. Of 40 cervical smears performed; three women had borderline changes and one woman had CIN 1. Information on children was often incomplete. Four children were identified as untested. 10 women planned future conception and four reported menopausal concerns.

**Conclusion:** Our findings indicate that this nurse-led model of integrating sexual health into HIV services is feasible and acceptable to patients. This structured pathway provides further opportunities for targeted screening, support and education.

### P253

#### Nurse-led clinics improve access to specialist HIV care for newly diagnosed patients testing at two inner city sexual health clinics

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**Background:** British Association of Sexual Health and HIV (BASHH) guidelines stipulate that patients should be seen by a specialist within 48 hours or, at the latest, 14 days of first being informed of a HIV positive result. Yet no specific guidance concerning specialist HIV review for patients testing positive in a GUM setting have been published. In 2006, following an audit into the referral pathway of newly diagnosed patients to the HIV clinic, recommendations were made to: 1) measure CD4 cell count at the same time as performing a confirmatory HIV test, 2) increase the number of HIV specialist nurse clinic sessions, 3) increase the frequency of new patient HIV physician appointments. A re-audit to assess improvement was undertaken.

**Methods:** Patients who tested HIV positive in 2 inner city sexual health clinic linked to a HIV centre between 01/07/06 – 31/12/06 and 01/01/09 – 30/06/09 were included. Patient records were reviewed and the following data were collected: demographics, reasons for attendance, near-patient HIV testing, CD4 count, dates of health care reviews and treatment. Student t-test was used to compare differences in the time between the patient being informed of the result and the time of: 1) CD4 count measurement, 2) HIV specialist nurse review offered, 3) starting prophylaxis against Pneumocystis jirovecii pneumonia (PCPP) if indicated, 4) starting highly-active anti-retroviral therapy (HAART).

**Results:** Sample sizes were 75 (2006) and 53 (2009). There was no difference between the two cohorts in terms of CD4 count at diagnosis ( $p = 0.38$ ) with similar numbers required PCPP and HAART soon after diagnosis. Four symptomatic patients in the 2009 cohort were seen by a physician in the Emergency HIV Clinic on the day that they were notified of a positive result. The Table shows the mean time in days (and standard deviation) from the time of the patient being notified of HIV positive result and the 4 time lines in management.

Time line	2006	2009	p-value
CD4 Count	35 ( $\pm$ 51)	24 ( $\pm$ 31)	0.16
HIV Nurse	39 ( $\pm$ 28)	18 ( $\pm$ 13)	0.0004
PCPP Started	28 ( $\pm$ 24)	12 ( $\pm$ 8)	0.50
HAART Started	69 ( $\pm$ 102)	85 ( $\pm$ 85)	0.69

**Conclusion:** Attendees to self-referring for testing in a sexual health clinic continue to present late and require prompt access to HIV specialist care. Whilst increasing nurse-led HIV clinics has significantly improved access, more could be done for timely assessment of immunosuppression in less symptomatic patients so that appropriate treatment can be expedited.

### P254

#### Something for the weekend! Piloting a Saturday morning GUM service

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**Background:** Patient choice and addressing unmet needs are paramount in the development of Genito-urinary Medicine services. Recent patient surveys conducted nationally and locally have indicated patient's preference for Saturday services. We report on our experience of implementing and evaluating a Saturday morning GUM clinic pilot.

**Methods:** An evaluation of activity, patient access, complexity of patient presentations and diagnoses was conducted over the first five weeks of the pilot. A concurrent patient survey was also conducted. Patient demographics and diagnosis codes were extracted from the clinic database and patients attending Saturdays were compared with patients attending the weekday service during the same period. Tests of proportions were carried out to obtain p-values.

**Results:** 158 patients were seen during the first five weeks of the pilot. 68.8% found out about the service via the hospital website, which had advertised the clinic two weeks in advance. 73.2% booked an appointment via the automated text booking system (VQS) the evening before the clinic, the remainder either walked in on the day or were referred. 97.4% of patients found booking appointments easy or very easy. The majority of patients commented that they had not been able to attend during the week because of work commitments with a high proportion (60.9%) between age 25 and 34.

84.4% of patients attending on Saturdays were coded as new patients compared to 54.2% of patients presenting during the week ( $p < 0.001$ ). 58.3% of patients were female compared to only 48.1% during the week ( $p = 0.01$ ). The PCT of residence of both groups were almost identical.

Only 35.1% of patients on Saturday were coded as complex patients compared to 47.8% during the week ( $p = 0.002$ ). Nevertheless, the Chlamydia (6.5%), gonorrhoea (4.9%) and Herpes simplex prevalence (4.3%) were high. The DNA rate for VQS appointments was 10.8%.

**Conclusions:** The Saturday morning clinic attracted a high proportion of new patients, predominately employed and a high proportion of women. Despite less complex clinical presentations we found a high prevalence of pathology. Further work on cost-effectiveness and staff consultation is required to implement this service permanently.

### P255

#### Specialty induction for junior doctors in GUM/HIV medicine using an e-learning tool

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**Background:** Junior doctors' specialty induction within our GUM/HIV department has involved a programme of lectures that cover our local guidelines. This lasts two days, is scheduled up to three times a year, requires significant coordination and input from the multidisciplinary team and interrupts the department's weekly educational activities. Training tracker is an e-learning tool used by over 80 NHS Trusts primarily for staff Trust induction and statutory and mandatory training. We used this software to devise a GUM/HIV specialty e-learning induction programme for junior doctors. This has been piloted and evaluated.

**Methods:** In August 2009, twelve new GUM/HIV doctors completed the online programme as well as the standard lecture induction. The e-programme contains over thirty modules detailing our local specialty guidelines. Each module has set questions and once answered correctly a certificate is generated. Individuals were asked to complete the modules within four weeks and given time for this during their weekly academic educational morning or non-clinical sessions. If preferred Training Tracker could also be accessed from home/out of hours. Individuals needing assistance with any of the modules were referred to their educational supervisor. After completing both programmes doctors were asked to return a feedback questionnaire anonymously.

**Results:** 12 doctors (4 SPRs, 2 F2, 2 GP trainees, 2 core medical trainees and 2 trust grades) piloted the e-programme, rating their level of learning as 7.5/10 (median, 0=Nil, 10=excellent, range 6-9). 11/12 doctors (92%) found getting a user name and password was simple. Doctors agreed that they could log on and navigate the site without difficulty (100%) and that the content was useful (11/12, 92%), relevant (100%), of an appropriate depth (11/12, 92%) and pitched at the correct level for their needs (10/11, 91%). One doctor found the lecture induction preferable to the e learning tool, whereas eight did not and three preferred a mixture. 10/12 (83%) doctors found the e-learning programme covered everything sufficiently well, whereas two felt cervical abnormalities were not covered.

**Conclusion:** E-learning for specialty induction was found to be acceptable, user friendly and could partly/wholly replace a lecture based programme. It not only releases valuable staff time but, avoids the information overload that is common upon joining a new Trust and caters for doctors joining outside the classic intake times.

## P256

### The availability and uptake of dental services by HIV-infected individuals

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**Background:** In 2003 the Department of Health recommended standards for NHS HIV services - Standard 5 stated that timely dental care can help people with HIV maintain good oral and general health. Separately the General Dental Council has stated that it is unethical for a dentist to refuse to treat a patient solely on the grounds that the person has a blood borne virus. Therefore a study was designed to assess access to, and issues with, general dental services for patients attending North Manchester General Hospital HIV clinics.

**Methods:** Questionnaires were completed by 146 unselected HIV positive patients attending routine HIV clinics.

**Results:** Average age was 41. 76% were male. Ethnicity was 67% Caucasian, 27% Black and 3% Asian. 70% were UK nationals, of whom 69% were registered with a dentist; 8% were asylum seekers, 91% of whom were not registered with a dentist. Of all 146 patients 57% were registered with a dentist. The majority of white and the minority of black patients were registered with a dentist (64% versus 38%). Of the 83 patients registered, 65% saw them regularly and 35% when there was a problem. Only 51% of those registered had informed their dentist of their HIV status. The reasons for this included fear of discrimination (23%) and worries regarding confidentiality (23%). In only 10% of cases had a dentist asked the patient their HIV status, and only 8% had been advised by their doctor to tell their dentist their diagnosis. 2 patients reported having been refused treatment on the basis of their HIV status. 52% of all patients were happy and 31% were unhappy with their access to dental care. When correlated with residency status a greater proportion of UK nationals were happy with dental services compared to asylum seekers (62% versus 18%).

**Conclusions:** Only 57% of HIV patients were registered with a dentist. The rate was lower in asylum seekers and this may reflect difficulties in accessing services. Worries regarding discrimination and confidentiality remain important issues.

## P257

### The journey from Word to Access in the quest to Excel

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**Background:** The measurement and reporting of performance in sexual health has become a key requirement at a local and national level in recent years. The accurate and timely measurement of performance metrics within a clinical setting is also vital in order to introduce and measure appropriate and effective change. We describe the replacement of several paper based data collection methods with an electronic real-time data entry system within a walk-in GUM service and the introduction of a performance monitoring score card.

**Methods:** In May 2009 "WITS" (Walk-in Timing System) was introduced. This access database was used concurrently by reception and clinical staff to record a variety of data on patients including transit time through clinic, waiting times, unmet need and staff finishing times. WITS provided real time information on waiting times for reception and clinical staff and also allowed for monitoring of flow through the clinic enabling a proactive rather than reactive management of patient flow and reducing waits. Data collected through WITS was reported within a monthly score card which combined data from the sexual health clinic system such as activity, primary care trust of residence, percentage of patients uncoded, HIV testing rates, turn around times for lab results, partner notification rates, percentage of patients receiving results within seven days.

**Results:** In the months following introduction of WITS, waiting and transit times of patients fell by 25%. WITS recorded on average 50 patients per month who either did not wait or decided not to book in, indicating unmet need which was not previously recorded. Use of the database improved over time where transit time being recorded increased from 40 to 70%. Finishing times improved and informed changes in clinic timetabling to extend patient access hours.

**Conclusions:** The introduction of WITS has greatly improved awareness of patient flow from registration to discharge thereby reducing transit times in clinic. The use of data derived from this system alongside the introduction of a score card has been used to inform appropriate and effective service redesign. WITS is an inexpensive intervention utilising readily available software and may be integrated into any comparable GUM service.

## P258

### Is there a need to provide a sexual health service for clients attending a Gender Identity Clinic (GIC)?

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**Background:** Several studies have highlighted a high prevalence of HIV and STI's amongst the transgender community, compounded by the barriers they experience when accessing health care.

DH guidelines support strategies to encourage access to sexual health services for minority groups. In collaboration with Europe's leading gender reassignment unit, we undertook a survey to investigate the perceptions of clients regarding their own sexual health and whether the provision of a dedicated and accessible sexual health clinic would be considered an important service in meeting their sexual health needs.

**Methods:** An anonymised questionnaire (n=100) was randomly distributed to clients attending the GIC over a period of eight weeks and the results were collated for analysis using SAS V9.1 statistical package.

**Results:** The response rate was 88% (n=88). The modal age group was 36-40, 30% stated their gender as female and 10% male. Sexuality produced a varied response with 12% preferring not to answer. Of the 88 respondents, 65 (74%) felt that sexual health was very important to

them and two (2%) not important. Overall 48 (55%) of the total cohort had never had a sexual health screen, only 18(20%) had undergone screening within the last twelve months. Over half (58%) of respondents stated that they felt regular screening to be important, however, of these a quarter had never had a screen. When attending appointments at the GIC, 42 (48%) were never asked about their sexual health – almost half (44%) thought it should be routinely discussed at their clinic attendance. The majority, (85%) stated that they would feel comfortable discussing STI's and sexual health with their GIC healthcare professional. Regarding access to screening and advice, 39 (44%) of respondents were happy for a service to be appointment or walk-in led and only 11 (12%) wanted it to be separate from the GIC environment. Finally, 54 (61%) thought that sexual health screening was an important service to offer even though 25 of these individuals (46%) had never been screened.

**Conclusion:** Clients attending the GIC appear to support the establishment of a sexual health service. Given the high prevalence of STIs in some sub-sections of this cohort, many of whom will undergo major genital surgery, provision of sexual health outreach clinics within GIC facilities would be prudent.

### P259

#### Use of sexual and reproductive health services by Central and Eastern European women in London

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**Background:** Since May 2004, ten Central and Eastern European (CEE) countries have joined the European Union, leading to a large influx of CEE migrants to the UK. This paper examines the sexual and reproductive health service use and needs of CEE women in London.

**Methods:** We conducted a cross-sectional survey of the Sexual Attitudes and Lifestyles of London's Eastern European migrants (SALLEE) between July 2008 and March 2009. Only women from the ten CEE accession countries are included in this analysis (n=1173).

**Results:** The mean age of the women was 28.5 years (sd=8.5), 60.2% were married or co-habiting, 34.8% had a degree and 40.2% had children. 89.0% reported heterosexual sex in the past year. Among these women, condoms were the most widely reported form of contraception in the past year (49.4%), followed by the pill (37.3%). 29.2% had obtained contraception from UK services in the past year. 18.2% of women had ever had an abortion.

64.8% of women were registered with a GP. 51.7% of women had attended their GP in the past year and 22.4% had attended for sexual or reproductive health over this period. 86.1% of non-registered women had not tried to register and 28.6% did not intend to register. 14.9% had attended a family planning clinic in the UK and 7.6% had attended a sexual health clinic. GP registered women were more likely than unregistered women to have attended a family planning clinic in the UK (20.8% vs 4.2%, p<0.01) and/or a sexual health clinic (10.1% vs 3.2%, p<0.001).

Multivariate analysis indicated that GP registration was associated with having arrived less recently in the UK (aOR=6.52, p<0.001), having children (aOR=3.55, p<0.001), being married or co-habiting (aOR=1.82, p<0.001) and having a degree (aOR=1.56, p<0.01). It was not significantly associated with having sex in the past 12 months (aOR=1.37, p=0.18).

**Conclusion:** A substantial proportion of CEE women have not registered with a GP and do not intend to do so. Unregistered women are also less likely to access other sexual and reproductive health services and may be at increased risk of sexual and reproductive morbidity. Ways of improving access to primary care services across this population should be examined.

### P260

#### Perception of general practitioner care amongst HIV-positive heterosexual Black Africans and homosexual men in London

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**Background:** To identify differences between heterosexual black Africans (HBA) and men who have sex with men (MSM) in their perception of general practitioner (GP) care for HIV.

**Methods:** Consecutive HIV positive patients attending an HIV clinic completed a self-administered anonymous questionnaire about access to general practitioner and other services for HIV care.

**Results:** Eighty HBA and 62 MSM completed the questionnaires. Compared to MSM, HBA were less likely to receive their HIV diagnosis in the UK (P= 0.09), more likely to prefer both an earlier HIV diagnosis (P<0.001) and polyclinic attendance to hospital (p=0.02), and in those with GPs, were less likely that their GP was aware of their HIV diagnosis (P=0.004), more likely to have confidentiality concerns about their GP (P=0.0003), less happy both for letters to be sent to their GPs (P=.0001) and for them to manage their HIV care (P=0.03). The most common reason for not having a current GP was concern about confidentiality.

**Conclusions:** Although similar proportions of HBA and MSM currently had a GP, barriers exist for HBA to identify their HIV status to GPs. Further work is required to encourage HBA to divulge their HIV status to GPs and improve patients' perception of confidentiality in the surgery setting.

### P261

#### Using illustrations to develop treatment literacy

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**Background:** The treatment education booklets and factsheets produced by community organisations are valued by clinicians and patients as providing relevant, accurate information. However, some patients find them too complex and text-heavy. While some patients are active information-seekers, others rely on professionals to deliver this support or only seek it out at specific moments (e.g. diagnosis, starting ARVs, etc.) There is a need to develop innovative formats for treatment education materials that are appropriate to people who do not have much prior understanding of HIV, whose first language is not English, who are less comfortable with textual information or who have lower literacy levels.

**Methods:** Advice was sought from a team of healthcare professionals who provide face-to-face treatments advice. They identified a need for a printed resource that could be used during a discussion with a patient, and noted that they often use illustrations and simple analogies to explain complex health concepts. They shared their pictures and explanations with a writer. Together, a list of ten key topics was developed (e.g. CD4 and viral load, adherence, having a baby).

A close collaboration between the writer, graphic designer and group of healthcare professionals ensued. Possible illustrations and explanations were refined over multiple sessions. Further focus group testing and interviews with people with HIV, community organisation staff and health professionals, conducted by external researchers, provided further insights, and less effective approaches were rejected.

**Results:** We created a new visual language in order to communicate key aspects of HIV infection and care. Typically, a topic is explained in six images and less than 250 words. A series of ten leaflets has been produced; they are designed to be used as part of a discussion between a healthcare professional and a patient.

The leaflets have been extremely popular with UK clinics (over 80% of clinics have ordered copies). A total of 86,315 leaflets have been

distributed in nine months (i.e. one leaflet for each person with HIV in the UK). All ten leaflets have been highly commended at the BMA Patient Information Awards and awarded the Crystal Mark by the Plain English Campaign.

**Conclusion:** Close collaboration with healthcare professionals and community organisations ensured the project's success. High uptake of the leaflets has confirmed the need for simpler, more visual treatment information materials.

P262

### It's good to talk – GP and dentist communication in HIV patients

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**Background:** BHIVA and MEDFASH both include GP care as essential to HIV services in their standards of care documents. Historical barriers to accessing GP care have been around stigmatisation, confidentiality and concerns over GPs' experience dealing with HIV. Last year we adopted a policy of GPs prescribing all non-HIV related drugs. Dental services are vital to our patients but it is frequently difficult to access NHS dental care and knowledge of dental use and disclosure is often poorly documented.

**Methods:** As part of clinic practice we enquire about GP and dental disclosure. In addition we collected data by reviewing case notes for demographics, medical diagnosis, medication and consent to write to their GP

**Results:** 124 patients were included to date. 94% had a GP locally; the remainder had a GP elsewhere. 97 (78%) said they saw their GP/ practice nurse, and 99 (80%) of their GP knew their HIV status, 23 (18%) were unaware. 90 (73%) permitted GP communication.

Confidentiality was the main reason for not telling the GP (67%). Approximately half had co-morbidities the most common being hyperlipidaemia followed by hypertension. 43 (35%) were taking medication that was not HAART or HIV related and 44 (35%) had regular medication prescribed by the GP. Referral to another specialty by ourselves had occurred in 33 (27%).

65 (52%) patients had a dentist, yet only 22(18%) of their dentist are aware of their status. 45 (36%) had not told them. 20% were unaware they should disclose, 20% having not attended since diagnosis, 18% concerned over confidentiality and stigma (11%) were the reasons for not disclosing their HIV status.

**Conclusion:** Confidentiality remains an important barrier to disclosure. Our policy of GP prescribing non HIV medication is working. Due to complex interactions with HAART it is vital we ensure all patients on HAART inform their GP and address individual fears around disclosure. Further education of patients is required for regular dental care and informing the dentist of their status. Documentation in clinic letters should contain information on disclosure to both GP and dentist so this can be regularly reviewed.

P263

### Sexual healthcare for British forces in Germany (BFG) – a nurse-led service

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**Background:** The 43k BFG community stretches 500Km across northern Germany covering an area the size of Scotland. Approx. 22k are military, the rest are MoD civilian staff, contractors and dependants. The majority are <30, with 5:3 M:F ratio. The GUM service consisted of a full time consultant and 3 nurses, delivering care Mon-Fri from a central site with 2 satellite clinics. In the 16 GP practices there was a widespread perception that STIs should be not be managed in general practice.

There is evidence for a potential unmet need: KC60 returns for 2008 showed 324 cases of chlamydia (0.7% of the total population), but 14% of tests are positive. Furthermore, soldiers take more risks than civilians<sup>1</sup> and many are recruited from southern Africa and Fiji without screening for BBVs.

The MoD primary and community care contract [won in April 2008 by a partnership of SSAFA Forces Help and GST Trust] was to develop nurse-led GUM provision integrated with primary care whilst also delivering training, support and clinical governance to other providers in BFG.

**Methods:** *Raising awareness in primary care by:* user involvement; training sessions; military health promotion activities; introducing PCR multi-tests; HIV testing pathways; a newsletter; STIF courses; using liaison link nurses to assist primary care to develop STI screening provision and relocation a satellite clinic into GP venue. *Changes in GUM included:* developing protocols and guidelines; a medicines management review; health and safety practice, and overhaul of the HIV care.

**Results:** Since July 2009, the GUM service has become wholly nurse-led. Clinical advice and governance support are from a consultant, based in UK and travelling monthly to Germany.

*Examples of metrics are:* a doubling of HIV testing in GUM; HIV patients on ARVs now have undetectable VLs; nurse prescribing established; screening in primary care being monitored for future evaluation; STIF course is oversubscribed.

*Further work includes:* web-based IT; expanding young peoples' services; remote/self-management mechanisms, and closer working with staff at GSTT.

**Conclusion:** This innovative, nurse-led GUM service is highly acceptable and effective for BFG and may be transferable to other settings.

**Reference:** Verrall, N. G. (2009). The role of risk in the health behaviours of military personnel in the UK armed forces. DSTL/CR33456. Porton Down: DSTL

P264

### Something for the weekend: do patients want a Saturday service?

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**Background:** In response to Lord Darzi's NHS Next Stage Review, the South West Strategic Health Authority set a new regional access target namely: 100% of service users seeking access to genitourinary medicine clinics should be offered an appointment within 48 hours, measured over a full calendar week by 31 March 2010. We needed to commence a weekend clinic to meet this target, but were weekend services important to patients?

**Methods:** We asked patients attending the Saturday clinic to complete a questionnaire outlining their reasons for attending at the weekend. Patients attending evening clinics were also asked to complete a similar questionnaire. Statistical analysis was performed using a two-tailed test of proportions.

**Results:** Questionnaires were completed by 150 (75 male[M]: 75 female[F]) patients attending on Saturday and 300 (137M:163F) patients attending evening clinics. Saturday patients were younger (mode 20 – 24 years) compared with evening attenders (mode 25 – 44 years). Seventy nine [53%] Saturday patients said they were worried and so wanted to attend as soon as possible and 71 [47%] said they chose the weekend because of other commitments. Women were more likely to want the earliest appointment 43 [57%] compared to men 36 [48%] but the difference did not reach significance. There was no difference according to age. One hundred and thirty [43%] evening patients wanted the earliest available appointment and 170 [57%] chose to attend in the evening because of other commitments. There was no difference according to gender/age. The table shows patient preferences. Saturday patients were more likely to want to re-attend on a Saturday again whereas evening patients were more likely to want to re-attend evenings ( $P<0.0001$ ).

	Prefers Saturday	Prefers Evening	Happy to attend either
Saturday attenders N = 129	71 [55%]	25 [19%]	33 [26%]
Evening attenders N = 300	16 [5%]	266 [89%]	18 [6%]

**Conclusions:** More Saturday patients said they had wanted the earliest available appointment compared to evening attenders, but this did not quite reach significance ( $P = 0.06$ ). We intend to continue collecting data from Saturday patients until we have 300 responses. However from data collected so far the majority of patients who attended on Saturday had wanted to be seen as soon as possible and providing a Saturday service shortens the weekend interval. It is not just about meeting our regional target – it seems our patients do want a Saturday service.

### P265

#### What patients actually want: the patient perspective on the 48-hour access to GUM clinics

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**Background:** A national target stipulating that all patients should be offered an appointment within 48 hours of contacting a genitourinary medicine (GUM) clinic was effective from March 2008. Compliance with this target has improved greatly however numbers of those accepting appointments offered within 48 hours are significantly lower in many centres. We surveyed service users (SU) attending our GUM clinics to identify factors which influenced their decision of when to be seen.

**Method:** All SU over a one-week period at three GUM clinics were interviewed via anonymous questionnaire. Reason for attendance, date of initial contact with service, date of first appointment offered and accepted date of attendance were collected. Reasons for SU attending later than the first available appointment were surveyed. A Likert scale was used to rate responses to suggestions that may encourage earlier clinic attendance.

**Results:** Questionnaires were returned by 394 SU, of whom 52% were male and 25% were MSM. Of all responders 36% identified as symptomatic. The majority, 358/394 (91%) were offered an appointment within 48 hours; verified Trust reports for the survey period revealed 100% of new patients were offered an appointment within 48 hours. The vast majority (75%) attended within 48 hours/ two normal working days (NWDs). Of those seen beyond 2 NWDs, 35% decided to wait until they were free, 9% had cancelled their first appointment and 2% were advised to wait for clinical reasons. Work (17%) and educational commitments (1%) also affected attendance. Statements providing information about personal health risks and transmission risks were identified as being potentially influential in accepting an earlier appointment. The majority of SU supported evening clinics, Saturday morning clinics and walk-in clinics as potential options to facilitate earlier attendance. Distance to the clinic did not affect attendance.

**Conclusion:** Despite appointments being offered within 48 hours, multiple factors prevent attendance. This survey strongly suggests that providing information regarding the consequences of delayed diagnosis and treatment of sexually transmitted infections could reduce delayed attendance. Lifestyle suited, non-traditional opening hours and walk-in clinics may facilitate an increase in 48-hour acceptance rate of appointments.

### P266

#### A systematic review of patient-derived outcome measures for HIV services

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**Background:** The use of patient feedback to measure satisfaction with care has become central to the planning and development of services throughout UK healthcare systems. Where people with HIV are concerned this evaluation must account for developments in treatment and care so that the specific needs of quite disparate groups within this population are reflected and accommodated. The review objectives were to ascertain what themes service users regarded as crucial to the provision of a quality care experience, to establish how feedback has been used to measure satisfaction with HIV services and ultimately to identify whether a gold standard method of measurement exists that is valid, reliable and generalisable across relevant care settings.

**Methods:** 12 databases were searched together with unpublished data and reference lists from retrieved papers. This yielded 1474 titles from which 150 study abstracts were appraised. Using a clinically focused question and predefined inclusion and exclusion criteria 32 articles were included and reviewed for quality using a quality appraisal tool. Relevant data was extracted by two independent reviewers using a data extraction checklist.

**Results:** The included studies originated from Europe and North America and comprised 19 Questionnaire Studies, 2 Focus Groups, 9 Interview Based Studies and 2 mixed method studies. Three instruments were identified that were developed specifically for HIV Service measurement. Thematic analysis revealed that staffs' knowledge and their attitude towards their patient's condition were essential factors in positive feedback. Other themes included the maintenance patient dignity, autonomy and confidentiality and flexible access to an appropriate environment of care. Across the time span of literature, similar themes occurred although their importance changed in parallel with developments in treatments and therefore life expectancy and quality of life. At present there is no validated instrument that captures the dynamic changes in HIV Services and patient satisfaction with it.

**Conclusions:** There is a need to develop a valid instrument to measure satisfaction with HIV services that is sensitive, engaging, and meaningful to those people accessing the services. To be useful it needs to be easy to complete and analyse, and the whole process requires a fundamental review of the methodology used to incorporate patient feedback into the redesign of services to promote a dynamic model of care.

### P267

#### Influence of access to care in virological failures to efavirenz-containing antiretroviral regimens

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**Background:** Efavirenz is recommended as part of first line antiretroviral treatment (ART) for HIV-1 infection. However, its long half life and low genetic barrier to resistance can result in virological failure associated with genotypic resistance in patients who undergo unscheduled interruptions in therapy. We aimed to determine factors associated with virological failure to efavirenz-containing regimens in a cohort of HIV infected patients.

**Methods:** We performed a retrospective review of all patients prescribed efavirenz containing ART between January 2008 and December 2009, identifying those patients who discontinued efavirenz therapy; whether due to virological failure or not; and the reasons for such treatment discontinuations.

**Results:** Of 144 patients prescribed efavirenz-containing ART, 21 (14.5%) patients discontinued efavirenz. Of the 21 patients, 7 patients were lost to follow up, 4 elected to self discontinue ART, and 3 underwent a physician directed switch from efavirenz. Seven patients (57% male) discontinued efavirenz-containing ART secondary to virological failure (HIV RNA > 50 copies/ml) at follow-up. The median CD4 count in this group at diagnosis was 38 cells/ $\mu$ l. 6 of the seven patients were from sub-saharan Africa, 5 of whom were asylum seekers. 6 of the 7 underwent unscheduled interruptions arising from an inability to attend scheduled appointments. The most common reasons offered for non-attendance were distance from clinic (median distance of 90km) and lack of finances to travel, along with social commitments. In addition 2 patients experienced virological failure with subsequent ART regimens again as a direct consequence of missed appointments.

**Conclusion:** These findings serve to highlight the importance of maintaining effective access to clinical care in order to achieve successful long-term management of HIV infection and reduce development of resistance. Vulnerable patients, such as asylum seekers, are clearly in need of continuous access to effective therapy and require support to ensure access to healthcare. Such groups remain vulnerable to unscheduled treatment interruptions, which in this study was the commonest reason for treatment failure with efavirenz-containing antiretroviral regimens. Efforts to individualise choices of ART and dispensing patterns, in addition to the improvement of ancillary patient support services, should be encouraged.

## Epidemiology Testing and Surveillance

P268

### A randomized controlled trial to evaluate the effectiveness of an emergency department-based multimedia HIV testing model in adolescents

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**Background:** The increasing HIV seroincidence rate among 13–29 year olds in the United States has illuminated the need for a method to increase testing among this age group. This study compared a youth-friendly HIV education video to in-person HIV counseling to determine the most effective way to convey HIV knowledge and improve HIV testing rates.

**Methods:** A prospective randomized controlled trial was conducted on a convenience sample of 200 non-critically ill, sexually active individuals aged 15–21 in an urban emergency department. Participants were randomized into 2 groups. The experimental group watched the video and completed pre and post-intervention HIV knowledge measures; the control group received HIV information from a counselor and completed the same measures. HIV testing was optional. The primary outcome was HIV knowledge. The secondary outcome was acceptance of HIV testing. Data was analyzed using STATA.

**Results:** Of the 333 eligible, 200 agreed to participate. Risk factors and demographics were the same in both the control and intervention groups; there was no difference in pre-intervention HIV knowledge scores. Mean post-intervention knowledge scores differed significantly: video (78.5%) versus counselor (66.3%;  $p$ -value < 0.01). Additionally, 51% of the video group accepted HIV testing compared to only 22% in the control group ( $p$  < 0.01). None were HIV positive. In a multivariate logistic regression model watching the video (OR 3.53; 95%CI: 1.84 to 6.80), being female (OR 2.25; 95% CI: 1.14 to 4.43), engaging in oral sex (OR 3.28; 95% CI: 1.67 to 6.45) and being over 18 (OR 3.27; 95% CI: 1.66 to 6.44) were all positively associated with testing.

**Conclusions:** A youth-friendly HIV education video improved HIV knowledge and increased rates of testing in adolescents compared to

conventional in-person counseling. Having demonstrated successful delivery of HIV knowledge in video format, further behavioral studies should be developed for modification of risky sexual behavior.

P269

### A validation study of high volume, rapid HIV testing in a community hospital

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**Background:** In an urban, level 1 trauma ED, an HIV testing program utilizing computer-assisted data collection with integrated video counseling resulted in high levels of patient satisfaction, increased testing rates and improved knowledge. This study seeks to validate this rapid HIV testing model in a community ED.

**Methods:** Prospective cross-sectional study on a convenience sample of medically stable patients presenting to a community hospital ED. Demographics, HIV knowledge and sexual history were collected for all patients from 2/1/08–1/31/09. A previously developed multimedia tool that includes validated HIV pre-test and post-test counseling videos and an HIV counselor was used in the testing process. The number of patients tested, identified HIV infections, patient satisfaction, and HIV knowledge conveyed were determined to assess acceptability and effectiveness of the testing model. Means and standard deviations were calculated for continuous variable and proportions for categorical variables. Group comparisons were made using Chi-Square and Student's  $t$ -tests.

**Results:** 3770 patients were tested for HIV in the community ED. Group demographics are shown in Table 1.

Table 1. Population Characteristics

	Urban	Community	p-value
Female	55.2%	63.8%	<0.01
Age (yr)	36.0 $\pm$ 14.6	35.8 $\pm$ 13.5	0.73
Hispanic	52.0%	60.4%	<0.01

Most patients found ED testing helpful, underwent testing and were linked to care (Table 2).

Table 2. Outcome Measures

	Urban	Community	p-value
Accepted Testing	87.5%	88.1%	0.29
Linked to care	83.3%	93.3%	0.35
Plan to change sex practices	87.2%	76.2%	<0.01
Learned new HIV information	93.1%	85.3%	<0.01

**Conclusions:** This study validates an HIV testing model using computer assisted data acquisition paired with video counseling and a live counselor to ensure linkage. This model's proven effectiveness in disparate settings suggests more widespread applicability.

P270

### BHIVA testing guidelines: the continuing need to target people at risk of late HIV diagnosis

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**Background:** Patients diagnosed with late stage HIV infection (CD4 count <200 cells/mm<sup>3</sup> within three months of diagnosis) have an increased risk of short-term mortality. In 2008, 525 HIV-infected patients died in the UK, of whom 57% were diagnosed with late stage infection. To reduce undiagnosed infection and late diagnoses, guidelines recommend that

primary care trusts (PCTs) with a diagnosed HIV prevalence >0.2% should extend HIV testing from GUM settings into general practice and hospital admissions. We compare the prevalence of diagnosed infection against the proportion of late diagnoses by PCT to assess the potential impact of testing guidelines on reducing late HIV diagnoses.

**Methods:** HIV diagnoses reported to the Health Protection Agency were linked to records from the CD4 surveillance reporting scheme and the survey of prevalent HIV infections diagnosed (SOPHID) to calculate the proportion of late diagnoses by PCT of residence. Patients with CD4 and/or residence data unavailable were excluded. Late diagnoses for the years 2005–8 were compared to the prevalence of diagnosed HIV infection in 2008 (calculated through SOPHID and population estimates), by PCT. Twenty PCTs with fewer than 50 diagnoses were excluded from the PCT analysis.

**Results:** In 2008, 23% (35/153) of English PCTs had a diagnosed prevalence of >0.2%, 30% (46) between 0.1–0.2% and 47% (71) <0.1%. An estimated 32% (2310/7218) of patients were diagnosed at a late stage of infection in the UK in 2008. This proportion was lower among MSM (20%) compared with heterosexual women (36%) and men (44%). Of the 133/152 English PCTs eligible for inclusion, 27 had a diagnosed HIV prevalence > 0.2% in 2008, and 57 had a late diagnosis rate above the 2008 UK average, between 2005–8. Of the 106 PCTs with a diagnosed prevalence <0.2%, 43% (46) had a proportion of late diagnoses above 32%, of which 42 were outside London.

**Conclusion:** PCTs with high prevalence of diagnosed HIV infection do not necessarily equate to the PCTs with high proportions of late diagnoses. While the impact of HIV testing guidelines are likely normalise and increase testing in higher prevalence areas, further strategies are needed to target those at greatest risk of late diagnosis in lower prevalence PCTs outside London, including testing in non-GUM medical settings.

#### P271

### Feasibility and acceptability of point-of-care HIV testing in community outreach and GUM drop-in services in the north-west of England

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**Background:** BHIVA (2008) and other guidelines recommend HIV testing be routinely offered in a range of non-specialist settings. In our area, IDUs, MSM and UK Africans suffer a disproportionate burden of HIV, yet services do not actively reach out to these groups and late presentations continue. We set out to increase testing uptake in primary care and marginalized communities through a community and GUM-based point of care testing (POCT) programme.

**Methods:** 25 community and GUM service providers were trained in the use of rapid 4<sup>th</sup> generation HIV Ag/Ab point of care HIV tests. The virology laboratory procured kits and oversaw the development and implementation of quality assurance systems. Existing outreach services for asylum seekers, homeless people, MSM, female sex workers and drug dependency units incorporated POCT into routine practice. Drop in services were also offered during a promotional event around World AIDS Day 2009. A client satisfaction questionnaire was administered during the World AIDS Day event and focus groups held with service providers to assess the feasibility and acceptability of POCT.

**Results:** 467 individuals were tested between 3/9/09 and 12/1/09, including 154 in the first week of December. Of twelve reactive results (2.6%), 10 were confirmed positive on laboratory retesting – 7 men and 3 women. No seroconversions were identified by p24 Ag. Positive results came from GUM, the asylum health screening and the MSM outreach project. Of 7 invalid results 4 were due to operator error and resolved on immediate repeat testing. 127/154 participated in the client satisfaction questionnaire. Of these, 78% were male and 75% were white British. 52% had never been tested before and 25% said they would not have

had an HIV test if rapid testing were not available. 84% preferred POCT and 92% would recommend it to others. Fifty seven (59%) also wanted the availability of POCT tests for syphilis and/or hepatitis. Service providers were very supportive of the service and outlined a number of challenges associated with start up for the new service.

**Conclusion:** Rapid Point of Care HIV testing is feasible and highly acceptable to both service users and providers in community and GUM clinical settings. It has improved uptake of testing, shows good agreement with laboratory EIA and is simple and easy to use. We demonstrated no additional value in 4<sup>th</sup> over 3<sup>rd</sup> generation kits.

#### P272

### Results from a multimedia testing and counselling program in an urban emergency department

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**Objective:** The US Centers for Disease Control and Prevention recommends routine HIV screening in Emergency Departments (EDs). This study evaluates a novel approach to counseling and testing in a high-volume inner-city ED which utilizes an HIV counselor and a multimedia tool for conveying video HIV information and electronically collecting risk factor data. We evaluated this program to assess the demographic and risk factor characteristics of all patients tested, patient-reported satisfaction and outcomes for positive patients.

**Methods:** This prospective cross-sectional evaluation was conducted for 2 years. A convenience sample of medically stable patients presenting to an inner-city municipal hospital ED were recruited by 3 to 8 full-time HIV counselors. Previously developed and validated videos for HIV pre- and post-test counseling based on New York State Department of Health requirements were used. Demographic characteristics, risk factors, and satisfaction information were collected using patient self-reporting on the touch screen computer. Data downloaded automatically into a secure database. Chart reviews were conducted by the HIV-positive patients' medical provider to assess outcomes. Data were analyzed using SPSS software.

**Results:** During the federal grant period, 30,686 patients were tested for HIV. Demographic characteristics of the participants were: 41.9% male, mean age 36.0 years ± SD 14.2 years, 54.7% Hispanic and 32.0% African-American. Risk factors were: 6.6% MSM, 31.4% had multiple sex partners in the past 3 months, 50.2% reported condom use as "never," 1.4% used injection drugs. Patient satisfaction was high: 88.8% reported learning a moderate-to-large amount of new information about HIV and 78.0% preferred the format which included both videos and an HIV counselor. There 115 newly diagnosed or confirmed HIV positive patients and 85% were linked to outpatient HIV care; mean days to first medical visit was 7. Positive patient outcomes were as follows: 80% of eligible patients began HAART, median days to HAART treatment was 33, 69% of patients on HAART had a viral load less than 400 copies/mL.

**Conclusion:** A rapid HIV program using a multimedia tool and a counselor in a busy inner-city hospital ED can effectively test a large number of patients, provide consistent prevention messages to patients who report multiple HIV risk factors and link a large percentage HIV-positive patients to existing health care systems.

#### P273

### Characteristics and risk factors of patients who refuse routine HIV testing in an urban emergency department (ED)

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**Background:** CDC guidelines recommend routine HIV screenings in locations including Emergency Departments. Characteristics of patients

who refuse testing in the ED have not been thoroughly investigated. This study examines the characteristics and risk factors of patients who refused ED based rapid HIV testing.

**Methods:** A prospective cross-sectional study of patients recruited into an ED based rapid HIV testing program was conducted for 39 months. Demographics and risk factors were collected from patients who both agreed to and refused testing. Data was analyzed using STATA.

**Results:** 19,454 patients were offered routine HIV testing and 1669 (8.6%) were ineligible. Of the 17,785 eligible patients 16,688 (93.8%) agreed to test and 1097 (6.2%) refused. Characteristics of those who refused testing: 51.2% females, 14.3% Hispanic, 39.8% black, 18.9% married, and 70.8% aged over 30; all characteristics had a p-value < 0.01 compared to those who agreed to test. Bivariate analysis demonstrated that blacks (OR 1.24, 95% CI: 1.10 to 1.41), women (OR 1.02, 95% CI: 1.01 to 1.03), patients over 30 (OR 1.97, 95% CI: 1.73 to 2.26) and married persons (OR 1.37, 95% CI: 1.17 to 1.61) were more likely to refuse testing. Most refusals (49.6%) felt they were not at risk for HIV infection; their risk factors are in Table 1.

Additionally, 12.0% refused testing because they felt they had "no time" and 8.6% refused because they were "afraid."

Table 1. Respondents who feel 'not at risk for HIV'

	Previous HIV Test	Vaginal Sex (past 3 months)	Never use condoms	>1 current sexual partner	Previous STI
n=294	55.6%	59.4%	61.8%	12.6%	11.3%

**Conclusions:** Patients who refused testing were more likely to be older, black, married and female. The majority of patients who refused testing perceived themselves to be "not at risk" even though they exhibited multiple HIV risk factors. Further studies are needed to assess whether or not this issue can be generalized and to evaluate interventions that can effectively target this group.

## P274

### A qualitative study to explore why individuals who are late presenters with HIV infection do not test sooner

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**Background:** In 2007, 31% of those diagnosed with HIV in the UK had a CD4 count of less than 200cells/mm<sup>3</sup>. Late presentation results in serious health implications for individuals and society. Intervention strategies in the UK have aimed at increasing testing opportunities but still a significant proportion of those with HIV infection either decline testing or continue to test late. This study aims to identify ideas and themes as to why late presenting HIV infected men who have sex with men (MSM) do not test earlier.

**Methods:** Semi-structured interviews were conducted with 13 MSMs who presented late with a CD4 cell count of less than 200 within 12 months of diagnosis. Interviews were tape recorded and then transcribed verbatim. A structured framework analysis approach was used to analyse the transcripts and generate themes and hypotheses.

**Results:** The following themes were generated: Fear of HIV and of a positive diagnosis - "The fear... I think it's probably fear of the unknown... It's the fear of dying". Low perceived risk for acquiring HIV - "I've never had an HIV test but I've always felt that I've been... I've been safe enough". Stigma of having the test and diagnosis - "It was quite taboo... going to get things like an HIV test.", "I worry about it from a social point of view more than a health point of view... Does it mean I've got to talk to my parents, can't do the job I do, does it mean my life starts being affected?" Subthemes included: feeling healthy and not considering a test necessary and a lack of understanding/ knowledge about the current prognosis of HIV infection. Participants generally had an adequate understanding of HIV transmission but this did not always correlate with

assessment of their own risk. Some MSM had discussed HIV with their GP and many felt, if made, an offer of testing would have been taken up at this opportunity and this was more acceptable than testing in GUM.

**Conclusions:** Recurring themes for why MSM test late, highlighted by this project, could be used to help guide the development and improve the success of new testing initiatives (reducing stigma of testing, educating MSM of their own risk assessment). A more pro-active approach by all healthcare professionals, especially in primary care where MSM appear to want to be tested, and offering 'routine' testing would decrease late diagnosis.

## P275

### Testing for HIV – trends amongst men who have sex with men – 1997–2008

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**Background:** A large proportion of onward HIV transmission between MSM comes from the undiagnosed. In addition, treatment advances have improved life expectancy amongst people with HIV in the UK. As a result there is an increasing drive to encourage MSM to test for HIV. This abstract will map the statistics over 11 years, draw out the key findings and show how that has fed into HIV prevention programme planning.

**Methods:** The Gay Men's Sex Survey (GMSS) is part of the CHAPS programme of preventative work with MSM, funded by the Department of Health. It is the largest quantitative survey of MSM's sexual habits in the world, having had over 160,000 participants in the UK. As part of GMSS men have been asked every year whether they have ever been tested for HIV. This serial cross-sectional data, together with findings on the reasons men are reluctant to test, has been invaluable in establishing the proportion of men across the UK who have ever tested, from a range of demographic groups, and has fed into the programme planning for CHAPS, leading to national campaigns promoting testing.

**Results:**

- GMSS has demonstrated an annual increase in the proportion of MSM who have ever tested for HIV (from 58.5% (CI 57.0 – 60.0) in 1997 to 72.8% (CI 71.1 – 74.1) in 2008)
- There is a wide geographical variation in those who have never tested (London, 20.9%, Northern Ireland, 47.3%)
- There are significant differences by age group (under 20s, 72.6% never tested, 30s, 20.8% never tested)
- Men with lower educational qualifications are less likely to test and more likely to be diagnosed positive, while black MSM were both more likely to have tested compared with the white indigenous population and more likely to be diagnosed positive.
- Men gave various reasons for not testing (fear of unknown, uncertainty about what happens in a clinic). This and the quantitative data led to the development of a campaign specifically to encourage men to test ([www.thinkhiv.co.uk](http://www.thinkhiv.co.uk))

**Conclusion:** Efforts to encourage MSM to test for HIV have been successful in increasing the proportion of who have ever tested for HIV. The specific findings GMSS have provided data from which to design specific interventions for specific groups.

## P276

### HIV test preferences in an urban hospital emergency department

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**Background:** Routine rapid HIV testing in the ED depends on patient acceptance of the offer to test. Patients may prefer one type of test over

another and assessing these differences could maximize the efficacy of an ED rapid HIV testing program.

**Methods:** Anonymous surveys were distributed in an urban, level 1 trauma emergency department (ED) in the Bronx, NY to determine patient demographics and HIV test preferences. Patients were asked to complete a short demographic survey and HIV testing history in addition to answering whether they would prefer a 15-minute rapid fingerstick HIV test or a 20-minute oral swab HIV test. Means and standard deviations were calculated for continuous variables and proportions for categorical variables using SPSS software. Group comparisons were made using Chi-Square and Student's *t*-tests using STATA 9.

**Results:** Demographic characteristics of the patients surveyed (n=412) were: mean age 35.7 years  $\pm$  SD 13.3; 61.5% female; 52.7% Hispanic; 39.1% black; 8.9% white. Overall, 73.9% of respondents preferred a rapid oral swab test for HIV compared to a rapid fingerstick. There were no statistically significant differences in test preferences across ethnicity (p=0.52), race (p=0.84), age over 35 (p=0.56) or age over 50 (p=0.16). A prior HIV test did not have a significant impact on test preference (p=0.08) and 81.2% of patients said they had been tested for HIV at least once. Most patients (71.1%) wanted to receive information about HIV prevention during their ED visit and there were no significant differences between demographic groups.

**Conclusion:** Patients in an urban ED are more likely to prefer a rapid oral test to a rapid fingerstick regardless of race, ethnicity or age. The majority of patients surveyed wanted to receive information about HIV prevention in the ED setting. Rapid oral ED testing with provision of informational materials and the option to use a rapid fingerstick test could maximize the number of patients tested.

#### P277

### HIV testing patterns in primary care in high-prevalence PCTs before and after the 2008 HIV testing guidelines: using laboratory testing data to monitor and support the local implementation

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**Background:** The 2008 National HIV testing guidelines recommend expansion of HIV testing in high prevalence Primary Care Trusts (PCTs). The guidelines advocate using the number of HIV tests conducted in primary care settings as one of the key auditable standards. However at present HPA data on HIV testing is largely confined to GUM and antenatal settings. This study presents results from a new local primary care HIV testing surveillance pilot in an inner London PCT to inform commissioning of testing interventions to support implementation of the national guidelines.

**Methods:** Anonymised laboratory HIV testing data from two large acute trust laboratories serving >90% of local general practices were extracted, cleaned and deduplicated. Data fields included healthcare setting, HIV test, and test result, reason for test (antenatal (ANC) /non-antenatal, gender and age. 18 months of data, from March 08 until September 09, were used for the analysis. Mid-period GP list sizes were used to approximate denominators for the calculation of HIV testing rates.

**Results:** Over the 18 months period, 1,821 males and 4,129 in females had HIV tests performed in primary care. ANC screening accounted for 43.8% of tests in females and was excluded from further analysis. HIV testing rates (excluding ANC) over this period were 9.98 and 13.56 per 1,000 practice population in males and females respectively. There were no significant trends in the number of tests carried out before and after release of the guidelines. More than three quarters of tests in both sexes

were in the 20-44 years age group. Test positivity was significantly higher in males compared to females (3.20%, n=58 v. 0.86%, n=20, p<0.001). Non-ANC tests in females had a higher positivity compared to those screened as part of ANC (0.86% v. 0.17%, p<0.01).

**Conclusion:** This is the first study to look at laboratory based HIV testing patterns in primary care at PCT level. No increase in testing rates was found within 12 months after release of the guidelines. Population HIV testing rates in primary care are comparatively low at present. However test positivity, particularly in males, was highly suggestive of targeted testing in these settings. Although there are limitations to using laboratory data, the initial results suggested that this is a feasible, practicable and very timely method for monitoring HIV testing patterns to support the commissioning of local testing interventions.

#### P278

### Rising population cost for treating HIV patients in the NHS 1997-2006

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**Background:** The number of people living with HIV (PLHIV) is rising in the UK as elsewhere in the world. The increasing number of PLHIV in the UK will at some stage all need to use NHS services, which has cost implications. This study documents the population cost of providing HIV services in the UK NHS, 1997-2006

**Methods:** Annual cost of HIV treatment by CDC stage of HIV infection and anti-retroviral therapy (ART) regimens were calculated, 1997-2006. Utilization data from 15 UK NPMS-HHC HIV clinics were linked to relevant unit costs, using 2006 ART drug prices from the London HIV consortium. The number of PLHIV treated by the NHS by CDC stage of HIV infection were obtained from the Health Protection Agency and population cost were derived by multiplying the number of PLHIV by CDC stage and ART regimens by their annual cost for each year (2006 prices).

**Results:** 28,925 PLHIV seen, 76% of whom were men and 51% Caucasians. Average annual treatment costs increased from £22,406 in 1997 to £29,262 in 2006. These costs varied from £17,034 for mono-therapy to £27,649 for quadruple or more ART in 1997; in 2006 these annual costs varied from £22,476 to £36,710 respectively. The number of PLHIV using NHS services was 15,530 in 1997, which rose to 56,275 in 2006. Total estimated population cost was £104million in 1996, or £165million including community care, which rose to £483million or £683million respectively in 2006. The percentage of costs spent on PLHIV with CDC A was 21% in 1997, 37% for those with CDC B and 42% for those with CDC C. In 2006, 33% of costs were generated by PLHIV with CDC A, 30% by PLHIV with CDC B and 37% for those with CDC C.

**Conclusion:** The number of people accessing NHS HIV services has increased substantially and more PLHIV are now on triple or quadruple or more ART, resulting in a rise of UK population costs for providing HIV services. More PLHIV with CDC A are now receiving ART. As the number of PLHIV is likely to continue to increase, partly due to PLHIV's longer survival on ART, partly due to the relative lack of success of preventing uninfected people from becoming infected with HIV, the number of PLHIV needing to access NHS services in the future is like to continue to increase. Where possible, measures ought to be taken to reduce the cost of HIV treatment and care without the reducing the quality of services, while greater efforts should be made to reduce the number of people becoming newly infected with HIV.

P279

### A pilot study offering and exploring patients' acceptance of routine HIV screening in a primary care setting in a high-prevalence area

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**Background:** Increase the uptake of HIV testing especially in high prevalence areas is recommended due to the large numbers of patients in the population who remain undiagnosed. Offering HIV screening in primary care setting would help achieving this goal

**Methods:** A prospective pilot study at a GP practice in a high HIV prevalence area over a period of 6 months. HIV test was offered to patients over 16 years of age attending the clinic. The GP population eligible for testing was 3094 of which 1599 were males and 1495 were females. All GP practice staff attended training in motivational interviewing technique and basic understanding of HIV. Adverts encouraging uptake of HIV test were placed on notice boards in the practice. Patient's pathway, information leaflets and an anonymous questionnaire were designed. The questionnaire included age, gender, disability and sexual orientation. Patients were asked about their views for offering the test at GP practices and within all areas of healthcare settings. The HIV test used was a 4<sup>th</sup> generation Elisa test. Data was analysed using formic software.

**Results:** 389 completed questionnaires were analysed. 65% of questionnaires completed by females, 33% by males and 2% undisclosed. The majority of attendees were Caucasian 374 (96%) 85 (22%) with disability. 318 (82%) respondents were heterosexual, 17(4%) gay, 6 (2%) bisexual and 48 (12%) did not comment. 262 (67%) of respondents did not agree to have the test while 121 (31%) agreed and 6 (2%) no comment. The reason being 75% perceived that they were "not at risk", 1% "not a good idea", 14%"other reasons" and 10% undisclosed. 88% & 83% of respondents thought it is a good idea to offer HIV test in GP practices and all other health care areas respectively. 71 HIV test were done (53 females & 18 males). This is 2% of the study practice population, and all had negative results.

**Conclusion:** This study shows predominance of public agreement with offering HIV test at GP practices and other healthcare areas. In spite of that, only a minority had the test. The reasons are shared between patients and medics. The main reason given by the patients for declining the test is their perception that they are not at risk. On the other hand, offering HIV test at a busy GP practice is not a priority. We believe that work is still required to achieve a good HIV test uptake. Patient's awareness and education is vital and incentives should go hand in hand with screening for HIV at GP practices.

P280

### A successful uptake of HIV testing in south London termination of pregnancy services

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**Background:** National guidelines recommend universal HIV testing of women attending TOP services to reduce prevalence of undiagnosed HIV. Unlinked anonymous testing of women attending termination of pregnancy (TOP) clinics in London found an HIV prevalence of >1% and 0.42% in ante-natal clinics (ANC) in 2006.

**Methods:** Retrospective review of HIV testing in TOP clients attending NHS teaching hospital and independent sector organisation in south London. Serum samples were tested using 4<sup>th</sup> generation assay AxSYM Ag/Ab Combo (Abbott). Paper/electronic databases were used to

identify attendees. Age, ethnicity, post-code, country of origin, route of referral and previous obstetric history were documented. Reason/s for declining testing were recorded if volunteered. Clients consenting to an HIV test were compared to those who declined. Clients excluded if known to have HIV, if recent (< 6 months) HIV negative result was verified or when tests weren't processed. Only a client's first visit was recorded. HIV testing outcomes in TOP services were compared with testing at ANC.

**Results:** 1/04/09-31/12/09 (9 months data): 870 women attended the NHS TOP service. Mean age 26.5 years, 488/870 (56%) Caucasian, 93/870(11%) Black African and 65/870 (7.5%) Black Caribbean. 844 (97%) seen were offered HIV tests, 702/844 (83%) HIV results received, 107/844 (13%) declined, 3 known HIV+, 16 verified recent negative results, in 16 cases no results available. One new case of HIV diagnosed and an equivocal result excluded gave an HIV prevalence of 4/720 (0.56%) compared with 7/1478 (0.47%) in ANC where HIV testing was >99% and no new diagnoses made from 1/04/09-1/09/09. 54/107 (50%) declined testing citing previous HIV test. Those declining were older; mean age 28.7 vs 26.3 years (t test, p=0.0007).

16/08/09-31/12/09 (3.5 months data): 426/941 (45%) of women attending independent sector service offered HIV testing. Mean age 25.3 years, 134/426 (31%) Black African, 117/426 (27%) Caucasian and 66/426 (15%) Black Caribbean. 355/426 (83%) HIV results received, 57/844 (7%) declined, 14 excluded as results unavailable. No patients identified with HIV. Those declining HIV test were younger; mean age 20.7 vs 25.9 years (p<0.0001). No significant interaction with ethnicity/country of origin in either cohort.

**Conclusion:** The results indicate a high uptake of HIV testing in women attending abortion services in south London. To date, few new cases of HIV have been diagnosed.

P281

### A year on from UK national guidelines: an audit of HIV testing in patients diagnosed with a clinical indicator disease

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**Background:** UK national HIV testing guidelines were released in September 2008. These aimed to promote patient HIV testing by all clinicians regardless of specialty, and to trigger testing when specific diseases such as Hepatitis C were diagnosed. This audit looked at 364 triggering episodes over a 34 month period which encompassed the year before and after the guidelines, to see if practice had changed. The guidelines had been distributed when they were released to all consultants within the trust.

**Methodology:** Patients diagnosed with *Mycobacterial* infections, Hepatitis B and Hepatitis C at Blackpool Victoria Hospital, a large DGH, from January 2007- November 2009, were identified from a database held in microbiology. These were then cross-referenced against all the named HIV tests taken within the same time period. Only patients who had a named HIV sample taken were accepted, to account for the guidelines' aim to broaden testing settings, rather than simply for patients to be referred to Genito-urinary medicine.

**Results:** Between these dates, there were 364 triggering diagnostic episodes (219 Hepatitis C [60% cohort], 72 Hepatitis B [20%], 73 *Mycobacteria sp.* [20%]). 96 patients (26.4%) had a named HIV test. Of these patients, Hepatitis C diagnosis was most likely to trigger an HIV test (39.3% patients had tests), and *Mycobacteria* diagnoses the least likely (5.5%). The guidelines seem to have had no effect, with there being fewer named patient tests after 30<sup>th</sup> September, 2008 (67 of 218 patients [30.7%] pre-guidelines, 29 of 146 [20%] post-guidelines). The breakdown was as follows:

	Before 30th September 2008		After 1st October 2008	
	Number of Diagnoses	Number of HIV tests	Number of Diagnoses	Number of HIV tests
Hepatitis B	40	4 (10%)	32	2 (6.2%)
Hepatitis C	131	61 (46.6%)	88	25 (28.4%)
<i>Mycobacteria sp.</i>	47	2 (4.3%)	26	2 (7.6%)
Subset: MTB	33	1 (3%)	11	1 (9%)

**Conclusions:** This audit shows poor levels of named HIV testing of individuals with indicator diseases, even after the new guidelines. This may reflect many factors including unwillingness of clinicians to consider the diagnosis or to test for HIV, patients being unwilling to test or continued reliance on un-named samples. These figures show a worrying trend, given that HIV co-infection with any of these three diseases has a treatment impact on the indicator disease.

## P282

### Audit of HIV testing in a district general hospital

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**Background:** HIV is now a treatable medical condition and the majority of people living with the virus remain fit and well on treatment. Despite this a significant number of people in the United Kingdom are unaware of their status and remain at risk. Late diagnosis is the most important factor associated with HIV-related morbidity and mortality in the UK. BHIVA advises patients with specific indicator conditions should be routinely recommended to have an HIV test, as per 2008 guidelines. We audited the current degree of HIV testing in key conditions and assessed the knowledge of non-HIV physicians of the new guidelines.

**Methods:** Patients with highlighted conditions with a new diagnosis of the following conditions between August 1<sup>st</sup> 2008 and 31<sup>st</sup> July 2009, were assessed: Tuberculosis (TB); Hepatitis B and C; Lymphoma (any pathology); Cervical Cancer/CIN Grade 2 and above; Seminoma; Anal Cancer; Castleman's Disease (CD) and Aspergillosis. Data was obtained from the electronic pathology reporting system.

**Results:** Tuberculosis (25), 76% tested, 24% not tested with one declining testing. Hepatitis B (27), 22.2% tested, 77.7% not tested; Hepatitis C (93), 19.4% tested, 80.6% not tested; Lymphoma (42) 7.1% tested, 92.9% not tested; CIN II/III (148) 1.3% tested, 98.7% not tested. Seminoma (7), Aspergillosis (0), Anal Cancer (8) and CD (0), none were tested and none were offered.

**Conclusions:** Of the 348 patients, only 13.8% had been tested for HIV, with the majority not tested. The conditions with a Clinical Nurse Specialist with intensive ongoing co-management with the physicians displayed higher rates. Barriers to testing were reported as including: 'The results are not available on the intranet pathology system hence it is difficult to determine if tests have been previously requested' and personal views: 'I only test if the patient is really camp'. As a result of the audit, the Pathology Management Committee is preparing for HIV tests results to be made available. In addition, a note on all positive tests for key conditions now states 'have you considered a HIV test'. And finally, the advent of the audit with the dissemination of the results and subsequent ongoing training has led to an increase in HIV testing to over 60% in many key conditions. In a follow-up post presentation one month after the presentation, 84% of respondents felt their practice had significantly changed, and a re-audit confirmed an increase in testing in these conditions of over 60%.

## P283

### Audit of the offer and uptake of HIV testing amongst TB patients notified in a northern English city in 2008

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**Background:** In the UK an increasing number of patients are coinfecting with tuberculosis (TB) and HIV. National guidelines recommend that all patients with TB should be offered an HIV test. Our aim was to audit the offer and uptake of HIV testing in patients notified with TB in a Northern English city in 2008.

**Methods:** Demographics and any HIV test result of patients were recorded for all patients notified with TB over 16 years of age. For patients who had not had an HIV test we recorded whether a test had or had not been offered, reasons for refusal and whether further discussion about HIV testing occurred at a later date if initially refused.

**Results:** One hundred and forty nine people over 16 years of age were notified with TB. Fifty nine percent ( $n=88$ ) of patients had an HIV test. Overall 12.5% ( $n=11$ ) of patients tested were HIV positive. Of the 41% ( $n=61$ ) of patients not tested for HIV 61% ( $n=37$ ) were not offered a test, 18% ( $n=11$ ) declined a test and for 21% ( $n=13$ ) we could not confirm if a test had been offered. Sixty three percent of females and 54% of males were tested though an almost equal proportion of each were offered a test. Patients of Sub-Saharan ethnicity were three times more likely to be offered a test than White Caucasians and patients under 50 years of age were twice as likely to be offered a test as those over 50 years. Documentation of reasons for declining an HIV test was poor and there was no record that testing was offered again at future appointments despite a large proportion of declining patients being from high risk groups.

**Conclusion:** Despite guidelines only two thirds of adult patients with TB were offered an HIV test and only 59% accepted. The results indicate that a patient's ethnicity and age has a direct impact on whether an HIV test is offered. This suggests the individual doctor's perception of HIV risk is being used to decide whether to offer testing as opposed to a universal testing approach. An opt-out approach to HIV testing should be adopted in all TB clinics and practitioners should explore and document reasons for refusal. Referral to specialist HIV nurses of patients who decline testing may be of benefit. We recommend the Health Protection Agency TB notification form includes a question on whether HIV testing has been offered and any test outcome. This would serve as a reminder to practitioners and facilitate audit of this National standard.

## P284

### Increasing GPs' understanding of HIV may affect their HIV testing rates

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**Background:** Increasing HIV testing in non-GUM settings is a vital component of earlier HIV diagnosis. This inner city borough has 7 liaison GPs with a practice population of 58 890, who share management of HIV infected individuals with GUM, and 37 non-liaison GPs with a practice population of 203 295. Incentivisation of £250 for each new HIV diagnosis made in primary care existed from 2002 onward. From 2008, an HIV education package was delivered on an opt-in basis to all GPs. Liaison GPs had more detailed one-to-one education and supervision. This study examines the change in HIV testing rates in primary care in the borough and investigates whether liaison GPs have different testing patterns to non-liaison GPs.

**Methods:** The number of HIV tests requested in primary care between 01/01/07 and 31/10/2009 were extracted from an electronic database. The testing rate per 1000 registered population per practice was

calculated for each calendar year. 2009 data were extrapolated to twelve months. The number of new HIV diagnoses and baseline CD4 were extracted from retrospective case notes review.

**Results:** The number of HIV tests requested in primary care rose from 2049 to 6825. The median testing rate/1000 registered population rose from 7.9 (0-27) to 22 (0-59). A 3/1000 difference in testing rates between liaison and non-liaison GPs in 2007 grew to 8.5/1000 by 2009 ( $p = 0.051$ )

11% of all new HIV diagnoses in 2007 originated in primary care, compared to 20% in 2009 (ns). The baseline CD4 rose from 280 (0-1010) to 351 (2-985),  $p = 0.06$ .

	2007	2009
Liaison	9.2 (4-27)	28.8 (21-58)
Non-liaison	6.2 (0-17)	20.3 (0-51)

**Conclusions:** The number of HIV tests requested in primary care rose by 300%. This was associated with a trend to more diagnoses made in primary care and higher baseline CD4 among new diagnoses in 2009 compared to 2007. This effect was more pronounced in liaison practices, although did not reach statistical significance. This may suggest that greater overall HIV knowledge and awareness in primary care is an important contributor to increasing diagnostic testing.

## P285

### Patterns of HIV testing at an urban teaching hospital between 2004–7

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**Background:** To observe trends in HIV testing over four years in one hospital prior to the BHIVA guidelines. To observe the seroprevalence of HIV within different subgroups.

**Methods:** Data were obtained from the virology and HIV databases on all HIV tests between 2004–2007, and grouped according to department requesting the test and by the reason for testing as recorded on the request form. 19 codes for site of testing and 12 codes for reason for testing were defined.

**Results:** 58,720 tests were considered. The overall HIV seroprevalence was 0.9%. The number of tests increased from 11799 tests in 2004 to 17208 in 2007. Most tests were performed for opt out (60.0%; seroprevalence 0.3%) or mandatory (15.4%; seroprevalence 1.2%) reasons. Opt out testing occurred within Obstetric and Sexually Transmitted Infection services. HIV seroprevalence 0.1% and 0.4% respectively. Mandatory testing was primarily for patients undergoing transplant assessment or done 6 monthly if on dialysis. The HIV seroprevalence was 3% amongst people specifically seeking testing (12.5% of tests). Testing in GP services and local prisons accounted for 4.7% of tests; seroprevalence was 0.9%. Infectious Disease services performed 520 tests in four years (seroprevalence 4.4%). Patients may present with other infectious diseases including TB. Also there is a "cross-over" of doctors in training and at consultant level between this specialty and HIV so doctors may be more willing to offer testing. The same applies to General Medicine specialties (614 tests in four years, seroprevalence 3.4%). When testing because the patient had an associated disease such as TB, Hepatitis or lymphoma, seroprevalence was 5%. If the reason was differential diagnosis seroprevalence was 4.5%. A small number of specialties performed few tests. HIV testing was cost effective in virtually all settings, with prevalence above the required 0.05% threshold.

**Conclusions:** If the BHIVA guidelines are to be successfully implemented this study suggests that more HIV tests should be performed; especially in medical settings by opt out testing. Prisons might be considered as a

site for opt out testing as many people may be at high risk and not easily access medical services.

## P286

### HIV testing in an acute care setting: how many and who gets a test?

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**Background:** Undiagnosed infection and late presentation remain significant challenges in tackling HIV. The BHIVA HIV testing guidelines recommend routine HIV testing in patients presenting with clinical indicator diseases (CID) and in high risk groups. This study aimed to investigate patterns of CID presentation in acute care and testing rates in a high HIV prevalence area.

**Methods:** A retrospective case notes study of acute admissions in a London hospital. The sample comprised 100 consecutive admissions and a further 50 patients aged under 65. Data recorded included: working diagnosis, ethnicity (from electronic patient record), time of test, haematological and biochemical markers. Testing rates were obtained from laboratory records. Comparisons were made using chi squared or t-test.

**Results:** 51% were female and 21% were of Black African/Black Caribbean ethnicity. The mean age was 55 and 40 years in unselected and <65 groups, respectively. There were no significant differences in gender, prevalence of CID or rate of HIV testing in the unselected vs. <65 years groups so results were combined. Thirty-three individuals (22%) presented with a CID and 27% of them had a documented discussion about HIV testing. Eight CID patients (24%) were actually tested. Two more patients without CID had an HIV test (overall testing rate for whole sample = 6.7%). The most common CID was pneumonia (42%). None of those describing themselves as of Black Caribbean/Black African ethnicity were tested (one was known to be HIV+). No new HIV diagnoses were made. There were no significant differences between patients with and without CID in albumin, haemoglobin or white cell count.

**Conclusions:** CIDs were common in acute care but only a quarter of these patients were tested for HIV. Busy physicians may require simple messages to increase testing and focussing on common CIDs (like pneumonia) may be an effective strategy. The finding that no patients of African or Caribbean origin were tested may indicate difficulty in broaching the subject with these patients or simply that testing is rarely considered. Routine opt-out testing may be the best approach to overcome these barriers and the results of an ongoing feasibility study addressing this strategy are eagerly awaited.

## P287

### Impact of area deprivation on HIV test offer and uptake rates in a Scottish urban sexual health service

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**Background:** As around a third of HIV cases in the UK remain undiagnosed, removing barriers to HIV testing is an important part of sexual health activity. Tackling health inequalities is also a priority in UK health policy, given the well established links between social deprivation and poorer health.

This cross sectional study examined the relationship between area deprivation in place of residence and the likelihood that an individual:

- 1.Receives an HIV test offer when undergoing a sexual health screen (SHS)
- 2.Accepts an HIV test if offered.

**Methods:** The study examined visits to an urban Scottish Sexual Health Clinic involving a SHS during a 1-year period from 01/09/07 to 31/08/08. The main variable was the Scottish Index of Multiple Deprivation (SIMD) quintile, a measure of area deprivation derived from the postcode. Age, gender, sexuality and clinic type attended were also considered.

**Results:** 24,148 individuals had a SHS in the study period. 82 patients with known HIV or dual screen code were excluded.

76.1% had a valid postcode and were included in main analysis.

87.7% of visits involved HIV test offer, and overall 59.5% involved a test being performed. Of 16053 offered a test 67.9% had one performed.

Gender, age, sexuality, clinic type and SIMD quintile were significantly associated with HIV test offer on multivariate analysis. Odds Ratio (OR) of test offer in Quintile 1 (most deprived) compared with the rest of the group was 0.74 (0.67-0.81). Male gender and attendance at a nurse-led asymptomatic screen clinic was associated with significantly higher rate of test offer. Attendance at family planning, youth or community clinic was associated with a lower offer rate.

In multivariate analysis, age, gender, sexuality, clinic type and SIMD quintile were associated with HIV test uptake rate. Quintile 1 individuals had OR for test uptake of 0.87 (0.81-0.93). Males and non-heterosexuals also had higher uptake rates. Those attending community and youth clinics were significantly less likely, and those at nurse-led screening clinics more likely to uptake a test compared with GUM attendance.

**Conclusion:** The results show an association between area deprivation and both the offer and uptake rate of HIV tests, although other variables are clearly associated with both outcomes. Whilst this service meets UK targets for HIV test uptake, inequalities exist and further efforts may be needed to understand why lower rates of offer and uptake exist in deprived communities

#### P288

### Cohort study of all new HIV diagnoses in a regional centre in 2008

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**Objective:** There is a consistent increase in HIV diagnoses across UK. Despite the availability of effective treatment, a significant proportion of patients present with advanced HIV. The purpose of this study was to review new diagnosis of HIV and analyse late presenters in order to promote earlier HIV testing and treatment.

**Methods:** A retrospective chart review, of all patients newly diagnosed with HIV in 2008, was conducted in a large regional centre. Data collected included demographics, source of diagnosis, CD4 count at diagnosis, last negative test and presence of STIs and other co-infections.

**Results:** 86 patients were studied, of whom 66 (77%) were male. The mean age at diagnosis was 38 years (range 18-64). 43 (50%) were MSM, 27% heterosexual males and 23% heterosexual females. 64 (74%) were of white ethnicity. There was a high rate (32.5%) of concurrent sexually transmitted infection amongst new HIV diagnosis. 51% of new diagnoses were made at genitourinary clinics, 30% by other secondary care departments and 11% through antenatal screening. Only 4.7% were diagnosed by general practitioners. At diagnosis, 14 (16%) patients reported previous illness which should have prompted earlier HIV testing; half of these subsequently presented when CD4 count was less than 350. The median CD4 count for all patients at diagnosis was 320 cells/mm<sup>3</sup>. 46 (53%) patients were late presenters, as defined by CD4 less than 350 at diagnosis. 25 (29%) patients had CD4 count less than 200 cells/mm<sup>3</sup>. Being male heterosexual and being born overseas were significantly associated with late presentation. Of those presenting late 11 (24%) had AIDS defining illness, and 5/11 (45%) required admission to intensive care unit. There were 4 deaths within 6 months of diagnosis. 3 of these were related to AIDS events and all these patients had CD4 count less than 100 at presentation. Most (66%) late presenters had previously never had HIV test.

**Discussion:** A high proportion of patients are still presenting late, with AIDS defining illnesses, and requiring in-patient management. This cohort study found a high rate of HIV related morbidity and mortality

associated with late presentation. HIV testing needs to be encouraged outside traditional settings, and especially within primary care settings, in accordance with BHIVA testing guidelines to tackle this problem.

#### P289

### Opt-out self-screening for sexually transmitted infections (STIs) in the HIV clinic – high yields and high acceptability

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**Background:** STIs remain an important risk factor in the transmission of HIV. Reports of ongoing high risk sexual behaviour and STI outbreaks among men who have sex with men (MSM) have highlighted the need for targeted STI screening. UK guidelines recommend that all HIV clinics have a system in place for the prompt detection and treatment of STIs in their patients.

**Methods:** We introduced an opt-out screening programme offering testing for *C. trachomatis* (CT) and *N. gonorrhoeae* (GC) to all HIV patients attending their routine nurse visit for blood tests. Women took a self collected vaginal swab (SCVS), men gave a urine sample and MSM also self-swabbed the pharyngeal and rectal sites. Samples were tested for CT and GC using the Gen-Probe Aptima Combo 2<sup>®</sup> (AC2) assay. Symptomatic patients were referred to the GUM clinic. We subsequently evaluated our service with a patient satisfaction questionnaire.

**Results:** Between September and December 2009 we performed 563 screens (MSM 60.7%, 21.7% heterosexual female, 16.5% heterosexual male, 1.1% other). Among MSM, we detected 78 infections in 66 men and overall prevalence of infection was 22.8%.

We also detected one CT infection in a heterosexual woman and 3 CT infections in heterosexual men.

80 patients completed a satisfaction questionnaire: 21/43 MSM, 12/19 heterosexual women and 5/18 heterosexual men accepted STI screening. Main reasons for opting out were "recent STI screen" and "not sexually active". 37/38 patients were satisfied with the service overall. All MSM and most women found self swabbing acceptable and most patients indicated that they would like to be offered testing in future. 15/43 MSM surveyed were not offered any screening at all.

MSM	Rectum	Urethra	Pharynx
CT	10.9% (34/312)	2.4% (8/332)	2.5% (8/323)
GC	2.9% (9/312)	2.4% (8/332)	3.4% (11/323)

**Conclusion:** Rates of asymptomatic infection among HIV-infected MSM attending our service are high. Previous studies have demonstrated high sensitivity and specificity of AC2 for the detection of CT and GC at extragenital sites and our experience further supports its use with self-collected specimens. Patients liked the intervention and self-swabbing was acceptable to them and convenient for staff. Despite this, a third of MSM were not offered screening. In order to have an impact on the continuing HIV and STI epidemics, HIV clinics should facilitate routine STI screening to detect asymptomatic infections especially among MSM attending their service.

#### P290

### Educating East London primary care providers to improve rates of HIV testing and HIV recognition in an area of high HIV prevalence and late presentation

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**Background:** One third of patients with advanced HIV infection present to primary care in the year prior to diagnosis. This could facilitate earlier

diagnosis and faster referral to specialist care. However, opportunities for diagnosis are missed due to poor skills in recognising possible HIV related presentations and patchy availability of HIV testing in primary care.

We aimed to determine whether an educational intervention, (HIV-Ed: a 2 day basic clinical HIV course) could increase rates of HIV testing and improve self-assessed confidence in HIV clinical diagnosis in primary care providers in East London.

**Methods:** We ran a course for 26 GPs and 4 practice nurses from local PCTs in October 2009. Rates of HIV testing in participants' practices were compared 4 months pre and post course using laboratory and self-reported data. We also compared self-assessed confidence in HIV testing, diagnosis and management by administering an anonymised questionnaire to participants pre and post course.

**Results:** 27/30 (90%) pre-course questionnaires were returned (4 excluded as returned too late). 21 were from GPs (8 female) and 2 from nurses (2 female) representing 8 PCTs. 56.4% of practices had <20 HIV positive patients.

After the course, self reported testing rates increased from 0.94 to 3.9 tests a month. Laboratory data will be presented.

Pre course, barriers to HIV testing were: lack of knowledge of clinical signs of HIV and failing to recognise the patient as "high risk". Participants were least confident in: knowing goals of antiretroviral therapy; managing potential drug interactions; knowing when 3<sup>rd</sup> party disclosure may be considered; advising on post exposure prophylaxis.

21/30 (70%) post course questionnaires were returned. Lack of knowledge of both HIV risk assessment and benefit to the patient of knowing their HIV status were no longer a barrier to testing. Participants' confidence was most improved in HIV epidemiology; conducting a "pre-test discussion"; recognising clinical indicators of HIV; advising on post-exposure prophylaxis; 3<sup>rd</sup> party disclosure; goals of antiretroviral therapy and managing drug interactions.

**Conclusion:** Participants evaluated the course very highly. Self-reported testing rates, self-assessed confidence regarding testing, knowledge of clinical indicators of HIV and anti-retroviral therapy increased. However, continued monitoring and support for the practices will be needed to determine whether this translates into improved patient outcomes.

## P291 HIV testing as part of NHS health checks: report from a community testing initiative

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**Background:** UK estimates suggest that at least 27% of those living with HIV are currently undiagnosed. Initiatives aimed at enhancing uptake of HIV testing include tailoring diagnostic opportunities within particular communities. The establishment of HIV diagnostic expertise away from sexual health services to other settings may be more acceptable to some populations at particular risk of HIV who might not otherwise consider testing. We report on the inclusion of rapid HIV testing into routine NHS Health Checks (a standardised program taking place across the UK) carried out in 2 community settings, one associated with a local church, in a high HIV seroprevalence area with a significant population of people from African backgrounds.

**Methods:** Two community based health check clinics per week were established, one in a church hall the other in a community centre. Health checks were promoted by community leaders, media coverage and peer mediated outreach, tailored toward the local black African community. Health checks comprised cardiovascular risk assessment, point of care cholesterol measurement, point of care HIV testing and behavioural advice. Referral pathways were established with local mainstream services for patients with positive results.

**Results:** In the first three months (Oct. – Dec 2009) 112 people (40 female, 72 male) accessed the service. 62/112 (55%) were black African, 37/112 (33%) black other and 12/112 (11%) white. Median age was 38 (16–79) yrs. 84/112 (75%) consented to HIV testing. 60% of testers and 43% of non

testers were black African (ns). There was no gender difference between testers and non testers. Reasons for declining an HIV test included: already diagnosed HIV positive (3/28), recent negative HIV test (5/28), no prior sexual activity (3/28), and not wanting to know (17/28). Of 84 people accepting HIV testing, 50% had never had a previous HIV test. 2/84 tests were reactive, although it subsequently transpired that one of these individuals already knew their HIV status prior to testing. The new reactive test was confirmed by serology and baseline CD4 was 423.

**Conclusions:** HIV testing was accepted by 75% of attenders, of whom 50% had never had a previous test. 2/84 (2%) tests were reactive. In contrast with other HIV testing initiatives, two thirds of attenders were male. This service may attract individuals who would not access other HIV testing services.

## P292 HIV testing in a polyclinic setting can reach untested "at-risk" groups

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**Background:** In the UK, up to one third of adult HIV infections remain undiagnosed. Recent guidelines advocate wider testing and evidence is needed to inform implementation outside GU settings. "Polyclinics" offer a new opportunity for HIV testing where the challenges and opportunities may differ from acute hospital or primary care. We investigated the acceptability of HIV testing within a new polyclinic serving a highly migrant urban population,

**Methods:** Patients were approached by a GU trained registrar to offer confidential discussion and point of care HIV testing (Determine, Unipath). The service was offered for total of 40 hours during November 2009. Demographic and HIV risk data were collected on those accepting testing whilst an unlinked feedback survey was given to all approached.

**Results:** 93/302 patients attending clinic were approached and 71/93 (76%) of individuals accepted HIV testing. Of these median age was 31 (IQR 22–43 years), 31/71 (44%) were male and 40/71 (56%) female. Characteristics of those testing are shown in Table 1  
27/71 (38%) of those tested had at least 1 identifiable risk factors and of those, 17/27 (63%) had never tested. No new diagnoses of HIV were made. 60/63 (95%) of questionnaire respondents agreed that the service was useful. Of those completing feedback but not testing, reasons cited included previous recent HIV test, feeling too unwell and not perceiving themselves at risk.

Ethnicity	
White British	16/71 (23%)
White Other	23/71 (32%)
Black African	8/71 (11%)
Black Caribbean	9/71 (13%)
Other	13/71 (18%)
Previous HIV test	
Yes	18/71 (25%)
No	53/71 (75%)
Registered with GP	
Yes	61/71 (86%)
No	10/71 (14%)
Risk Factors	
Endemic contact	26/71 (37%)
HIV positive partner	1/71 (1%)
MSM	1/71 (1%)
IVDU/IVDU contact	0/71 (0%)
Blood transfusion	3/71 (4%)

**Conclusion:** A high uptake of HIV testing could be achieved within an urban polyclinic setting. A significant number of patients who had sexual partners from countries with high HIV prevalence of the world were identified; most had never been tested for HIV. Feedback on the service was positive and further evaluation of testing strategies, including

cost-effectiveness analyses, are required to inform the implementation of current guidelines.

P293

### HIV positivity rate of sexual contacts of HIV-infected patients: does early HIV diagnosis matter?

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**Background:** A significant proportion of HIV transmission occurs during the early stages of the disease. Diagnosis of early HIV infection may provide opportunity for effective interventions to prevent its transmission.

**Aim:** to compare the outcome of contact tracing of patients diagnosed with early HIV infection with that of established HIV infected patients in a tertiary adult HIV centre between January 2008 and January 2010.

**Methods:** Early HIV infections have been diagnosed through STARHS project since January 2008. All HIV infected patients were seen by health advisors for contact tracing. The total numbers of partners tested for HIV infection, and their results were recorded.

**Results:** A total of eight patients with early HIV infection were diagnosed in our centre during study period. The eight patients with early HIV infection had 34 sexual partners in the previous six months; 13 (38%) partners were not traceable. Amongst the 21 partners who were aware of their risk for HIV infection, 13 were tested for HIV and eight (53%) tested positive.

During the study period, 57 partners of patients with established HIV infection were tested for HIV, 18 (31%) of whom tested positive for HIV infection. Higher proportion of partners of patients with early HIV infection tested positive for HIV compared to those of established HIV infection (P=0.03).

**Conclusion:** Identification of sexual contacts of patients with early infection may be an effective method for HIV contact tracing and identification infected partners.

P294

### A re-audit of HIV testing in GUM clinics in Essex

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**Background:** More than a quarter of HIV infected individuals remain unaware of their status and 32% of patients present late with a CD4 count of less than 200x10<sup>6</sup>/l. The Sexual Health Strategy of 2001 states that all new attendees at GUM departments should be offered an HIV test with at least 60% uptake of a test. Despite this, unlinked anonymous surveys carried out by the Health Protection Agency suggest that 23% of HIV infected patients leave clinics untested. A previous audit from Essex GUM clinics in 2008 showed that 98% of new patients were offered an HIV test and 83% took up the offer of a test. Following changes in testing policies in some clinics, we undertook a reaudit of HIV testing in 2009.

**Methods:** Retrospective case note audit of the first 100 new males and 100 new female patients seen in each of the 5 GUM clinics in Essex during 2009.

**Results:** The notes of 498 female and 500 male patients were analysed. The age range was 12 to 69 years (median 23 years) in females and 16 to 68 years (median 26 years) in males. Overall 981 of 998 (98%) were offered an HIV test and 814 (82%) accepted, with 5 of these being positive. Of the 167 who declined a test the commonest reasons were needle phobia (28), perceived low risk (28), and recent negative test

(26). Thirty two patients were from sub Saharan Africa: all were offered a test and 24 (75%) accepted with 5 being positive. Twenty nine of 500 male patients were men who have sex with men (MSM): all were offered a test and 26 (90%) accepted. None was positive. Of 243 patients with an acute sexually transmitted infection (STI), 238 were offered an HIV test and 199 (82%) accepted. None was positive.

**Conclusions:** The offer of HIV tests in Essex GUM clinics falls just short of the 100% target; however the uptake of testing remains high. Ways to encourage testing in patients from Sub Saharan Africa need to be explored.

P295

### Implementation of home-based HIV testing and counselling services in densely populated rural and urban Kenya

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**Background:** Kenya has a national HIV prevalence of 7.4% (rising to 15% in western parts). An estimated 81% of those infected do not know their HIV status. The uptake of HIV testing and counselling (HTC) among couples is under 15% in traditional voluntary counselling and testing (VCT) settings yet discordant couples stand the most to gain from .HTC. . We describe an innovative Home-based HIV Testing and Counselling (HBTC) program with a particular focus on couple and family testing. The aim was to document uptake as well as the feasibility and acceptability of this approach in two very different densely populated communities. 1) Kawangware location, Nairobi and 2) Nyando division, a rural part of western Kenya.

**Methods:** Before trained providers were able to initiate door to door visits of homesteads of potential clients a number of pre-implementation steps were needed. These included a period of joint planning with local administrators and community health actors who helped in mapping villages into clusters and identify homes using local landmarks (as a previous pilot with GPS systems had been abandoned). After raising awareness of the service existent community health workers were involved in community entry, booking appointments, information and education at household level. Data were entered in a standard proforma and HTC was quality assured through proficiency panels, dry blood spot collection, supervision and client exit interviews. All HIV positive individuals are referred to neighboring health facilities for antiretroviral therapy and supported disclosure provided.

**Results:** In a five month period in 2009, 55,081 individuals were provided with HBTC, 53% in the rural and 47% in the urban slum setting with household coverage rates of 91.5%. First time testers made up 94.2% of those tested and 38% were tested as couples or families compared to 50 and 10.1% in VCT respectively. Mean HIV prevalence rates were 1.4% higher than VCT settings with the same female to male ratio of 1:1.8.

**Conclusion:** Home based HIV testing faces logistical and start up challenges but achieves a higher yield of first time testers as well as case detection, compared to VCT. It provides a unique opportunity to support disclosure in couples and families in their homes. The approach also facilitates local ownership in fostering access to HIV testing and greater awareness-raising in the community.

P296

### Acceptance of HIV testing in medical inpatients – a local feasibility study

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**Background:** The background prevalence of HIV in our population is >2 per 1000. BHIVA 2008 testing guidelines recommend local evaluation of

HIV testing before the introduction of universal testing. We aim to reduce the number of patients with late diagnoses and inpatients with opportunistic infections. A previous local audit of medical inpatients in 2009 showed that 0% were being tested routinely for HIV.

**Method:** We identified 104 adult medical admissions consecutively from 5/09/2009 and offered HIV testing under a confidential GUM number. We offered verbal and written information on HIV testing, but did not take a sexual history or risk stratify the patients. Patients were excluded if they were discharged by the medical team before we could offer an HIV test. Patients who were unable to consent, were considered on a case by case basis.

**Results:** We offered a HIV test to 101 patients. 84/101 agreed to be tested. There were 31 men, 69 women and 1 transgendered patient. The average age was 42 (Range 18-59). 76/101 patients reported no prior HIV test, 43/101 had clinical conditions where HIV testing should be offered according to the BHIVA guidelines. 76/101 had a negative HIV test with 1 equivocal result (subsequently tested negative), 7/84 patients who consented to a test were discharged before having a blood sample taken. Three patients were admitted during the period of our study who were known to be HIV positive already.

17/101 patients declined a HIV test. Concerns included, being too unwell with their current illness to deal with a HIV test, perception that they were low risk or a very recent negative HIV test. Most patients who had questions, were more concerned about having an additional blood test rather than HIV itself. It took between 5-20 minutes to consent each patient.

**Conclusion:** There was a high acceptability of HIV testing amongst unscreened medical admissions. 84/101 patients accepted the HIV test. We presented in our grand round as well as our local network meeting to show that more patients can be approached for HIV testing and that it is possible to follow the BHIVA 2008 testing guidelines.

## P297

### An audit of GP HIV testing practice one year after the publication of the 2008 UK national HIV testing guideline

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**Background:** One year since the publication of "UK National Guidelines for HIV antibody testing" an audit was performed to ascertain the degree of awareness of these guidelines as well as knowledge of HIV infection among GPs practicing in an area of low HIV prevalence.

**Method:** In November 2009, an e-mail questionnaire was distributed to 228 GPs working in the north east of England.

**Results:** Only 52 (25%) the questionnaires distributed were returned. Of those responding 7(13%) said they had read the guidelines whilst 26 (50%) responded that they had heard about it but not read it. Questions regarding current HIV testing practice - 42(81%) responded that they had considered HIV in the differential diagnosis of their patients within the past year. However of these only 24 (46%) had actually performed an HIV antibody test. The main barriers to testing included lack of training and knowledge (48%) and concerns regarding pre test counselling (44%). Surprisingly only 19% responded that there would be insufficient time in practice to discuss HIV testing. Questions regarding 17 clinical indicator diseases for adult HIV infection showed that over 80% or more of respondents would test for HIV if the diagnosis was PUO, weight loss of unknown cause and glandular fever type illness. However, in other clinical indicator diseases such as lymphoma, thrombocytopenia, gastrointestinal infections and various dermatological conditions, less than 30% would test for HIV. Question regarding routine testing if background prevalence of HIV in your area was >2 / 1000, only 27% responded that they would routinely test for HIV.

**Conclusion:** From the limited response, the audit shows that some GPs are considering and willing to screen for HIV infection. However the audit also showed that majority of GPs had not read or fully understood the recommendations. We propose more ongoing education is required to support these medical practitioners.

## P298

### Intensive care units: poor standards in HIV testing?

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**Background:** UK National guidelines for HIV testing (2008) do not refer to the critical care setting directly but suggest indicator diseases where HIV testing should be offered and these include illnesses diagnosed in a large proportion of Intensive Care Unit (ICU) patients.

This study examines current HIV testing policy and practice, attitudes to testing, referral pathways and educational provision within a critical care network.

**Methods:** A questionnaire was distributed to 42 ICU staff attending a regional critical care meeting. Data was analysed for the region as a whole and for individual ICUs.

**Results:** 23 questionnaires were completed (response rate 55%). All 6 ICUs in the region were represented. 14 consultants, 4 middle grade doctors and 6 senior nurses responded.

**Existing policy:** Only 3 people stated that guidelines existed regarding who to test: representing 3 ICUs and 13% of responders. All 6 ICUs reported not testing "high risk behaviour" patients routinely (96% responders). 5 ICUs had at least one responder affirming formal guidelines for consent. Other responders from the same units disagreed.

**Referral:** All staff from 3 hospitals agreed there was no formal referral system for newly diagnosed HIV patients, although 5 of 6 responders from these hospitals recognised the need for prompt referral to a specialist in HIV. Education: 30% reported receiving HIV education. In 3 units all responders stated no education had been received. 70% did not think patients with HIV were at increased risk of bacteria infections.

**Attitudes:** 55% felt comfortable testing patients who lack capacity to consent. 65% disagreed with testing "high risk behaviour" patients and 83% disagreed with testing all acute ICU admissions. 74% stated a patient's perceived reaction to being tested would not influence their decision to test, but 78% felt global testing of patients without "behavioural risk factors" was likely to cause upset.

**Conclusion:** Local policy for HIV testing in ICU was lacking in this study. A strong argument exists for testing all patients admitted to ICU to assist diagnosis and management. Diagnostic conundrums are common and HIV prevalence amongst ICU patients is unknown. UK guidelines provide a framework for HIV testing in ICU. This study suggests education, testing and referral guidelines are required in ICUs. Staff attitudes to testing need to change to facilitate this. Opt out testing models have been met with success in the UK in other specialities.

## P299

### Is it time for clear local guidelines for hepatitis C testing?

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**Background:** The British Association of Sexual Health and HIV (BASHH) have published recommendations regarding which patient groups should be considered for hepatitis C testing within the genitourinary medicine setting. These guidelines are open to interpretation and trust resources. We feel that hepatitis C testing is often carried out with some indications but little effort has been given to identify how effective this is.

**Method:** Over 600 patients attending clinic between March 2008 and February 2009 were tested for hepatitis C and their patient records were

reviewed retrospectively. We excluded those patients known to have HIV. Data collected included indications for testing, clinician requesting the test as well as gender and ethnic origin of the patient.

**Results:** A total of 13 patients were found to have a positive for hepatitis C result. Eleven (85%) of these patients were already aware they had it and of these ten (91%) had a history of intravenous drug use (IVDU).

Two hundred patient records have been analysed so far and indications for testing are shown in the table below. Where more than one indication for hepatitis C testing was cited, the 'highest' risk factor was scored as the indication to test. We will report on multiple risks.

Over three quarters (76%) of tests were requested by doctors compared to nurses/other staff.

We will review the remaining patient notes and adjust these results accordingly.

Indication	Proportion of patients
Snorting cocaine	24%
Men who have Sex with Men (MSM)	11%
Personal IVDU	10%
Sexual contact of IVDU	10%
Sexual Intercourse (SI) in high risk group	5%
SI with Commercial Sex Worker (CSW)	6%
Sexual assault	2%
Medical treatment abroad	2%
Tattoo	2%
CSW (being one)	1%
Other reason	22%
Reason unclear	5%

**Conclusion:** Preliminary findings suggest hepatitis C testing is carried out often but some of the risk groups have lower levels of infection than expected. We propose local guidance to reduce unnecessary testing and its cost.

### P300

#### Should we be testing for hepatitis C routinely in men who have sex with men MSM in a non-urban sexual health clinic?

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**Discussion and Aims:** In 2006 we changed our clinic protocols for screening MSM to include regular testing for Hepatitis C (Hep C) antibody following reports from London which indicated that such men were at risk of contracting Hepatitis C infection. More recently results from larger teaching centres have shown that MSM, without any other risk factors, were unlikely to contract this infection. We were unable, however, to find any relevant information about the continuing need to screen for this in a district general hospital setting. We therefore performed a study of homosexual and bisexual male attendees at our clinic to assess the prevalence of those who were Hep C antibody positive and the need for this test in MSM with no other defined risk factors.

**Methods:** A retrospective case notes review was done for all MSM who attended for routine Genito-urinary appointments from 1/1/09 to 31/12/09. The information obtained was whether the test was done and age, ethnicity, and risk factors (HIV status, history of intravenous drug use, Hep C contacts and blood product recipients). MSM with a previous history of Hep C infection were excluded.

**Results:** 182 of 201 these men were tested for Hep C antibody. Only 1 patient had a positive result, 0.55%. He was also found to be HIV positive but had no other risk factors. 4 were HIV positive, 2 had unknown HIV status (tests refused), 3 were intravenous drug users and 1 was a Hep C contact. The remaining 172 had no identified risk factors.

**Conclusions:** This shows that Hepatitis C is unlikely to be found in MSM who have no other identified risk factors. Also all our HIV positive men

are screened for Hep C in line with the BHIVA guidelines and this case would have been found on review. As a result we have changed our clinic screening protocols for MSM.

### P301

#### Improved but still suboptimal uptake of STI testing and vaccination in the outreach setting

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**Background:** Community HIV point of care testing (POCT) for HIV is well established across the UK. Previous research has shown that the subsequent uptake of STI screening in POCT testers is low. A questionnaire given to all men who have sex with men (MSM) attending local outreach services in early 2009 showed that 98.4% would accept serological testing for other STIs if this service were available.

**Methods:** All MSM attending the service from September 2009 for a 4 month period were offered venepuncture, in addition to HIV POCT. Serum was tested for hepatitis A/B/C and syphilis. All patients were offered an STI screen at local GUM services. Data were collected prospectively on uptake of venepuncture, serological results, STI screening and appropriate vaccination in GUM.

**Results:** Of the 82 MSM attending within the study period 88% were of white ethnicity; the median age was 31 (range 19-66 years). In total 55 (66.2%) consented to venepuncture. 46% (38/82) reported unprotected anal intercourse in the last 3 months of whom 82% (31/38) accepted venepuncture. Infections identified by additional serology were: HIV (1 seroconverter; negative on 3<sup>rd</sup> generation POCT); hepatitis C (1 chronic infection). 15 required Hepatitis A vaccination of which 5 commenced (33%), 19 men required hepatitis B vaccination, of which 11 commenced (58%). Only 12 (21.8%) men attended GUM services for an STI screen – of these 1 urethral chlamydia infection and 1 case of prostatitis were identified.

**Conclusion:** Offering venepuncture in addition to POCT ensures an improvement in testing for other STIs, although 34% in this group declined testing overall. For men at greater risk, higher proportions opted for screening. For those accepting serology in the outreach setting, subsequent attendance at generic STI services, and uptake of vaccination, remains low. Using a 4<sup>th</sup> generation POCT will reduce the chance of missing early HIV infection. The development of further POCT for other STIs may enhance community based testing, treatment and vaccination in such high risk individuals.

### P302

#### Are we testing HIV-positive patients for hepatitis A, B and C correctly?

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**Background:** An audit looking at whether our local GUM network is following seven criteria in the hepatitis A, B and C BHIVA testing guidelines.

**Methods:** Retrospective case note review of 100 patients attending routine HIV clinic appointments in four sites which are part of a local network, in the week beginning 6<sup>th</sup> July 2009.

**Results:**

1. All new HIV positive patients should be screened for HBV and HCV markers. Anti HBs antigen and anti HB core antibody and anti HCV antibody tests with appropriate tests if positive: 95/100 were tested for hepatitis B, 3/100 had inappropriate tests, 94/100 were tested for hepatitis C.

2. All HBV non immune patients should be vaccinated: 6/56 were not vaccinated for hepatitis B (1/6 had a very low CD4). 50/56 were vaccinated correctly.
3. All patients should have their HBV and HCV status measured before commencement of antiretroviral therapy. 9/100 were not tested for hepatitis B and 18/100 were not tested for hepatitis C.
4. All HCV antibody negative patients should have an annual HCV antibody screen: 35/98 were tested annually.
5. All patients with no natural or vaccine protection against HBV should have an annual anti HBc or HBs antigen test: No patients (0/16) had an annual test.
6. After vaccination, anti HB Sab levels should be checked yearly and booster doses should be given if anti HBs levels fall below 100: 21/50 did not have yearly HB Sab levels checked and 29/50 did have levels checked yearly. 19/20 with levels <100, had a booster dose.

7. All HBV and HCV infected patients should be vaccinated against hepatitis A if non immune. 4/100 had chronic hepatitis B and 2/1000 had hepatitis C. Only 1/6 was not tested for hepatitis A, 5/6 had naturally immunity.

**Conclusion:** We are following the guidelines well in some aspects, we tested 95/100 patients for hepatitis B and 94/100 patients for hepatitis C, however other aspects of the guidelines, i.e. annual testing of non immune patients are not being followed. Many patients (57/100) were diagnosed before the 2004 guidelines were introduced, the majority of those patients and patients diagnosed more recently have not been tested annually since 2004 for HBV or HCV We will present this audit in our local network meeting to improve the awareness of the BHIVA guidelines and aim to reaudit this.

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#### Examples of references:

1 Vanderpump MPJ. The epidemiology of thyroid disease. In: Braverman LE, Utiger RD, eds. *Werner and Ingbar's the Thyroid: A Fundamental and Clinical Text*. Philadelphia, PA: Lippincott Williams and Wilkins, 2005.

2 Benhamou Y, Fleury H, Trimoulet P *et al.* Anti-hepatitis B virus efficacy of tenofovir disoproxil fumarate in HIV-infected patients. *Hepatology* 2006; 43: 548–555.

3 Meduri GU, Stein DS. Pulmonary manifestations of acquired immunodeficiency syndrome. *Clin Infect Dis* 1992; 14: 98–113.

4 Maggi PPG, Panebianco A, D'Eramo C *et al.* Hyperomocysteinemia in HIV-1 positive patients: the role of antiretroviral therapy.

16th International AIDS Conference. Toronto, Canada, August 2006 [Abstract #WEPE0170].

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