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21–24 April 2015

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Oral Abstracts

HIV Testing and Service Delivery

O1

The effectiveness of indicator disease-based HIV testing across Europe – results from a prospective multi-centre study

M Rayment[1], G Kutsyna[2], A Mocroft[3], V Hadziosmanovic[4], A Vassilenko[5], N Chakhartisvili[6], VM Mitsura[7], C Pedersen[8], J Anderson[9], J Begovac[10], UB Dragsted[11], B Bertisch[12], A Grzeszczuk[13], J Minton[14], C Necsoi[15], M Kitchen[16], F Ajana[17], A Sokhan[18], L Comi[19], P Farazmand[20], D Persut[21], N Clumeck[15], J Gatell[22], B Gazzard[1], A d'Arminio Monforte[19], J Rockstroh[23], Y Yazdanpanah[24], A Sullivan[1], K Champenois[24], ML Jakobsen[25], D Raben[25] and JD Lundgren[25]; on behalf of the HIDES Study Group

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Background: It is cost-effective to routinely perform an HIV test in populations presenting with an indicator disease (ID) if the prevalence of newly diagnosed HIV >0.1%. Our aim was to determine the HIV prevalence for 14 different IDs across 42 clinics in 20 European countries, grouped into 4 regions.

Methods: Individuals aged 18-65 years presenting with one of 14 IDs between January 2012 and June 2014 were prospectively offered HIV tests. Logistic regression assessed factors associated with testing HIV+.

Results: 9471 persons were tested: 500 (5%) from South, 942 (10%) from Central, 2297 (24%) from North and 5732 (61%) from East Europe. 54.1% were male (n=5119). Median age was 37 years (IQR 29-49). 235 persons were newly diagnosed HIV+ (2.5%[95% CI 2.2–2.8]). Prevalence of newly diagnosed HIV varied according to the presenting ID (table). Prevalence was highest in South (n=25, 5.0%[3.1–6.9]), followed by East (n=169, 3.0%[2.5-3.4]), North (n=31, 1.3%[0.9–1.8]) and Central Europe (n=10, 1.1%[0.4–1.7]). After adjustment, females had lower odds of testing HIV+ compared to males (aOR 0.53[0.39–0.73]), as did those from Central and North (aOR 0.28[0.12–0.62];0.35[0.20–0.59]) compared to East Europe. The median presenting CD4 count (n=200) was 200 cells/mm^3 (IQR 65–390 cells/mm^3) and did not differ significantly across regions (p=0.15).

Indicator Disease	Number tested	Number HIV+	Prevalence (%)	95%CI (5)
Lymphoma	588	4	0.7	0.6-1.3
CIN2/3/cervical cancer	1339	13	1.0	0.5-1.5
Anal dysplasia/cancer	53	0	0.0	n/a
Hepatitis B	1126	13	1.2	0.5-1.8
Hepatitis C	1751	41	2.3	1.6-3.1
Hepatitis B and C	73	7	9.6	2.8-16.3
Mononucleosis-like illness	734	39	5.3	3.7-6.9
Leuco/ thromobocytopaenia	401	16	4.0	2.1-5.9
Seborrhoeic dermatitis	299	6	2.0	0.4-3.6
Pneumonia	1881	61	3.2	2.4-4.0
Lymphadenopathy	722	32	4.4	2.9-5.9
Peripheral neuropathy	84	2	2.4	0.0-5.1
Lung cancer	144	0	0	n/a
Severe psoriasis	276	1	0.4	0.0-1.1
TOTAL	**9471**	**235**	**2.5**	**2.2-2.8**

Conclusions: Cost effectiveness was established for HIV testing at presentation in 10 IDs, in which an HIV prevalence of > 0.1% was demonstrated. For the remaining four IDs, relatively low numbers of patients were tested and there were few events. As mononucleosis-like illness can mimic acute HIV infection and has high positivity rate, this ID in particular affords opportunities for earlier diagnosis. These IDs should be adopted into HIV testing and ID specialty guidelines across Europe.

O2

Investigating associations between a new measure of engagement in-care and clinical outcomes in the UK Collaborative HIV Cohort (UK CHIC) study

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Background: Standard measures of engagement in-care (IC) are often based on a fixed schedule of clinic visits and are not responsive to the changing status of a patient. We assessed associations between a new dynamic measure of engagement IC and future mortality.

Methods: UK CHIC participants with ≥1 care visit (any visit associated with a CD4, viral load (VL), haemoglobin or antiretroviral (ART) start date) after 1/1/2000 were identified. At each visit, the expected date for the patient's next visit was determined based on the patient's latest ART, CD4/VL and AIDS status (the REACH study). The date of the next observed care visit determined whether the patient had attended before or after the expected date; each patient-month was classified as being in- or out-of-care accordingly. Cox models investigated associations between mortality and a) the cumulative proportion of months a person had been IC (%IC, time-updated and lagged by 1 year), and b) cumulative %IC prior to ART in those starting ART after having attended the clinic for >1 year. Follow-up was censored at last visit or 1/1/2013, and analyses were adjusted for age, CD4/VL, year, sex, infection mode, ethnicity, and receipt/type of ART.

Results: The 44,432 included individuals (27.8% female; 50.5% homosexual, 39.1% heterosexual, 3.0% injection drug users; 28.9% black African; median age 36 years; median CD4 355 (IQR 214-520) cells/mm^3), contributed 3,021,224 patient-months of follow-up of which 83.9% were spent IC. Over follow-up, 2279 (5.1%) patients died. Higher %IC was associated with lower mortality both before (relative hazard 0.91 [95% confidence interval 0.88-0.95]/10% higher, p=0.0001) and after (0.90 [0.87-0.93], p=0.0001) adjustment. Adjustment for future CD4 changes revealed that the association was explained by poorer CD4 counts in those with lower %/IC. 8730 patients under follow-up for >1 year initiated ART at a median (IQR) CD4 count of 280 (202-368) cells/mm^3; 237 (2.7%) subsequently died. Median (IQR) %IC prior to ART initiation was 88.9 (66.7-100.0) with higher values being associated with a reduced risk of mortality before (0.29 [0.18-0.47]/10%, p=0.0001) and after (0.36 [0.21-0.61]/10%, p=0.0002) adjustment; the association was again explained by poorer post-ART CD4/VL in those with lower pre-ART %IC.

Conclusions: Higher levels of engagement over time are strongly associated with reduced mortality at all stages of infection, including among those who initiate ART.

O3

Non-disclosure of HIV serostatus and associations with psychological factors, ART non-adherence, and viral load non-suppression among people living with HIV in the UK

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Background: Disclosure of HIV-serostatus to family, friends, and a stable partner may provide social support in the management of HIV and its emotional impact. We assessed whether HIV-status non-disclosure was associated with psychological symptoms, ART non-adherence and viral load non-suppression.

Methods: A total of 3,258 UK HIV-diagnosed individuals participated in the Antiretrovirals, Sexual Transmission Risk and Attitudes(ASTRA) study (2011/12) by self-completing a confidential questionnaire. Participants were asked whether they told anyone that they had HIV; to whom they disclosed(friends, family, stable partner); how widely(none, some, most/all). We examined the prevalence of non-disclosure, associations with socio-demographic and HIV-related factors, and associations with: low social support (score≤12 on Duke UNC FSSQ); depression and anxiety symptoms (≥10 on PHQ-9 and GAD-7); self-reported ART non-adherence in past 2 weeks/3 months; viral load non-suppression on ART for ≥6 months (latest VL>50c/mL), using modified Poisson regression.

Results: Analysis included 2,240MSM, 367 heterosexual men, 626 women. Prevalence of non-disclosure to anyone was 16.6%(n=61) in heterosexual men, 15.7%(n=98) in women and 5.0%(n=113) in MSM. MSM were more likely to disclose to some/all friends (91%) compared to heterosexuals(men 59%, women 76%), but MSM were less likely to disclose to family (64%) (vs. heterosexual men 78%, women 83%).Not-disclosure to a stable partner was prevalent for 12.7%(37/1,629) of women, 10.9%(25/1,629) of heterosexual men and 4.8%(53/1,629) of MSM. Older age (≥60 years), black ethnicity, more recent HIV diagnosis were independently associated with non-disclosure to anyone for MSM ($p<0.05$ for all); the pattern was similar for heterosexuals. After adjustment for socio-demographic and HIV-related factors, non-disclosure to anyone was significantly associated with low social support in heterosexuals: adjusted prevalence ratio,95%CI 1.5,1.0-2.0(p=0.025), but not for MSM: 1.3,0.8-1.9 (p=0.319), and was not significantly associated with depression, anxiety, ART non-adherence or VL non-suppression among heterosexuals or MSM.

Conclusion: In this large study prevalence of non-disclosure was highest among heterosexuals. Non-disclosure was associated with low social support, but not with psychological symptoms or ART success, suggesting it is not necessarily linked to adverse mental health consequences or difficulty in managing treatment.

O4

Patient information leaflets (PILs) currently require graduate-level reading skills equivalent to The Guardian or The Telegraph

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Background: Informed consent includes being able to understand the PIL about the study. The literacy level of a PIL is therefore an important criteria for making the study open to a wide group of people. Conversely, participants might enrol by signing a PIL that they do not understand. Readability scores are widely used as a guide to the literacy level needed to understand a document. Scores are calculated from factors including average number of syllables, words per sentence, sentences per paragraph. Shorter words, syllables and paragraphs increase readability.

Methods: The main body text from PILs from 9 current UK studies were evaluated using a free online readability score calculator (www.readabilityscore.com). Text was copied from PDF files with minor edits to help improve the scores (adding a full stop after headings and in bullet lists). Tables were excluded. The Flesch-Kincaid (FK) reading ease and reading grade and the SMOG index were calculated. Two community-written PILs were used as comparisons.

Results: 9 studies were included. Mean FK Reading Ease and grade level were 55.4 (target >70) and 10.1 (target <7) respectively. Mean SMOG index was 9.2. Mean scores for the two community written PILs were 70.3, 9.2 and 6.9, respectively.

Text statistics and readability scores are summarised in the Table 1.

Table 1, Text statistics and readability results.

	Mean	Range n=9	Community examples (mean) n=2
Text statistics			
Page number	13	5-23	9
Word count	4513	1875-8530	3582
Sentence count	242	125-401	280
Words per sentence	18.5	15.6-22.1	12.8
Readability scores			
Mean Flesch-Kincaid Reading Ease	55.4	47.1-63.1	70.3
Mean Flesch-Kincaid Grade Level	10.1	9.0-12.0	6.6
Mean SMOG index	9.2	7.9-10.4	6.9

Conclusion: Patient information currently requires literacy equivalent to graduate reading level (Guardian/Telegraph newspaper). Applying readability guidelines to information for prospective study participants may increase the number of people who can actively participate in research.

O5

Patient experience within NHS HIV specialist services: Results from the Positive Voices pilot survey

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Background: Ensuring that people have a good experience with their care is an important health outcome, and should be measured to drive improvements in the quality of care. The Positive Voices survey, piloted in May – Nov 2014, was the first effort to collect patient-reported experience measures (PREMs) in a representative sample of HIV patients accessing HIV specialist services. We present the results of the HIV patient satisfaction and experience questions.

Methods: Positive Voices is a web-based, self-completed, cross-sectional questionnaire survey completed by patients attending 30 HIV specialist out-patient services in England and Wales. Participants were asked to rate their HIV clinic out of 100, and agree or disagree with three generic (i.e. non-condition specific) PREM statements: 1) I have enough information about my HIV, 2) I feel supported to self-manage my HIV, 3) I am involved in decisions about my HIV care. A fourth HIV-specific PREM was included; 4) I feel that my HIV specialist and my GP communicate well regarding my health (for those registered and disclosed to GP). Agreement was defined as a "Strongly Agree" or "Agree" response.

Results: 779 patients completed the survey. Mean HIV clinic rating was 91.7% (median 96% (IQR 90-100)). No difference in rating was observed by ethnicity (mean rating: white=91.3%, black=92.5%, other=93.8%), gender (female=93.3%, male 91.3%), and age (92.9% age<35, 92.1% age35-44, 90.5% age 45-54, 92.0% age>55). Inter-clinic variation (ICV) ranged from 84.7%- 96.1%. The proportion agreeing with the three generic PREM questions was: 1) 98.2% (89.7%-100% ICV, 2) 97.3% (80%-100% ICV) and 3) 95.8% (80%-100% ICV). For the 3 generic PREMs, the proportion agreeing remained >95% for all sex, ethnicity, and age groups, except for PREM 3); which was 94% for respondents of black ethnicity and 93.9% for those aged 35-44. Agreement with the HIV-specific PREM 4) was 81.4% overall: lower for black patients 76.4% compared to white 82%, and other ethnicities (87.5%). There was no variation by sex or age. Inter-clinic mean agreement ranged from 60% - 100%.

Conclusion: The quality of patient experience with HIV specialist services is very high overall, with little variation by clinics or patient characteristics indicating high equity of care across age, sex, and ethnicity groups. The use of PREMs is an opportunity to involve HIV patients in the process of service evaluation and support the continued improvement of HIV care.

06

Healthcare utilisation and non-antiretroviral medication use in people living with HIV over and under 50 years of age compared to matched controls: the Pharmacokinetics and Clinical Observations in People over Fifty (POPPY) Study

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Background: Data on differences in healthcare utilisation and non-antiretroviral therapy (ART) medication use in older and younger people-living-with-HIV (PLWH) compared to matched control populations are sparse.
Methods: The POPPY study is a prospective cohort comparing PLWH aged ≥50 yrs with control populations (matched for race, gender, sexual orientation and geographic region) of PLWH aged <50 yrs and HIV-negative people aged ≥50 yrs. Detailed assessments of healthcare utilisation, non-ART medication and medical histories were compared in cases and controls using Chi-squared tests.
Results: Of 540 subjects recruited to date (the study aims to recruit 2000 subjects), 306 were PLWH ≥50 years (87% male, 87% white, median age 57 yrs, 82% on ART, median (range) CD4 608 (106-2460) cells/uL), 136 were PLWH <50 years (73% male, 76% white, median age 43 yrs, 77% on ART, median (range) CD4 670 (13-1903) cells/uL) and 98 were HIV-negative (66% male, 91% white, median age 58 yrs). Regular non-ART medication use was more frequent in older PLWH compared to younger PLWH and HIV-negative controls as was regular analgesia use (Table). GP attendance over the past year was high for all groups. Visits to hospital specialists and psychiatrists were higher in PLWH compared to HIV-negative controls and hospital procedures were more common in older PLWH compared to the other groups. The prevalence of depression was higher in PLWH compared to HIV-negative controls (44, 41, 17%, p=0.0001 and 39, 33, 17%, p=0.0006 for patient-reported and medically-diagnosed depression in PLWH ≥50, <50 and HIV-negative controls, respectively).

Table	PLWH≥50	PLWH<50	HIV-neg≥ 50	p-value
Regular non-ART medication, n (%)				
Any	117 (38)	29 (21)	23 (24)	0.0003
Analgesia	27 (8.8)	8 (5.9)	2 (2.0)	0.06
Dietary supplements	67 (22)	35 (26)	29 (30)	0.27
Healthcare utilisation (past year), n (%)				
GP	227 (74)	94 (70)	76 (78)	0.32
Hospital Specialist	135 (44)	49 (36)	32 (33)	0.07
Psychiatrist	48 (16)	32 (24)	11 (11)	0.03
Hospital Procedure	85 (28)	18 (13)	12 (12)	0.0001

Conclusions: Healthcare utilisation and non-ART medication use are higher in older PLWH compared to younger PLWHIV and matched older control populations. Ongoing results from this study may assist in developing healthcare models to provide more appropriate care for older PLWH.

Antiretroviral Therapy

07

Enhanced immune reconstitution with initiation of ART at HIV-1 seroconversion (PHI)

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Background: It is unclear whether immune reconstitution, and the CD4/CD8 ratio in particular, is enhanced with intervention at Primary HIV Infection (PHI).
Methods: We studied a cohort who initiated ART within 3 months of PHI and who received >5 years of continuous ART at a single centre (**PHI group**). The group were compared to individuals who started ART at the same centre during chronic infection (≥1 year after diagnosis) with a pre-ART CD4 count >350 cells/mm^3 and who also received >5 years of continuous ART (**CI group**). CD4 count, CD4%, CD4/CD8 ratio and presence of optimal immune reconstitution (OIR; CD4≥800 cells/mm^3 or CD4% ≥40% or CD4/CD8 ratio ≥1) were compared after 1, 5 and 10 years of ART (closest measurement considered). Time to normalization of CD4/CD8 ratio to ≥1 was assessed using survival methods.
Results: 37 PHI and 115 CI individuals were included. Median age at time of HIV diagnosis was 34 vs 32 years in the PHI and CI cohorts, respectively. 35 (95%) vs 32 (87%) were male and 32 (87%) vs 84 (73%) were MSM. Median maximum pre-ART VL were 511,000 (range 3,400, >10,00,000) vs 278,022 (2593, >750,000) copies/ml. Pre-ART nadir CD4 count, CD4% and CD4/CD8 ratios were similar between groups (Table). After starting ART, median CD4 count, CD4% and CD4/CD8 ratio were significantly higher in the PHI compared to the CI group across all time-points (Table). Similarly, OIR was more common in the PHI group. The median time to achieving CD4/CD8 ratio≥1 was 36 (95% CI 16-63) weeks in the PHI cohort and 187 (127-204) weeks in the CI cohort (p<0.0001; log rank test).

	Median CD4 (cells/mm^3)			Median CD4%			Median CD4:CD8 ratio			Presence of OIR		
Time since ART	PHI	CI	P	PHI	CI	P	PHI	CI	P	PHI	CI	P
0	417	313		18	16		0.30	0.29		-	-	-
1 y	743	600	<.0001	35	26	<.0001	0.95	0.52	<.0001	51%	25%	0.002
5 y	850	779	0.005	39	33	<.0001	1.05	0.78	<.0001	73%	46%	0.003
10 y	966	874	0.02	38	38	0.01	1.09	0.85	0.04	85%	53%	0.003

Conclusions: Immunological response to ART in this cohort was excellent. Despite this, ART initiation within 3 months of PHI showed improved immune reconstitution in terms of CD4 count and CD4/CD8 ratio when compared to a CI cohort initiating ART without severe immunosuppression. These differences persisted even after 10 years, suggesting damage to the immune system during the early stages of HIV infection can have long-term consequences.

08

A Phase IV HIV PrEP study reveals limited ex vivo potency of oral Maraviroc against HIV-1

J Tiraboschi[1], J Fox[1], C Herrera[2], N Olejniczak[2], A Jackson[3], M Boffito[3], L Else[4], S Khoo[4], D Back[4] and R Shattock[4]
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Background: Oral pre-exposure prophylaxis (PrEP) may be an effective prevention strategy against HIV-1 transmission. All completed PrEP clinical trials have tested ARV acting post-viral entry in the target cell. We present results of the first PrEP study evaluating the potential of an entry inhibitor, maraviroc, in a phase IV, multi-site, open-label, randomized controlled pharmacokinetic and *ex vivo* pharmacodynamic clinical trial.
Methods: 56 healthy adult female (n=26) and male participants (n=30) were randomized to a control arm (Arm A n=6 who had tissue samples taken at two time points one month apart) or to one of 4 intervention arms (n=12 per arm) where a single oral maraviroc 300 mg dose was taken at two time points prior to sampling, one month apart (Arm B: first sampling 2 h post first dose and second sampling 24 h post second dose; Arm C: 4 h and 36 h; Arm D: 6 h and 48 h; Arm E: 12 h and 72 h). Sampling to determine maraviroc concentration included blood, oral fluid and rectal fluid for all. In addition, men provided a urethral swab and a rectal biopsy and women provided a cervico-vaginal aspirate and a vaginal biopsy. Anti-viral activity was assessed by ex vivo challenge with R5-tropic HIV-1_{BaL} of explants cut from mucosal tissue biopsies and measurement of p24 antigen levels in supernatants during 15 days of culture.
Results: Viral replication capacity of HIV-1_{BaL} was significantly reduced (p=0.0005 two-tailed *t*-test) in vaginal biopsies harvested 2h post dosing with

p24 levels in culture supernatant at day 15 of culture of 26.74 ± 17.27 pg/ml compared to 200.24 ± 45.89 pg/ml in untreated tissue. No significant reduction of p24 levels were detected at any other time point in vaginal tissue and at no dosing time point in rectal tissue. No Adverse events were reported.
Conclusions: A transient inhibition of ex vivo HIV infection was demonstrated in vaginal tissue 2h after a single oral 300mg maraviroc dose. The lack of inhibition in rectal tissue, despite the ability of maraviroc to penetrate into the rectum, reveals significant mucosal differences affecting the activity of maraviroc in vaginal and rectal transmission sites. Multi-dosing of maraviroc in humans should be investigated for HIV prevention.

O9

Cerebrospinal fluid markers in long-term atazanavir/ritonavir monotherapy

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Background: Central nervous system (CNS) viral escape is a concern in ritonavir boosted protease inhibitors monotherapy. Aim was to assess viral escape and immuneactivation marker levels in the cerebrospinal fluid (CSF) of patients on successful long-term atazanavir/ritonavir (ATV/r) monotherapy.
Methods: MODAt (NCT01511809) is a multicentric, randomized, open-label, non-inferiority trial. Patients on ATV/r 300/100mg+2 N(t)RTIs since≥48 weeks, virologically suppressed since ≥24 weeks, were randomized to ATV/r monotherapy (arm A) or to maintain ATV/r+2N(t)RTIs (arm B). In this sub-study, paired CSF and plasma samples were collected in patients with plasma HIV-RNA viral load <50 c/mL at ≥96 study weeks, including those with early re-intensification for confirmed viral failure, considered in arm B, after evaluation with brain magnetic resonance imaging (MRI), to assess HIV-RNA and the immuneactivation markers soluble CD14 (sCD14) and CD163 (sCD163), CCL2, CXCL10 and interleukin-6 (IL-6) by ELISA. Results are expressed as median (interquartile range). Variables were compared with Wilcoxon rank sum or Fisher exact test, as appropriate; Spearman test was applied to assess correlations.
Results: we evaluated 23 patients (Arm A=11, Arm B=12): 95% males, 43 years old (38-47), with nadir CD4+ of 334 cells/μL (268-366), pre-treatment HIV-RNA of 4.86 log10 c/mL (4.49-5.43), none with previous AIDS diagnosis, CD4+ at randomization of 599 cells/μL (467-699) and undetectable plasma VL since 19.5 months (13.7-48.7). At CSF evaluation, after 120 weeks (108-132), all patients were neuroasymptomatic, had no pathological MRI findings and CD4+ count was 679 cells/μL (443-925) (similar between the two arms, p=0.705). CSF HIV-RNA was detected in no patients on triple therapy and in one on monotherapy (CSF HIV-RNA of 114 c/mL, study week 120, CD4+ nadir of 311 cells/mL, two plasma HIV-RNA blips, 94 and 99 c/mL, during the study), who subsequently underwent re-intensification. CSF biomarker levels did not differ between the two arms. CSF cell number (normal range ≤1 cell/μL) was slightly higher in the monotherapy arm (p=0.034). Overall, CSF sCD14 was significantly correlated with plasma sCD14 (r=0.49, p=0.016) and CSF IL-6 with plasma IL-6 (r=0.70, p<0.001).
Conclusions: CSF escape was uncommon in asymptomatic patients on long-term, successful ATV/r monotherapy. CSF immune activation was not substantially different between patients on ATV/r monotherapy compared to triple therapy.

O10

No difference in risk of virological failure between antiretroviral treatments using co-formulated versus individual drugs: Meta-analysis of 9 randomised trials in 2,568 patients

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Background: Non-randomised cohort studies have shown conflicting evidence on the potential benefits of using fixed-dose combinations of antiretrovirals (FDCs). Several antiretrovirals - abacavir, zidovudine, lamivudine, nevirapine, efavirenz – can now be supplied as generic individual pills, at significantly lower costs than patented FDCs. This analysis aimed to assess the efficacy of FDCs versus individual antiretrovirals in randomised head-to-head studies.
Methods: A MEDLINE/EMBASE search identified 9 randomised, open-label clinical trials directly comparing FDCs versus individual antiretrovirals. Efficacy was compared within each trial, using 4 endpoints: 1. Protocol defined virological failure; 2.Discontinuation for adverse events; 3.HIV RNA <50, switch=failure (FDA snapshot/TLOVR); 4. >95% adherence. Meta-analysis was conducted using the method of DeSimonian and Laird, with inverse variance weighting and random effects modelling.
Results: Nine randomised trials comparing FDCs versus individual antiretrovirals had efficacy results available: CAL30001 (ABC/3TC vs ABC+3TC, n=182), EZSwitch (ABC/3TC vs ABC+3TC, n=94), SEAL (ABC/3TC vs ABC+3TC, n=236), Eron 2000 (ZDV/3TC vs ZDV+3TC, n=223), ESS40005 (ZDV/3TC/ABC vs ZDV/3TC+ABC, n=195), A1266073 (TDF/FTC/EFV vs Standard of Care (SOC), n=300), STRATEGY-NNRTI (TDF/FTC/ELV/c vs SOC, n=433), STRATEGY-PI (TDF/FTC/ELV/c vs SOC, n=429) and SPIRIT (TDF/FTC/RPV vs SOC, n=476). Of these, 7 were switch trials in suppressed patients, 1 trial was in naïve and 1 in experienced patients. In the pooled analysis, the differences between FDCs and individual drugs for the 5 endpoints were as follows. 1. Protocol defined virological failure (details Table 1): FDC 1% lower risk (95% C.I. 0 to -3%, p=0.09). 2. Discontinuation for adverse: FDC 1% lower risk (95% C.I. 0 to -3%, p=0.11). 3. Switch equals failure endpoint: FDC 3% lower risk (95% C.I. 0 to -5%, p=0.05); 4. 95% adherence: FDC 5% higher rate (95% C.I. 1% to 9%, p=0.007).
Conclusions: In this meta-analysis of 9 trials in 2,568 patients, there were no significant benefits for FDCs versus individual pills in the risk of virological failure or discontinuation for adverse events. However, patients taking FDCs had 3% higher efficacy rates using the switch equals failure endpoint, and reported 5% higher adherence. The overall results suggest there may be limited additional value to using more expensive patented FDCs, if there are cheaper bioequivalent generic individual antiretrovirals available.

O11

The impact of boosted darunavir monotherapy on neurocognitive function and quality of life: Results from a prospective randomised study

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Background: Protease inhibitor (PI) monotherapy may be an effective strategy once HIV suppression has been achieved. However, concern exists about long-term safety, especially in viral sanctuaries such as the central nervous system. We report 48-week data of neurocognitive performance, sleep function and quality of life from a prospective open-label switch trial, in which patients were randomly assigned to continue receiving tenofovir/emtricitabine/efavirenz (Atripla) or switch to darunavir/ritonavir (DRV/r) monotherapy.
Methods: Virologically suppressed subjects and asymptomatic on Atripla® for ≥6 months were randomized 1:1 to continue receiving Atripla® or switch to DRV/r once daily across two UK sites. Neurocognitive function was assessed at baseline and week 48: attention (TMT-A), executive functioning (TMT-B), and fine motor function (GPT); and a dementia screening was also applied (IHDS). Questionnaires on quality of life (MOS-HIV and EQ-D5), as well as on depressive and anxiety symptoms (HADS) were completed at each visit. Sleep function was evaluated at week 48 (JSEQ) .
Results: 70 subjects were randomized (mean (SD) age 42.7 (9.0) years, mean (SD) CD4 cell count 537 (194) cells/mm3 and median (IQR) time on Atripla 3.5 (2.5, 3.9) years), of whom 26 (DRV/r) and 31 (Atripla) completed the 48 week study on the allocated treatment. There was no difference between arms in neurocognitive or QOL outcomes at week 48 compared to baseline (mean between-arm difference (95% CI) 0.2 (-4.4, 4.8 p=0.9) for TMT-A, 4.4 (-7.3, 16.1 p=0.5) for TMT-B, -2.9 (-11, 5.2 p=0.5) and 2.2 (-5.8, 10.2 p=0.6) for GPT (dominant and non-dominant respectively). Mean (SD) changes in IHDS at week 48 were -0.01 (1.2) in the Atripla (p=0.8) and 0.07 (0.9) in the DRV/r arm. Health outcomes (EQ-5D and IHDS) showed no significant differences between groups at week 48 (p>0.1 for both). No significant differences in mean changes at week 48 were observed in depressive or anxiety symptoms 1.1 (0.8, 2.9 p=0.3) and 0.2 (-1.4, 1.8 p=0.8). However, sleep quality was significantly

better in those randomised to DRV/r compared to those remaining on Atripla, median (IQR) score 9 (5, 12) and 5.5 (0, 10) respectively (p=0.02).
Conclusions: Subjects switching to DRV/r monotherapy did not affect neurocognitive function or quality of life compared to those continuing Atripla. At 48 weeks, those on DRV had significantly better sleep compared to those on Atripla.

O12

Increasing uptake and adherence to ART initiated at a CD4>350: Data from the comprehensive national cohort of people living with diagnosed HIV infection

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Background: Decisions to commission ART solely for treatment as prevention (TasP) are under active discussion. In the UK, ART coverage was already at 90% as of 2013. The 2012 BHIVA guidelines recommend ART starts at CD4 <350 but state early ART initiation should be discussed with all patients, for those who wish to reduce risks of onward transmission. We describe national trends and predictors for early ART initiation and non-adherence.
Methods: Trend analyses of HIV diagnosed adults (15+ years) who initiated ART at CD4>350 between 2008-2013 in England, Wales and Northern Ireland. Predictors for starting ART at CD4 >350 and non-adherence to ART were examined. The Recent Infection Testing Algorithm was used to identify those with probable recent HIV infection at diagnosis. Pregnant women and persons with missing/inconsistent ART/CD4 data were excluded.
Results: Of the 26,556 eligible people in the study, 37% initiated ART with a CD4 >350; 23% (1,042/4,502) started ART in 2008 compared to 62% (3,416/5,509) in 2013. Among those starting at CD4 >500, equivalent figures were 8% (367) and 37% (2,021) respectively.
In multivariate analysis, predictors for starting ART at CD4 >350 were: starting in 2013 (adjusted odds ratio (AOR) 6.2, 95%CI 5.6-6.8, vs 2008); recent infection at diagnosis (AOR 4.12, 95%CI 3.4-5.1 vs non recent infection); age 15-24 years (AOR 1.7, 95%CI 1.3-2.1 vs age >65 years); MSM (AOR 1.4 95%CI 1.3-1.5 vs heterosexual women); white ethnicity (AOR 1.7, 95%CI 1.6-1.9 vs black-African) and clinic size >1,000 patients (AOR 1.3, 95%CI 1.1-1.4 vs clinic size 250-499). Among those intiating ART at CD4 >350 between 2008-2012, 37% were still receiving treatment 12 months later. Adherence rose from 86% in 2009 to 98% in 2013. Younger age (15-24 years) was a predictor for not achieving an undetectable VL (AOR 2.5, 95% 1.12-1.2 vs age >65 years).
Conclusion: The rising number of people starting ART at CD4 >350 is likely to indicate increasing interest in TasP among people living with HIV. Other reasons for earlier ART initiation including research trials (particularly among recently-infected persons) and co-morbidities and will be monitored through the HIV and AIDS Reporting System.
National ART coverage is already very high; consequently, the additional number starting ART through national TasP policy would be relatively low. Adherence among those starting ART at CD4 >350 is high, improving and, in 2013, inline with those starting at CD4 <350 (99%).

O13

UK clinicians' approach to ART in primary HIV infection; comparison with the BHIVA guidelines

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Background: BHIVA guidelines recommend antiretroviral therapy (ART) in primary HIV infection (PHI) in particular situations, including a CD4 count <350, but that treatment as prevention (TasP) be discussed with all. We sought information on attitudes and prescribing practices of UK healthcare providers (HCP) to ART in PHI through an internet-based survey in December 2014.
Methods: PHI was defined as having a negative HIV (HIV-) antibody test within 6 months of positive (HIV+), laboratory evidence of acute infection, or testing incident on a RITA assay. Medians and proportions were calculated.
Results: 291 responses were received of which 34 were excluded (26 exited the survey prematurely and 7 were not UK-based). Of the 257 remaining, 35% were from London, 17%, 14% & 13% from the North, Midlands and South England respectively, 4% Scotland, 2% N. Ireland, 2% Wales & 13% unknown. 223 (87%) were clinicians (171 consultants & 52 non-consultants), 23 nurses, 7 pharmacists & 4 health advisors. Of these, 200 (78%) had seen ≥1 PHI patient in the past year, with the median (IQR; range) number seen of 3(2, 5; 0, 50). Of the 223 clinicians, 81% had offered ART to ≥1 PHI patient in the past year; the median was 2 (1, 4.5; 0, 50). 16% would not recommend starting ART in PHI for asymptomatic patients with confirmed CD4<350 & 43% for a patient with a single CD4<350 (table 1). The majority of clinicians recommend ART in PHI for symptomatic patients (table 1). 42% recommend ART in PHI if the patient presents within 3 months of an HIV- test, compared to 10% 3-6 months after. 98% of clinicians would discuss TasP if the patient reported sexual partner(s), compared to 81% if the patient did not.

Table 1: UK clinicians' reported strategies for management of PHI in hypothetical clinical scenarios

		Recommend ART in PHI		Discuss ART in PHI		Neither discuss or recommend	
Clinical scenario	. . .additional scenario information	%	n	%	n	%	n
Asymptomatic PHI, HIV+ partner and. . .	Confirmed CD4<350	84	179	14	29	2	5
	Single CD4<350	57	123	38	80	5	10
	CD4 350-500	33	68	54	114	13	27
	CD4>500	18	37	62	130	20	41
PHI, CD4 >350, HIV+ partner and. . .	Neurological involvement	90	195	9	19	1	1
	AIDS defining illness	96	207	3	7	1	1
	Severe seroconversion illness	77	165	22	47	1	3

Conclusions: Most clinicians responding to this survey see PHI patients and follow BHIVA guidelines on recommending ART in PHI. The reason why a sizeable proportion do not discuss TasP with all patients, or recommend ART for those with CD4<350 in PHI, merits consideration by the guidelines committee.

O14

Effects of long-standing antiretroviral therapy on semen HIV viral load

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Background: Although triple therapy is still the standard of care to treat HIV patients there is now enough data supporting PI monotherapy in selected individuals. However this strategy might not be adequate to inhibit viral replication in reservoirs such as genital tract. Here we present the results of a cross sectional and prospective sub-study looking at the viral replication in seminal plasma in the MIDAS Study.
Methods: A randomized controlled clinical trial was conducted in which 70 patients with HIV viral loads of <50 c/mL on Atripla continued with Atripla or switched 1:1 to Darunavir/ritonavir (DRV/r) (800/100 mg once daily) for 48 weeks. A genital tract sub study collected semen samples at baseline and at week 48. Semen HIV viral load was measured using the Roche COBAS Taqman 48 system with a lower limit of quantitation of 34 HIV RNA copies/ml.
Results: 70 subjects (84% male, 64% white, median CD4 cell count 535) were randomized. Twenty two individuals consented to the genital tract VL sub study; 19 were randomised to DRV/r. All individuals had a blood plasma HIV viral load <50 copies/ml at week 0 and week 48. At baseline (on Atripla) samples from 4 individuals inhibited the PCR. Among the remaining 18 individuals 14 (78%) had an undetectable semen viral load. Four individuals (22%) had a detectable viral load at baseline (mean 337 copies/ml, range 89-831 copies/ml), in the absence of urethral STI. Paired samples from week 0 and week 48 were collected from 7 individuals. Three had valid results for both time points and all had been randomised to DRV/r; two of these individuals had viral loads <34 copies/ml in both samples. The remaining individual had a baseline VL of 301 copies/ml and 879 copies/ml at week 48.
Conclusions: Longstanding plasma virological suppression with Atripla did not confer complete virological suppression in semen in this cross-sectional

analysis. A switch to DRV/r did not appear to increase viral load in the genital tract in a small group of subjects.

O15

Trends in transmitted drug resistance to HIV-1 in the UK since 2010

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Background: UK guidelines recommend that all individuals newly diagnosed with HIV have a resistance test to detect transmitted drug resistance (TDR) mutations, which may adversely affect the success of antiretroviral therapy (ART). Previous studies showed that TDR rates peaked around 2000 and then started to decline. With more potent ARTs increasingly available we examine whether TDR rates have continued to fall in recent years.
Methods: The UK HIV Drug Resistance Database (UKHDRD) collects the majority of resistance tests performed as part of routine clinical care in the UK. Resistance tests are linked to patient demographic data collected by the UK Collaborative HIV Cohort Study (UKCHIC) and the HIV and AIDS Reporting System (HARS) held at Public Health England. Patients aged 15 years and over with a first resistance test (protease and reverse transcriptase genes) between 2010 and 2013 prior to starting ART were analysed. TDR was defined as the presence of 1 or more mutations from the WHO 2009 surveillance list. Predicted drug susceptibility was based on the Stanford HIVRDB algorithm v7.
Results: Sequences from 16417 ART-naïve adults (exposure group: 46% MSM, 40% heterosexual) were analysed. The prevalence of TDR declined among MSM from 9.6% in 2010, 8.6% in 2011, 7.6% in 2012, to 7.2% in 2013 (P=0.004). In contrast, the rate was stable among heterosexually acquired infections, 6.4% in 2010 and 6.0% in 2011, 2012, 2013; no difference seen between males and females (P=0.88). Overall, TDR rates to the different drug classes were: NRTIs 3.4%, NNRTIs 3.2%, PIs 1.7%. The most frequently seen TDR mutations by drug class were T215 revertants for NRTIs (1.9% 2010; 1.4% 2011, 2012, 2013), K103N/S for NNRTIs (2.5% 2010; 2.1% 2011; 2.4% 2012; 1.9% 2013) and L90M for PIs (0.9% 2010; 0.5% 2011, 2012; 0.7% 2013). Intermediate or high level resistance to currently recommended first-line ARTs was highest to efavirenz (3.0%) and less than 1% for all others. Baseline sequencing of the integrase gene is still rarely conducted with <150 recorded tests over this 4 year period.
Conclusion: Rates of TDR continue to fall in the UK among MSM living with HIV but are stable among those who acquired HIV heterosexually. This difference likely reflects more extensive historical exposure to sub-optimal ART regimens among MSM. The most frequently detected TDR mutations to the NRTI and PI drug classes have at most a minor impact on susceptibility to current commonly used ARTs.

Basic Science and Co-morbidities

O16

Early antiretroviral therapy reduces HIV-1 DNA following perinatal HIV-1 infection

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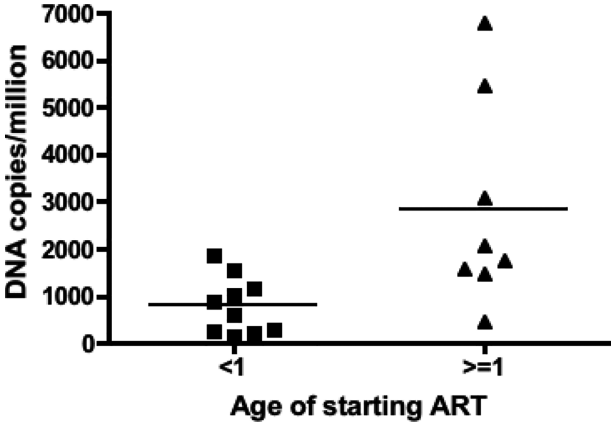
Background: Although antiretroviral therapy (ART) has dramatically reduced HIV associated morbidity and mortality it fails to confer cure, a consequence of an inaccessible latent viral reservoir. Lessons from the 'Mississippi baby' and adult seroconvertor studies suggesting early ART reduces the size of the viral reservoir require further characterization in perinatally acquired HIV-1 infection (PaHIV).
Methods: A prospective observational cohort study of 20 children with PaHIV with sustained viral suppression (<50 copies HIV-1 RNA/ml) on ART for > 5 years. 2 groups were compared: ART from the first year of life (early; EG) or after 4 years of age (deferred; DG). Proviral DNA (total and integrated), cell associated RNA (CaRNA), and ultra low plasma HIV viral load (<5 c/ml) were quantified and compared between groups.
Results: For the 'early group' (EG; n=10): 6 female, 7 black African, median age at start of ART 18 weeks (range 4-35), median VL> 500,000 c/ml. 9/10 commenced NVP with 3 NRTIs, with viral suppression achieved at a median of 24 weeks (range 11-47). For the 'deferred group' (DG; n=10): 6 female, 7 black African, median age initiating ART 8.0 yrs (range 6.5-10.6) at a median VL 197,980 c/ml. At analysis, median duration on ART was 9.9 yrs (r 7.6-12.6) in EG v 7.3 yrs (r 5-10.2) in DG. Median CD4 count 968 (r 761-2192) cells/ul and 739 cells/ul (r 457-1310), and median CD4:CD8 ratios were 1.4 (0.9-2.4) and 1.2 (0.6-2.2), for EG and DG, respectively. 4/10 EG vs 0/10 DG were HIV Ab/ag negative by 4th generation assay. VL was <5 c/ml in 8/10 EG (6 and 57 c/ml) and in 10/10 DG. Proviral DNA was significantly higher in those starting ART after 1 year by Mann Whitney (p=0.0062) [fig 1]. No statistical difference was seen in CaRNA (p=0.36; Mann Whitney), consistent with sustained viral suppression.



Conclusion: In this small cohort of PaHIV, early ART significantly reduced total HIV-1 DNA in CD4 cells when compared to ART commenced in chronic PaHIV. In adults total HIV-1 DNA is a key predictor of post-treatment viral control. As identifying paediatric populations with lower viral reservoirs may allow optimal selection of individuals likely to achieve ART-free remission, these data provide further evidence for early, sustained ART in PaHIV.

O17

Microbial translocation is associated with neuroinflammation in HIV subjects on ART

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Background: Circulating microbial products such as bacterial 16s ribosomal DNA have been associated with immune activation in otherwise effectively treated HIV-infected subjects. The impact of microbial translocation on cerebral parameters remains unknown. The aim of this study was to examine the relationship between a marker of microbial translocation and brain biomarkers of inflammation, function and structure in treated HIV-infected individuals.
Methods: Plasma bacterial 16s ribosomal DNA (r16s DNA) was measured by quantitative polymerase chain reaction (qPCR) in 12 neurologically asymptomatic HIV-infected subjects on ART (viral load <50 copies/mL). All subjects underwent the following investigations; cerebral PET CT imaging assessing neuroinflammation using the 18kDA translocator protein (TSPO) radioligand [^{11}C]PBR28, diffusion tensor imaging (DTI) for the evaluation of white matter integrity and a lumbar puncture for the analysis of cerebrospinal fluid (CSF) chemokines. Relationships between plasma r16s DNA and [^{11}C] PBR28 binding, DTI fractional anisotropy (FA) and mean diffusivity (MD) markers and CSF chemokines were explored by correlation analyses.
Results: Median (range) for age and CD4 count were 41(26-49) years and 645 (350-1240) cells/uL, respectively. Plasma r16s DNA median(range) was 4.2(41-2) copies/mL. Significant associations between increase concentration of plasma ribosomal 16s and greater [^{11}C]PBR28 binding were observed across several brain regions (Table 1). r16s DNA was also associated with greater MD in the forceps major (r=0.532; *P*=0.07), right inferior longitudinal fasciculus (r=0.601; *P*=0.03) and right inferior fronto-occipital fasciculus (r=0.509; *P*=0.09). Finally, r16s DNA level was positively correlated with the

proinflammatory chemokine IL-8 in the CSF (r=0.599; *P*=0.024, CI=0.152 to 0.956)

Table 1. Correlation coefficients (r) between [^{11}C] PBR28 binding and plasma r16s DNA

Biomarker	Basal ganglia	Globus pallidus	Temporal lobe	Parietal lobe	Occipital lobe	Caudate	Striatum	Medulla	Midbrain
Plasma Ribosomal 16s DNA (copies/mL)	0.881*	0.928*	0.818*	0.832*	0.861*	0.877*	0.871*	0.645*	0.811*

*P<0.05, **P<0.1

Conclusion: In neuroasymptomatic treated HIV-infected individuals microbial translocation is associated with markers of neuroinflammation and abnormalities in white matter integrity. The potential contribution of microbial translocation to the pathogenesis of HIV-associated cognitive impairment warrants further investigation.

O18

CSF:plasma HIV-1 RNA discordance >0.5 $\log_{10}$ is associated with raised inflammatory mediator profiles in CSF

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Background: HIV-1 RNA can be at higher levels in CSF than plasma, termed CSF:plasma discordance. The clinical significance of CSF:plasma discordance is not known. The degree of discordance considered significant varies. Some studies have excluded patients with <1log10 difference and/or 200 copies/ml in CSF. Others use 0.5log10 difference. Some studies report "CSF escape", ie detectable CSF HIV-1 RNA when plasma is undetectable. CSF:plasma discordance can be detected at low levels using sensitve testing; the significance of this finding is not known.
Methods: This study used a cytometric bead array system in 40 subjects from the PARTITION study to determine whether a panel of CSF cytokines, chemokines and associated mediators differed in those with CSF:plasma discordance (n=19) compared with non-discordant subjects (n=21). Discordant subjects were subdivided into 'high discordance' (>1log10) and 'low discordance' (0.5-1log10, or discordance on sensitive testing only).
Results: In discordant subjects median HIV-1 RNA in plasma was <40 copies/ml (IQR <40,52) and in CSF was 422 copies/ml (IQR 138,1981). In univariate analysis 16 of 18 CSF mediators were significantly higher in discordant than non-discordant subjects: IL1a, IL1b, IL1RA, IL6, IL8, IL10, CCL3, CCL4, CCL5, CXCL10, TNFR1, TNFR2, TRAIL, MPO, TGFb, IFNg, VCAM and ICAM. There were no significant differences between subjects with high versus low discordance. CSF mediators significant in univariate analysis went forward to 2-way unsupervised hierarchical clustering based on the patterns of relative mediator concentrations. The subjects grouped into 2 main clusters which corresponded to CSF:plasma discordance (p<.0001). In cluster 1 all mediators had relatively high abundance; this included 18 discordant subjects and 3 non-discordant subjects. In cluster 2 all mediators had relatively low abundance; this included 18 non-discordant subjects and 1 non-discordant subject (discordant on sensitive testing only). Two of the 3 subjects with CSF escape not meeting criteria for discordance was cluster 2.
Conclusions: CSF:plasma discordance was associated with raised CSF mediator profiles suggesting a potentially damaging neuroinflammatory process in these patients. Discordance between 0.5-1log10 was associated with raised biomarker profiles similar to those with discordance >1log10. Considering those with 0.5-1log10 difference as discordant will reduce the chance of type 2 error in research studies and avoid missing patients with CNS disease in clinical practice. Sensitive testing may have a role to determine whether discordance is present in those with low level CSF escape.
[BHIVA Research Awards winner 2011: Sam Nightingale]

O19

Impact of rectal gonorrhoea and chlamydia on HIV viral load and inflammatory markers in the rectum; potential significance for onward transmission

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Background: Antiretroviral therapy (ART) reduces HIV onward transmission risk substantially, however the effect of rectal sexually transmitted infections (STI) on HIV infectiousness is unclear. We developed a standardised method for quantifying rectal HIV viral load (VL) and investigated the effect of rectal gonorrhoea (GC) and chlamydia (CT) on rectal and plasma HIV viral load and rectal inflammation in HIV-1 infected MSM.
Methods: 42 HIV infected MSM on (n=21) and off ART (n=21) were recruited whilst attending for asymptomatic STI screening in the HIV clinic. Results of those with and without a rectal STI were compared. Those with a rectal STI were re-sampled ≥2 weeks after receiving treatment for the STI. Four rectal swabs were taken via proctoscopy and analysed for HIV VL, STI, and cytokines. Rectal HIV VL was quantified using the Roche Cobas TaqMan 48 analyzer and HIV-1 High Pure Extraction System. Total swab RNA was quantified and HIV VL expressed as copies/μg RNA. Plasma HIV VL was measured using the Roche AmpliPrep/Cobas Taqman system. Quantitative detection of 10 cytokines was carried out using cytokine array. Independent t-tests were used for comparative analysis.
Results: Of the 21 MSM on ART, 7 had a rectal STI and 14 did not. All plasma and rectal HIV viral loads were <100 copies. There was no significant difference in rectal VL (p=0.38), IL6 (p=0.41), IFNγ (p=0.42), and TNFα (p=0.26) levels between individuals with and without STI.
Of 21 ART naïve MSM, 7 had a rectal STI and 14 did not .There was no significant difference in rectal VL (p=0.50) or major cytokines between those with and without a rectal STI. Following treatment of rectal CT/GC there was a non-significant drop in rectal HIV VL (median 0.6, range 0.3-1.4log; p=0.52) and no change in plasma VL (p=0.37).
Conclusions: A standardized method for quantifying rectal HIV VL has been established. Rectal bacterial STI do not impact on rectal or plasma HIV VL in those on ART, and the impact in ART naïve individuals was not significant. This suggests minimal impact of CT/GC on onward transmission of HIV.

O20

Treatment for hepatitis C infection in the UK Collaborative HIV Cohort (UK CHIC) study

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Introduction: Currently available treatment for hepatitis C (HCV) infection in the UK is long, associated with toxicity and has low success rates. This study identifies characteristics of those who are previously treated and those who fail treatment in a large UK cohort of HIV positive individuals.
Methods: Attendees at 11 participating centres from 2004-2012, who ever had a positive HCV-RNA test were followed from the latest of cohort entry or first positive HCV test (antibody or RNA), until starting HCV treatment or end of follow-up. Follow-up was censored if there was evidence of spontaneous clearance. Treatment failure was defined as any positive HCV-RNA result in the year after stopping treatment. Predictors of starting treatment and treatment failure were investigated using Cox regression models adjusting for age, ethnicity, HIV exposure group, CD4 count, HIV and HCV viral loads and acute HCV infection.

Results: Of 2272 HIV-HCV co-infected individuals, 929 (40.9%) started treatment with 114 (12.3%) receiving >1 course of treatment. Median time from first positive test to starting treatment was 0.9 years (interquartile range 0.3-3.7). Compared to men having sex with men, injecting drug users, male heterosexuals and females were less likely to start treatment (adjusted hazards ratio (95% confidence interval): 0.60 (0.47-0.76); 0.57 (0.39-0.83); and 0.64 (0.43-0.95) respectively. Compared to those who first tested positive in 2005-2009, those first testing positive after 2009 were more likely to start treatment (1.91 (1.57-2.32)). Higher CD4 count (1.06/100 cells/mm^3 (1.03-1.090)), lower HIV viral load (0.88/log copies/ml (0.83-0.94)) and being diagnosed with acute HCV within the first 6 months of infection (2.69 (2.29-3.17)) predicted starting treatment. 138/417 (33.1%) individuals tested for HCV-RNA in the year after stopping treatment failed treatment. Individuals with acute infection were less likely to fail treatment (0.61 (0.41-0.92)) as were those treated for longer periods (0.73/week (0.66-0.80)) and those with genotype 2 or 3 infections compared to those with genotype 1 or 4 (0.34 (0.15-0.81)). Higher baseline HCV viral load was associated with treatment failure (1.26/log copies/ml (1.12-1.42)).
Conclusions: A significant group of co-infected individuals have not received treatment or have failed treatment for HCV infection. These individuals remain at risk of developing liver disease and would benefit from access to new treatment strategies.

O21

The exclusion of people living with HIV (PLWH) from clinical trials in lymphoma: prejudice or justified?

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Background: HIV does not affect the prognosis for Hodgkin lymphoma or non-Hodgkin lymphoma but PLWH are frequently excluded from clinical trials in lymphoma.
Methods: The UK Clinical Research Network Study Portfolio website was used to identify all open trials in lymphoma in United Kingdom and the exclusion criteria. Protocols, product information sheets and published data were used to evaluate mechanism of action, toxicity, metabolism and pharmacokinetic interactions of novel or only recently licensed drugs.
Results: We identified 56 multicentre open studies in lymphoma including 46 interventional trials. PLWH are eligible for 13 trials and if the HIV viral load is fully suppressed for one further trial. PLWH are excluded from 32 trials; 2 (6%) were phase I, 10 (31%) were phase II, 1 (3%) was phase II/III, 18 (56%) were phase III and 1 (3%) was phase IV. The trials included novel drugs/treatment approaches or licensed drugs in an unlicensed indication. Eight different classes of drugs were identified: monoclonal antibodies (13 trials), cytotoxic agents (5 trials), Bruton tyrosine kinase inhibitors (4 trials), proteasome inhibitors (3 trials), PIK3 inhibitors (2 trials), serine/threonine protein kinase inhibitors (1 trial), Bcl-2 inhibitors (1 trial) and monocarboxylate transporter 1 inhibitors (1 trial). The efficacy of herpes zoster vaccine was studied in one trial and the efficacy of surgery only in another trial. Complete trial protocols were requested for these 32 trials and were provided for 8 trials and the trial management teams responded to specific questions for a further 4 trials. In no case was the exclusion of PLWH explicitly justified in the protocol. Following review of the trial protocols or published data on novel agents, there was a biologically valid reason for excluding PLWH for 1 trial and a possible valid reason for one further study. In addition potential pharmacokinetic interactions between antiretroviral agents and investigational agents are predicated for 28 trials but in these cases stipulation on anti-retroviral therapy would enable PLWH to be eligible.
Conclusions: For most clinical trials in lymphoma there does not appear to be a justification for excluding PLWH. Protocol authors should be encouraged to explain the reasons for excluding PLWH.

O22

Initiation of anti-retrovirals in HIV/HCV-coinfected MSM: Are we too late?

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Background: HIV and Hepatitis C Virus (HCV) coinfected men who have sex with men (MSM) are at risk of rapid liver disease progression and may also be at elevated risk of onward transmission of HIV due to high-risk sexual practices. Antiretroviral therapy (ART) reduces the risk of liver disease progression and may reduce the risk of HIV transmission. HIV guidelines in the UK reflect this recommending ART initiation at higher CD4 counts than for the general HIV population. We investigated the current ART initiation and treatment practices in the UK.
Methods: Retrospective cohort analysis of the UK Collaborative HIV cohort (UK CHIC) data including all HIV/HCV coinfected MSM. To assess ART initiation, the proportion of CD4 cell counts in the ranges <200, 200-350, 350-500 and >500 cells/mm^3 that trigger ART initiation were calculated. The proportion of patients on ART stratified by CD4 count and year was also calculated including only individuals with initial CD4>500 and not on ART at cohort entry. Community viral load (CVL) as a marker of general infectivity was calculated by taking the average of all patients' mean viral load over any given year.
Results: 1588 HIV/HCV coinfected MSM were identified. The proportion of HIV/HCV coinfected MSM on ART increased from 31.4% in 1996 to 88.4% in 2011. Between 2000 and 2011, the proportion of individuals with HIV VL <200 copies/ml increased from 45.1% to 81.0% with a concomitant fall in mean CVL from 3.1 to 1.9 $\log_{10}$copies/ml. The median nadir CD4 cell count at ART initiation increased from 150 cells/mm^3 (IQR 101-190) in 2000 to 270 cells/mm^3 (IQR 230-322) in 2011. The proportion of CD4 cell counts triggering ART initiation in 2011 was 57.1% (CD4<200), 31.7% (CD4 200-350), 8.6% (CD4 350-500) and 4.4% (CD4>500). Including only patients not on ART and CD4>500 at cohort entry, there was no increase in CD4 at ART initiation between 2000 and 2011 (p=0.12) with more than 50% commencing ART with a CD4 cell count <250 cells/mm^3 between 2008 and 2011.
Conclusion: There has been a significant increase in ART usage among HIV/HCV coinfected MSM between 2000 and 2011; however, most patients are starting ART later than guidelines recommend which could lead to unnecessary liver disease progression and possibly increased onward HIV transmission. Studies looking at the reasons for late ART initiation in this population are required as are clinician and patient education initiatives to improve ART prescribing practices.

O23

Risk factors for acute allograft rejection in HIV-positive kidney transplant recipients

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Background: Kidney transplantation (KT) of HIV positive patients has transformed the management of end-stage kidney disease in this population. Although favourable outcomes have been reported, patients experience high rates of acute allograft rejection (AR). We examined factors associated with AR in the first year post-KT, with particular emphasis on the choice of calcineurin inhibitor (CNI) immunosuppressive therapy.
Methods: We conducted a national observational cohort study of HIV/KT in the UK. Patients were included if HIV positive at KT, transplanted in the UK between 01/2005 and 12/2013, and did not experience primary graft failure. Kaplan-Meier methods were used to estimate host/graft survival and cumulative incidence of biopsy proven AR. Logrank tests were used to compare survival, and Cox proportional hazard models to examine factors associated with AR.
Results: Seventy-seven (91%) of 85 HIV+ kidney transplant recipients were included in the analyses. The mean age was 44.8 years, 75% black ethnicity, median CD4 cell count 277 cells/mm^3, 97% had HIV RNA <200 c/mL. 32

participants initiated ciclosporin (CsA) and 45 Tacrolimus (Tac) based immunosuppression. The overall one-year patient and graft survival were 97.3% and 94.6% respectively. AR was observed in 28 patients (36%), with a median time from KT to AR of 2.6 (IQR 0.5, 5.9) months. The cumulative incidence of AR at 1 year was 57% and 20% among patients who started CsA and Tac respectively (p=0.002). The only factor that was significantly associated with AR was choice of CNI (HR for Tac vs, CsA 0.30 [95% CI 0.13, 0.67], p=0.003). Recipient age, gender, ethnicity, deceased donor graft, year of KT, nadir or current CD4 cell count and viral hepatitis status were not associated with AR. In a sensitivity analysis which excluded 8 patients with AR in the first two weeks post KT, use of Tac (HR 0.17 [0.06, 0.48]), abacavir (0.40 [0.17, 0.96]) and protease inhibitors (2.56 [1.04, 6.27]) were associated with AR in univariable analysis; only use of Tac (HR 0.26 [0.07, 0.94]) associated with AR in multivariable analysis. Use of Tac was generally safe with one patient each developing CNI toxicity with CsA and Tac.
Conclusions: The use of Tac was associated with a significantly reduced incidence of AR in the first year post KT. Our data suggest that Tac is the preferred CNI in the context of HIV infection. Use of protease inhibitor-sparing antiretroviral therapy may facilitate the safe administration of Tac.

O24

No association between vitamin D deficiency and parathyroid hormone, bone density and bone turnover in a large cohort of HIV-infected men on tenofovir

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Background: Combination antiretroviral therapy (cART) may affect vitamin D [25(OH)D], parathyroid hormone (PTH), bone mineral density (BMD) and bone turnover (BT). Reduced BMD and secondary hyperparathyroidism have been reported with tenofovir (TDF). We investigated the associations between TDF and bone markers, especially in 25(OH)D-deficient patients.
Methods: In a single-centre longitudinal study investigating BMD in HIV-positive men, serum 25(OH)D, calcium, phosphate, PTH and alkaline phosphatase (ALP) were measured. Lumbar spine (LS), non-dominant total hip (TH) and femoral neck (FN) BMD were measured using dual-energy x-ray absorptiometry. BT was assessed by serum type 1 procollagen (P1NP) and carboxy-terminal collagen crosslinks (CTX). Mann-Whitney-U tests compared serum markers and BT and T-tests compared BMD according to TDF in all and 25(OH)D-deficient patients.
Results: 422 men were recruited: mean age 47 (SD 9.8) years, 94% white ethnicity, 93% MSM, diagnosed HIV positive for median 9.6 (IQR 5.0,15.5) years, median CD4 547 (IQR 411,696) cells/μL, HIV RNA <40 copies/mL in 87% (96% of those on cART). 25(OH)D (nmol/L) was normal (>75), insufficient (50-75), deficient (25-50) and severely deficient (<25) in 14%, 29%, 50% and 7%, respectively. Of 381 men on cART, 77% were currently on TDF. TDF was not associated with median calcium (p=0.69) or phosphate (p=0.52). There was no difference in the association between vitamin D and PTH according to currently using (r=0.11, p=0.06) or not using TDF (r=0.12, p=0.29). TDF was not associated with PTH, BMD or BT in all patients on cART (data not shown) or in patients with 25(OH)D deficiency (see Table).

	TDF cART (n=166)	Non-TDF cART (n=49)	P
PTH, ng/L, median (IQR)	46 (36, 64)	47 (38, 62)	0.55
LS BMD, g/cm^2, mean (SD)	1.13 (0.15)	1.16 (0.18)	0.32
TH BMD, g/cm^2, mean (SD)	0.99 (0.14)	1.00 (0.15)	0.76
FN BMD, g/cm^2, mean (SD)	0.94 (0.13)	0.94 (0.14)	0.83
P1NP, ng/mL, median (IQR)	14.5 (5.8, 40.7)	12.7 (6.5, 24.0)	0.60
CTX, ng/mL, median (IQR)	2.0 (1.0, 4.8)	2.5 (1.2, 5.7)	0.32

Conclusion: In this largely TDF-experienced cohort of HIV-positive men, there was no association between TDF and 25(OH)D deficiency, hyperparathyroidism, reduced BMD or increased BT. We found no evidence to support additional monitoring of bone markers in patients on TDF regardless of 25(OH)D status.

Children and Pregnancy

O25

Neurocognitive function in perinatally HIV-infected young people and HIV-negative siblings in England

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Background: Perinatally HIV-infected (PHIV+) children, particularly those with a CDC C diagnosis, perform less well than controls in some neurocognitive tasks, but studies often have small sample sizes and unsuitable control groups. Little is known about neurocognitive function of PHIV+ young people.
Methods: We analysed baseline data from the Adolescents & Adults Living with Perinatal HIV (AALPHI) cohort of 270 PHIV+ aged 13-21 and 80 HIV- sibling controls aged 13-23 in England. Participants completed 12 tests (Cogstate ADHD, Color Trails 1&2, Wechsler Adult Intelligence Scale 4thed coding, pegboard) covering 6 domains. We calculated z-scores by domain, a summary z-score (NPZ-6) across the 6 domains, and the proportion <1 standard deviation (SD) below the population mean in ≥2 domains (Frascati criteria). T-tests/ANOVA compared means and χ^2 proportions.
Results: 160(59%) and 55(69%) of PHIV+ and HIV- were female, 225(83%) and 57(71%) were black African, and median age was 16[IQR 15,18] and 16 [14,18] years respectively. In PHIV+, 218(81%) were on ART, and 68(25%) had a CDC C diagnosis. In both PHIV+ and HIV-, mean z-scores were >0 for executive function, information processing speed and attention/concentration, and <0 for learning, memory and fine motor skills, though all were within +/- 1SD of normative scores (Table). PHIV+ z-scores were higher for information processing speed (p=0.02) and worse on learning (p=0.006) and memory (p=0.016) than HIV-. For learning and memory, scores were particularly low in PHIV+ with CDC C (p=0.017, p<0.001 respectively, data not shown). Mean(SD) NPZ-6 scores were 0.23(0.68) in PHIV+ and 0.18(0.5) in HIV- (p=0.543), and 67(24.8%) of PHIV+ *v.* 19(23.8%) of HIV- were <1SD below the population mean in ≥2 domains (p=0.846). Further analyses will investigate potential predictors.

Table: Scores by domain in PHIV+ and HIV-

	z-score mean(SD)		
Domain	PHIV+	HIV-	p
Executive function	0.98(1.58)	0.65(0.93)	0.081
Info. processing speed	0.96(1.38)	0.56(1.21)	0.019
Attention/concentration	0.56(1.14)	0.63(1.17)	0.657
Learning	-0.44(0.89)	-0.13(0.92)	0.006
Memory	-0.5(0.84)	-0.24(0.81)	0.016
Fine motor skills	-0.17(1.76)	-0.38(1.13)	0.321

Conclusions: Global cognitive scores were similar in PHIV+ and HIV- but concealed differences in individual cognitive domains. PHIV+ z-scores were lower than HIV- in learning and memory tasks, and poorer in those with CDC C, but indicated only mild difficulties. The true impact on day-to-day life is unclear and needs further investigation.

O26

To determine the prevalence of HIV seroreversion across 5 collaborating paediatric HIV centres in the UK

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Background: More than 1000 children with perinatally acquired HIV-1 live in the UK and Ireland. Antiretroviral therapy (ART) has significantly reduced HIV-associated morbidity and mortality, but does not confer cure due to the establishment of a latent reservoir. Most perinatally infected children mount their own antibody response to HIV as they lose transplacentally acquired maternal antibody. Disappearance of maternal antibody without an infant antibody response in an infected child is termed seroreversion. It is associated with early ART initiation and disappearance of circulating virus and may be associated with a smaller subsequent reservoir. Clinical correlates and implications for disease progression are unknown. This study aimed to determine the prevalence and patient characteristics of seroreversion in large UK paediatric clinics.
Methods: A retrospective anonymised survey was conducted in 6 paediatric HIV clinics on the number of patients <18 years with confirmed HIV-1 infection and identified as HIV-antibody negative. Clinical data for these patients up to April 2014 were obtained from the Collaborative HIV Paediatric Study (CHIPS).
Results: 5 clinics responded and cared for a total of 398 HIV-infected children. Seroreversion was identified in 10/398 (2.5%), 6 male and 4 female. Median age at HIV diagnosis was 0.2 years [range 0-0.3]. At ART initiation: median age was 0.3 years [range 0-0.4], median CD4 count 752 cells/mm^3 [range 60-4900] and median viral load (VL) 111,651cells/ml [range 58->500,000]. 3 children were identified at birth, 6 presented with pneumocystis jiroveci pneumonia +/- cytomegalovirus infection and one with pancytopenia and seizures. 4 children started 4-drug ART and 6 children 3-drug ART. Median time to undetectable VL was 0.84 years (range 0.27-2.38 years). At last follow up all were alive and on ART, and median age was 9.4 years [2.0-14.3]. Median CD4 count was 1112 cells/mm^3 [429-1501. 9 children had a VL <50 cells/ml and one had a VL of 230 cells/ml.
Conclusion: This is the first study of seroreversion in UK HIV-infected children with a prevalence of 2.5%. These children commenced suppressive ART early in life and comparative analysis to similar children who have remained antibody positive is ongoing. It is unclear whether this phenomenon relates to differences in HIV reservoirs or genetic factors. Whether HIV-antibody status may identify patients suitable for therapeutic trials aiming for ART-free remission requires investigation.

O27

Antiretroviral drug resistance in pregnant women living with HIV in England and Wales: Preliminary results from the matching of three national HIV surveillance databases

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Background: Resistance testing is recommended for nearly all pregnant women starting antiretroviral therapy (ART), but ART resistance prevalence in pregnant women in the UK has not been previously examined. We assess HIV-1 subtype in pregnant women matched to ≥1 resistance test and prevalence of transmitted drug resistance (TDR) in newly diagnosed ART-naïve women.
Methods: The National Study of HIV in Pregnancy and Childhood (NSHPC) collects data on pregnancies in HIV-positive women; the UK HIV Drug Resistance Database (UKHDRD) collects all resistance tests conducted within routine care; the Survey of Prevalent HIV Infections Diagnosed (SOPHID) is a cross-sectional survey of all diagnosed persons attending NHS sites for HIV care. The study population was HIV-positive women with ≥1 pregnancy delivering 2000-2012 in England/Wales; women were matched to resistance test results in UKHDRD via their SOPHID unique identifier. Subtype was determined using the REGA HIV-1 subtyping tool v2.0; major resistance mutations were as defined in the IAS 2013 surveillance list.
Results: 9,593 women had 13,363 pregnancies; 47% were matched to ≥1 resistance test, with year of first resistance test 1996-2013; 79% of women were Black African. Factors associated with being matched to ≥1 resistance test were: having >1 pregnancy reported (OR 1.57 if 2 pregnancies; OR 2.1 if ≥3 pregnancies; p<0.001); region index pregnancy reported from (OR 0.61 for outside versus within London, p<0.001); time-period of index delivery (OR 0.61 for 2000-2003 vs. 2008-2012, p<0.001); time-period of diagnosis (OR 0.65 2001-2005, OR 0.69 2006-2009 vs. 2010-2012, p<0.001); and woman's region of birth (OR 0.79 for Africa vs. UK/Ireland, p<0.001). 47% of 4537 matched women had subtype C; 12% CRF02_AG; 10% subtype A, 10% B; 5% G; 3% D; 4% other; 10% unclassified. Half of matched women had been diagnosed by antenatal HIV screening; 60% of these had a resistance test date during the index pregnancy and 88% of these were classified as ART-naïve (1244/1416). Of these 1244 women, 90% had no significant TDR; 8% had NNRTI resistance; 1% NRTI resistance and 1% PI resistance.
Conclusion: This record linkage has enabled the characterisation of genetic diversity and prevalence of TDR in pregnant women in the UK. Prevalence of TDR was consistent with other UK & European studies. Strengthening data linkage and developing this analysis will assist in mapping the epidemic amongst pregnant women and assessing health needs.

O28

Teachers' awareness of HIV and the needs of children affected by HIV

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Background: Stigma and discrimination continue to be a real issue for people living with HIV (PLWH). This is particular pertinent to children and young people where school environments can be challenging. Sensitivity of teachers towards the issues faced by young PLWH is essential. Lack of awareness of such issues can lead to inadvertent problems and significant personal distress for PLWH and their families.. Pupils have been excluded from schools after non-consented disclosure of their HIV status.
This study was designed to investigate UK secondary school teachers' awareness of HIV and understanding of the needs of children affected by HIV.
Methods: Five hundred secondary school teachers in the UK participated in a 15-minute online survey between 26 September and 20 October 2014. They were questioned about their knowledge about HIV transmission, confidentiality considerations, their experience of dealing with students with or affected by HIV, available educational resources and school policy regarding HIV and pupils.
Results: Knowledge regarding HIV transmission routes was poor, with over half of teachers (52%) believing that HIV can be transmitted through sharing a razor or via spitting or biting. Nearly half of all teachers (47%) believed that children/young people acquire HIV through sex or injecting drug use (IVDU). A third of teachers (33%) surveyed were either unsure about confidentiality requirements for HIV or believed that there are none. Fifty eight percent of respondents were not aware of any guidance or materials for teachers about how to manage the needs of students with or affected by HIV. However, three-quarters (75%) of the surveyed teachers believed that it was the collective responsibility of all school staff members to look after the pastoral needs of students with or affected by HIV.
Conclusion: This research demonstrates significant knowledge gaps in HIV transmission and confidentiality requirements in secondary school age groups.This ambiguity can lead to inadvertent problems such as unauthorised HIV disclosure. Encouragingly most teachers believe that they are responsible for providing pastoral care. There is therefore an opportunity to improve teachers' knowledge and confidence to effectively support students with or affected by HIV.
This study was sponsored by ViiV Healthcare and carried out by Ipsos MORI

O29

Genital tract infections in HIV-infected pregnant women in south west London

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Background: Genital tract infections in HIV infected pregnant women may increase risk of HIV Mother to Child Transmission or adverse obstetric outcomes. There are minimal UK data on the prevalence of these infections in HIV-infected pregnant women. BHIVA guidelines suggest STI screening for as early as possible in pregnancy with consideration given to repeat at 28 weeks gestation.

Methods: Retrospective notes review of HIV infected pregnant women at 4 South London HIV Centres 1/1/04 - 1/1/14.

Results: 554 pregnancies in 363 patients were identified. Median age 32 years (IQR 27-36). HIV was diagnosed antenatally in 21% of pregnancies (n=107). Remaining pregnancies occurred in women who had been diagnosed with HIV a median of 5yrs prior to the incident pregnancy. 96%, were heterosexually infected (n=346) and 3% were vertically infected.

77% of women (n=197) were of Black African ethnicity, 9.4% White-British and 5.0% Black Caribbean. 75% (n=270) were born in sub Saharan Africa and 14% were UK born. 66% (201/303) of patients received an STI screen in the 1st or 2nd trimester and 50% were screened in the 3rd trimester (139/277).

In 318/336 pregnancies (95%) women were known to have a regular male partner who was presumed to be the father in all but 1 case. Median relationship duration was 3.8 years. Only 6/180 reported additional sexual partners during pregnancy. 35% (95/271) of partners were HIV positive, 49% negative and 16% untested.

46% (224/487) of pregnancies were unplanned and 24 patients proceeded to TOP. 20 pregnancies ended with a spontaneous miscarriage (at least 5 late) and there was one stillbirth. There were 2 cases of HIV vertical transmission. 48% of women were planning vaginal delivery (NVD). Actual mode of delivery was NVD 34%, ELCS 35% and Emergency LSCS 21%. 91% of babies were born at term and median birthweight was 3107g. 85% of deliveries occurred with an undetectable HIV VL.

	Tested (n)	Positive Diagnoses (n)	Prevalence (%)	Tested (n)	Positive Diagnoses (n)	Prevalence (%)
Infection	First Trimester Screen			Third Trimester Screen		
BV	182	38	20.9	108	14	13.0
Candida	183	37	20.2	117	30	25.6
Group B Strep	76	10	13.2	44	5	11.4
Chlamydia	195	6	3.1	125	2	1.6
Syphilis	168	3	1.8	107	2	1.9
Trichomoniasis	184	5	2.7	121	5	4.1
Gonorrhoea	195	1	0.5	125	1	0.8

Conclusion: In this interim analysis of an ongoing study, STI prevalence was low and obstetric outcomes favourable. Further information about STI prevalence in this population may impact future screening guidelines.

O30

Kids to adults: Tracking perinatally infected youth as they transition to adult care – the UK experience

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Background: Globally, large numbers of perinatally HIV-infected children (PHIV+) are surviving to adulthood. Continued follow-up is needed to explore the impact of long-term HIV and ART on health outcomes. We describe the development of bespoke cohort studies in the UK for this purpose, and present characteristics of PHIV+ aged ≥16 recruited to long-term follow-up.

Methods: All children diagnosed with HIV <16yrs in the UK are followed up in the Collaborative HIV Paediatric Study (CHIPS) until transfer to adult care. To enable adult follow-up, firstly, the UK Register of HIV Seroconverters has been adapted for PHIV+ aged ≥16; this is called "CHIPS+"; annual follow-up forms collect demographics and HIV clinical markers. Secondly, the Adolescents & Adults Living with Perinatal HIV (AALPHI) cohort has enrolled 314 PHIV+ aged 13-21 years and ever in CHIPS, and HIV- sibling/household controls (n=100), collecting in-depth data (neurocognitive, sexual health, cardiac, metabolic, growth),. PHIV+ in AALPHI will be co-enrolled in CHIPS+. Linkage to the UK Collaborative HIV Cohort and national adult HIV surveillance data, will enable broader analyses and also track patients lost-to-follow-up.

Results: Of 1,907 children ever in CHIPS by Nov-2014, 109(6%) died, 106 (6%) were lost-to-follow-up and 103(5%) left the country while in paediatric care. Of the remaining 1589, 984(62%) were ≥16yrs at last follow-up; of these, 254/984(26%) consented to long-term follow-up (CHIPS+ (n=33), AALPHI (n=202) or both studies (n=19)), 199(20%) were in paediatric care and 531(54%) transferred to adult care and have not yet been approached/ consented. In 254 PHIV+ in long-term adult follow-up, 216(85%) were black African, 144(57%) female and median [IQR] age at last visit was 18.6 [17.3,20.5]yrs. 213(84%) were on ART at last visit, median CD4 count was 546 [395,769]c/mm^3, and 153(72%) had VL<50c/mL. Current drug regimens were NNRTI-based for 68(32%), PI-based for 137(64%), and PI+NNRTI-based for 8 (4%). 21(8%) were off ART (median CD4 371[191,450] c/mm^3, median VL 14,556[6,052,42,100]c/mL) and 19(8%) were ART naïve (median CD4 628 [466,790]c/mm^3, median VL 5,819[115, 32,960]c/mL).

Conclusions: Two thirds of PHIV+ in the UK are now aged ≥16yrs, of whom a quarter have already consented to long-term follow-up in adult care. Of those in adult follow-up, most had good immunological and virological status, but there could be selection bias of those recruited to date towards regular clinic attenders.

Poster Abstracts

Antiretrovirals: Efficacy, Interactions and Pharmacokinetics

P1

Simplification to the STRIBILD single tablet regimen from PI+RTV + FTC/TDF multi-pill regimens maintains durable HIV suppression: Week 96 results of STRATEGY-PI (Study 115)

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Background: Elvitegravir/cobicistat/emtricitabine/tenofovir DF (STRIBILD, STB), can be used for antiretroviral (ARV) treatment simplification and tolerability in HIV-1 infected patients who are virologically suppressed without prior virologic failure (VF). Week (W) 96 results of STRATEGY-PI (Study 115) are reported, the first phase 3b, open-label, study examining simplification from ritonavir (RTV)-boosted protease inhibitor (PI+RTV) plus emtricitabine/tenofovir DF (FTC/TDF) regimens to an integrase inhibitor-containing single tablet regimen.
Methods: HIV-1 infected, virologically suppressed subjects on PI+RTV + FTC/TDF regimens for $\geq$ 6 months either switched to STB or remained on their PI+RTV regimen (2:1 randomization). Eligibility included estimated creatinine (Cr) clearance $\geq$ 70 mL/min, $\leq$2 prior ARV regimens, no prior VF and no resistance to FTC/TDF. The primary endpoint was the proportion of subjects who maintained HIV-1 RNA < 50 c/mL at W48 (snapshot algorithm, 12% noninferiority margin); W96 was the final endpoint. If noninferiority was established, superiority was tested (prespecified).
Results: At randomization, subjects (n=433, 293 STB; 140 PI+RTV) were mostly male (86%), white (80%) and age < 50 yr (82%). ATV+RTV (40%) or DRV+RTV (40%) were the most common PIs. Median time since first ARV use was 3 yrs; 19% were on their 2nd ARV regimen. At W96, 86% STB vs 69% PI+RTV maintained HIV-RNA < 50 c/mL (difference 16.5%, 95% CI: +7.8% to +25.4%; p<0.001). The difference favouring STB was mainly due to non-virologic reasons. VF was lower on STB (1% STB vs 5% PI+RTV), but with no emergent resistance in either group. Grade 3-4 adverse events (AE) occurred in 6% STB vs 8% PI+RTV. AEs leading to discontinuation occurred in 3% STB vs 2% PI+RTV. Median changes in serum Cr (μmol/L) were STB, +6.2, and RI+RTV, +0.9, similar to W48. One STB subject discontinued due to a renal AE after W48 (blood Cr increased). No case of proximal renal tubulopathy (PRT) occurred in either group.
Conclusions: Switching to STB from PI+RTV+FTC/TDF regimens resulted in significantly higher virologic success by snapshot at W96. VF was lower on STB with no emergent resistance in either group. The difference favouring STB was mainly due to non-virologic reasons. STB was well-tolerated, and no case of PRT occurred. Simplification to STB from a multi-tablet, PI+RTV regimen is effective, durable and safe in HIV-1 infected, virologically suppressed patients without history of VF.

P2

SINGLE W144: Greater changes in bone turnover markers in antiretroviral therapy-naïve individuals initiating efavirenz/emtricitabine/tenofovir disoproxil fumarate compared with dolutegravir plus abacavir/lamivudine

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Background: Changes in bone mineral density (BMD) have been reported after initiation of antiretroviral therapy (ART), and the degree of change in BMD may differ among various regimens. Biomarkers of bone turnover were assessed over 144 weeks in the SINGLE study, a clinical trial which demonstrated that a regimen of dolutegravir (DTG) + abacavir/lamivudine (ABC/3TC) was superior to efavirenz/emtricitabine/tenofovir disoproxil fumarate (EFV/FTC/TDF) in achieving HIV suppression (71% vs. 63% of patients remaining undetectable at week 144, respectively).
Methods: SINGLE is a multicentre, double blind, Phase III non-inferiority study, in which HIV-1 infected ART-naive subjects were randomized 1:1 to receive DTG + ABC/3TC or EFV/FTC/TDF. Serum levels of 25-hydroxy Vitamin D and bone turnover markers, including type 1 collagen cross-linked C-telopeptide (CTx), osteocalcin (OC), bone-specific alkaline phosphatase (BSAP), and procollagen type 1 N-terminal propeptide (P1NP) were measured at baseline and study weeks 48, 96, and 144. Comparisons between groups were made using an ANCOVA model.
Results: We enrolled 833 subjects (68% white, 85% male). Baseline median age was 35 years, median CD4+ was 338 cells/mm^3, and median BMI was 24 kg/m^2. Relative to baseline, CTx, OC, BSAP, and P1NP levels increased while Vitamin D decreased in both treatment arms at all time points (weeks 48, 96, and 144), and tended to peak at week 48 or week 96. For all five analytes at all time points, differences were greater in patients receiving EFV/FTC/TDF than in those randomized to DTG+ABC/3TC, suggesting greater bone turnover in those on EFV/FTC/TDF. The difference was statistically significant for CTx, OC, BSAP, and P1NP at all study time points (p<0.001 at weeks 48 and 96, p=0.002 at week 144). There was no significant difference between the two groups in in the observed Vitamin D levels over time (decreases of 7%, 5%, and 2% in the DTG+ABC/3TC arm, and 10%, 10%, and 4% in the EFV/FTC/TDF arm at weeks 48, 96, and 144 respectively).
Conclusion: Initiation of DTG+ABC/3TC in ART-naïve HIV-infected patients engendered significantly less bone turnover (as measured by four biomarkers) than did initiation of EFV/FTC/TDF over 144 weeks of follow-up. These differences are likely to correlate with changes in bone mineral density over time

P3

BMS-955176: Antiviral activity/safety of a 2nd-generation HIV-1 maturation inhibitor

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Background: BMS-955176 is a 2nd-generation HIV-1 maturation inhibitor (MI). A 1st–generation MI (bevirimat) showed clinical efficacy in early-phase studies, but ~50% of subjects had reduced viral susceptibility associated with naturally occurring polymorphisms in Gag. We assessed BMS-955176 antiviral activity, safety, and exposure–response during 10 days of monotherapy in HIV-1, subtype B-infected subjects.

Methods: AI468002 (NCT01803074) is a Phase 2a, randomized, multi-part trial. Forty HIV-1, subtype B-infected subjects with HIV-1 RNA ≥5000 c/mL and CD4+ T-cell counts ≥200 cells/μL were randomized 1:1:1:1 to BMS-955176 dose groups of 5, 10, 20 or 40 mg, then 4:1 to receive an oral suspension of BMS-955176 or placebo once daily (QD) for 10 days. Twenty additional subjects were later randomized to 80 and 120 mg QD dose groups. The primary endpoint was change in HIV-1 RNA from baseline to Day 11; safety and exposure–response were secondary endpoints.
Results: Overall, 60 subjects were randomized to receive either BMS-955176 (n=48) or placebo (n=12). Median change in HIV-1 RNA from baseline to Day 11 ranged from −0.15 to −1.36 $\log_{10}$ c/mL and maximum median change between baseline and Day 24 (study discharge) ranged from −0.50 to −1.70 $\log_{10}$ c/mL across the BMS-955176 groups. An exposure–response relationship was observed; there was an increase in maximum median response over the range of 5–40 mg QD, which plateaued at ~−1.64 $\log_{10}$ c/mL at doses of 40–120 mg QD. Maximum median declines in HIV-1 RNA were similar for the 40–120 mg QD dose groups regardless of baseline Gag polymorphisms (positions evaluated: V362, Q369, V370). BMS-955176 was generally well tolerated at all doses. There were no deaths, serious adverse events (SAEs), AEs leading to discontinuation, grade 3–4 related AEs or clinically relevant grade 2–4 laboratory abnormalities.
Conclusion: BMS-955176 achieved maximum median declines of >1 $\log_{10}$ c/mL in HIV-1 RNA at doses of 20–120 mg QD. Response increased with doses up to 40 mg QD, with a plateau of ~−1.64 $\log_{10}$ c/mL observed at 40–120 mg QD. The greatest response achieved was a maximum median change of −1.70 $\log_{10}$ c/mL in the 40 mg group. Unlike 1st-generation MIs, in this proof-of-concept study BMS-955176 showed similar antiviral activity in subjects with wild-type HIV-1 or HIV-1 with Gag polymorphisms. BMS-955176 was generally well tolerated at all doses. Phase 2b studies for BMS-955176 will begin Q2, 2015.
[Previously presented at the annual Conference on Retroviruses and Opportunistic Infections (CROI) from February 23–26, 2015 in Seattle, Washington, USA.]

P4

A discrete choice experiment to evaluate HIV patient preference for simplified treatment regimens: Results from the UK survey

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Background: The development of effective single-tablet regimens for antiretroviral therapy has led to the prospect of simplified treatment for HIV patients. The aim of this study was to conduct a discrete choice experiment (DCE) to estimate the relative strength of patient preference for simplified treatment regimens.
Methods: A prospective web survey was set up to collect data from HIV patients in the UK. A steering committee consisting of clinicians, nurses, pharmacists, patient group representatives and academics, guided the initial survey design. HIV patient organisations provided feedback on the pilot survey. The DCE consisted of 12 hypothetical choices of two drug scenarios with different attributes (number of tablets (1 to 4), mealtime dosing, increased risk of heart attack or insomnia (yes/no), and monthly cost to the healthcare system (£500, £600, £750, £1000)). For each scenario, patients chose the option they preferred and the response patterns were analysed in STATA v13 using generalised multinomial logit models. Willingness to pay (WTP) in GBP was used as a metric to quantify the strength of preference for each attribute.
Results: Of 316 responses, 278 (88%) qualified for inclusion in the analysis. 72.6% of the respondents were men who have sex with men and 14.7% were female, median age was 44 (range 21-66) years. The time since diagnosis was 8 (0-30) years with a 5 (0-27) years median duration of treatment. Patients had a statistically significant preference for the avoidance of insomnia and heart attack and for a reduced number of tablets. The strongest preference was for the avoidance of insomnia, followed by having a single tablet regimen, the avoidance of heart attack and avoiding mealtime dosing. Translating preferences to WTP provided the table below.
The ordering of preferences (and WTP for each attribute) varied by patient, and was particularly affected by the patient's current regimen. For example, those on two or more tablets per day had a stronger preference for avoiding mealtime dosing than patients already on single tablet regimens.

			Tablets				
	Avoid CV	Avoid insomnia	1	2	3	Base: 4+	Avoid mealtime dosing
WTP £	527	731	623	72	−131		404
95%	381	527	455	0	−212	−564	286
Confidence	674	935	792	143	−51		522
Interval							

Conclusions: UK HIV patients have a strong preference for avoiding treatment regimens associated with insomnia, then prefer single tablet regimens and the avoidance of an increased risk of a heart attack. Avoiding mealtime dosing was a lower priority.

P5

Switch to STRIBILD from NNRTI plus FTC/TDF regimens maintains HIV suppression and is well-tolerated: Week 96 results of STRATEGY-NNRTI (Study 121)

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Background: The single tablet regimen (STR) elvitegravir/cobicistat/emtricitabine/tenofovir DF (STRIBILD, STB) can be used for regimen simplification, convenience and tolerability in virologically suppressed, HIV-1 infected patients with no history of virologic failure (VF). Week (W) 96 results of STRATEGY-NNRTI (Study 121) are reported, a prospective, randomized, open-label, Phase 3b trial of a switch to STB from non-nucleoside reverse transcriptase inhibitor (NNRTI) + emtricitabine/tenofovir DF (FTC/TDF) regimens in suppressed HIV-1 subjects.
Methods: Subjects suppressed <50 c/mL on NNRTI + FTC/TDF regimens for ≥ 6 months either switched to STB or remained on their NNRTI regimen (2:1 randomization). Entry criteria included estimated creatinine (Cr) clearance ≥ 70 mL/min, ≤2 prior ARV regimens, and no prior VF or resistance to FTC/TDF. The primary endpoint was the proportion of subjects who maintained HIV-1 RNA < 50 c/mL at W48 (snapshot algorithm, 12% noninferiority margin); Week 96 was the final endpoint.
Results: At randomization, subjects (n=434, 291 STB; 143 NNRTI) were predominantly male (93%), white (78%) and age < 50 years (78%); 78% were on efavirenz (ATRIPLA in 74%). Median time since first ARV use was 3 yr; 31% enrolled due to concern with current/long-term ARV side effects. At W96, STB was noninferior to staying on NNRTI regimens; 82% and 77%, respectively, maintained HIV-1 RNA < 50 c/mL (difference 5.5%, 95% CI: -2.5%, +14.1%). VF on STB or NNRTI was similar (4% and 2%, respectively); no subject on STB developed resistance; 1 NNRTI subject developed primary NNRTI-resistance (K101E, Y181C). Grade 3-4 adverse events (AEs) occurred in 9% STB and 8% NNRTI. AEs leading to discontinuation occurred in 3% STB vs 2% NNRTI. Median changes in Cr (μmol/L) at W96 on STB and NNRTI were +11.5 and 0.0, respectively, similar to W48. One subject discontinued STB by W48 due to proximal renal tubulopathy (PRT); no new cases of PRT occurred after W48 in either group. From W48 to W96, 1 subject discontinued STB due to a renal AE (proteinuria).
Conclusions: Switching to STB single tablet regimen from NNRTI + FTC/TDF regimens was non-inferior in maintenance of virologic suppression at W96, with no resistance development on STB. STB had favourable tolerability and renal safety, with no new case of PRT after W48. STB provides a durable, safe and well tolerated STR option for patients wanting to switch from an NNRTI-based regimen.

P6

The pharmacokinetics of high-dose methotrexate in people living with HIV on antiretroviral therapy

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Background: High dose ($3g/m^2$) intravenous methotrexate (MTX) is part of (R)-CODOX-M/IVAC chemotherapy regimen for HIV associated Burkitt/Burkitt-like lymphoma (BL/BLL). Cancer treatment in people living with HIV (PLWH) may be complicated by potential pharmacokinetic interactions between cytotoxic drugs and antiretrovirals (ARVs). No data on the pharmacokinetics (PK) of high dose MTX in PLWH are available. We investigated MTX PK and evaluated the effects of renal function (eGFR), age and use of different classes of ARVs.
Methods: PLWH treated with (R)-CODOX-M/IVAC between 2007 and 2014 are included in the analysis. Plasma was collected for MTX concentration measurement (ARK $_{TM}$ MTX assay,VITROS® 5600) daily after i.v. administration of 3 g/m^2. Clinical data on renal function and ARV regimen (nucleoside reverse transcriptase inhbitors (NRTIs)-backbones and use of third agent) were collected and *t*-test used to correlate these with MTX elimination half life ($t_{1/2}$) (StatView, 1989).
Results: We treated 43 PLWH (8 women, 35 men) with HIV associated BL/BLL with (R)-CODOX-M/IVAC and collected 150 plasma MTX samples daily, continuing the folinic acid rescue until MTX concentrations< 0.04 mmol/L were achieved. At diagnosis, the mean age was 42 years, median (range) CD4 and viral load were 225 cells/mm^3 (10-864) and 10860 copies/mL (0-1.9M), 10 patients had an undetectable viral load. The median (range) MTX $t_{1/2}$ was 21.7 hours (9.4-204.4). Twenty-two study patients were on integrase inhbitors (INI),18 on non-NRTIs (NNRTIs), one on a boosted protease inhbitor, one on NNRTI/INI, and one on INI/maraviroc. There was a trend to slower elimination of MTX in patients on NNRTIs versus INI (p=0.15). Thirty-six patients were on tenofovir/FTC and 7 on abacavir/3TC: MTX $t_{1/2}$ was similar in subjects on both NRTI-backbones (p=0.68). The elimination of MTX was not affected by eGFR (p=0.67) or age (p=0.71).
Conclusion: The elimination half-life of MTX was not affected by eGFR, age or NRTI backbone. There was a trend to longer MTX $t_{1/2}$ suggesting higher plasma exposure and potential mucosal toxicity in patients on NNRTI compared to those on INI.Data on the PK and the pharmacodynamics of ARV and cytotoxics are warranted to improve treatment of cancer in PLWH.

P7

Integrated analysis of emergent drug resistance through 48 weeks from clinical studies of HIV-1 treatment-naïve subjects receiving EVG/COBI/FTC/TAF

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Background: Tenofovir alafenamide (TAF), a novel prodrug of the NtRTI tenofovir (TFV), more efficiently loads lymphocytes with TFV-diphosphate compared to the current prodrug tenofovir disoproxil fumarate (TDF). The fixed-dose combination of elvitegravir(EVG)/cobicistat(COBI)/emtricitabine (FTC)/TAF (E/C/F/TAF) has been evaluated in one Phase 2 and two Phase 3 randomized, double-blinded studies in treatment-naïve subjects, comparing E/C/F/TAF to E/C/F/TDF. The TAF-containing arm demonstrated non-inferiority to the TDF-containing comparator arm in both Phase 3 studies at Week 48 with >90% of patients achieving HIV-1 RNA <50 copies/mL. An integrated resistance analysis across these 3 studies was conducted.
Methods: HIV-1 resistance testing was conducted using commercial assays to assess PR/RT/IN susceptibility to study drugs. Patients with HIV-1 RNA >400 copies/mL at time of virologic failure were evaluated for resistance.
Results: HIV-1 subtype B was found in 87% of the 1903 treated patients. Pre-existing primary resistance-associated mutations (RAMs) were detected at baseline: 7.5% had NRTI-RAMs, 18.2% had NNRTI-RAMs, and 3.4% had PI-RAMs. HIV-1 subtype or baseline RAMs did not influence treatment response at Week 48. In the E/C/F/TAF group, 19 patients qualified for on-treatment resistance analyses (1.9%; 19/978). Seven patients (0.7%, 7/978) developed NRTI-RAMs (K65R, n=1; M184V/I, n=7), including 5 patients that developed primary INSTI-RAMs (T66A, n=2; E92Q, n=2; Q148R, n=1; N155H, n=1). In the E/C/F/TDF group, 22 patients qualified for on-treatment resistance analyses (2.4%; 22/925). Seven patients (0.8%, 7/925) developed NRTI-RAMs (K65R, n=2; K70K/E, n=1; M184V/I, n=7), including 4 patients that developed primary INSTI-RAMs (E92Q, n=3; Q148R, n=2). Similar patterns of emergent mutations were observed in each treatment group.
Conclusions: E/C/F/TAF achieved a high level of virologic suppression in HIV-1 treatment-naïve patients through 48 weeks of treatment. Presence of PI-, NNRTI-, or NRTI-RAMs at baseline did not affect treatment response to either regimen. Emergence of resistance was rare (<1%) and comparable between the 2 arms.

P8

Early clinical experience of dolutegravir in an HIV cohort in a larger teaching hospital

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Background: Dolutegravir is the third HIV integrase inhibitor to be licensed for use in UK and available for prescription since July 2014. We describe the experience of this new drug within our HIV cohort in a large teaching hospital.
Methods: All patients commenced on Dolutegravir as naive or treatment experienced were identified from pharmacy records. Data collected included demographics, HIV parameters, serological response, clinical and patient reported outcomes.
Results: Sixty-eight patients commenced Dolutegravir out of 750 patients on antiretroviral treatment. 49/68 (72%) were male. 58 (85%) were White British, 7 (10%) White European and 3 (5%) Black African. 28 (41%) heterosexual and 40 (59%) men who have sex with men. Mean time since diagnosis was 61 months (range 2-276). 48 (71%) were switched to Dolutegravir from another regimen, mean CD4 was 505 (CD4 27%) prior to initiation and 542 (CD4 28%) at first four week check. 20 (29%) were naive to ART with a mean CD4 of 419 (21%) prior to starting treatment and 553 (26%) at first four week check. Analysis of viral load (VL) was divided into 3 groups: 20 (29%) new starters, 34 (50%) suppressed at switch and 14 (21%) not suppressed at switch. New starters: median VL of 74,972 copies/mL ($35,269_{Q25}$ – $185,814_{Q75}$) fell to median VL BLQ (BLQ_{Q25} - 178_{Q75}) at 4 weeks following initiation. 9 (45%) were virally undetectable. Switching patients: 28 (58%) were switched due to side-effects of their current regimen, 21 (44%) for reducing pill burden and 3 (6%) due to drug interactions. Of those with an undetectable viral load prior to switching, 1 (3%) was detectable at 1392 copies/mL after 4 weeks. Of those detectable at switch (median VL 972, (161_{Q25} – $24,929_{Q75}$)), 8 (57%) were undetectable. For those with a recordable viraemia, the median VL reduced to 45.5 (BLQ_{Q25} – 337_{Q75}) after 4 weeks. Overall, 22/68 (32%) reported side effects with 11/68 (16%) reporting difficulty with low mood, anxiety, sleep disturbance or irritability. 6/68 (9%) discontinued due to intolerable side effects.
Conclusion: Early results indicate that Dolutegravir is a useful drug in naive or switch patients. It has potential to effectively supress viral load within the first 4 weeks of treatment and thus reduce infectiousness. Within the cohort reviewed it was well tolerated but side effects such as mood, anxiety and sleep disturbance was high with 9% of patients discontinuing treatment.

P9

Lack of emergent resistance in HIV-1-infected adolescents on elvitegravir-based single-tablet regimens

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Background: GS-US-236-0112 and GS-US-292-0106 are international, ongoing, phase 2/3, open-label, single arm, 48-week studies evaluating the safety and efficacy of the integrase inhibitor-based single-tablet regimens elvitegravir/cobicistat/emtricitabine/tenofovir disoproxil fumarate (E/C/F/TDF) and E/C/F/tenofovir alafenamide (E/C/F/TAF) in HIV-1 infected treatment-naïve adolescents. We present resistance results from a planned Week 24 interim analysis.
Methods: Genotypic analyses of HIV-1 protease (PR), reverse transcriptase (RT) and integrase (IN; GS-US-292-0106 only) were performed at screening. Subjects with resistance to study drugs were excluded. Subjects in the postbaseline resistance analysis population (subjects with HIV-1 RNA ≥400

copies/mL at virologic failure) had genotypic/phenotypic analyses at failure for PR, RT, and IN.
Results: The Week 24 interim analysis included 21 subjects on E/C/F/TDF and 23 subjects on E/C/F/TAF. Subjects on E/C/F/TDF had HIV–1 subtype C (10/21), B (8/21), or AE (3/21). Subjects on E/C/F/TAF had HIV–1 subtype A1 (13/23), AE (4/23), B (4/23), D (1/23), or complex mixtures (1/23). At Week 24, 85.7% (18/21) of subjects on E/C/F/TDF and 91.3% (21/23) on E/C/F/TAF had virologic success (HIV-1 RNA <50 c/mL) by FDA snapshot. Virologic response rates were similar across subtypes and among subjects with pre-existing IN-, NNRTI-, NRTI-, and PI-associated resistance mutations (Table). One subject on E/C/F/TDF (1/21) and no subjects on E/C/F/TAF (0/23) met the criteria for post-baseline resistance analysis; no emergent resistance was detected. No subjects in either study experienced suboptimal virologic response.

	GS-US-236-0112 E/C/F/TDF n=21		GS-US-292-0106 E/C/F/TAF n=23	
Resistance Mutations at Baseline	Subjects with Mutations	Virologic Success at Week 24	Subjects with Mutations	Virologic Success at Week 24
Primary PI	0	n/a	0	n/a
Secondary PI	20	17/20[a,b]	23	21/23[a]
NNRTI	3	2/3[a]	2	2/2
NRTI	0	n/a	4	4/4
Primary INSTI	ND	n/a	0	n/a
Secondary INSTI	ND	n/a	5	4/5[a]

ND: no data, n/a: not applicable.
[a] All subjects with HIV-1 RNA ≥50 c/mL at Week 24 subsequently re-suppressed on study drug
[b] One subject discontinued due to pregnancy before Week 24 while suppressed

Conclusions: In this Week 24 interim analysis of two clinical trials in treatment-naïve adolescents, E/C/F/TDF and E/C/F/TAF demonstrated efficacy against diverse HIV-1 subtypes with no emergent resistance. E/C/F/TDF and E/C/F/TAF are potentially effective treatment options for HIV-infected adolescent populations globally.

P10

Pre-exposure prophylaxis fails to prevent HIV-1 infection or the establishment of a significant viral reservoir

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Background: Pre-exposure prophylaxis (PrEP) with antiretroviral therapy (ART) prevents HIV acquisition in randomised trials. Single agent tenofovir PrEP shows benefit over placebo and is comparable with Truvada (Tenofovir/FTC). We report 2 cases of HIV-1 acquisition amongst individuals receiving therapeutic levels of tenofovir for Hepatitis B infection.
Methods: Purified CD4 T cells were analysed by qPCR for HIV-1 DNA (Total and Integrated) and cell-associated unspliced HIV-1 RNA (CA-RNA). Thawed PBMC were stained with an activation panel (CD38, CD69, HLA-DR) and an exhaustion panel (Tim-3, Lag-3, PD1).
Results: Patient A received tenofovir 300mg od and maintained an undetectable Hepatitis B viral load for 4 years. Following HIV-1 seroconversion symptoms he tested HIV-1 positive two weeks after a negative test. Results at HIV-1 diagnosis were: CD4 584 (35%), CD4:CD8 ratio 1.19, HIV plasma viral load <50 copies/ml. The tenofovir trough level was between the 10th and 25th centile. The ART regimen was immediately intensified. Two days after HIV-1 diagnosis total HIV-1 DNA was 3.14 log copies/million CD4 cells and CA-RNA levels were 116 copies/ 1 e6 copies 18s RNA. Patient B received tenofovir 300mg od for 3 years and maintained an undetectable Hepatitis B viral load. During a severe symptomatic seroconversion illness he demonstrated an evolving HIV-1 antibody response. Results at HIV-1 diagnosis were: CD4 count 550 cells/ul (24%), CD4:CD8 ratio 0.49, plasma HIV-1 viral load 103,306 copies/ml and a tenofovir trough drug level at the 75th centile. The ART regimen was immediately intensified. 12 days after HIV diagnosis, total HIV-1 DNA was 3.44 log copies/million CD4 T cells, and CA-RNA levels were 1236 copies/ 1e6 copies 18s RNA. For patients A and B, levels of total HIV-1 DNA were at the lower end of the range of values measured for SPARTAC participants (n=154) close to seroconversion (median 3.88 log copies (IQR 3.42-4.24)). Most markers of T cell activation and exhaustion were consistent with patients in SPARTAC. Patient A had higher levels of immune activation than Patient B with Z scores of 2.7, 3.9 and 2.4 for HLA DR, CD38 and CD69 on CD8 T cells, respectively, compared with a normalized population of healthy controls (n=17).
Conclusion: HIV-1 acquisition can occur despite therapeutic plasma levels of tenofovir. Immune dysfunction and measures of HIV-1 reservoir are detectable even in the presence of antiretrovirals around the time of HIV acquisition.

P11

Week 24 data from a Phase 3 clinical trial of E/C/F/TAF in HIV-infected adolescents

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Background: Elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (EVG/COBI/FTC/TAF or E/C/F/TAF) is an integrase inhibitor-based single tablet regimen in clinical development for use in HIV-infected adolescents. Pharmacokinetics (PK), safety and efficacy from a planned interim analysis of the first clinical trial of E/C/F/TAF in adolescents are reported.
Methods: Treatment-naïve 12 to <18 year-olds weighing ≥35 kg with HIV-1 RNA>1000c/mL, CD4>100cells/μL and eGFR>90mL/min/1.73m^2 received E/C/F/TAF once daily in a prospective, 2-part, 48-week, single-arm, open-label trial. Steady-state PK parameters were compared to an adult reference population by ANOVA, and related to the range of exposures associated with antiviral activity in adults. Adverse events (AE), laboratory tests, and the proportion of subjects with HIV-1 RNA<50c/mL were assessed at Week 24. Bone mineral density (BMD) was measured by dual-energy X-ray absorptiometry.
Results: The trial enrolled 48 adolescents with a median age of 15 years, median weight of 52 kg, 58% female, 88% Black, 13% Asian, 67% vertically infected, 35% with HIV-1 RNA>100,000c/mL, median CD4 count 468cells/μL, and median serum creatinine [sCr] 0.57mg/dL. TAF, tenofovir, EVG, COBI, and FTC PK profiles of adolescents were consistent with those in adults. Of 23 subjects followed to Week 24, 21 (91%) had HIV-1 RNA<50c/mL. No deaths or AE-related discontinuations occurred. The most common AEs were nausea (23%), upper respiratory infection (21%), and diarrhea (17%). One serious AE of visual impairment and intermediate uveitis occurred and resolved without interruption of E/C/F/TAF. The median change in sCr was +0.08mg/dL at Week 24, consistent with COBI's inhibition of renal tubular Cr secretion. No renal failure or proximal renal tubulopathy occurred. From baseline to Week 24, the change in median spine BMD was +2.8% with a change in height-adjusted (HA) Z-score of +0.02 and 2/23 subjects (9%) having a decrease of ≥4%. The change in median total body less head BMD was +0.3% with a change in HA Z-score of +0.09 and no decreases of ≥4%. No fractures occurred.
Conclusions: Therapeutic plasma concentrations of all components of E/C/F/TAF were achieved, consistent with potent antiviral activity of the regimen. Treatment was generally well-tolerated by week 24 with a favourable renal and bone safety profile. These promising findings support E/C/F/TAF eventual use in adolescents and further evaluation in other paediatric populations.

P12

Gastrostomy administration of antiretroviral therapy across the ages

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Background: There is extremely limited published data on the administration of antiretroviral therapy (ART) via feeding tubes, with the majority of cases

(33/40) described in young children. Additionally there is limited manufacturer's advice for crushing tablets and opening capsules where liquid formulations are not readily available. A single centre descriptive case series of percutaneous endoscopic gastrostomy (PEG) or nasogastric (NG) ART administration across the lifespan is presented.
Methods: Retrospective case note audit of HIV infected individuals ever receiving ART by PEG/NG tube between January 2010 and January 2015. Anonymised data collated in excel; age, sex, ethnicity, comorbidities, reason for PEG/NG insertion, ART and dose, formulation and viral load (VL) and CD4 count response.
Results: Of the 11 patients identified 5 were in paediatric care (<16 years) and 6 in adolescent/adult services. Current median age 19 years (range 5 – 52), 9/11 (82%) perinatally infected, 7/11 (64%) male and 10/11 Black African ethnicity. Reason for PEG/NG use; psychological difficulty swallowing tablets in adolescents with severe immunosuppression (5), palatability of kaletra liquid in early childhood (2), lymphomas (2; oesophageal stricture, autism), CNS disease (2; TB/toxoplasma and HIV encephalopathy/catatonia). ART formulations; manufacturer's liquid: Kaletra, zidovudine, abacavir, lamivudine, didanosine, ritonavir and nevirapine. Crushed tablets; darunavir, raltegravir, tenofovir and Truvada, all at standard dose for weight. VL response at 24 weeks; 4 achieved VL <50 c/ml (median 89: IQR 925). PEG/NG ART median duration was 33 months (IQR 17.5). At last clinic visit: 3 continue PEG ART, median duration 12 months, all with a VL <20 c/ml. Following gastrostomy/NG removal, 6/8 have a current VL<20 c/ml, median CD4 count 544 (IQR 167), 1 patient stopped ART and 1 has been deported.
Conclusion: PEG/NG delivery of ART can be effective across the lifespan where issues of palatability, adherence and neurological disease preclude the oral route. No dose adjustment was required and viral suppression was maintained following PEG/NG removal in this small case series. Additional data on safety, efficacy, drug formulation and cost is required.

P13

What HIV treatment characteristics are important to the patient? Results from a prospective UK survey

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Background: The development of effective single-tablet regimen for antiretroviral therapy (ART) has led to the prospect of simplified treatment for HIV patients. As part of a wider project assessing patient preferences, we set out to collect patients' general opinion on which aspects of treatment were most important to them.
Methods: The data for this UK-based, post-hoc analysis were obtained from a prospective, multi-country, web survey, which was set up to collect data from HIV patients across Europe. A steering committee consisting of clinicians, nurses, pharmacists, patient group representatives, and academics guided the initial survey design. HIV patient organisations provided feedback on the pilot survey. The final section of the survey consisted of a series of questions regarding treatment attributes with a five-point Likert scale to rate their importance as well as an open question prompting the patient for their opinion on important treatment characteristics.
Results: From the UK survey (June to October 2014), opinions were obtained from 291 respondents who are currently receiving ART. 70% of the respondents are men who have sex with men and 17% are female. Across this sample, the median duration of treatment is 5 (range 0-27) years, age 44 (21-69) years, and time since diagnosis 8 years (0-30).
Most patients rated 'the shape, size and colour of tablets do not change' as not important (54%), and 'fewer clinic visits to monitor treatment or change tablets' and 'fewer boxes to carry around' as important (30% and 28%). 'Other people cannot tell that I am taking HIV medicines' and 'HIV tablets can be taken together at the same time' were rated as very important by 37% and 51% of respondents respectively. For all five of these questions, women choose a higher importance rating more frequently than men. For the open question "What other HIV treatment characteristics are important to you?" fewer side effects and, in particular, concerns over sleep problems, were mentioned most frequently. Mental health problems were a concern to some patients. Other responses related to the inconvenience of being tied to mealtime dosing, a desire for flexible dosing and fewer, easier to swallow, smaller tablets.
Conclusion: These responses provide evidence that UK patients have a preference for simple, flexible treatment regimens that are not tied to mealtimes and have a low risk of sleep problems.

P14

HIV treatment outcomes in a medium-sized unit at a UK inner city district general hospital: A retrospective analysis

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Background: A recent BHIVA national audit showed how all HIV clinics, performed as a whole across the UK. We aim to describe treatment outcomes in a medium-sized unit where all treatment decisions are agreed by the multidisciplinary team as per the national HIV service specifications.
Methods: A retrospective case note review of HIV positive patients who were actively in care during 2014. Patients who had not been seen for the preceding 12 months, despite active recall, were defined as lost to follow up (LTFU) and excluded. Clinical and demographic data was collected from paper and electronic records and analysed using MSExcel. We used standardised measures as described in the 2013 BHIVA audit of HIV outcomes.
Results: A total of 807 patients were identified (16 LTFU leaving 791 for analysis: 49.2% (389) were male. Median age 45years (IQR 37-51), 30.8% (244) were over 50years old. 78% (614) heterosexual, 18% (147) MSM, 1.6% (13) acquired HIV vertically and 2.4% (17) other mode of transmission. 60% (472) patients were black African, 23% (183) white British, 9% (75) Caribbean and 8% (60) other. Median baseline CD4 count 240cells/mm^3 (IQR 65-424) and viral load (VL) 58,000copies/ml (IQR 10,000-206,000). 48% (340/709) had a baseline CD4<200cells/mm^3 and 67% (474/709) CD4<350 cells/mm^3. 25.8% (142/550) had presented with AIDS defining illnesses. 89.6% (709) patients were on highly active antiretroviral therapy (HAART). Of these: 72% (510) were on an NNRTI-based regimen, 22% (160) were on a protease inhibitor (PI)-based regimen, 3% (21) were on an intergrase inhibitor-based regimen and 2% (14) were on complex regimens. Of those on HAART: 2.4% (17) initiated treatment within the preceding 6 months. Of the remaining 692, 97.7% (676) had an undetectable VL. A further 6 had a VL<100copies/ml; therefore 98.6% (682/692) had a VL<100copies/ml. 0.3% (2) patients had a VL<200copies/ml (probable blips). There was 1% (7) on HAART for more than 6 months with a VL>100copies/ml; of note 3 of these had a VL<200copies/ml; all of them have longstanding history of poor adherence and are on a PI-based regimen. There were 9 patients with a CD4<350copies/ml yet not on HAART due to patient choice.
Conclusion: Despite high levels of: advanced clinical disease at presentation and late HIV diagnosis, our cohort have good virological outcomes (98.6% +/- 1.47 (99% C.I.) which is statistically significant compared to the overall BHIVA treatment outcome of 93.6%. This could be, in part, attributed to the effective use of the multidisciplinary team model facilitating close monitoring and adherence support.

P15

Dolutegravir in clinical practice: UK experience within the named patient programme

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Background: Dolutegravir (DTG) is a new integrase inhibitor (INI) with activity against raltegravir resistant virus. In 2011, a named patient programme (NPP) was initiated for patients with INI resistance or where DTG offered potential benefits over existing antiretrovirals. We report the UK experience of the NPP.
Methods: Centres accessing DTG for HIV-1 infected patients within the NPP were invited to submit demographic, ART history, resistance, viral load (VL) and CD4 outcomes. Patients were analysed according to known presence (INI-R) or absence (INI-S) of INI mutations.
Results: 34 patients were identified from 13 centres, 50% (17) with INI resistance. 5/17 INI-R vs 11/17 INI-S were male, median age was 46 vs 46 years, 8 vs 11 were of white ethnicity and 8 vs 8 were MSM. 3 vs 0 were known to be co-infected with HBV, and 1 vs 1 with HCV. Patients were generally highly ART experienced with significant resistance (see table). 9/17 vs 7/17 had high level resistance (Stanford HIVdb) to darunavir, etravirine or tenofovir. The most common major INI mutations were at positions 155 (n=8), 148 (4), and 140 (3). 5/17 had more than one major INI mutation, 3/5 had Q148 with ≥2 secondary mutations from G140A/C/S, E138A/K/T, or L74I. At switch, 14/17 vs 11/17 had a known VL>1000c/ml, with median CD4 93 (range 1-1093) cells/mm^3 vs 213 (2-490; p=0.90). Median number of additional ARVs in the optimised background regimen was 3 (range 1-6) for INI-R and 2.6 (1-5) for INI-S. For INI-R, VL<50c/ml in 5/9, 7/10 and 5/6 at 12, 24 and 48 weeks respectively, compared to 7/12, 5/7 and 2/3 in those with INI-S virus. In the INI-R group, after a median (range) of 71.1 (2.1-182.9) weeks FU, 10/13 had a final VL<50c/ml, and in the INI-S group, after 13.7 (2.7-62.1) weeks, 8/13 had VL<50c/ml. 4 patients in each group had no prospective FU. 2 stopped DTG after 61 and 166 weeks due to patient choice, and 2 died whilst taking DTG after 17 and 26 weeks.

Intermediate/high level resistance at switch to	INI resistant (17) N (%)	INI sensitive (17) N (%)	P
Dolutegravir	3 (18)	-	-
Darunavir	11 (65)	3 (18)	0.0134
Etravirine	13 (76)	9 (53)	NS
Tenofovir	11 (65)	8 (47)	NS
Non-R5 virus	11 (65)	7 (41)	NS

Conclusion: Early experience of DTG on the NNP in this highly treatment experienced group is mixed and likely influenced as much by patient adherence as regimen activity.

P16

Treatment in primary HIV infection: A UK city centre GUM clinic experience

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Background: The BHIVA 2013 treatment guidelines recommend starting HAART in Primary HIV infection (PHI) when any of the following criteria are met: AIDS-defining illness, neurological involvement or CD4 count less than 350 cells/uL. However, emerging data and expert opinion suggest a modest benefit in early HAART; reduction in HIV reservoirs and enhanced CD4 recovery. Based on this evidence we designed a proforma and pathway for PHI. We began discussing treatment as an option with all patients presenting with evidence of recently acquired HIV infection in our GUM clinic following weekly MDT approval from July 2013. Written consent is obtained if patients then choose to start HAART outside current BHIVA guidelines.
Methods: Retrospective case note review of all PHI diagnoses from July 2013 to August 2014.
PHI was defined by; positive antibody test within 4 months of a negative antibody test, positive p21 antigen or HIV RNA with negative antibody test or RITA consistent with clinical evidence of new infection.
Data collected included demographics, RITA results, documented MDT and patient discussion and written consent to start HAART in PHI if outside current BHIVA guidelines, timing between discussion to time of starting HAART and viral suppression on HAART.
Results: Over the 14 month period there were 26 diagnoses of PHI; 21/26 male (19 MSM) and 5/26 female. Mean age was 36 (14 - 53). Early HAART was discussed with 14/26 patients, of which 11/14 had CD4 counts above 350 cells/uL. 6/14 had the discussion within 4 weeks and 8/14 within 8 weeks of diagnosis. 13/14 chose to start HAART, with 10/14 starting within 4 weeks following discussion. Average time between diagnosis and starting HAART was 46 days (7 - 121). Early HAART was not discussed with 8/26 patients, and the remaining 4/26 transferred care to another centre. All 13 patients continue on treatment and 11/13 has an undetectable viral load at time of audit. The remaining 2 are within 2 months of starting HAART.
Conclusions: Long term outcomes for starting early HAART remain unknown. In our small cohort of patients, early HAART was discussed with 64% of patients presenting with PHI and deemed acceptable to patients with 93% choosing to start. Up to date guidelines are needed to guide physicians on the best management strategy in PHI to allow optimum and consistent care in this patient group. Clinicians offering treatment in PHI to their patients should be collecting and sharing patient outcome data.

P17

Antiretroviral drug interactions detected using electronic care records (ECR)

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Background: Drug interactions have been noted particularly with boosted antiretroviral regimens and inhaled fluticasone. This caused us to survey how common drug interactions might be. The pharmacy team in our Trust completed an interaction screen of all HIV patients on a boosted antiretroviral regimen using the recently launched Electronic Care Record.
Method: All patients on a boosted anti-retroviral (ARV) regimen containing ritonavir or cobicistat were identified. Using Electronic Care Record, we accessed patient GP medication records to undertake an interaction screen.
Results: In our cohort of over 900 patients, 331 were identified as on a boosted regimen. Of these, 144 (45%) patients had other medication prescribed by their GP, 114 (36%) required a dose adjustment of GP medication, monitoring advice or ARV medication change. Of the 331 patients, 56 (17.5%) required an immediate clinical intervention. The most common were steroid based inhaler devices, statins and contraindicated medicines e.g. quetiapine and domperidone.
Conclusion: Patients are prescribed medications from GP's or other hospital specialities which are contra-indicated or require specific dose adjustments and monitoring.
This service was a one off check, but as patients are continually having medication prescribed elsewhere, there is a need to emphasize that other

doctors check interactions. It is important to empower patients to ask other practitioners to check drug interactions when changing their non-ARV medications.
HIV/GUM clinicians should enquire from patients at each review if they have started any new medications, inhalers and patches since their last visit.
A medicines reconciliation and interaction check should be completed before commencing or switching a patient's antiretroviral regime.

P18

An evaluation of the accuracy of primary and secondary care medication records for patients taking antiretroviral therapy

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Background: Antiretrovirals (ARVs) are highly effective in treating HIV but require high levels of adherence and are prone to drug interactions. HIV treatment is only prescribed in secondary care. Accurate records and good communication across the primary to secondary care interface are vital in ensuring that prescribing is safe and effective. This study assessed the accuracy of medication records in both primary and secondary care.
Methods: Patients attending for HIV care and taking ARVs for >6 months who have their ARV details communicated to their GP were included in the study. Written consent was obtained to access hospital & GP records and patients were interviewed in clinic by a pharmacist. The drug history from the patient was compared to those recorded in the hospital notes and the Summary Care Record (SCR). If SCR not available then the GP surgery was contacted.
Results: 103 patients consented and were interviewed. 3 were excluded as GP records not available. 65% patients were taking prescribed medication in addition to ARV's and 54% received medicines via their GP. 30% patients were taking non-prescribed agents. Patients were taking a mean of 2.15 regular systemic medicines in addition to ARV's. 59% patients were able to name all their medicines or had a complete list with them. 4 patients were not taking medicines as prescribed. None involved ARV's and all were advised accordingly. Only 23% patients had a mention of ARV therapy on their SCR, 17% had the correct ARV's and 9% SCR's had complete ARV information. 53% hospital records had all current medication listed and 6% had a complete drug history. Discrepancies included 47% missing prescribed drugs, 74% missing doses, 29% abbreviating drug names, 11% with incorrect or unspecified drugs within a class and 21% missing non-prescribed drugs.
Conclusions: Medication records in primary and secondary care are incomplete for many patients. The results may be affected by selection bias towards patients known to be taking more medicines and those attending clinics with a pharmacist present. A full medicines review should be undertaken for all patients at least annually to improve the accuracy of records and to prevent harm. Pharmacists are ideally suited to this role and the information obtained should be shared with the GP and other specialists involved in a patient's care. It is important that all hospital prescribed drugs are updated on the SCR to improve patient safety.

P19

Abstract withdrawn.

P20

Single Tablet Regimens (STRs) – outcomes in a district general hospital setting

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Background: The BHIVA guidelines now feature three single tablet regimens (STRs) as recommended treatments for HIV-positive people new to therapy. Trial data suggests good virological outcomes and low toxicity with these regimens. We have examined how they perform in a "real life" clinical setting.
Methods: Retrospective case-note review of patients starting EFV/TDF/FTC, RPV/TDF/FTC or EVG/COBI/TDF/FTC fixed-dose combinations from 1st March 2011 to 31st March 2014.
Results: 159 patients started an STR. 65% were Black-African, and 48% female. Median CD4 at baseline was 310 (range 1-1250). 23% of patients had a viral load >100,000. 9 individuals (6%) had evidence of transmitted drug resistance (K103W, L210W, M4IL, D67N,T215S, T69D) and 3 patients tested positive for HLAB5701.

Prescribing patterns evolved as additional STRs became available:

	2011-12 (Mar-Feb)	2012-13	2013-14
Total STR	35	53	71
Atripla™	100%	72%	38%
Eviplera™	0%	25%	39%
Stribild™	0%	4%	23%

Male patients were more likely than women to be prescribed Stribild (77% v 22%) although there were no similar differences seen for the other STRs.
34% of patients receiving Atripla and 11% of patients receiving Stribild had a baseline VL>100,000. 1 patient was prescribed Eviplera despite having a baseline VL>100,000.Overall, 85% of patients had an undetectable viral load within 6 months (Atripla 80%, Eviplera 90%, Stribild 100%). 94% of these continuing their original STR had a VL<50 copies at 12 months (Atripla 92%, Eviplera 100%, Stribild 100%). Of the patients with detectable VL after 6 months, 39% were <400 copies and 39% had a baseline VL>100,000.
There was no change between median eGFR at baseline (105ml/min) and at 12 months (105ml/min). No-one discontinued or switched treatment due to renal impairment and no differences emerged between the different STRs' effects of renal function.22 patients switched ART owing to toxicity (14 CNS toxicity; 2 abdominal symptoms; and 4 deranged LFTs). The majority were on Atripla (72%). 8 switched to another STR and 15 changed to a PI-based regimen. All maintained good virological control.
Overall, 79% remained on their starting regimen, and 82% remained on a STR at 12 months.
Conclusion: STRs perform well in our cohort with high rates of viral suppression and low levels of toxicity, with greater toxicity observed in people receiving Atripla. The majority of patients continue on their initial regimen but the relatively new option of switching between STRs is proving helpful in toxicity management.

P21

It's not all about ARVs: Investigating the proportion of patients on non-antiretroviral medication that interact with their HIV drugs

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Background: The success of anti-retrovirals (ARVs) has significantly improved the HIV health outcomes for patients. Today HIV patients are living longer and are more likely to be treated by other physicians for other aliments or obtain medication from different sources outside their HIV clinic. The aim of this study was to investigate the proportion of HIV patients within our clinic on ARVs that are also taking non-HIV medication which have drug-drug interactions with their ARV treatment.
Method: Participants were invited to complete a questionnaire on their medication history between 28/04/2014 and 06/06/2014 (6 weeks). This questionnaire was development by the clinical pharmacy department and validated by the research team within the Trust. Patients that were identified as taking non-ARVs together with their ARVs were reviewed by the specialist pharmacist. All the medicines were assessed for possible interaction using the website www.hiv-druginteractions.org and the drug SPC (specific product characteristic). Drug interactions were categorised into three groups; managed, not managed and unknown management.
Results: 323 questionnaires were collected, 23 questionnaires were incomplete so 300 questionnaires were analysed. 188/300(63%) patients were taking concomitant non-ARVs. 107(57%) patients had at least one drug interaction with their ARVs. 56/107(52%) of these patients with known interactions were classified as 'not managed' or 'unknown management'. 72/300(24%) were on over-the-counter medication either regularly or 'when required' and 13/300(5%) were taking traditional/herbal medication. 251/300 (86%) had informed their GP of their HIV status.
There was an association between the accuracy of electronic patient records and the risk of interaction. Those with inaccurate records, had three times the

odds of having an interaction compared to those with accurate records, (OR 2.8, p=0.0025, 95% CI:1.4 – 5.7).
Conclusion: A high proportion of patients in our clinic are on non-HIV medication. A significant proportion of these drugs can interact with their ARVs.
It is important to have 2-way communication with GPs and other specialist consultants so patients' medication history can be up-to-date and to ensure appropriate management of HIV and non-HIV care.
Maintained electronic patient records and other innovative ways to improve documentation and communication are essential for improving standards of care.

P22

Drug interactions experienced by patients taking antiretroviral therapy

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Background: ARV's are extremely effective in treating HIV but are prone to drug-drug interactions that can have a significant effect on patient safety.
Methods: Drug histories taken from 100 patients attending for HIV care were analysed for drug interactions. These were categorised using the Liverpool website and if a drug was not listed, the Natural Medicines Database and the Medscape drug interaction checker were used.
Results: 24 patients were only taking ARV's. 124 clinically significant and 19 interactions of uncertain significance were identified in the remaining 76 patients, giving a mean of 1.6 significant interactions for each patient taking additional drugs. 18 of the uncertain significance interactions involved non-prescribed medicines. Most of the interactions identified could be managed by routine monitoring for effectiveness and toxicity, informing prescribers of the interaction and educating patients on how to manage their drugs safely. One patient required a change in ARV's from Atripla to Eviplera as she had been started on rivaroxaban and concomitant use with CYP3A4 inducers may lead to reduced anticoagulant effect. One patient had been documented as taking Epilim (sodium valproate) but was actually taking Epanutin (phenytoin) in addition to AZT, 3TC and NVP. TDM of both phenytoin and nevirapine was recommended. Three patients on PI's were identified as taking doses of PDE-5 inhibitors higher than the recommended maximum and were advised accordingly. One patient taking domperidone and Kaletra and was switched to ondansetron. Three patients were taking medicines that should not be taken at the same time of day including taking divalent cations with integrase inhibitors and taking alendronate with other medicines. 19 interactions involved analgesics and 13 were with statins. No patients were taking acid-suppressing agents with rilpivirine or atazanavir.
Conclusions: The results demonstrate that patients taking ARV's experience many drug-drug interactions, some of which can seriously affect the safety and efficacy of medicines. The results of this audit may have been affected by selection bias towards patients known to be taking more medicines. In order to prevent harm from interactions, a full drug history including a check for interactions should be conducted at least annually and ideally by a pharmacist. Information about actual and potential interactions should be shared with the patient's GP and any other specialists involved in their care.

P23

Current raltegravir use: Clinical practice in UK centres (CRICKET – PN-807)

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Background: In December 2007 raltegravir was licensed in the EU for treatment-experienced HIV positive patients and in September 2009 an extension of the license was granted to include first line use. Since 2010 BHIVA antiretroviral (ARV) guidelines have recommended this drug as a preferred agent in first line therapy. Early studies in the UK looked at the use of raltegravir in patients with limited treatment options. This multicentre clinical review looks at recent practice across the UK, examining the demographics and treatment responses in patients who started raltegravir prior to April 2013. Treatment practice and experience of raltegravir use is also reviewed. During the study period there were approximately 81500 patients in care within the UK.
Methods: A centre level survey was undertaken at 8 large HIV treatment centres (4 within London, 4 outside London), examining the number of HIV patients in care per centre, raltegravir use, local HIV treatment guidelines, post-exposure prophylaxis (PEP) guidelines and the treatment of HIV-2. In addition a retrospective case notes review was performed at the same centres identifying the 40 most recent consecutive patients who had started raltegravir prior to April 2013 with at least 12 months follow up data. Demographics, clinical characteristics and reasons for raltegravir initiation were recorded. Follow up data, including treatment response ≥24 weeks (% with a viral load <50 copies/ml), was also captured.
Results: Data has been returned to date from 5 out of 8 centres (3 centres within London, 2 outside). This shows that 8.1% (n= 847/10,462) of patients were prescribed raltegravir as part of their ARV regimen (range 4.9-11.5%). Survey data indicated that there are no current restrictions on the use of raltegravir. Virtual clinics and PEP guidelines were in place at all of the centres. 3 out of 5 centres included raltegravir in their standard PEP regime at the point of survey completion. The primary objective of this study which included demographics; reasons for starting raltegravir; concomitant ARV medications and treatment response in these patients will be presented for the 5 centres included within this interim analysis.
Conclusion: Survey level data was obtained from 5/8 treatment centres, which represents 14.3% of patients receiving HIV care in the UK. Together with patient level data this clinical review is likely to provide an accurate reflection of current raltegravir use.

P24

Virological treatment outcomes in therapy naïve HIV-1-positive patients taking highly active antiretroviral therapy (HAART)

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Background: British HIV Association (BHIVA) guidelines 2012 defined virological failure as inability to achieve undetectable (<50 copies/ml) HIV-1 RNA viral load (VL) at six months after commencing treatment or viral rebound of >400 copies/ml on two consecutive occasions after achieving an undetectable VL.
The aim of this study was to find out the proportion of patients who failed to achieve undetectable VL within six months of commencing treatment and probable reasons for failure.
Method: A retrospective review was performed, which included HIV positive patients who were 18 years and over and started antiretroviral therapy between April 2012 and September 2013. Patients on antiretroviral therapy for prevention of mother to child only were excluded. Data was collected using medical notes and electronic records. VL were recorded at baseline, 3 and 6 months. A further VL was recorded at 9 months for patients not fully suppressed at 6 months. In addition, reported adverse drug reactions and documented socioeconomic stresses during treatment were examined.
Result: 58 treatment naive patients were included from the study period. 79.3% (n=46) achieved VL <50 copies/ml within 6 months of therapy, 13.8% (n=8) had VL <400 copies/ml and 6.9% (n=4) had VL >400 copies/ml. Of the 8 patients with VL<400 copies/ ml at 6 months, 75% (n=6) went on to full suppression at 9 months without switch. However, 2 failed therapy (VL>400 copies/ml).
Of the 4 patients who had VL >400 copies/ml at 6 months, 75% (n=3) went on to full suppression at 9 months. 50% (n=2) were postpartum, and achieved full virological suppression at the time of delivery, however, one had a detectable VL (>400copies/ml) at 9 months.
Conclusion: In a socioeconomic deprived area our cohort has demonstrated that virologcial suppression is achievable. Depression, unstable housing, social insecurity and unemployment are common in our cohort.
At 9 months, 94.8% (n=55) achieved full virological suppression.
All the 3 patients (5%) who had VL>400 copies/ml at 9 months either postpartum or had history of depression, social insecurity, unemployment or unstable housing. Further studies will need to be done to associate these factors with poor virological outcomes.
In our cohort, postpartum patients may be at risk of virological failure and therefore we consider this a time of additional need or support.

P25

Chewable raltegravir as part of an adult antiretroviral therapy regimen: Two cases with therapeutic drug monitoring

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Background: Chewable raltegravir (cRAL) tablets are used in the treatment of paediatric HIV infection. Substitution with cRAL is not recommended for adults as it is not bioequivalent to the film-coated raltegravir (fRAL) 400mg tablets. cRAL tablets were found to have higher oral bioavailability than fRAL tablets in healthy adult volunteers.
Methods: We report 2 cases where cRAL was used as part of an adult antiretroviral therapy (ART) regimen with therapeutic drug monitoring (TDM).
Case 1: A 47 year old male was diagnosed with HIV in 06/2013. He was taking amlodipine and simvastatin but was otherwise well. Baseline investigations: CD4 407x106/L (38%), viral load (VL) 130,729 copies(c)/ml, wild type virus, hepatitis B and C negative. He wished to commence on ART, however he had significant anxiety regarding swallowing tablets. He was commenced on abacavir (ABC) solution 600mg od, lamivudine (3TC) solution 300mg od, and cRAL tablets 400mg bd in 09/2013. He reported no issues with side effects or compliance. VL was 44c/ml at 12 weeks and <40 thereafter. TDM trough levels (11hrs30 post dose) were 690 and 629 ng/ml taken at 2 and 12 weeks respectively (estimated minimum trough concentration 15ng/ml). TDM 4hrs post dose at 12 weeks was 1421ng/ml. In early 2014 the patient started practicing swallowing tablets using Tic Tac®'s and switched to ABC and 3TC tablets in 03/2014. In 04/2014 he switched to fRAL tablets and in 06/2014 to Kivexa® tablets.
Case 2: A 20 year old male presented with HIV in 04/2014. He was diagnosed on a baseline sample taken for post-exposure prophylaxis with Truvada®/Kaletra® which he discontinued on receipt of the positive result. He was asthmatic and occasionally used mephedrone and GHB. Baseline investigations: CD4 241x106/L (20%), VL 27,000 c/ml, wild type virus, hepatitis B and C negative. He reported a significant difficulty swallowing tablets so was commenced on the same regimen as case 1. His VL was 40c/ml at 4 weeks and has remained <40 since. TDM trough levels were 40 and 121ng/ml taken at 7 and 12 weeks respectively. A TDM taken 4hrs post dose at 12 weeks was 1713ng/ml. He remains on cRAL and is tolerating the medication well with no side effects.
Conclusion: These cases demonstrate the successful use of chewable raltegravir in 2 patients unable to swallow tablets. Viral suppression was achieved at a rate similar to that seen with fRAL, TDM levels were adequate and there were no problems with tolerability.

P26

Getting the best treatment without breaking the bank: An audit of choice of initial ART at a UK centre

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Background: BHIVA national guidance on choice of antiretroviral therapy (ART) aims to promote best practice and standardise management. Regional guidance may be more restrictive with greater emphasis given to cost. We performed an audit to assess how closely we followed guidance in choice of initial ART; whether local or national guidance is followed preferentially; documentation of ART choices; and whether following guidance would result in cost savings.
Methods: We identified all patients who started ART at our centre in two years from December 2012. We recorded their regimen from our database and electronic letters to patients and GPs, and also the reason for the choice of ART. The standard used was compliance with BHIVA 2012 guidance. Local guidance was to start efavirenz and coformulated abacavir/lamivudine unless contraindicated.
Results: ART was started in 71 patients in 2 years. The reason for choice of regimen was recorded in 31/71 (44%) patients. A single tablet regimen (STR) was used in 41/71 (58%). The backbone was abacavir/lamivudine in 9/71 (13%) and emtricatibine/tenofovir in 62/71 (83%). The third agent was a non-nucleoside reverse transcriptase inhibitor in 57/71 (80%), protease inhibitor in 9/71 (12%) and integrase inhibitor in 5/71 (7%). The choice of ART was compliant with BHIVA guidance in 65/71 (93%) of patients, but compliant with local guidance in only 6/71 (8%) of patients.
Conclusion: We demonstrated good adherence to national but poor adherence to local guidance. The reasons for ART choice were poorly recorded but seem to be driven by preference for STR; it is not clear if that was primarily physician or patient choice. We estimate that the use of STR cost £73,444 more per year than if these patients were started on efavirenz/abacavir/lamivudine. We recognise the limitations of this audit; we did not check CD4, viral load, HLA B5701 status or CVS risk that would influence choice of initial ART, and the case notes themselves were not examined; this cost-saving figure is therefore an overestimate.
However, this audit highlights the need to record reasons for choice of ART; it suggests that national over local guidelines are followed driven by preference for STR. The current economic landscape and commissioning policies are such that cost is likely to be an increasing factor in ART choice. Clinicians are reminded to carefully record the reasons for ART choice in order to justify prescribing the best treatment for their patients.

Basic Science: Immunology, Virology and Pathogenesis

P27

Disease progression in HIV-1 controllers; uptake and outcome of antiretroviral therapy

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Background: We have previously reported a cohort of 86 HIV controllers and defined a subset, discord controllers (DC) with low or declining CD4 counts (<450) despite control of plasma viral RNA. We showed that DCs are distinct both clinical and immunologically, having depletion of naïve CD4 cells and higher activation in all CD4 subsets compared with typical controllers (TC). Data are scarce on clinical management and outcome of controllers so we undertook a follow-up study of the cohort.
Methods: HIV controllers recruited into the prospective cohort were designated DC or TC depending on the geometric mean titre of the last 3 CD4 counts. Controls were HIV non-controllers and uninfected individuals. Baseline HIV DNA load in peripheral blood mononuclear cells was determined by quantitative PCR and expressed as per cell equivalent.
Results: 18 DCs were recruited; 2 are lost to follow-up. DCs had higher DNA loads (13-1529, median 601 copies/10^6 CD4 cells) compared to TCs (0-755, median 87) (p=0.002) and were similar to those in non-controllers (27-2188, median 852). Ten DCs had received 12-66 (median 42) months of antiretroviral therapy (ART). RNA loads were 85-19837 (median 796) at ART initiation and all became undetectable on therapy. However, CD4 gain was modest; from baseline 163-308 (median 272), CD4 change was -25 – +318 (median +130) over follow-up. Those with lower nadir CD4 had lowest CD4 gain despite extended ART. Of 6 ART naïve patients, 5 had lost viral control with one remaining undetectable. CD4 counts were unexpectedly low at 217-464 (median 304). Of note, 5 patients had declined to start ART despite low and declining CD4 counts.
Conclusion: The significantly higher DNA loads in the DC group suggest productive ongoing HIV replication and are compatible with increased immune activation, poor clinical outcomes and sub-optimal CD4 response to ART as described in this, and other, controller cohorts. Initiation of ART occurred late in DCs (some declined treatment), suggesting that both clinicians and patients may feel falsely reassured by low RNA loads in the face of low CD4 counts. These results suggest that controllers may benefit from earlier ART; clinicians should remain vigilant to this despite low or undetectable RNA loads. In addition, DNA load may be a better marker of viral replication and disease progression than RNA load and may identify controllers in whom early ART is indicated. Ongoing longitudinal follow-up of this cohort is planned.

P28

The impact of abacavir sulphate and tenofovir on platelet function

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Background: Highly active antiretroviral therapy (HAART) has considerably improved the life expectancy of HIV-infected individuals. However, therapeutics such as the nucleoside reverse transcriptase inhibitor (NRTI) abacavir sulphate, may also be associated with increased risk of cardiovascular complications such as myocardial infarction (MI). Platelet aggregation underlies these thrombotic events therefore the aim of this study was to assess the impact of two NRTIs, abacavir sulphate and tenofovir on platelet function *in vitro* and *in vivo*.
Methods: Isolated human platelets and platelet rich plasma from healthy volunteers were incubated for 10 minutes with either abacavir sulphate (3 μg ml^{-1}) or tenofovir (3 μg ml^{-1}) and stimulated with the conventional platelet agonists collagen (0.1 - 2.5 μg ml^{-1}), thrombin (0.01 – 0.1 U ml^{-1}) or ADP (0.15 – 5 μM). Platelet aggregation was measured using optical platelet aggregometry.
Radiolabelled platelet aggregation in response to a submaximal dose of collagen (50 μg kg^{-1}) was measured in real-time in anaesthetised mice, 30 minutes following an acute dose of abacavir sulphate or tenofovir (estimated plasma concentration of 30 μg ml^{-1}).
Results: Tenofovir significantly inhibited platelet aggregation induced by an EC_{50} concentration of thrombin (0.03 U ml^{-1}) and collagen (0.6 μg ml^{-1}) compared to the vehicle control *in vitro*, however, no effect was detected following incubation with abacavir sulphate. No effects on ADP-induced platelet aggregation were observed following incubation with either compound.
Abacavir sulphate significantly enhanced collagen-induced platelet aggregation compared to the vehicle control *in vivo*. No effect was observed for following treatment with tenofovir.
Conclusion: Abacavir sulphate enhanced platelet aggregation *in vivo* which suggests that NRTIs can influence platelet behaviour and therefore the possible increased risk of MI which has been associated with abacavir sulphate may be platelet-driven. In contrast, tenofovir negatively affected agonist-induced platelet aggregation *in vitro*, further suggesting that NRTIs can modulate platelet-driven processes. Further study is warranted to fully understand the mechanisms by which NRTIs influence platelet behaviour and cardiovascular risk.

P29

The burden of integrated HIV-1 DNA during suppressive ART is associated with levels of activated (HLA-DR+) CD8 T cells

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Background: The immunological correlates of HIV persistence during suppressive ART are poorly defined. We investigated integrated HIV-1 DNA load, residual plasma HIV-1 RNA load, and T-cell activation in 50 subjects on first-line ART with 2NRTIs + EFV or NVP for ≥1 to >10 years.
Method: Integrated HIV-1 DNA (per 106 PBMC) and residual plasma HIV-1 RNA were measured by Alu-gag PCR and sensitive qPCR, respectively. Soluble (IL-6, IL-10, sCD14, sCD27, sCD30, hsCRP, d-dimers) and cellular (CD4, CD8; plus CD45RA, CD26, CD69, CD38, DR) markers of T-cell activation were measured by ELISA and flow cytometry, respectively. Cross-sectional analysis by linear regression models was used to test the association between mean integrated HIV-1 DNA load and pre-ART viral load (VL), duration of VL suppression (<50 cps/ml), residual HIV-1 RNA load, T-cell activation markers, and nadir and current CD4 count.
Results: Patients had experienced continuous VL suppression for median 6 years (IQR 3-9) without blips; median CD4 count was 572 (478-734) cells/mm3. 29/50 (58%) patients had residual HIV-1 RNA at median 4 (2-8) cps/ml. Mean integrated HIV-1 DNA load was 1.9 (1.7-2.2) log10 cps. Duration of VL suppression was not associated with residual HIV-1 RNA load (p=0.11) or integrated HIV-1 DNA load (p=0.28). Integrated HIV-1 DNA load was positively correlated with %CD8+DR+, and to a lesser extent with sCD14 levels. In adjusted analyses (Table I) integrated HIV-1 DNA load was on average 0.50 log10cps higher for each 50% higher CD8+DR+ level.

Table 1: Mean change in integrated HIV-1 DNA (log10 cps/106 PBMC)-adjusted model

Factor:	Mean (95% CI)	p-value
Duration of VL suppression, per 10 yrs	0.23 (-0.20;0.66)	0.29
Pre-ART VL, per log_{10} higher	0.13 (-0.05;0.30)	0.15
Residual plasma HIV-1 RNA,per log_{10} higher	0.29 (-0.06;0.63)	0.11
CD4 count, per 100 cells/mm^3 higher	0.02 (-0.03;0.07)	0.36
sCD14, per 2 pg/mL higher	0.40 (-0.08;0.88)	0.1
% CD8+ DR/DP/DQ+, per 50% higher	0.50 (0.14-0.85)	0.01

Conclusions: During long-term, stably suppressive ART, a higher integrated HIV-1 DNA load was associated with greater CD8 activation. The underlying mechanisms warrant investigation.

P30

Aviremia 10-year post-ART discontinuation initiated at seroconversion

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Background: Early ART initiation is associated with impact on HIV-1 reservoir establishment and decay with the potential for virological control post-treatment discontinuation. Underlying mechanisms of post-virological control remain unclear. We report on a clade C-infected female patient who has maintained undetectable viremia for 10 years after stopping a 6-year treatment period initiated at PHI with initial virological failure while on ART and describe her virological parameters and HIV-1 specific T cell responses.
Case report: A 23-year-old female seroconverted with a 3-week long severe acute retroviral syndrome in October 1997. Compromised viro-immunological parameters with CD4 <200 cells/mm^3 on 3 occasions and VL >750,000 HIV-1 copies(c)/mL (clade C) were present before ART initiation on 20.10.97 (AZT-3TC-indinavir 800 mg tds switched to ritonavir 600 mg bd 2 weeks later). Failure of this regimen up to 94,000 c/mL prompted treatment intensification and aviremia was achieved in April 1999. ART was maintained until January 2004 followed by aviremia for 10 years with preservation of CD4 T cells and CD4/CD8 ratio>1. HLA genotype was not one generally associated with a favourable outcome. At 10 years of aviremia (2014), total HIV-1 DNA, integrated HIV-1 DNA and 2-LTR circles were 148.93 (95% CI: 76.99 - 229.64), 134.31 (95% CI: 56.47 – 304.39) and 3.89 (95% CI: 0 - 9.15) HIV-1 copies/million PBMCs, respectively. CD4 and CD8 HIV-1 specific T cell responses showed moderately potent CD8+ T cell inhibition of a clade-matched HIV-1 isolate equivalent to that which we have observed in ART-naïve chronically infected subjects with VL set-point <10,000 HIV-1 copies/mL. Unusually broad gag-specific IFN-gamma CD4 responses were detected, of note, targeting multiple regions of genetic vulnerability that are associated with virological control.
Conclusion: Persistence of intermediate levels of total and integrated HIV-1 DNA and broad HIV-1 gag-specific CD4 T cell responses, together with preserved CD8+ T cell viral inhibitory activity were associated with prolonged aviremia post-stopping treatment, suggesting that further insight into CD4 T cells should be gained in terms of the mechanisms underlying virological control post-ART.

P31

Comparative analytical performance of the new Aptima® HIV-1 RNA load assay with focus on low HIV-1 RNA levels

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Background: The Hologic Aptima® HIV-1 Quant Dx (HAQ) is the first commercially available real-time transcription-mediated amplification assay for quantitation of viral RNA levels. The study aim was to assess the performance of HAQ for plasma HIV-1 RNA quantitation in comparison with three PCR-based amplification assays: Abbott RealTime HIV-1 (ART), Qiagen Artus® HIV QS RGQ (QAR), and Roche Cobas TaqMan HIV-1 Test v.2 (RTM).
Methods: The four assays were compared by testing (i) Acrometrix HIV-1 RNA standards (2.0-6.7 $\log_{10}$ copies/ml) for accuracy and linear range, (ii) the 3rd WHO HIV-1 RNA international standard (IS) (nominally 12-500 copies/ml; 6 dilutions; 9 replicates) for precision at low copy number, (iii) external quality assessment panels, and (iv) 191 clinical samples from patients attending for HIV care in Jan-Dec 2013.
Results: HAQ was highly accurate with all measurements falling within 0.2 $\log_{10}$ copies/ml of the Acrometrix target value, and showed excellent linear correlation with the other assays across the panel range (R^2 >0.996). With the IS, HAQ detected HIV-1 RNA in 9/9 and 8/9 replicates at 25 and 12 copies/ml, respectively. However, viral load estimations obtained at 50-500 copies/ml varied between assays: the imprecision caused up to 2.1 (HAQ), 1.7 (ART), 7.5 (QAR), and 1.9 (RTM) fold changes in the IS quantifications. With clinical samples, HAQ demonstrated similar sensitivity to RTM for HIV-1 RNA detection (141/191 vs. 145/191). At least one assay reported HIV-1 RNA in 162/191 (85%) samples, whilst full detection concordance was observed in only 92/191 (48%). For categorizing samples as having HIV-1 RNA levels <50 or ≥50 copies/mL, HAQ had excellent agreement with ART (kappa = 0.92), followed by RTM (kappa = 0.81), and QAR (kappa = 0.79). With clinical samples showing quantifiable HIV-1 RNA (HAQ n=87, ART n=84, QAR n=86, RTM n=107), Bland-Altman analysis demonstrated good overall correlation between HAQ and the other assays. Quantitative results from HAQ were mean 0.12 and 0.06 $\log_{10}$ copies/ml higher than ART and RTM, and 0.05 $\log_{10}$ copies/ml lower than QAR.
Conclusions: The new transcription-mediated Aptima HIV-1 RNA assay provides a sensitive, reliable and accurate new tool for the virological monitoring of HIV infection. Viral load assays have excellent correlation at high HIV-1 RNA copy numbers, but this declines substantially at levels <500 copies/ml, with resulting discordance in categorising HIV-1 RNA suppression.

P32

Programmed death ligand 1 (PD-L1) expression is not upregulated in antiretroviral therapy-refractory Kaposi's sarcoma

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Background: Upregulation of programmed death ligand 1 (PD-L1) is a mechanism of immune escape utilised by a variety of tumours. In melanomas and carcinomas, tumour-cell levels of PD-L1 expression correlate with clinical responsiveness to novel therapies targeting the PD-L1 pathway. Kaposi's sarcoma (KS) is a mesenchymal tumour which usually shows strong susceptibility to immune control. Most KS cases in the context of HIV-1 infection are responsive to restoration of immunity following combination antiretroviral therapy (cART), but there is a subset that is not. We hypothesised that this subset of cART-refractory KS may utilise the PD-L1 pathway of immune escape.
Methods: Immunohistochemistry was used to investigate PD-L1 expression in tumour biopsies from a well-defined cohort of ten patients with cART-refractory KS.
Results: None of the KS biopsies showed membranous, tumour-cell expression of PD-L1, although four cases showed weak cytoplasmic tumour-cell PD-L1 expression.
Conclusion: No strong evidence of PD-L1 upregulation was found in a well-defined group of patients with cART-refractory KS, and therefore we conclude that this is not an important immune evasion mechanism in this disease. Regrettably, this means that novel PD-L1 pathway inhibitors are unlikely to be effective in the treatment of cART-refractory KS.

Behaviour, Transmission and Prevention

P33

Attitudes, beliefs and acceptability towards early ART amongst men who have sex with men (MSM) recruited to a UK cohort of HIV seroconverters

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Background: Use of ART in early HIV infection reduces risk of transmission to partners at a time of high viraemia, although individual health benefits of early ART are unknown. Acceptability of early ART amongst MSM seroconverters (SC) has not been examined. We elicited attitudes, beliefs and acceptability towards early ART in UK MSM SC.
Methods: We conducted a cross-sectional survey sub-study of the UK Register of HIV Seroconverters (UKR) (15/07/2013-31/12/2014). MSM aged≥16 recruited to the UKR from HIV centres within 12 months of HIV diagnosis were eligible. Survey and clinical data were merged for analysis.
Results: 102 MSM were recruited from 15 centres; 56% from 3 centres in London and Brighton with interest in primary HIV infection. Median (IQR) age at SC was 33 years (27,40), HIV test interval 81 days (0,168), time from diagnosis to survey completion 70 days (28,186), HIV RNA and CD4 at diagnosis were 4.8(4.4,5.8) $\log_{10}$ copies/mL and 481(397,643) cells/mm^3, respectively. Acceptability of starting ART at diagnosis was high; 68(69%) reported they would have done so if offered, 8 would not and 23 were unsure. Of the 68 who would have started at diagnosis, 42(62%) started ART; 29(69%) of them based on their doctor's advice. In contrast, of the 31 who would not have started at diagnosis or were unsure, 6 (19%) started ART, all based on their doctor's advice. Overall 50 men (49%) started ART; 35(70%) <1 month after diagnosis; 37(74%) at CD4>350. The main reasons for starting early were controlling the spread of HIV in the body (n=47, 96%), decreasing damage to the body (n=47, 96%), reducing risk of transmission (n=43, 88%), and increasing life expectancy (n=42, 85%). Of the 52 not on ART, 21 (45%) reported their doctor had advised starting ART and 26(52%) expected to start in the next month. 40(83%) would initiate ART to reduce the chance of transmitting HIV, even if there was no proven individual health benefit. The main barrier to early ART was anticipated side effects (n=32, 70%). Being on ART indefinitely (n=9, 19%) and perceived reduced future treatment options (n=3, 6%) were of lesser concern.
Conclusion: Most respondents stated they would have accepted immediate ART at diagnosis if offered. Whilst preventing transmission was a common reason for starting early, there were also strong beliefs in the health benefits of early ART, even in the absence of randomised evidence. Importantly, acceptability of early ART was high amongst those not yet on ART.

P34

High prevalence of Recreational Drug Use (RDU) amongst HIV patients admitted to hospital, a unique opportunity to engage drug users with support services

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Background: RDU continues to grow amongst HIV infected patients in the UK, particularly Men who have sex with Men (MSM), fuelling HIV and Hepatitis C transmission, mental illness, poor adherence to ARVs and drug-drug interactions in this population. Whilst high rates of lifetime RDU amongst

HIV clinic attendees has been shown, there lacks data in the HIV inpatient population. Hospital admission offers a unique opportunity to engage drug users. We aim to establish and characterise current and past RDU amongst new admissions to a large London HIV inpatient unit, compared to a General Medical admission population.

Methods: An opt-out survey was administered to new admissions to the HIV inpatient ward over a 10-week period (cases) and to new admissions to Medical AAU over a 48hr period (controls). Data was collected on age, gender, sexuality, past/current recreational drug use and route, reason for admission, Hepatitis B and C status and contact with drug services. All patients were asked for consent to urine toxicology (tox) upon admission.

Results: Data was collected in 59/65 (90%) HIV positive individuals admitted over 10 weeks (72 episodes) and in 48/54 (89%) general medical admissions over a 48hr medical take.

	HIV inpatients	Controls
N	59	48
MSM	41 (70%)	1 (2%)
Mean age (range)	47 yrs (24-76)	64 yrs (17-94)
Current RDU (%)	**26/59 (41%)** MSM 19/41 (46%)	5/48 (10%)
Past RDU (%)	15/59 (25%) MSM 14/41(34%)	9/48 (19%)
Symptoms on admission related to drug use	9/59 (15%) MSM 7/41 (17%)	0/48 (0%)
+ve Urine tox screen*	10/53 **(19%)**	1/47 (2%)

*Accounts for prescribed opiate false positives

None of the general medical patients reported sexualised drug taking or injecting drug use. Of the 26 HIV inpatients reporting current RDU, half admitted to sexualized drug taking (N=13), half to poly-drug use (N=13) and 1/3rd to injecting drugs (N=9). 27% had used in the last 24hrs and 35% in the last month. Only 7 (27%) were known to drug services. The main drugs used were: Cocaine (N=9), Crystal Meth (N=8) and Cannabis (N=7).

In total, 17/59 HIV inpatients had current or past infection with hepatitis B and 13/59 with hepatitis C; with 70% and 92% reporting current or past drug use respectively.

Conclusion: RDU was significantly higher in HIV inpatients than in our medical admissions sample population, and was associated with high-risk behaviour. Our data strongly supports the use of formal screening and drug services referral pathways at the time of admission to hospital to engage HIV positive drug users.

P35

Acute HIV infection after initiation of post-exposure prophylaxis following sexual exposure: Reasons, challenges and suggested management

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Background: Current guidelines lack clear recommendations on the management of acute HIV diagnosis after initiation of post exposure prophylaxis following sexual exposure (PEPSE). We present a case series of individuals diagnosed HIV positive once PEPSE initiated or in the follow-up period.

Methods: This was a multicentre retrospective case note review. Case definitions included the following criteria:

1. PEPSE failure: negative point of care test (POCT) + combined 4th generation Ag/Ab lab test at PEPSE start with HIV diagnosed during PEP or in follow up period. 2. Acute HIV infection at PEPSE initiation: negative POCT but subsequent reactive Ag/Ab test once PEPSE started

Results: 19 patients identified; 18 male/1 female; mean age 33 years. 16/19 had a negative HIV test in the last 12 months. 4 (21%) had received a course of PEPSE at least once in the preceding year. All patients received triple therapy (NRTI + bPI) in line with current or country-specific guidelines.

16/19 were subsequently confirmed HIV+ after PEPSE initiation once laboratory results available. 2 patients were diagnosed in retrospect; 1 was Ag/Ab negative on laboratory tests at PEPSE initiation, but HIV viral load tested retrospectively on the same sample was >20,000 copies; the other patient was also Ab/Ag negative at PEPSE initiation but on retrospective testing was positive by PCR. Therefore from 19 patients, 18 (95%) were already HIV+ at PEPSE initiation, with 1 likely failure.

Baseline resistance tests were conducted in 17/19; 2 had significant mutations (K103N, T215D) reflecting probable transmitted drug resistance.

Of 17/19 patients diagnosed before PEPSE completion, 11 (65%) opted to continue ART, and 6 (35%) stopped, independent of CD4 or viral load.

Conclusions: Patients presenting for PEPSE are high-risk who may be seroconverting. It is essential if a POCT is used at PEPSE start, this is accompanied by a combined Ag/Ab test, and that dual therapy (as still recommended in some guidelines) is avoided in this setting. Acute HIV diagnosis after PEPSE initiation represents an opportunity for early ART with reduction of viral reservoirs and improved CD4 outcomes. In the absence of specific data to inform best practice, we recommend continuing ART until urgent review by an HIV specialist.

P36

Post-exposure prophylaxis – a cross discipline regional online survey to explore decision-making

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Background: The decision to recommend post exposure prophylaxis (PEP) following sexual exposure varies between clinicians. A local audit has highlighted that 1/3 patients receiving PEP fall outside of the 2011 UK guidelines. This survey explores PEP decision-making across different hospitals and departments, as a quality improvement activity of a clinical network.

Methods: We invited all staff who prescribe or advise PEP at 5 hospitals to participate in an online survey. The survey comprised 7 scenarios covering different exposures (insertive/receptive vaginal intercourse (VI) and anal intercourse (AI), sexual assault, semen splash, fisting), timing of risk, and risk-group of source (sex worker, region of birth, MSM, known HIV+ve). For each scenario, we asked if the responder would recommend PEP. We also collected responder's workplace, staff group, and frequency of PEP consultations. Data were analysed by response with a breakdown by staff type and setting (emergency department (ED) or sexual health (GUM) clinic).

Results: Between August and November 2013, we received 51 responses (33 doctors, 7 nurses and 6 health advisors). 87% work in GUM settings, 13% in ED. 6% of questions were missed. For MSM sex with an unknown source, 96% respondents recommend PEP for condomless receptive AI and 61% for insertive AI. Where the source is known HIV+ with an undetectable HIV viral load (VL), 63% recommend PEP for receptive AI and 8% for insertive AI. For receptive AI where the source has VL of 5 million copies/mL, 65% recommend PEP at 80 hours. 15% would give PEP to a man following low-risk insertive VI who insists on taking it. 4% recommend PEP for receptive VI with an unknown partner, increasing to 65% if the partner is from Sub-Saharan Africa, and 55% for sexual assault (white British male). 75% recommend PEP for a semen splash to eye with HIV+ve source who has a high VL. Analysis by setting, grade or experience revealed similar responses.

Conclusions: Clinicians vary in their decision to recommend PEP. Although limited by low numbers, this appears to be irrespective of setting or staff group. Most responders would prescribe for high risk exposures. A significant number choose to give outside UK guidance where the risk is less than 1 in 10,000, or the time period is over 72 hours. This survey was conducted prior to recent evidence showing no transmission events from partners with undetectable viral loads, which will further inform guidelines and practice.

P37

The impact of recreational drug use on inpatient admissions

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Background: Recreational drug use (RDU) can be associated with a range of harmful health consequences in HIV positive individuals. There is an increasing spectrum of drugs used, injected and a recent phenomenon of "chemsex". The aim of this study was to review inpatient admissions over a one year period and assess the contribution of RDU.
Method: A retrospective analysis of admissions between 12th January 2014 and 12th January 2015 to an HIV inpatient service in a central London teaching hospital was conducted. Medical case notes were reviewed and information on age, gender, sexual orientation and admission details collated.
Results: There were 220 inpatient admissions during the study period, 28 (13%) were directly associated with recreational drug use. All 28 patients were male with a mean age of 43 (range 21- 62) and 11 (40%) were men who have sex with men (MSM). All patients were prescribed HIV treatment however 15 (54%)of these had a detectable HIV viral load. Nine (32%) of these patient were Hepatitis C co-infected.Table 1.

Table 1: Types of drug used

Subcategory	Route	N (%)
Non-opioid polydrug (crystal methamphetamine and mephedrone)	Injecting	7 (25%)
Opioid	Injecting	5 (18%)
Crystal Methamphetamine	Smoking	5 (18%)
Crack cocaine	Smoking	1 (3%)
Cocaine, mephedrone and MDMA	Intranasal	10 (36%)

Table 2: Reason for of admission

Reason	Diagnosis	n
Psychiatric (36%)	Psychosis	5
	Deliberate self harm	4
	Anxiety	1
Medical admission (54%)	Upper respiratory tract infection	3
	Decline in mobility secondary to intravenous drug use (IVDU)	2
	Acute hepatitis C following IVDU*	1
	Injection site abscess	2
	Collapse	1
	Refractory myoclonus	1
	HIV seroconversion*	2
	Shigella*	2
	Syphillis*	1
Other (10%)	Trauma*	3

*All admissions related to chemsex

Conclusions: RDU contributed to 13% of inpatient admissions. A quarter of these were related to chemsex and this growing culture in MSM is a concern. RDU should be routinely addressed by HIV clinicians. Patient should be informed of the risks and linked in with appropriate drug services with access to risk reduction counselling.

P38

Electroporation – an acceptable method for HIV-DNA vaccine delivery? Results from a Phase I clinical trial

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Background: A preventative HIV vaccine is widely considered one of the most sustainable ways of controlling the epidemic. DNA vaccines are easy to manufacture, but elicit weak immune responses. Electroporation (EP) utilises electric fields to enhance intramuscular (IM) delivery of DNA, resulting in increased uptake into cells, local inflammation and recruitment of antigen presenting cells. Previous studies have shown EP to increase the potency of HIV DNA vaccines in primates, and enhance T cell immunogenicity in one healthy volunteer trial. We present tolerability data from 9 participants who received EP in a Phase I HIV vaccine trial.
Methods: 9 participants received IM injection of an HIV-DNA vaccine with EP into each upper thigh at weeks 0/4/12 and completed a tolerability questionnaire after each administration. This included a pain score of mild (0-3), moderate (4-7) or severe (8-10), with assessment of EP acceptability for various applications. Separate pain scores were recorded for each leg with the maximal score used for analysis.
Results: 24 responses were received from 9 enrolled participants. There were 3 scores of mild pain (in 2 participants), 18 moderate (9 participants), and 3 severe (2 participants) at the time of EP. Pain scores improved in 8/9 people after 30 minutes. There was no consistent correlation in pain scores between first and subsequent administrations to an individual participant.
In 22/24 responses, participants indicated EP was acceptable to prevent a serious disease for which there was no vaccine. Likewise 22/24 responses indicated EP was also acceptable to increase scientific knowledge on vaccine delivery. 1 participant declined to continue with EP after the first administration due to the associated discomfort.
Conclusions: Although 2/9 participants scored EP as 'severe,' at least once during the trial, both continued with further vaccinations. The remainder of participants associated EP with either mild or moderate pain, which is commonly reported with conventional vaccine delivery. The majority of participants found the use of EP to be both acceptable as prevention for a serious disease and in contributing to scientific knowledge on vaccine delivery. These results are consistent with previously reported EP tolerability data in North American and East African populations following administration into the deltoid muscles, further indicating the acceptability of EP for use in future HIV vaccine trials.

P39

A UK survey of HIV-positive people's attitudes towards cure research

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Background: Involvement of people living with HIV (PLHIV) in the design of HIV research is important, particularly where there is risk of minimal personal benefit. With current work into HIV cure research (HCR), there is limited understanding of what type of cure PLHIV expect and how potential risks, including treatment interruption (TI), would affect participation. We present results of an international survey of PLHIV to define these issues and inform HCR.
Methods: A survey developed by CHERUB UK, community groups, clinicians, and government organizations, was completed by PLHIV June-November 2014 through HIV websites, advocacy forums, social media, and 12 UK HIV-clinics. The survey included desirability rating of potential endpoints, willingness to accept potential risks and concerns. Logistic regression examined the likelihood a person would endure substantial risks (severe/moderate side-effects without personal benefit/detectable VL for ≥6mths/CD4 drop to <200) in HCR.
Results: 982 PLHIV completed the survey, 87% were male, 79% white, 81% MSM. 51% were aged 25-44, 54% were UK-born and 69% were UK-residents. Median (IQR) time since diagnosis was 7yrs (2-17). 88% were receiving ARVs. Median time participants estimated a cure to be available was 10yrs (10,20). 95% men and 89% women would join a cure study whether a sterilising or functional cure (91% vs. 86%). Health and wellbeing (96%) and an inability to transmit HIV (90%) was regarded as more desirable than testing HIV negative (69%). 71% would participate in HCR with no personal benefits and 59% would accept substantial risks. PLHIV with a CD4 count of 201-350 vs. ≥350 [OR:2.11 95%CI 1.11-4.00] were more likely to accept risks, whereas those with little/no knowledge regarding HIV treatment and those aged ≥65yrs vs. 45-64yrs were less likely ([0.58, 0.37-0.90] and [0.18, 0.07-0.45], respectively. TI was acceptable for 62% of respondents;

main concerns were: becoming unwell (82%), becoming infectious (76%), HIV disseminating through body (76%), detectable VL (72%) and lower CD4 (72%).
Conclusion: HCR and TI would be acceptable to PLHIV, irrespective of personal benefits. Demographics or immunological status had little impact on likely participation, with an optimal cure perceived as improved health and minimised risk of onward transmission rather than a change of HIV status. PLHIV should be involved throughout development of such studies.

P40

Pre-exposure prophylaxis (PrEP) option for HIV-negative gay men and transgender women in Ireland: Online feasibility survey

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Background: Antiretroviral therapy is not currently licensed for use as PrEP in Europe and research into the efficacy and acceptability of PrEP in European populations is ongoing. We aimed to assess the knowledge and attitude among the Irish gay and transgender community regarding PrEP for HIV prevention.
Methods: In a prospective study, we recruited unselected HIV negative gay and bisexual men and transgender women through the social media networking service Twitter® to complete an online survey that explored knowledge and attitudes to PrEP. Tweets were composed and sent through a dedicated study twitter account, with referral sampling encouraged. The survey comprised 27 questions, exploring sexual activity, knowledge of PrEP, attitudes to use and research into PrEP. Data are median (IQR). Between group differences were compared using Mann-Whitney U or Chi-squared (χ^2) tests where appropriate.
Results: Over a 4 month period 92 participants completed the survey. 70 (81.4%) respondents were born in Ireland, median (IQR) age was 29 (24, 35) with 63 (79.7%) reporting attainment of 3rd level education. Despite 51 (65%) respondents having a HIV test in the last year 37 (47%) were unsure of their current HIV status. 44 (56%) participants were not in a steady relationship with 68 (90%) reporting current sexual activity and 61 (78%) reporting casual sex in the last year. 23 (30%) reported no knowledge of PrEP with only 20 (26%) of those reporting any knowledge of PrEP considering themselves well informed. Overall, 33 (47%) were interested in taking part in a PrEP study with those who reported no knowledge of PrEP significantly less interested in taking part (interested 6 (29%); not interested 15 (71%) p0.04) while those who reported condomless anal sex with casual partners in the last year more likely to take part in PrEP research (interested 20 (66.7%); not interested 10 (33.3%) p 0.009). There were no differences in age, country of birth, relationship status or sexual activity in the last year between those interested and not interested in participating in PrEP research.
Conclusion: Knowledge of PrEP for HIV prevention is poor among the gay men and transgender women community in Ireland. Despite the openness in disclosing high risk sexual activity there is a deficit in knowledge of the potential effectiveness of PrEP in HIV prevention. Knowledge and awareness of PrEP as a HIV prevention strategy need to be addressed.

P41

High levels of risk behaviour in sexual health clinic – concerns for HIV prevention in men who have sex with men (MSM)

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Background: Men who have sex with men (MSM) are disproportionately affected by HIV and viral hepatitis. Serosorting and seropositioning can lead to more unprotected anal intercourse (UPAI) but often the risks of HIV transmission remain significant. We developed an anonymous questionnaire on blood borne virus (BBV) risk factors to see what the risk prevalence was among our HIV –ve MSM cohort.
Methods: All MSM self-reporting as negative or unknown HIV status attending an inner city sexual health clinic between April and October 2014 were asked to complete a questionnaire on BBV infection risk assessment. Demographics, sexual risk factors, drug taking behaviour and sexually transmitted infection (STI) data were collected and analysed.
Results: 513 patients provided data on BBV risk. Median age was 29 (range 16-83) and 380 (74.1%) were White British. 460 (89.7%) identified as gay, 49 (9.6%) as bisexual and 4 heterosexual (0.8%) (although still partaking in MSM activity). 346 (67.4%) reported their HIV status as negative, while 167 (32.6%) reported an unknown status. The median number of partners in the last 3 months was 3, with 132 (25.7%) having more than 5 partners and 40 (7.8%) having more than 10. 178 (34.7%) patients reported insertive UPAI and 163 (31.8%) reported receptive UPAI in the last 3 months. 62 (12.1%) participated in group sex and 32 (6.2%) practised fisting. 161 (31.4%) had used recreational drugs in the last 12 months with cocaine, ecstacy and ketamine used most frequently. 24 (4.7%) patients had injected drugs, with stimulants most popular, and 5 of these (20.8%) had shared needles. 105 (20.5%) had had sex under the influence of drugs. There were 383 STI screens with 17 (4.4%) new HIV diagnoses, of which 16 (94.1%) had previous negative tests. 6 (1.6%) syphilis, 3 (0.8%) hepatitis C, 59 (15.4%) gonorrhoea, and 24 (6.3%) chlamydia infections were diagnosed. 54 (14.1%) had rectal infections, despite only 28 (51.9%) reporting receptive UPAI.
Conclusions: High rates of sexual risk behaviour and recreational drug taking in our HIV negative MSM cohort increase the risk of HIV and viral hepatitis acquisition. Strategies to reduce transmission such as pre and post-exposure prophylaxis, condoms and treatment as prevention in HIV affected populations need to be considered as part of the HIV prevention strategy.

P42

How treatment as prevention is understood and perceived by vertically infected HIV-positive young people in the UK: Results of a small cross-sectional study

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Background: Treatment as Prevention (TasP) is an effective intervention to prevent the onward transmission of HIV by lowering viral loads in HIV seropositive patients. In view of the high rates of new HIV diagnoses globally, the benefits of TasP as a HIV prevention strategy could be immense. However, there are many practical and ethical implications to be considered before it should be universally recommended; specifically, do young people living with HIV understand TasPs well enough to provide informed consent to taking the medication. The purpose of this survey is to determine understanding and perception of TasP by vertically infected HIV-positive young people.
Methods: 16 young people with HIV infection answered the survey, which was delivered in person or by telephone. Participation was voluntary, and information gained from this survey would affect health education programming at a UK non-governmental organisation working with this population group. The survey contained a mixture of multiple-choice and short-answer questions, and was prefaced by a simple definition of TasP.
Results: All 16 respondents were HIV positive and aged 18–29 years, 15 (94%) self-identified as black African, 12 (75%) were women, and 12 (75%) were taking antiretroviral drugs. When asked how likely hypothetically they were to choose to take TasP, six (38%) responded very likely, four (25%) likely, one (6%) unlikely, two (13%) very unlikely, and three (19%) unsure. Eight (50%) respondents identified reduction in transmission as the primary benefit of TasP, with five (31%) citing potential for personal health improvements as a benefit. When asked what they perceived to be negative aspects of TasP, six (38%) reported concerns about the daily hassle of taking antiretroviral drugs (such as routine, lifestyle, burden), five (31%) about unnecessary drug side-effects, and four (25%) about the financial value of TasP. Key learning priorities for respondents were basics of TasP, positive and negative aspects of TasP, and health implications of TasP (12 [75%] respondents each).
Conclusions: This survey highlights HIV-positive young people's need for enhanced information about TasP. Given the limited scope of this service-improvement related needs assessment, more research needs to be done around how well young people living with HIV understand TasP, ideally amongst a broader sample.

P43

Vertical versus horizontal HIV in young people aged 18–25

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Background: Of 77614 people accessing HIV care in the UK in 2012, 2516 (3.2%) were between 15-24 years old. 1603 (64%) of these were infected vertically. Well-established services and data exist to support transition from paediatric care, but less is available to guide best practice for young people with non-vertical HIV.
Aims: to investigate co-morbidities, HIV outcomes and retention in care in young adults (18-25 years) in an urban HIV clinic. To describe and compare young patients with vertical or horizontal acquisition to facilitate appropriate service provision for these two groups.
Methods: A retrospective review of medical records of 18-25 year olds registered at an urban HIV centre in 2013. Engagement in care is defined as having been seen in the preceding year.
Results: Of 60 patients between 18-25 years old registered at the HIV clinic, 38 (63%) had acquired HIV vertically. Of the 22 (37%) who acquired HIV horizontally, 16 (73%) were heterosexual, 4 (18%) MSM, 1 (4.5%) IVDU, 1 (4.5%) iatrogenic. In the study period, the mean age of the vertical group (VG) was 20, mean age at diagnosis 7.7(range 0-19). The mean age of the horizontal group (HG) was 24, mean age at diagnosis 21. 34(89%) of the VG were on ART, but only 37% had an undetectable viral load (VL). ART was indicated and prescribed to 14(64%) of the horizontal group, 50% of whom had a suppressed VL. 61% of the VG with genotypic resistance assay availability had drug-resistant HIV, versus 25% in the HG. 31(81.6%) in the VG were engaged in care and 20(91%) in the HG. Those in the VG had more AIDS-defining and chronic conditions. 6(27%) in the HG had documented STIs, 8% in the VG. 19% of females in the VG and 50% in the HG had previously been pregnant. Psychiatric co-morbidity was 26% in the HG, and 18% in the VG. Social issues such as financial problems and criminal activity were higher in the VG, but both groups had comparable levels of housing insecurity and domestic violence.
Conclusions: Young people with HIV are not a homogeneous group. Those with vertically acquired HIV have a higher HIV-related disease burden, with the ongoing effects of AIDS-defining and chronic conditions seen into adulthood. The incidence of sexually transmitted infections was higher in the HG. This could be due to successful prevention strategies in the VG, or more sexual activity in the HG. HIV services for these two groups of young people need to be carefully tailored to support and engage these patients successfully

P44

The impact of a positive HIV diagnosis on sexual risk behaviour: A systematic review

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Background: Positive prevention is a key player in decreasing HIV transmission. While the number of human immunodeficiency virus (HIV) positive individuals aware of their status is increasing, there is still a high percentage of infected individuals who remain unaware of their status in Africa. Although knowing one's HIV status is thought to be associated with a change in sexual risk behaviour no previous reviews have been carried out in this field of research.
Method: Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines a systematic review of MEDLINE, EMBASE and SCOPUS databases was conducted. The inclusion criteria refined results to those studies: 1) published between 2003 and 2014: 2) in any African country: 3) including pre- and post-diagnosis data on HIV risk behaviour of individuals and 4) published in English. Outcomes included condom use, number of sexual partners and number of sexual acts.
Results: Of 1228 possible studies identified, seven studies were eligible for inclusion. Studies had a high risk of selection bias (6/7), recall bias (2/7) and social desirability bias (3/7). Four studies demonstrated an increase in condom use by a median of 13% and five studies found a decrease in the number of sexual partners, including one study that showed the mean number of partners over a 30 day period decreased from 2.2 to 0.9. Four studies showed a decrease in coital frequency after diagnosis. One study found that a positive HIV diagnosis was associated with an increased intention to practice abstinence.
Conclusion: The review findings indicate high risk sexual behaviour is reduced after a positive HIV diagnosis. This is reassuring given the intensive effort to increase HIV testing and to identify seropositive individuals for antiretroviral treatment. In resource-constrained settings, behavioural change among newly diagnosed individuals could represent an important and cost-effective aspect of future interventions. However, more work is needed to look at whether these reductions in risk behaviour are maintained over time, in particular in declining epidemics where HIV is perceived as less risky.

P45

How do HIV-negative individuals in sub-Saharan Africa change their sexual risk behaviour upon learning their serostatus? A systematic review

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Background: HIV/AIDS imposes a significant public health burden on sub-Saharan Africa (SSA). While mathematical modelling studies have highlighted the potential of universal testing and treatment (UTT) as an HIV elimination strategy, behavioural patterns of the majority HIV-negative population are often overlooked. We aimed to determine how sexual risk behaviour of HIV-negative individuals in SSA changes upon learning their serostatus.
Methods: We systematically reviewed the published literature according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Two electronic databases - EMBASE and Medline - were searched for studies published between 2004 and 2014. We included studies that measured quantitative behavioural changes (condom use or number of partners) in HIV-negative adults in SSA.
Results: From 2185 unique citations, 14 studies representing 29,668 participants met our inclusion criteria. Most studies were at high risk of sampling bias (n=13) and social desirability bias (n=12). Pooling of data was prohibited by marked heterogeneity in study outcome measures. However, many studies showed improvements in both condom use (n=8 of 13) and number of partners (n=5 of 11), while only one study demonstrated slight increases in risk behaviour with condom use. Members from the general population appear to undergo modest improvements in risk behaviour and to sustain these over follow-up periods of 12-24 months. In contrast, evidence from three studies suggests that HIV-negative partners in serodiscordant relationships engage in more extrarelational sex. The remaining three studies evaluating number of partners found negligible changes post-testing.
Conclusions: With the exception of serodiscordant couples, we have found little evidence suggesting that awareness of one's serostatus causes behavioural disinhibition among HIV-negative individuals. Promisingly, there is reasonable evidence that testing can result in improvements in risk behaviour. Our findings have implications for UTT in SSA as well as future modelling studies. Future work should include qualitative studies exploring the determinants of behavioural modification and the precise role of counselling in driving these changes.

P46

The social context of gender-based violence, alcohol use and HIV risk among female sex workers and their intimate partners in Kampala, Uganda

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Background: Sex work remains a key driver of the HIV epidemic in Uganda. Among sex workers globally and in Uganda, gender inequities, gender-based violence and alcohol use have been identified as important risk factors for HIV infection. This study aimed to explore the complex interaction between gender-based violence and alcohol use, and their links to HIV vulnerability in a population of female sex workers and their male intimate partners in Kampala.
Methods: Twenty in-depth life interviews were undertaken with ten female participants and ten male partners. Women and their intimate partners attending the Good Health for Women clinic in Kampala were invited to take

part in the study. Female participants were either street or bar-based sex workers, or women working in industries such as bar work and karaoke entertainment. This latter group may not identify themselves as sex workers, but commonly engage in transactional sex. The study included both HIV positive and HIV negative participants. Interviews covered topics such as relationship history and attitudes towards gender-based violence and HIV infection. Interviews were analysed manually using a thematic framework.
Results: Participants' life histories are characterised by recurrent patterns of gender inequity, violence, limited livelihood options and socioeconomic disadvantage. Despite a high prevalence of client violence, overall the findings suggest women are better able to negotiate safer sex and protect themselves against abuse and violence from clients than from long-term intimate partners, though the definitions of 'client' and 'partner' in the transcripts were transitory and fluid. Among male respondents, alcohol was associated with increased disinhibition, perpetration of intimate partner violence and high levels of sexual-risk taking, such as engagement with a sex worker and reduced condom use. However, despite cultural norms condoning violence and an environment in which violence is common, the partners had distinct and contrasting attitudes towards alcohol, condom use and gender-based violence.
Conclusion: This study contributes to a deeper understanding of the intricate relationship between gender-based violence, alcohol and HIV risk among a key population in the epidemic. A multi-pronged approach, involving intimate partners of sex workers and integrating alcohol reduction, violence prevention and HIV services, is urgently needed.

P47

Post exposure prophylaxis for HIV following sexual exposure – our experience at a district general hospital GUM clinic

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Background: UK guideline for the use of post-exposure prophylaxis for HIV following sexual exposure, has clear recommendations for the use of antiretroviral medication to minimise the risk of HIV transmission following sexual exposure. It also lists various situations where PEPSE should be recommended or considered.
Aim: To assess if our practice of prescribing PEPSE and management of patients requesting PEPSE is in keeping with the guidelines
Methods: Retrospective case note review of all patients prescribed with PEPSE between January 2010 and December 2014 was conducted. All the data collected was analysed
Results: Total of 29 patients were prescribed PEPSE during this period. Ages ranged from 13 to 47 years. 69% Men and 31% women, 65% were white British, 48% were MSM and 52% Heterosexual.
Most common indication for PEPSE was Men having Receptive Anal intercourse with another Man (48%) followed by Sexual assault (31%). HIV status of the source was known to be positive in 41% of the cases. Baseline HIV test was offered to all patients but was accepted by 90% of patients. Sexual health screen was done in 62% of patients. Only 48% of PEPSE was initiated at GUM clinic rest were started either at A&E or sexual health referral centre.
PEPSE was completed by 62% of patients, 17% of patients discontinued due to side effects and rest DNA'd follow up appointments. Only 58% of patients returned for follow up HIV test at three months.
Conclusion: Even though PEPSE was prescribed according to BHIVA guidelines, significant number of patients either did not complete the treatment or DNA'd follow up appointments. Following this audit a recall system has been setup to identify patients who fail to attend their follow up appointments and blood tests and Health advisers contact the patients to encourage attendance.

Children and Pregnancy

P48

Abstract withdrawn.

P49

To investigate the number of UK paediatric HIV patients with persistently low CD4 counts despite antiretroviral therapy

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Background: Patients on antiretroviral therapy (ART) who fail to recover immunologically in the presence of sustained virological suppression are termed "immunological non-responders" (INR). The number of INR in children in the UK/Ireland is unknown and so we evaluated the prevalence of INR and investigated associated factors.
Methods: Patients in the UK/Irish Collaborative HIV Paediatric Study (CHIPS) who met the following criteria were included: 1) CD4 data after 1.1.2010, 2) low CD4 count for age, 3) on ART for >12 months, 4) ≥5 years follow up, 5) undetectable viral load, defined as VL<400 or <40c/mL (depending on year) with ≤3 blips of <4 months duration. Low CD4 counts were defined by previous work from Lewis and Klein as <3000 for under 2 years, <2000 for 2-5 years and <800 for over-5 years. Patients with CD4 counts below the age related *severe* WHO CD4 HIV immunodeficiency criteria were classified as INR and the remainder were classified as having a *suboptimal* CD4 count. CHIPS data included age at ART initiation, pre ART CD4, CD4 z-score and viral load (VL), sex and ethnicity. Results between the two groups were compared by Mann-Whitney U test and Chi-squared test.
Results: Of 1518 children in CHIPS with a CD4 after 1.1.2010, 206 met the inclusion criteria. Of these, 14 were classified as INR and the remaining 192 suboptimal. There was no difference between these groups in age (p=1.0) or ethnicity (p=1.0). However INR were older at ART start (9.2 vs 5.9 years, p=0.001), had lower pre-ART CD4 counts (191 vs 290 cells/μL, p=0.02) and z-scores (-7.40 vs -4.54 p=0.02) and lower pre-ART VL (4.29 vs 5.0 log10copies/mL p=0.007). At last follow up 8 of the 14 INR are >18 years old and 6 remain in paediatric FU.
Conclusion: The prevalence of INR, despite ART, is low at 1% (14/1376 on ART >12 months). These patients were older and had lower CD4 counts and z-scores at ART initiation. Findings add weight to the growing body of evidence that delayed ART in childhood may have long-term effects on T cell reconstitution.

P50

Darunavir/ritonavir in pregnancy – a multicentre retrospective analysis

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Background: Data regarding the tolerability, safety and efficacy of antenatal darunavir is scant; low 3rd trimester darunavir trough concentrations with od dosing are reported.
Methods: Retrospective case notes review of all women prescribed darunavir attending 8 participating sites 2007-14. Demographics, antiretroviral therapy (ART), virological response, maternal and infant outcomes were collated.
Results: 58 women; median age 34 (IQR 23-47) years; 47 (81%) Black African; heterosexual HIV transmission 100%; 3 (4.8%) hepatitis B, 0 hepatitis C infection; 3 women had ≥ 2 pregnancies and 3 had multiple pregnancies. Median gravida 3 (IQR 0-10), median parity 1 (IQR 1-5). Median gestation age (GA) at booking visit 14 weeks (IQR 4-34), 6.7% (4/59) after 24 weeks. At

booking 9.8% (6/61) women had CD4 count <200 cells/μl, 28 (45.1%) HIV viral load (VL) <50 copies/ml. Of these pregnancies: 41 (66.1%) were conceived on darunavir; 12 (19.3%) initiated ART with darunavir at median GA 19.0 (IQR 9.6-34.3) weeks; 9 (14.5%) switched to darunavir at median GA 25.9 (IQR 7.4-33.6) weeks. Darunavir discontinued due to increased liver enzymes in 2 cases; 4 dose adjusted. Truvada co-prescribed in 41 (66%). Median GA at delivery 39 (IQR 27.6-45.3) weeks. 9 preterm deliveries (PTD) (includes 1 intrauterine death and 1 severe PTD <32 weeks). No transmissions detected (0/50).

	Pre-Conception	Initiated	Switch
Total pregnancies (%)	41 (66.1)	12 (19.3)	9 (14.5)
Antenatal Baseline CD4 (cells/ul) *Median (IQR)*	430 (125-1400)	341 (127-713)	353 (130-634)
Antenatal Baseline HIV VL (copies/ml)	<50	13,000	1500
Median (IQR), Number undetectable (%)	(<50–22,217) 28 (68.2)	(<50–99,032) 0 (0)	(<50–28,000) 2 (22.2)
VL >50 at delivery (%)	1/35 (2.8)	3/10 (30)	0/9 (0)
Pre-identified PTD risk	7	3	2
Multiple pregnancy	0	1	2
PTD *(%)*	2/34 (5.8)	3/10 (30)	4/9 (44.4)
Birth weight (g) *Median (IQR)*	3280 (2270-4208)	2880 (1580-3870)	2300 (1150-3850)
Low birth weight <2500g (%)	1/27 (3.7)	4/10 (40)	6/11 (54.5)

Conclusion: Darunavir was well tolerated. The majority of women took 800mg od with effective suppression of viral replication and prevention of mother-to-child transmission. Further data on any impact of darunavir on GA at delivery required as in this cohort initiation occurred in all women with multiple births.

P51

Cervical length measurement and pre-term birth risk in HIV-positive women on HAART

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Background: Maternal HIV infection and being on HAART (highly active antiretroviral therapy) are associated with an increased risk of preterm birth (PTB) in several studies. Cervical length (CL) measurement may identify a subset of women at particularly high risk who may benefit from specialist PTB antenatal clinic services.
Methods: All pregnant women booking at a large urban hospital between January 2010 and August 2012 were offered cervical length screening at their anomaly scan as part of another on-going research study. HIV positive women attending the joint HIV antenatal clinic during this period were identified from the clinic database. CL data on this subset of HIV positive women were collected from the ultrasound database and pregnancy outcome data were extracted from the clinic database.
Results: 33 women with HIV infection were offered CL measurement at their anomaly scan. All were on HAART. Of these, 31 had live births (exclusions: 35/40 intrauterine death, 21/40 termination of pregnancy for fetal anomaly). Of the 31, four women declined CL measurement. CL was measured in 27 women. Median gestational age at CL was 22+0/40 (19+3/40-24+540) and median CL was 30mm (16mm-42mm). Four women (15%) delivered preterm (PT); the overall PTB rate for women at this hospital in the same time period was 8.8%. There was no significant difference in median CL between HIV positive women who delivered PT (29mm, 22mm-42mm) and those who delivered at term (33.5mm, 16mm-35mm).
Two women (7.4%) had reduced CL <25mm (16mm, 22mm); 2.9% (n=98) of the general antenatal population screened (n=3408) in 2010 had CL<25mm. Of the two women with HIV infection and reduced cervical length, one delivered at term and one had a cervical cerclage placed at 19+3/40 and subsequently delivered at 26+1.
Conclusion: In this small study mid-gestation cervical length is not reduced in women with HIV infection who go on to deliver preterm. Further research is needed into the link between PT delivery and HAART.

P52

Efavirenz toxicity in paediatrics: a single centre cohort

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Background: The adverse effects of efavirenz (EFV) in adults are well documented, however less data are available for children. EFV is the preferred NNRTI in WHO Guidelines from 3 years, with adult dosing of 600 mg from 10 years or 40kg. However optimal EFV dosing in adults is currently being questioned, with 400 mg providing suppressive antiretroviral therapy (ART) in recent studies. We therefore audited EFV use in a single-centre paediatric cohort.
Methods: Retrospective case note audit of children and adolescents commencing EFV-based ART aged 3 to 17 years, between 1998 and 2014. Patients who transferred care were excluded. Anonymised data collected in Excel included; demographics, ART, hepatitis/TB co-infection, previous psychiatric or neurological diagnoses, viral load (VL), CD4 count and therapeutic drug monitoring (TDM) where available. Adverse events classified as early (< 8 weeks EFV), mid (2-6 months) or late (> 6 months).
Results: 51 children commenced EFV therapy between 1998 and 2014. 24/51 (47%) were female and 30/51 (59%) Black African origin. 5 had HBV co-infection and 1 active TB. Median age starting EFV was 9.1 yrs (IQR 7.2-12.4) with a median duration of EFV exposure of 4.4 yrs (IQR 1.1-7.4). 41/51 (80%) achieved sustained VL suppression, 10(20%) developed virological failure with NNRTI resistance. 16/51 (31%), half female, reported one or more side effect attributed to EFV: CNS (10), gynaecomastia (7: 5 male) hypercholesterolaemia (2), rash (1), lipodystrophy (1) and raised liver enzymes (1). CNS toxicity included one or more of; psychosis (1), extreme tiredness (4), reduced concentration (3), headaches (2) and mood change (2).Toxicity occurred; early in 3 (19%), mid in 4 (25%) and late in 9 (56%) precipitating a switch off EFV in 14/16 (88%) after a median of 24.5 months (IQR 10-70.5) exposure. TDM was available in 6/16, all on 600mg EFV; one toxic level (>4,000 ng/ml), 5/6 in the therapeutic range. In the 14 patients who switched off EFV due to toxicity median weight at start 42.4 kg (IQR 34.6-43.9) and stopping 48.2 kg (IQR 43.8-55.7). EFV dosing was appropriate for weight in all 16.
Conclusion: More than a quarter of adolescents receiving EFV-based ART switched due to toxicity with only 1 documented toxic plasma level. Over half were CNS-related with potential effects on psychological well-being and educational attainment. Further paediatric studies are required to optimise EFV dosing maintaining efficacy whilst minimising toxicity.

P53

The strength of the WHO recommendations for the prevention of mother-to-child transmission of HIV

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Background: Option B+ – proposed by Malawi – has recently been recommended by the World Health Organization as part of its preventing mother-to-child transmission (PMTCT) of HIV guidelines, after the introduction of Options A and B. Option B+ recommends that all HIV-positive pregnant women be given combination antiretroviral therapy (cART) for life regardless of their CD4 count. For women with CD4>350 cells/mm^3 options A and B recommend limited duration zidovudine monotherapy plus single dose nevirapine in labour, or cART respectively.
Objectives: To determine the evidence base for each WHO PMTCT Option using the GRADE approach, as per BHIVA guidelines.
Methods: Systematic search for randomised controlled trials, with an additional search for lower quality evidence regarding Options B/B+. Bias and strength of evidence assessed using the Cochrane Collaboration and GRADE guidelines respectively. Each option given an overall strength of evidence grade: High, moderate, low, or very low.
Results: Option A, which was removed from the WHO guidelines in 2013, has the strongest evidence base with moderate quality evidence over and least evidence for ZDVm prior to week 28.The evidence base for Option B evidence is weaker, with only two randomised controlled trials addressing combination therapy and has been graded low quality. However there is a strong body of evidence from observational studies to support the use of

cART to prevent HIV MTCT. The evidence for Option B+ is very low quality, being mainly drawn from observational studies, with much evidence being indirect.
Discussion: The expectation, despite the limitations of direct evidence, is that Option B+ will deliver operational benefits, including treatment simplification, no requirement for timely CD4 testing and long-term cost-effectiveness. Interim results from the ongoing PROMISE trial, one arm of which is evaluating Option A against Option B/B+ indicate a lower rate of early MTCT with cART. Despite these potential benefits, not every country may be able to implement Option B+ due to the initial increase in resource requirement. The results of evaluation studies of Option B+ are required to address both efficacy and feasibility.

P54

The management of HIV in pregnancy: A 10-year experience

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Background: The package of care to reduce HIV mother to child transmission (MTCT) has evolved significantly since trials of ante and intrapartum antiretroviral therapy (ART) in 1994. In the UK MTCT rate has fallen from 25.6% in the 1990s to 0.5%. We review the management of HIV in pregnancy in Brighton in the context of evolving guidelines.
Methods: HIV, obstetric and neonatal notes of all HIV positive women, pregnant between 2003 and 2014, were reviewed.
Results: 97 pregnancies in 75 women were identified, resulting in 76 live births. Antenatal HIV diagnosis was made in 22 (28%). The proportion of pregnancies in those with known HIV at conception increased over the time period. At conception 58 (60%) were on ART, 33 (57%) of who continued on their original regimen. 34 (35%) initiated ART following conception: 14 known to be HIV positive, 20 diagnosed during pregnancy. ART was initiated on average at 22 weeks gestation (range 6- 34). 4 (5%) received Zidovudine (AZT) monotherapy, all before 2006. Choice of combination ART (cART) varied with time reflecting changing guidelines. Prior to 2008 an AZT containing regimen was used in 83% versus 8% after. Efavirenz was only used in those established on ART since 2007. Planned mode of delivery was documented in 73: 30 (41%) planned a normal vaginal delivery (NVD), 43 (59%) a caesarean section (CS), varying over time with evolving guidelines.
The viral load (VL) was < 50 copies/mL in 58 (76%) at 36 weeks and 64 (84%) at delivery. 90% with a detectable VL at 36 weeks delivered via CS. 100% received neonatal post-exposure prophylaxis (PEP): 68 (88%) AZT monotherapy, 9 (12%) cART. 84% initiated PEP within four hours. 90% completed 28 days. 8 (10%) experienced side effects. In the 10-year review period, one infant (1.3%) was diagnosed HIV positive. Both mother and infant received care in accordance with guidelines, including neonatal PEP within 4 hours.

Recommended mode of delivery				
Year	NVD (%)	CS (%)	Reason for CS recommendation	
>2012	8 (67%)	4 (33%)	↓ MTCT	1
			Obstetric	3
			Maternal choice	0
2008–11	14 (58%)	10 (42%)	↓ MTCT	0
			Obstetric	8
			Maternal choice	2
2005–07	5 (18%)	23 (82%)	↓ MTCT	20
			Obstetric	3
			Maternal choice	0
<2005	2 (33%)	4 (66%)	↓ MTCT	4
			Obstetric	0
			Maternal choice	0

Conclusion: Care of the HIV positive pregnant woman in Brighton has been successful with overall transmission consistent with that seen nationally. Despite effective preventative strategies MTCT remains a risk and women should be counselled accordingly.

P55

'Don't forget the children' initiative 2009 – has this made a difference to testing practice in children of HIV-positive mothers?

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Background: In 2009, the "Don't forget the children" report recommended that all new HIV-positive patients attending adult HIV services should have any children identified, tested and the information clearly documented. In our clinic, HIV diagnosis in a child was delayed due to lack of a robust testing protocol despite regularly engaging with the mother for her care. We aimed to survey our clinic's testing practice before and after publication of this report to assess impact.
Method: A retrospective case note review was performed for the first 50 HIV positive women registered at the Southampton adult HIV service between (a) January 2000-December 2009 and (b) from January 2010 to January 2014 (n=100). Details of children, their age, country of residence, testing status, outcomes and timescales for testing were recorded on a secure database.

Results:

	Pre- guidelines (2000-2009)	Post-guidelines (2010-2014)
Number of children <18, UK resident, at risk	17	20
Number of children for whom HIV testing was discussed and documented in maternal notes	9 (53%)	20 (100%)
Testing initiated by HIV service	2 (22%)	13 (65%)
Time scale for children to be tested (range)	3 months – 9 years	3 months – 3 years

Conclusion: Testing of children at risk of HIV has significantly improved in our service since the publication of "Don't forget the Children". However this audit identified some children who continue to remain untested or status unconfirmed. We have implemented a robust protocol to chase up outcomes of children tested outside of HIV service and to proactively negotiate testing when parents initially decline consent. Since January 2012, Southampton has been integrated with 3 other clinics to form Solent Sexual Health Service. We plan to extend this retrospective audit to include HIV positive women attending 3 other clinics which may result in identification and testing of more children at risk.

P56

Successful pregnancies in women after chemotherapy and antiretroviral therapy for HIV-associated lymphoma

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Background: The adverse effects on fertility in women receiving chemotherapy and combination antiretroviral therapy (cART) for HIV associated lymphoma (HAL) have not been addressed.
Methods: A retrospective analysis of prospectively collected clinical data on 602 patients with HAL treated at the national centre for HIV malignancies was undertaken.
Results: Since 1996, 52 women have been treated with chemotherapy and cART for HAL. Twenty nine of these women are alive after a median follow-up of 51 months (range: 2.5-200). At the time of lymphoma diagnosis, the mean age of these 29 women was 43 years (range: 24-68), median CD4 cell count was 177/mm^3, 15 (52%) were established on cART and 9 (60%) had an undetectable plasma HIV viral load. Four patients have been lost to follow-up. For the remaining 25 patients, 10 were menopausal and 11 already had children (including 6 who were menopausal) at the time of lymphoma diagnosis. Five of the remaining 10 patients had an early menopause attributed to the chemotherapy (their median age at lymphoma was 42 years, range: 37-48). Two further women (ages 26 & 35) in remission are undergoing infertility therapy, whilst 3 women (ages 24, 30 & 31) have had successful pregnancies, including one woman who had twins after IVF. The three women who gave

birth were treated with R-CODOX-M/IVAC for Burkitt lymphoma (2) and ABVD for Hodgkin lymphoma (1). At the time of birth the maternal ages were 29, 32 & 32 years and the time since lymphoma diagnosis were 19, 35 & 60 months. All mothers had undetectable plasma HIV and their CD4 counts were 339, 507 & 695/mm^3. All four babies are HIV negative. None are named Mark.
Conclusion: Chemotherapy and cART for HAL is not necessarily sterilising in younger women and successful pregnancy may occur with or without infertility treatment.

P57

"I started to talk, and I didn't want to stop" – Evaluating a peer support group set up to improve the health and wellbeing of pregnant and postnatal women living with HIV

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Background: The life expectancy of people living with HIV has improved dramatically, and mother-to-child transmission of HIV (MTCT) in the UK has declined to below 0.5%. Women living with HIV are now completing their families, with an increase in the number of subsequent pregnancies reported in recent years. However, pregnancy and the postnatal period can be a difficult and isolating time; there is evidence that women drop out of HIV care after a pregnancy, with African women being most at risk. Peer support has been shown to improve health outcomes and psychological well-being in a variety of settings. We set up a peer support group for women living with HIV in pregnancy and the postnatal period attending a busy inner-London HIV clinic and evaluated participants' opinions of the acceptability and usefulness of the group.
Methods: The group was set up to meet on a monthly basis in 2012 and was run by the HIV-specialist midwife and clinical psychologist. Women were recruited from the HIV & pregnancy clinic by the specialist midwife and encouraged to attend by text message. Women were invited to bring their children, to facilitate attendance, group bonding and discussion of childcare issues. At most meetings there was a structured session on a variety of topics, followed by group discussion which was led by the participants. Women were encouraged to talk about issues or problems they were facing. A short evaluation questionnaire was given to one group in 2012 and another in 2014, with questions rated on a 5 point scale.
Results: 24 women had attended the group at some point, with most women attending until conflicts with work or childcare arose. 5 women completed the survey in September 2012, and 7 in December 2014. 75% rated the topics covered as very helpful and 25% as extremely helpful; 75% rated the organisation of the group as being very satisfactory and 25% as extremely satisfactory; 58% rated the group overall as extremely successful, and 42% as very successful. Comments included "For me the group is like a second family where I can speak more freely than in my real family"; "This group is such a source of emotional support. It has given me the confidence to accept being positive among other women" and "I started to talk, and I didn't want to stop".
Conclusions: The peer support group was rated as useful and helpful by the participants, providing an 'safe space' for women to share their stories, give and receive advice, and laugh and cry together.

P58

A review of clinical outcomes in an urban UK HIV antenatal clinic

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Background: The British HIV Association provides guidelines on the management of pregnancy in HIV infected women, including when to start antiretroviral therapy (ART), how treatment should be monitored, mode of delivery, and how to manage complex cases.
Methods: We performed a retrospective case notes analysis of patients attending the HIV antenatal clinic (ANC) at our centre between 01 January 2013 and 31 December 2014. Demographic data was retrieved, as well as data on HIV surrogate markers, choice and timing of ART, screening for sexually transmitted infections (STIs), mode of delivery and contraceptive uptake.
Results: 57 women attended, with 44 (77%) of Black African ethnicity. The median age was 33y (IQR 29y-36y) with a median booking CD4 count of 427 cells/μL (IQR 359-577). 42/57 (74%) of patients were on ART at conception; of whom 34/42(81%) had an undetectable viral load (<40 copies/mL). 7 (12%) were newly diagnosed in this pregnancy; 3 had advanced HIV (CD4 count <350 cells/μL). Of the 15 patients not on ART at conception, 9/15 (60%) started by week 24; 2 presented late, 2 were elite controllers, 1 transferred care and 1 declined ART. Various ART regimens were used; 26 patients were on NNRTIs while 20 were on PI based therapy. 4 patients were on quadruple ART therapy. 20 (35%) of pregnancies were planned; 7 (12%) were unplanned and in 30 (53%) this was not documented. 21 (37%) were in serodiscordant couples.
44 women gave birth at our centre: 2 miscarried, 4 transferred their care elsewhere & 7 await delivery. 39/44 (89%) had an undetectable viral load at 36/40; 2 had poor adherence, 2 presented late and 1 declined ART. 15/44 (34%) had a vaginal delivery; 17 (39%) had an elective caesarean section while 12 (27%) had an emergency caesarean section. There was 1 stillbirth due to pre-eclamptic toxaemia and 1 transmission where ART was declined by the mother, although the baby received prophylaxis. 35/46 women (76%) were offered post-delivery contraception, with an uptake rate of 10/35 (29%).
Conclusion: The majority of pregnant HIV-infected women at our centre received appropriate ART therapy and had an undetectable viral load at delivery. The rate of caesarean sections was much higher than in the HIV negative cohort, which may be due to previous caesarean sections or patient concerns about transmission. We will evaluate this further. Following delivery, there was low uptake of effective contraception despite a designated HIV contraception clinic.

P59

Abstract withdrawn.

P60

An uncommon cause of anaemia in pregnancy: A case report of emtricitabine-induced pure red cell aplasia

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Introduction: The BHIVA 2014 guidelines for management of HIV infection in pregnant women recommend HAART naïve women start treatment with a nucleoside backbone (Combivir/Truvada/Kivexa) in combination with Efavirenz, Nevirapine or boosted PI as a third agent. HAART is generally safe in pregnancy; with tolerability and adherence the main reported issues. We present a rare case of drug related toxicity secondary to HAART use in pregnancy.
Case: A 39 year old lady from Tanzania presented to the GU clinic in December requesting a HIV and pregnancy test. She tested HIV-1 positive, Genotype C virus, with a CD4 count of 405 (35%) and viral load of 36,000 copies/ml. No resistance mutations present. The rest of the sexual health screen was negative. Pregnancy test was positive. She was discussed in the pregnancy multidisciplinary meeting and planned to start HAART in the second trimester. Prior to commencing HAART, blood tests were normal with baseline haemoglobin (Hb) 130 g/L, mean cell volume MCV 88, white cell count (WCC) 7.2 x10^9/L and platelets (Plts) 171 x10^9/L. She started Atripla in week 17/40, and blood tests 2 weeks post HAART showed Hb 123 g/L, WCC 7.7 x10^9/L and Plts 159 x10^9/L. 20 week pregnancy scan was normal, and blood tests 4 weeks post HAART showed Hb 105 g/L, WCC 6.43 x10^9/L and Plts 136 x10^9/L. She presented to Accident and Emergency 5 weeks post HAART with dizziness and headache, with admission bloods showing Hb 32 g/L, WCC 10.5 x10^9/L and Plts 343 x10^9/L. There were no signs of bleeding or haemolysis. Reticulocyte count was 2 x10^9/L, reticulocyte percentage 0.2%. LDH 1891 iu/L and haptoglobin 0.07 g/L. Autoimmune, Parvovirus B19, HTLV 1/2 and malaria screen were all negative. She was transfused 6 units of packed red cells and reviewed by the haematology, obstetric and GU teams. Bone marrow biopsy showed changes consistent with pure red cell aplasia (PRCA). She was switched from Atripla to Tenofovir, Raltegravir and Efavirenz as this was felt to be drug related PRCA secondary to Emtricitabine. She required further transfusions to maintain her Hb and reticulocyte count recovered 5 weeks post switch.

Conclusion: Pure red cell aplasia is a clinical syndrome defined by the absence of mature erythroid precursors in an otherwise normocellular bone marrow. Patients present with severe anaemia, low reticulocyte count, normal platelet and granulocyte counts. This is the first reported case of Emtricitabine induced pure red call aplasia, which resolved following removal of the offending drug.

Co-morbidities, Co-infections and HIV/ART Complications

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Ledipasvir/sofosbuvir for 12 weeks in patients co-infected with HCV and HIV-1

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Background: Historically HIV co-infection was considered a negative predictor of HCV response to treatment with interferon/ribavirin (IFN/RBV). We evaluated the safety and efficacy of the IFN-free, RBV-free, single tablet regimen of ledipasvir/sofosbuvir (LDV/SOF) in HCV genotype 1 or 4 patients co-infected with HIV-1 in the Phase 3 ION-4 study.
Methods: HCV treatment naïve and experienced HIV co-infected patients, including compensated cirrhotics, on stable, antiretroviral (ARV) regimens were enrolled and received LDV/SOF (90mg/400mg) once daily for 12 weeks. Permitted concomitant ARVs included tenofovir and emtricitabine (TDF+FTC) with raltegravir (RAL), efavirenz (EFV) or rilpivirine (RPV). Safety evaluations included adverse event (AE) and standard laboratory parameter monitoring in addition to enhanced renal toxicity monitoring, CD4 count and HIV-1 RNA levels. The primary efficacy endpoint was SVR12.
Results: 335 patients with GT1a (75%), GT1b (23%) and GT4 (2%) were enrolled; 82% were male, 61% were white, mean age was 52 (range 26-72), mean baseline HCV RNA was 6.7 $\log_{10}$ IU/mL (range 4.1-7.8), median baseline CD4 count was 662 cells/uL (Q1, Q3=469, 823), 20% had cirrhosis, 24% were *IL28B* CC genotype and 55% had not responded to prior HCV treatment. Patients were taking EFV (48%) or RAL (44%) or RPV (9%). The table shows SVR12 by ARV regimen. Overall, the SVR12 rate was 96% (320/335); 2 patients had on-treatment virologic failure likely due to non-compliance and 10 had virologic relapse after discontinuing treatment. SVR12 was similar among non-cirrhotic (96%) and cirrhotic (94%) patients and also among treatment naïve (94%) and treatment experienced (97%) patients. No patient had confirmed HIV virologic rebound (HIV-1 RNA≥400 copies/mL). No patients discontinued study drug due to an AE. AEs occurring in ≥10% of patients were headache (25%), fatigue (21%) and diarrhea (11%). No significant lab abnormalities were observed.

Table. SVR12 by HIV ARV regimen and Overall

Virologic Response	TDF+FTC+EFV (N=160)	TDF+FTC+RAL (N=146)	TDF+FTC+RPV (N=29)	Overall (N=335)
SVR12, n (%)	151 (94)	141 (97)	28 (97)	320 (96)
On-Treatment Failure, n (%)	1 (<1)	0	1 (3)	2 (<1)
Relapse, n (%)	8 (5)	2 (1)	0	10 (3)
Other, n (%)	0	3 (2)	0	3 (<1)

Conclusions: The IFN-free, RBV-free, single tablet regimen of LDV/SOF administered once daily for 12 weeks is highly effective and well tolerated in treatment-naïve and experienced, genotype 1 or 4 HCV/HIV-1 co-infected patients, including those with cirrhosis.

P62

HIV and hepatitis delta – the last challenge in the viral hepatitides?

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Background: Liver disease in HIV remains a significant clinical issue, predominantly related to viral hepatitis. Hepatitis Delta (HDV) is under-ascertained with little data on clinical outcomes.
Methods: A cohort study to compare clinical outcomes of HDV in HIV+HDV with HIV-HDV in an ethnically diverse South London environment. Retrospective data on pts who had a +ve Delta total Ab test (HDV IgG) from Jan 2000 to Aug 2014 were collated. Pts referred for transplant assessment or HCC were excluded as not part of our natural cohort. A cohort of HIV+HDV pts from another London HIV centre were included.
Results: 241 pts had +ve HDV Ab. 49 were excluded from the analysis as they were tertiary referrals. Of 192 remaining pts, 18 were HIV+ve, 112 HIV-ve, 62 HIV status not documented.
90 patients had cleared HDV at the time diagnosis. This was defined as HDV IgM negativity+ RNA negativity or only HDV IgM alone if pre-2009. 4/18 HIV+ve pts had cleared HDV at baseline, 65/112 HIV–ve pts cleared HDV at baseline (p=0.009). 8 pts with HIV+HDV from another clinic were included. 2 had evidence of active HDV infection, giving a total of 16 pts with HIV+HDV. The analysis focuses on the 16 HIV+HDV pts and the 47 HIV-HDV pts. HIV+ patients were 69% male, 56% black African, HIV-pts were 57% male, 64% black African.The first available median HDV RNA levels were higher in HIV+ve 8.3E5cps/ml (6.6E5-9E6) compared to 2.3E4 (1.9E3-6.8E5) in HIV-ve (p=0.04). Of HIV+HDV pts, 4/16 were treated with pegylated interferon, 1 cleared HDV after 2x therapy, 2 relapsed, 1 discontinued treatment and was lost to FU. Of HIV-HDV pts, 15/47 were treated, 8 cleared Delta, 4 had no viral response, 2 relapsed, 1 stopped. 9/16 HIV+HDV pts had cirrhosis at diagnosis vs 12/47 HIV-HDVpts (p=0.034). Of the 9/16 HIV+HDV cirrhotic pts, 3 died, 2 decompensated, 2 in FU, 2 were lost FU. Of 6/46 HIV-HDV cirrhotic pts, there was 1 decompensation, 1 OLT and 2 liver deaths.
With a composite endpoint of death, decompensation and cirrhosis; HIV was the only factor associated in univariate analysis (p=0.002); age, risk factor, HDV RNA level & AST were not. In an analysis which controlled for HDV risk factor, those with HIV had an odds ratio of 4.1 (95% CI 1.2, 14.6) p=0.02 for cirrhosis, decompensation or death.
Conclusion: Compared to HIV-HDV pts, those with HIV+HDV were less likely to spontaneously clear HDV and more likely to experience significant morbidity and mortality. Better therapies for HDV are urgently needed.

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The clinical application of plasma KSHV viral load as a tumour biomarker: results from 704 patients

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Background: To evaluate the role of plasma Kaposi sarcoma herpesvirus (KSHV) as a diagnostic and prognostic biomarker in people living with HIV (PLWH) and diagnosed with KSHV-associated diseases.
Methods: Using quantitative nested PCR targeting ORF-26 gene of KSHV, plasma levels of KSHV were measured in consecutive PLWH with KSHV-associated diseases or as part of the investigation of lymphadenopathy.
Results: Plasma KSHV assays were performed on samples from 684 PLWH and 20 HIV sero-negative people with KSHV-associated malignancies. In PLWH plasma KSHV was detected in 39% with KS, 99% with multicentric Castlemans disease (MCD), 9% with non-Hodgkin lymphoma (NHL), 2% with non-AIDS defining malignancies (NAM) and 0% with non-malignant lymphadenopathy. There was no significant difference in plasma KSHV viral load between KS, MCD or KSHV-associated NHL. The 5 year overall survival from KS diagnosis of 335 PLWH is 95.2% (95% confidence interval: 92.6-97.8%). Plasma KSHV viraemia did not predict overall survival in KS (p=0.73), nor when analysing separately those with T0 stage KS (p=0.52) or T1 (p=0.62) stage KS.

Conclusions: Measuring the plasma levels of KSHV as a biomarker in KSHV-associated disease has a very limited value in either diagnosis or prognostication. The only clear clinical role is the suggestion that undetectable KSHV may exclude a diagnosis of MCD in PLWH.

P64

Depression-anxiety: the most prevalent co-morbidity among people living with HIV in England and Wales, 2014

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Background: HIV infection has become a long-term condition associated with other chronic conditions. We present the first population-level estimates of self-reported prevalence of selected co-morbidities in people living with (PLHIV) in England and Wales.
Methods: 'Positive Voices' is a cross-sectional probability survey of healthcare needs and sexual behaviour in PLHIV, conducted between May and November 2014. We obtained a random sample of PLHIV from 30 HIV clinics purposively sampled, using the SOPHID (Survey of Prevalent Infections Diagnosed) census. Participants completed the online survey which included questions on sociodemographics, diagnoses of non-HIV comorbidities, and quality of life. Data was weighted to the age, sex, ethnic and risk group distribution in the SOPHID dataset, to improve representativeness. We calculated adjusted prevalence of comorbidities, and compared these to the prevalence of co-morbidities in the general population obtained from the Health Survey in England (HSE) 2012.
Results: We obtained 779 questionnaires (response rate 26%). Prevalence of depression-anxiety among PLHIV was 27% (95%CI 22-34), (19% in women, 32% in men), higher than the HSE estimates for the general population: 14% (17%, 11%, respectively). Statin use for high cholesterol was reported by 19% (95% CI 16-22) of PLHIV (11% in women, 21% in men) compared with 9.4%, (8%, 11% respectively) in the general population. Prevalence of hypertension was 12% (95%CI 10-15) (13% in women, 12% in men) compared with 21% (22%, 21% respectively) in the general population. Age specific prevalence (18 to 59 years) in our survey was: depression 31% (95%CI 28-35), statin use for high cholesterol 15% (95%CI 13-18), and hypertension 13% (95%CI 11-16). Compared to the general population, respectively: 18% (CI95% 17-19), 9% (CI95% 9-10) and 16% (CI95% 15-17). Comparing by risk group, within our surveyed population, men who have sex with men (MSM) had a higher prevalence of all three co-morbidities (37% for depression-anxiety, 25% for high cholesterol, and 14% for hypertension).
Conclusions: Depression-anxiety was the most prevalent self-reported comorbidity among PLHIV and MSM in particular. In keeping with other studies depression and high cholesterol appear higher in PLHIV compared to the general population. Monitoring the changing pattern of comorbidities among PLHIV can inform health planning and models of care.

P65

Hepatitis B treatment strategies and virological outcomes in the UK Collaborative HIV Cohort (UK CHIC) study

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Introduction: Clinical guidelines recommend that individuals co-infected with hepatitis B virus (HBV) and HIV with CD4 counts of <500 cells/mm^3, evidence of fibrosis or HBV-DNA >2000 IU/l are treated with combination antiretroviral therapy (cART) including 2 drugs which are active against HBV. We investigated treatment uptake and outcome among HIV-HBV co-infected individuals.
Methods: Individuals attending 11 participating centres since 2004, who ever had a positive hepatitis B surface antigen test were included. cART was defined as ≥3 antiretroviral drugs. Hepatitis B e antigen (HBeAg) loss and suppression of HBV replication, defined as undetectable HBV-DNA, were assessed in those who were positive at commencement of therapy and had ≥1 follow-up test result. Appearance of antibody to HBeAg (anti-HBe) was assessed among those who lost HBeAg. Predictors of treatment response were identified using Cox regression adjusting for clinical and demographic factors (CD4 count, HIV viral load, treatment type age, HIV exposure group, ethnicity, year of first positive test).
Results: Of 1529 HIV-HBV co-infected individuals, 1309 (85.6%) received HBV treatment. 51.9% (679/1309) started treatment with cART including ≥ 2 HBV active drugs (72% with tenofovir and emtricitabine and 27.7% with tenofovir and lamivudine); of the remaining treated individuals, 445 (70.6%) later switch to a regimen of cART including 2 HBV active drugs. 147/372 (39.5%) lost HBeAg after starting treatment. Anti-HBe development could be assessed in 137 of these individuals: 79 (57.7%) became anti-HBe positive. 206/252 (81.7%) individuals became HBV-DNA undetectable after starting treatment. Compared to those on 1 HBV-active drug, those >1 were more likely to lose HBeAg: adjusted hazards ratio (95% confidence interval): 1.67 (1.17-2.39). Those with a first positive test in 2005-2009 were more likely to develop anti-HBe (2.21 (1.16-4.22)) than those with first positive test in 2000-2004, independent of treatment regimen. Individuals who were HBeAg positive at baseline were less likely to become HBV-DNA undetectable after starting treatment than those who were HBeAg negative (0.51 (0.35-0.55)).
Discussion: The majority of HIV HBV co-infected individuals receive recommended treatment for hepatitis B and achieve undetectable viral load. However, a high proportion do not lose HBeAg or develop anti-HBe. Individuals with continuing active HBV infection should be monitored for development of liver disease.

P66

Adding rituximab to CODOX-M/IVAC chemotherapy in the treatment of HIV-associated Burkitt lymphoma is safe when used with concurrent cART

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Background: CODOX-M/IVAC chemotherapy is commonly used to treat Burkitt lymphoma (BL) and in the HIV negative population, Rituximab is often added with suggested survival benefits. Concerns over increased toxicity in an already immunocompromized population have prevented its routine addition in people living with HIV (PLWH). This study evaluated the effect on treatment-related toxicity and efficacy, of adding rituximab to CODOX-M/IVAC chemotherapy in PLWH.
Methods: Retrospective review of 91 PLWH (74 male) with BL treated in five London centers between 2003 and 2013. All patients received combined antiretroviral treatment (cART).
Results: 49 patients received CODOX-M/IVAC and 42 R-CODOX-M/R-IVAC. The addition of rituximab did not confer any significant increase in grade 3/4 toxicities including infections, mucositis, diarrhea, renal impairment and tumor lysis syndrome. There was no significant difference in toxic deaths between groups (p =0.14). The 2 year overall survival is greater for patients receiving rituximab [2-year OS 72% (95%CI: 0.22-0.92, hazard ratio 0.46) vs. 55% (95%CI: 1.1-4.5, hazard ratio 2.2);logrank p=0.04]. Similarly, the 2 year progression free survival (PFS) was greater in the rituximab cohort [2 year PFS 81% (95%CI 0.21-0.99, hazard ratio 0.46) vs. 55% (95%CI 1.0-4.8, hazard ratio 2.2);logrank p=0.04].
Conclusions: Our multicenter analysis is the largest to date in this population and showed that the addition of rituximab to CODOX-M/IVAC chemotherapy confers no increase in toxicity and results in significantly improved OS and PFS in PLWH with BL who receive concomitant cART.

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Safety of tenofovir alafenamide in renal impairment

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Background: Tenofovir (TFV) is renally eliminated, and the prodrug, tenofovir disoproxil fumarate (TDF) has been associated with renal toxicity and reduced bone mineral density (BMD), and must be dose adjusted in patients with estimated glomerular filtration rate (eGFR)<50mL/min. Tenofovir alafenamide (TAF) is a novel prodrug of TFV that is not renally eliminated and at clinical doses results in 90% lower plasma TFV levels as compared to TDF. The safety and efficacy of a once-daily single tablet regimen of elvitegravir, cobicistat, emtricitabine, and TAF (E/C/F/TAF) was assessed in HIV-1 infected patients with mild to moderate renal impairment.
Methods: Virologically suppressed adults with stable eGFRCG (Cockroft Gault) of 30-69 mL/min had their treatment switched from both TDF and non-TDF containing regimens to open-label E/C/F/TAF. Week 24 efficacy and safety data are described, including tests of renal function and BMD. Actual GFR (aGFR) was assessed with iohexol clearance in a subset of subjects.
Results: Of 242 subjects enrolled and dosed, mean age was 58 years (range 24-82), 18% black, 39% hypertension, and 14% diabetes. 65% were taking TDF-containing regimens prior to switch. At baseline, median eGFRCG was 55.6 mL/min (33% eGFRCG 30-49 mL/min). 95% of subjects maintained HIV-1 VL<50c/mL at Week 24 (FDA Snapshot). At Week 24, the median (Q1, Q3) change from baseline eGFRCG was -0.4 (-4.7, 4.5) mL/min, eGFRcystatin C 3.8 (-4.8, 11.2) mL/min/1.73m2, and aGFR (n=32, 68.8% TDF at baseline) was 0.1 (-4.3, 4.4) mL/min, indicating that GFR was not affected by E/C/F/TAF. Two subjects (0.8%) discontinued study drug for decreased GFR by eGFRCG and eGFRcystatin C, neither with evidence of renal tubulopathy. The prevalence of clinically significant proteinuria (UPCR>200mg/g) and albuminuria (UACR≥30mg/g) decreased from 42% to 21% and 49% to 27%, respectively. Significant decreases in urine retinol binding protein to creatinine ratio, beta 2 microglobulin to creatinine ratio, and fractional excretion of uric acid were observed (p<0.001 for all). Hip and spine BMD percentage change from baseline to Week 24 was 0.74% (-0.71, 2.03) and 1.27% (-0.44, 3.83) (median, IQR), respectively.
Conclusions: These 24 week data support the virologic efficacy and renal and bone safety of E/C/F/TAF for use in HIV+ patients with mild and moderate renal impairment (eGFR 30-69 mL/min). Switch to E/C/F/TAF was associated with no change in aGFR and with reductions in proteinuria.

P68

The late immunotoxicity of chemo-radiotherapy (CRT) treatment for invasive anal cancer in people living with HIV (PLWH)

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Background: The current focus on cancer survivorship has highlighted the late toxicity of cancer treatments. The late tissue effects of radiation are well known but the immunological toxicity is not well documented.
Methods: We collected lymphocyte subsets and plasma HIV viral load results on patients who had been treated with chemo-radiotherapy (CRT) for invasive anal cancer.
Results: We have treated 84 PLWH diagnosed with invasive anal cancer, including 5 with metastatic disease at presentation and 14 with stage T1 anal verge tumours treated with surgical complete resection only. 62 patients (60 male) were treated with CRT for invasive anal cancer. The mean age was 44 years (range: 28-75) and maximum follow up is 21 years. At diagnosis of anal cancer the median CD4 cell count was 332/mm^3 (range: 29-1157), 45 (72%) were on combination antiretroviral therapy (cART) of whom 35 (78%) had an undetectable plasma HIV viral load. After completion of CRT, the median CD4 count had fallen to 144/mm^3 (t-test p<0.0001), similarly the median CD8 fell from 831/mm^3 to 354 (t-test p<0.0001), whilst there was no change in CD4% or CD8%. It took 4 years before the median CD4 cell count returned to a level above that before the CRT, 11 years until all survivors had a CD4 cell count >200/mm^3 and 15 years until all survivors had a CD4 count >350/mm^3. Twenty one patients have died including 14 from refractory or relapsed anal cancer. The remaining 7 patients died in remission of anal cancer from AIDS defining cancers (2 Kaposi sarcoma, 2 non-Hodgkin lymphoma), opportunistic infection (PML 1), liver failure due to hepatitis C (1), unknown (1). These deaths occurred a median 1.7 years after CRT. Lymphocyte subsets and viral load in the 3 months prior to death are available for 4 patients who died in remission. For all 4 the CD4 count (median 87/mm^3) was lower than at the start of CRT (median 272/mm^3) and 3 had undetectable plasma HIV prior to death.
Conclusion: Clinicians managing patients in remission following CRT should be aware of the prolonged immunosuppressive effects of CRT and their potential contribution to mortality in remission.

P69

Virologic response rates to all oral fixed-dose combination ledipasvir/sofosbuvir regimens are similar in HCV patients with and without traditional negative predictive factors in Phase 3 clinical trials

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Background: Ledipasvir/sofosbuvir (LDV/SOF) is a newly licensed all oral fixed dose combination treatment for patients infected with hepatitis C virus, including those with HIV/HCV coinfection. LDV/SOF Phase 3 studies were designed with broad inclusion criteria in order to allow enrollment of patients with baseline characteristics typically associated with a poor response to interferon-based therapy. This post-hoc analysis compares SVR rates among patients with and without these factors.
Methods: This was a retrospective analysis of data in patients with genotype 1 HCV infection from three Phase 3 clinical trials (ION-1, ION-2, and ION-3).
Results: 1952 patients were enrolled: 74% of patients had genotype 1a infection, 11.5% had cirrhosis, 8% were considered elderly (≥65 years), 8% morbidly obese (BMI ≥35kg/m2), 19% had IL28B TT genotype, 7% had uncontrolled diabetes (HbA1C≥6.5), 16% were black, 17% with very high viral load at baseline (≥107 IU/mL), 12% were prior NS3/4A protease inhibitor (PI) treatment failures, and 3% were on opiate replacement therapy. Table 1 provides SVR12 rates for these groups. In addition, baseline HCV RNA ≥6*106 IU/mL was predictive of a higher relapse rate (10%) with 8 weeks LDV/SOF in ION-3. The comparison to patients without these characteristics will be presented.

Table 1. Overall SVR According to Negative Baseline Factors

Patient n/N, (%)	LDV/SOF			LDV/SOF + RBV		
	8 weeks	12 weeks	24 weeks	8 weeks	12 weeks	24 weeks
Genotype 1a	159/171 (93)	386/402 (96)	227/231 (98)	159/172 (92)	227/236 (96)	228/231 (99)
Genotype 1b	42/43 (98)	129/133 (97)	90/92 (98)	42/44 (95)	90/91 (99)	94/94 (100)
Cirrhosis	-	51/56 (91)	53/55 (96)	-	51/55 (93)	58/58 (100)
Age ≥ 65 yrs	17/19 (89)	40/40 (100)	30/31 (97)	12/13 (92)	28/29 (97)	20/20 (100)
BMI ≥ 35 kg/m^2	22/23 (96)	39/39 (100)	26/26 (100)	24/26 (92)	21/22 (95)	20/21 (95)
IL28B TT	36/39 (92)	108/111 (97)	67/71 (94)	24/28 (86)	56/57 (98)	57/57 (100)

HbA1c ≥ 6.5	11/11 (100)	37/37 (100)	27/27 (100)	10/11 (91)	22/23 (96)	18/18 (100)
Black	41/45 (91)	88/90 (98)	45/49 (92)	32/36 (89)	41/42 (98)	46/46 (100)
HCV RNA $\geq 10^7$ IU/mL	46/52 (88)	98/104 (94)	46/46 (100)	41/45 (91)	41/45 (91)	47/47 (100)\
Prior PI Failure	-	62/66 (94)	49/50 (98)	-	62/64 (97)	51/51 (100)
Opiate Replacement Rx	5/5 (100)	27/29 (93)	9/11 (82)	5/5 (100)	9/10 (90)	4/4 (100)

Conclusion: Traditional negative predictors of response for interferon-based therapy do not predict response in patients who receive LDV/SOF regimens.

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Measuring LFTs in the HIV clinic: What proportion of patients have persistent abnormalities not explained by coinfection with hepatitis B/C?

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Background: Liver function tests form part of the standard monitoring for patients living with HIV. Elevated transaminases maybe caused by a variety of factors including coinfection with viral hepatitis B/C and drug-induced hepatitis. Increasingly metabolic disorders such as non-alcoholic fatty liver disease (NAFLD) are being identified which may, in some individuals, progress to significant liver disease.
Aims: To determine the proportion of HIV Outpatients with a persistently elevated ALT (>2xULN) and without hepatitis B/C coinfection, requiring further investigation.
Methods: A retrospective data search was performed to identify all HIV Outpatients who attended for 1 or more ALT test between 1.4.13 – 31.3.14.The proportion of individuals with ALT elevation persisting on at least 2 consecutive occasions (more than one month apart) was established at two thresholds: >1xULN (40 U/L) and >2xULN (80U/L). Clinical information including age, gender, hepatitis B/C results and ART status was examined. The results of any further liver investigations performed including transient elastography (Fibroscan), ultrasound and biopsy results were available.
Results: 3044 patients had 1 or more ALT tests during the study period (range 1-21). 1200 (39%) of all patients had an elevated ALT >40 U/L on at least one occasion. 505 (17%) of patients had a persistent ALT elevation of >40 U/L and 164 (5%) patients had a persistent ALT elevation of >80 U/L. Of these 164 patients, 63 were coinfected with HBV/HCV. 101 patients (3.3% of the overall cohort) were non-coinfected patients with persistently elevated ALT >80 U/L. In further investigations, causes found included the non-infective liver disorders NAFLD/NASH, non-cirrhotic portal hypertension, ART-induced hepatitis and alcohol.
Discussion: Over a third of patients attending HIV services for blood tests have an elevated ALT on at least one occasion annually. Many are transient abnormalities. Nevertheless, a proportion of patients have persistently elevated LFTs which reflect significant underlying non-infective liver disorders.

P71

Favourable effects on vitamin D and bone of switching from Atripla to darunavir/ritonavir monotherapy

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Background: Efavirenz has been associated with reductions in vitamin D (25 [OH]D) and Tenofovir with increased bone turnover, reductions in bone mineral density (BMD), and renal tubular dysfunction. We hypothesized that switching HIV+ patients from Atripla to Darunavir/Ritonavir monotherapy (DRV/r) might increase 25[OH]D and BMD and improve renal tubular function.
Methods: Randomized controlled clinical trial in which patients with HIV RNA <50 copies/mL on Atripla for ≥ 6 months were randomized 1:1 to receive ongoing Atripla or DRV/r (800/100 mg once daily) for 48 weeks. The primary endpoint was change from baseline in 25[OH]D at week 48. Secondary endpoints included changes in BMD, bone turnover markers and renal tubular function. Linear regression was used to estimate the mean difference in 25 (OH)D in patients on Atripla vs. DRV/r. Secondary endpoints were expressed as the mean (95% CI) observed between-arm difference from baseline.
Results: 70 subjects (86% male, 66% white, mean (SD) CD4 cell count 537.3 (191.5) per mm^3) were randomized, of whom 26 (DRV/r) and 31 (Atripla) completed the 48 week study on the allocated treatment. The mean (SD) difference between baseline and week 48 25[OH]D was 5.0 (5.9) ng/mmol for DRV/r and 1.2 (6.0) for Atripla. After adjustment for baseline 25[OH]D and demographics, at week 48 DRV/r monotherapy was associated with a +3.5 (95% CI 0.5, 6.4) ng/mmol increase in 25[OH]D compared to Atripla (p=0.02). Subjects in the DRV/r arm experienced increases in BMD (mean between-arm difference (0.02 [0.003, 0.04] g/cm^2 at the lumbar spine, p=0.03, and 0.03 [0.006, 0.06] g/cm^2 at the neck of femur, p=0.02), and reductions in parathyroid hormone (PTH) (-20.4 [-38.8, -2.0] ng/l, p=0.03), bone-specific alkaline phosphatase (-7.1 [-9.7, -4.5]) IU/L, p<0.0001) and serum type 1 pro-collagen (P1NP) (-16.9 [-26.5, -7.4] ug/L, p=0.0008), as compared with subjects in the Atripla arm. No significant difference in renal tubular function (urine retinol-binding protein/creatinine ratio and phosphate reabsorption) was observed. Reasons for discontinuation in the DRV/r arm included side effects (n=4) and virus load rebound (n=2), all of which resolved with DRV/r discontinuation or regimen intensification.
Conclusions: A switch from Atripla to DRV/r in patients with suppressed HIV RNA resulted in significant improvements in 25[OH]D and PTH, and a 2-3% increase in BMD. DRV/r monotherapy provides a bone-friendly antiretroviral treatment option to patients with osteoporosis or increased fracture risk.

P72

The association of HAART-associated weight gain with type 2 diabetes and impaired glucose tolerance in a UK HIV cohort: A longitudinal study

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Background: Type 2 diabetes (T2D) is highly prevalent in people living with HIV; believed to be driven by HIV-related factors including weight gain after initiation of antiretrovirals (HAART), and traditional risk factors including obesity. In a UK cohort of HIV positive individuals we aimed to investigate the association between HAART-associated weight gain and dysglycaemia.
Methods: Participants in the London-based STOP Diabetes in HIV study were categorised as either normoglycaemic or dysglycaemic (evidence of prediabetes or T2D). Weight at HAART initiation, and one year later, were recorded from a case note review, and current body mass index (BMI) was categorised as normal (BMI <25.0) or overweight (BMI ≥25.0). Data was entered into SPSS, and the characteristics of the groups were compared using t-tests and Chi-squared tests; data are expressed as a range and mean ± SD.
Results: 311 participants were included in the analysis: 74% male; 49% White, 32% Black African, 8% Black Caribbean, 5% Latino, 4% East Asian, and 3% South Asian; age 22-87, mean 41.7 ±9.1 years; 15.0% had prediabetes with a mean age of 43.2 ±7.5, and a further 14.7% had T2D with a mean age of 48.9 ±8.7 (p<0.001). The prevalence of dysglycaemia was highest amongst Black Caribbeans (42%) compared to 30% in Black Africans and 26% in Whites (p=0.057). BMI ranged from 17.1-55.4, mean 27.1 ±5.8 kg/m2, with 56% overweight or obese. Overweight (BMI ≥25.0) was strongly associated with dysglycaemia (p=0.008). A total of 263 had been prescribed HAART for >1 year; change in weight from initiation to 1 year was available for 256. 24% experienced an increase in weight of ≥5% following HAART initiation and this was significantly associated with dysglycaemia (p<0.001), even amongst those with a healthy BMI (<25) (p=0.040).
Conclusion: The epidemics of obesity and T2D in UK HIV patients mirror the general population, with age and obesity driving dysglycaemia, but HIV-related factors suggest further characterisation of their current phenotype is required to facilitate national targeted screening and prevention guidelines.

P73

Drug–drug interaction profile, including HIV ART, of the HCV fixed-dose combination tablet ledipasvir/sofosbuvir

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Background: A once daily fixed-dose combination tablet (FDC) of NS5A inhibitor ledipasvir (LDV) 90 mg and NS5B inhibitor sofosbuvir (SOF) 400 mg has recently received marketing authorisation for the treatment of chronic HCV infection, including in those patients with HIV/HCV coinfection.
Methods: The drug-drug interaction (DDI) profile of FDC has been characterized using in vitro data, Phase 1 DDI results in healthy subjects and Phase 2/3 population pharmacokinetic (popPK) analyses in HCV-infected patients. The Phase 1 program evaluated DDIs between FDC or components, and HIV antiretrovirals (ARVs), acid-reducing agents, immunosuppressants (IST), opiates and rifampin (RIF). The effect of anticoagulants, selective serotonin reuptake inhibitors (SSRIs), calcium channel blockers (CCB), statins and diuretics on FDC PK was assessed by popPK analyses.
Results: Evaluation of DDIs with ARVs did not reveal clinically relevant changes in the PK of LDV, SOF, GS-331007 (predominant circulating metabolite), raltegravir, atazanavir/ritonavir(r), darunavir/r, efavirenz, rilpivirine, emtricitabine, lamivudine or abacavir. FDC increased tenofovir (TFV) exposures (1.4-2.6-fold). TDF dose modification is not warranted as absolute TFV AUC with FDC and with HIV PI/r-regimens is similar.
In the absence of reduction in LDV/SOF AUC, FDC may be administered with H2RAs at a dose not exceeding famotidine 40 mg BID. Administration of FDC with omeprazole (OME, 20 mg) resulted in small decreases in LDV exposure (4-11%) with no impact on SOF or GS-331007 PK; permitting simultaneous use of FDC with a PPI at a dose not exceeding OME 20 mg. PPIs may be also given up to 2 hours after FDC but not before FDC.
No clinically relevant interactions were observed upon administration of LDV with CsA or SOF with CsA, TAC or methadone.
Decreases in LDV (~59%) and SOF (~72%) AUC were noted with RIF. FDC should not be used with potent intestinal inducers, i.e. RIF or St. John's Wort. The use of other potent inducers is not recommended.
No alteration in LDV/SOF PK with anticoagulants, SSRIs, CCBs, statins and diuretics were noted, allowing co-use. Substantial increases in rosuvastatin (ROSU) exposure were observed with LDV dosed with 2 investigational agents; ROSU use is not recommended with FDC.
Conclusions: LDV/SOF exhibits a favorable DDI profile allowing use with various drugs that may be used by HCV infected patients, including HIV ART regimens.

P74

Relationship between phosphate reabsorption, age, tenofovir and bone mineral density in a large cohort of HIV-positive men

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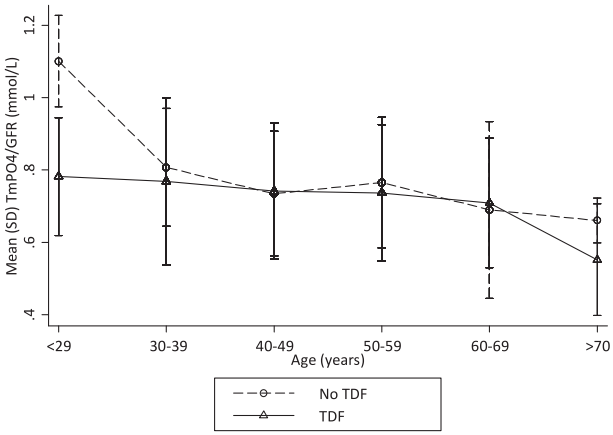
Background: The functional capacity of renal tubules to reabsorb phosphate declines with age. The extent to which this is affected by tenofovir (TDF) exposure and its effects on bone are unknown. We investigated the association between phosphate reabsorption, age, TDF exposure and bone mineral density (BMD).
Methods: Male HIV-positive patients taking part in a prospective study to evaluate BMD were analysed for phosphate wasting using maximum threshold for phosphate reabsorption ($TmPO_4$/GFR), derived by the Kenny and Glen algorithm. Bone resorption was assessed by serum carboxy-terminal collagen crosslinks (CTX), bone formation by type 1 procollagen (P1NP), and BMD by dual-energy x-ray absorptiometry. Correlation coefficients and linear regression were used to evaluate relationships between variables.
Results: 411 men (mean age 47.4 [SD 9.8] years, 94.3% white, 92.9% MSM, diagnosed for a median 9.6 [IQR 5.0-15.5] years, 69.4% on TDF) were included. $TmPO_4$/GFR correlated with age (r^2=-0.2, p=0.006), parathyroid hormone (PTH) concentrations (r^2=0.1, p=0.02) and, in those over 50 years, with lumbar spine BMD (r^2=-0.2, p=0.02). Among subjects aged 30-70 years on antiretroviral therapy, $TmPO_4$/GFR did not differ among those exposed versus those not exposed to TDF (Figure). In multivariable analysis, $TmPO_4$/GFR remained associated with older age (β -0.03 [95% CI -0.05, -0.01] per 10 years, p=0.003) and 25 (OH) vitamin D (β 0.001 [95% CI 0.0001, 0.002] p=0.03), while univariable associations with nadir CD4 cell count, prior AIDS, HIV viral load, TDF and protease inhibitor exposure, P1NP and PTH were no longer significant after adjustment. $TmPO_4$/GFR was not associated with CTX (p=0.9), BMD spine (p=0.1), BMD total hip (p=0.5) or BMD femoral neck (p=0.5).



Conclusions: In HIV-positive men, reduced phosphate reabsorption was common. Similar to observations reported in the general population, $TmPO_4$/GFR declined with age but was not significantly associated with TDF exposure, increased bone resorption, or lower BMD. In patients stable on antiretroviral therapy, $TmPO_4$/GFR was not useful in identifying patients at increased risk of bone loss.

P75

Abstract withdrawn.

P76

High frequency of respiratory symptoms and airway bacteria in ambulatory UK HIV-positive adults

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Background: Despite effective antiretroviral therapy (ART), bacterial pneumonia and invasive pneumococcal disease remain more common in people living with HIV. This also applies to non-infectious diseases such as chronic obstructive pulmonary disease (COPD) whose pathogenesis involves lower airway bacterial colonisation (ABC). However, the extent to which ABC contributes in HIV lung disease is unknown.
Methods: A representative sample of 218 adults from our ambulatory, urban HIV-positive population was recruited by stratified selection. Enrolled individuals completed a questionnaire regarding health and lifestyle information, performed spirometry and had sputum induction with 3.5% hypertonic saline. Quantitative PCR was performed for *Streptococcus pneumoniae* (SP), *Haemophilus influenzae* (HI), *Moraxella catarrhalis* (MC), *Legionella pneumophila*, *Chlamydia pneumoniae*, and *Mycoplasma pneumoniae*.
Results: From the 218 subjects, 53 produced sufficient sputum for bacterial investigations. These 53 patients were more likely to report a cough in the previous week (p=0.04) and a history of winter cough (p=0.01), but there were no other significant differences from the original cohort. Airway bacteria were detected in 23/53 (43%). Where bacteria were present, mean (±1SEM) total bacterial load was $10^{5.8(\pm 0.2)}$ cfu/mL. SP was most frequent, being found in 16/53 (30%). HI was detected in 10/53 (19%), and MC in 1/53 (2%). No other bacterial species were identified.

Total quantitative bacterial load was associated with winter cough (p=0.04). Inverse and direct relationships were also found between SP bacterial load and: nadir CD4 count (p=0.02) and reported breathlessness (p=0.01). There were no significant correlations with other measures of HIV control, respiratory symptoms, lifestyle factors (smoking, recreational drug use) or FEV_1.

	Mean/% (±1SD), n=218
Male	73%
Age (years)	46.7 (±9.8)
Ever smoker	47%
Pack years (ever smokers)	16.8 (±14.5)
FEV_1 (% of predicted)	93.5% (±25.0)
Injecting drug use	11%
Cough in last week	23%
History of	
Wheeze	28%
Breathlessness	32%
Winter cough	40%
Currently taking ART	84%
Nadir blood CD4 (/μL)	252 (±190)
Latest blood CD4 (/μL)	643 (±267)
Plasma HIV undetectable	84%

Conclusion: Respiratory symptoms are common in a general ambulatory HIV population on ART. We identified a high frequency of potentially pathogenic airway bacteria, in particular SP. The role of these organisms in the development of acute and chronic HIV-associated respiratory disease requires investigation.

P77

The importance of dose intensity of R-CHOP in 68 patients with HIV-associated lymphoma

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Background: The role of dose intensity in the outcome of patients with non-Hodgkin lymphoma has been shown in the general population. Significant pharmacokinetic interactions between combination antiretroviral therapy (cART) and chemotherapy can contribute to delays in administering cycles of chemotherapy and dose reductions, potentially adversely affecting treatment outcomes.
Methods: A retrospective review of prospectively collected data on patients treated at the National Centre for HIV malignancy with R-CHOP combination chemotherapy for HIV associated non-Hodgkin lymphoma (HAL).
Results: 68 patients (60 male) were treated with 6 cycles of R-CHOP and cART between 2007 and 2014. At lymphoma diagnosis, the mean age was 48 years (range: 19-70), median CD4 cell count 160/mm^3 (range: 8-1112), 40 (58%) were on cART and 29 had an undetectable HIV viral load. The cART co-administered with chemotherapy was NNRTI based (44%), boosted PI based (12%), combined PI and NNRTI (3%) and raltegravir based (41%). The lymphoma international prognostic index (IPI) scores were low (26%), low intermediate (32%), high intermediate (21%) and high (21%).
Ten (15%) had dose reductions, 34 (50%) dose delays whilst 32 (47%) received all cycles on time and at full dose, achieving 100% dose intensity. There was no correlation between IPI risk group and chemotherapy dose intensity (p=0.15), delays (p=0.08) or reductions (p=0.63). Similarly, there was no correlation between cART type and dose intensity (p=0.62), delays (p=0.47) or reductions (p=0.43). The median follow up is 2.2 years (maximum 7.7) and 13 patients have died. Patients who received the full dose intensity of chemotherapy had a significantly better overall survival (log rank p=0.043). The 2 year OS for full dose intensity is 97% (95%CI: 90-100%) compared to 77% (95%CI: 62-92%) for those who had dose delays or reductions.
Conclusion: Maintaining dose intensity in chemotherapy for HAL is not related to lymphoma prognositic factors or cART groups but is associated with an improved overall survival.

P78

Uptake of immediate antiretroviral therapy in primary HIV infection: To treat or not to treat?

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Background: BHIVA currently recommends Antiretroviral Therapy (ART) initiation at Primary HIV Infection (PHI) in specific circumstances. In addition, a discussion of ART should be undertaken with all HIV+ individuals with specific mention of ART to prevent onward viral transmission (TasP). We examine the management of PHI in the context of BHIVA recommendations in a London centre.
Methods: All new HIV diagnoses attending a central London HIV service between Oct 2013-Oct 2014 were identified using a virology database. PHI was defined by one or more of the following (i) a negative HIV test within 6 months of a positive test (ii) incident RITA or (iii) p24 antigen positive with a negative HIV antibody. Data on date of ART initiation, ART regimen, resistance, CD4, HIV Viral Load (VL), Hepatitis B & C status, discussion of starting & reasons to start ART, was obtained using EPR and clinical notes. Data was recorded and analysed using Excel.
Results: PHI accounted for 44/131 (33.6%) of all new infections and 38/91 (42%) amongst MSM. Of those with PHI 38/44 (86%) were MSM, 4 were women, 1 had HCV co-infection. The median age was 31 years (IQR 28-39). Median CD4 count was 552 cells/mm3 (IQR 396-690) and median VL was 64,550cpm (IQR 11,414 – 486,974) at diagnosis. Baseline resistance was evident in 5/44 (11.4%) - 3 bPI and 2 NRTI revertant mutations. 42/44 (95%) had documentation of a discussion about starting immediate ART; the remaining two cases did not– one of these was not identified as PHI. 34/42 (81%) of those offered immediate ART commenced therapy. 12/34 (35%) initiated ART in accordance with one of the PHI specific indications, whilst 4/31 cited TasP, and 21/34 (62%) commenced due to patient preference. The median time from diagnosis of PHI to starting ART was 5 weeks (IQR 4-8 weeks). ART regimens prescribed were bPI (62%), Atripla (32%) and INSTI based regimens (6%). In those fully suppressed the median time to undetectable VL was 11 weeks (range 3-26).

Table 1. ART Indication for those starting in PHI

	N(%)
CD4 < 350	7 (21)
TasP	4 (11)
HCV Co-infection	1(3)
Patient Preference	21 (62)
Not Documented	1 (3)

Conclusion: PHI is common, particularly amongst MSM, where over a third of all new HIV diagnoses at this centre were individuals with PHI. Rates of TDR in PHI were high. Discussion of immediate ART in PHI was undertaken by the majority of health care providers and for those patients offered the choice, uptake of immediate ART in PHI was very high.

P79

Intravenous drug use – a significant risk factor for invasive pneumococcal disease in HIV-infected adults in the era of HAART

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Background: Invasive pneumococcal disease (IPD) remains a significant cause of morbidity and mortality in HIV-infected individuals in the era of HAART despite the availability of pneumococcal vaccination. The aim of this study was to examine risk factors associated with IPD in HIV-infected persons presenting to a tertiary referral hospital in Dublin, Ireland.
Methods: All episodes of IPD presenting from 2006 to 2013 were retrospectively reviewed from laboratory surveillance data. Episodes

occurring in HIV-infected adults were included in the study. If an individual presented with more than one episode of IPD during the study period only the first was included in the baseline demographics. Data are presented as number with percentage in parenthesis.
Results: Of 186 cases of IPD presenting during the study period 45 (24%) occurred in 41 HIV-infected adults.
The mean [SD] age of HIV-infected individuals presenting with IPD was 39[6] years, 31 (76%) were males, 37 (90%) were Caucasian. 44 of 45 presented with pneumococcal bacteraemia with a respiratory source, 1 with pneumococcal meningitis.
38 (93%) had intravenous drug use (IDU) documented as risk of acquisition of HIV. 33 (80%) were co-infection with Hepatitis C. The median CD4 count was 89 cells/mm^3 (range 3-468 cells/mm^3).
Only 4 of 41 (10%) presenting with IPD were engaged in HIV care 3 (7%) of whom were virally suppressed on HAART.12 (29%) HIV infected individuals had received PPV23 prior to presentation with IPD. 7 (17%) were infected with a pneumococcal serotype that was contained in PPV23 vaccine.
Thirty day mortality post IPD episode was 16%.
Conclusion: Our study identifies HIV infected IDUs as a significant risk group for IPD. IDUs are a socially marginalised group with substantial disparities in healthcare access and outcomes. Until barriers to engagement and retention in HIV care are addressed, existing health inequalities including high risk of IPD will remain.
Efficacy of pneumococcal vaccine in HIV infected individuals remains debated. 17% of individuals in our study who had received PPV23 were infected with a vaccine serotype. Early studies of PCV13 indicate a more immunogenic and durable response in HIV infected adults and immunisation guidelines have recently changed to reflect this. HIV infected IDUs represent a group that should be prioritised for conjugate pneumococcal vaccination.

P80

Deaths due to viral hepatitis and other causes of liver disease among a large national HIV cohort, England and Wales (1997–2012)

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Background: Death rates among people living with HIV (PLHIV) in England & Wales (E&W) continue to decline but exceed those of the general population. The proportion of non-AIDS deaths is increasing, but determining cause of death is challenging when HIV is complicated by viral co-infection and/or other comorbidities. We investigate trends in deaths attributed to non-AIDS liver disease (LD) in a large national cohort of persons accessing HIV care, with high rates of HBV-HCV co-infection.
Methods: National cohort data on adults (aged ≥15) diagnosed with HIV in E&W (1997-2012) was linked to Office of National Statistics death data for the same period. Underlying causes of death were categorised using an adapted Coding Causes of Death in HIV (CoDe) protocol, with deaths attributed to LD further sub-categorised. Demographic and time trends are presented.
Results: 83,276 persons diagnosed 1997-2012 contributed 443,818 person-years of follow-up. By end 2012, 5,302 (6.4%) had died, with 4870 (92%) assigned a definitive cause of death. Of 2427 non-AIDS deaths, 234 (9.6%) were due to LD. Median age at death was 43.5yrs [IQR 38-50yrs], similar to other non-AIDS deaths. Most LD deaths (79%) were among men. One-fifth acquired HIV through injecting drug use, 38% through sex with men, and 32% heterosexual exposure. LD was the leading non-AIDS cause of death among HIV-diagnosed people who inject drugs. Ninety-three liver deaths (39.3%) were due to complications of viral hepatitis: 13.3% HBV-related, 11.5% HCV-related, 6.4% multiple hepatitis virus co-infection, 8% HBV/HCV complicated by alcoholic LD and 0.4% other hepatotropic virus. Alcoholic liver disease contributed to 32.5% (78). While the median time from HIV diagnosis to death was 29 months, 23% of LD deaths were diagnosed within 3 months of death, and nine were late diagnoses. Where CD4 count was available (99), 42 and 46 had a CD4 count <200 and 200-350 within 3 months of death.
Conclusion: While liver-related causes accounted for a small proportion of non-AIDS deaths in 1997-2012, almost two-thirds of these were attributed to preventable viral infections and/or alcoholic LD; a significant number were among persons diagnosed late. Progression of HBV and HCV infection is known to be accelerated among PLHIV; these findings highlight missed opportunities for HIV testing/ diagnosis in patients with viral hepatitis and regular HIV testing for persons who inject drugs to ensure best clinical and public health outcome.

P81

Brief screening for mood disorders and neurocognitive impairment in routine HIV outpatient care

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Background: BHIVA 2013 'Standards of Care for People Living with HIV' recommend routine screening for identification of psychological and cognitive difficulties. National standards do not specify screening questionnaires and studies show varied results. Neurocognitive impairment (NCI) can be confounded if psychological co-morbidities are not considered. In this pilot we developed a referral pathway including brief NCI and mood screening to ensure those identified are linked to appropriate care and onward referral, and to enhance selection of screening tools.
Method: Routine attenders to HIV outpatient care over 12 weeks completed a brief screening questionnaire including depression (PHQ-2), anxiety (GAD-2) and 3 screening questions regarding cognitive functioning as recommended by European Aids Clinical Society Guidelines. Patients scoring above cut off on screening were offered referral to clinical psychology for further NCI screening using the Montreal Cognitive Assessment (MOCA) and International HIV Dementia Scale (IHDS). Predictive value of brief screening was analysed in relation to subsequent neuro- and mood screening results and referral pathways described.
Results: 97/103 HIV outpatients were screened. Of these 44 (45%) screened positive for NCI and/or mood (NCI only=17; NCI and mood=14; mood only=13). 35(36%) were referred for further screening and/or psychological assessment; and 20% of those initially screened engaged. Further NCI testing using the MOCA and IHDS was conducted on 7 patients and 4 patients received full neurocognitive testing. Of immune status results only detectable viral load was associated with positive neurocognitive screening.
Conclusion: Rates of NCI and mood disorder were consistent with previous studies. Screening enabled identification of individuals with NCI and mood difficulties and appropriate referral for further medical review and mental health input. We intend to revise our local screening tool on the basis of these results and present further data in future, with the aim of contributing to greater consensus on a national screening guideline for NCI in HIV.

P82

Bone mineral density assessed by DEXA (Dual-Energy X-ray Absorptiometry) scans of HIV-positive people attending a large HIV centre

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Introduction: It has been suggested that HIV-positive people have low bone mineral density (BMD). We analysed the DEXA scans given at a large HIV centre, to determine the rate of scanning, to investigate whether the BMD is low in this population; and to identify any factors associated with low BMD.
Methods: We evaluated all scans of the hip and spine for people seen at the clinic from 2009-2014. Levels of BMD were characterised using Z-scores and T-scores (which express the patient's BMD relative to a general reference population matched for age, gender and ethnicity (Z-score) or just for gender and ethnicity (T-score)) using Hologic Discovery W curves. The association of demographic and HIV-related factors with these scores was assessed using linear regression models adjusted for age and gender.
Results: 3682 patients were seen in the clinic during this period. Excluding 179 who had previously had a scan, 857 (24.5%) received ≥1 hip and spine scan. Women were more likely to have a scan than men (32% vs 22%, p<0.0001).
Considering the first DEXA scan performed, the mean Z-score for hip scans was significantly reduced for men (-0.29, p<0.0001 t-test compared to reference values) but not women (-0.02, p=0.40). For the spine, the mean Z-score was reduced in both men (-0.72, p<0.0001) and women (-0.48, p<0.0001). 9 (1%)

and 88 (12%) patients had T-scores below -2.5 for hip and spine scans respectively. Lower BMD was associated with younger age, and weakly with low current CD4, but not with tenofovir (TDF) use, current VL, or nadir CD4 (Table).

		Mean Z-score		Adjusted Z-score Difference [95%CI]	
	N	Hip	Spine	Hip	Spine
Age <45	329	-0.26	-0.78	-0.15[-0.29,-0.02]	-0.31 [-0.50, -0.12]
>=45	416	-0.17	-0.53	Reference	Reference
Current tenofovir	506	-0.21	-0.66	0.03 [-0.12,0.17]	-0.00 [-0.21,0.20]
Current other ART	202	-0.22	-0.63	Reference	Reference
No current ART	39	-0.10	-0.47	0.12 [-0.18,0.42]	0.19 [-0.25,0.64]
Current CD4 <350	128	-0.35	-0.83	-0.18 [-0.35,-0.01]	-0.24 [-0.49,0.01]
>350	618	-0.18	-0.59	Reference	Reference
Nadir CD4 <150	325	0.22	-0.65	-0.08 [-0.21,0.05]	-0.07 [-0.26,0.11]
>150	421	-0.20	-0.64	Reference	Reference
Current VL <50	646	-0.23	-0.63	Reference	Reference
>50	101	-0.10	-0.72	0.10 [-0.09,0.29]	-0.10 [-0.37,0.18]

Conclusions: BMD was reduced in this population, particularly in the spine and in men. Low BMD was associated with young age, low CD4 but not TDF use.

P83

Implementation of a latent TB screening policy in HIV-positive patients in a low TB prevalence area

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Background: HIV positive individuals with latent TB infection are more likely to reactivate, with rates of 5-10% per year. Treating latent TB in patients co-infected with HIV reduces reactivation by up to 62%. NICE and BHIVA have recommended different criteria for screening latent TB in these patients. A regional TB screening policy was developed incorporating BHIVA and NICE guidelines for our low prevalence population.
Method: In 2014 a latent TB screening policy was introduced. Patients from low incidence countries, with a CD4 count < 500 cells/mm^3 and on ARVs for < 2 years were screened. Patients from high incidence countries were screened regardless of CD4 count if they had been on ARVs for < 2 years. Patients were retrospectively identified from pharmacy records, and SOPHID data. New patients were screened at baseline. Patients with prior or active TB were excluded. Patients underwent IGRA testing +/- CXR. A retrospective chart review of patients diagnosed with TB in the last 5 years was also done to see if the new policy would have identified patients for latent TB screening and treatment.
Results: 297 patients fulfilled criteria for screening. Of those 72 have so far had IGRA. Of those screened, 1.38% were from sub-Saharan Africa, 15.27% from medium incidence countries and 83.33% from low incidence countries. One IGRA was positive, however this patient previously had TB and did not fulfill the criteria. 71 were negative. Of the 11 patients diagnosed with active TB, 8 presented with TB at HIV diagnosis, 2 were from sub-Saharan Africa but did not fulfill criteria as they were on treatment for > 2 years and CD4 count was > 500 cells/mm^3.
Conclusions: To date the introduction of IGRA testing to screen for latent TB in our cohort has not identified any patients for treatment of latent TB. Over the last 5 years only one patient who developed TB would have fulfilled criteria for screening. The majority of HIV positive patients in our cohort who developed TB were from high incidence countries and TB and HIV was diagnosed concurrently. Earlier HIV diagnosis and identifying those at risk of TB will be necessary for TB screening to be effective.

P84

Malignancy in HIV-positive young people

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Background: Malignancies (AIDS and non-AIDS defining) occur at higher rates in adults with HIV but data is limited in young people. As children with HIV survive into adulthood, the length of immunosuppression raises concerns regarding malignancy risk, and presentation may differ from adults. We identified malignancies in HIV infected young people through the HIV Young People's NETwork (HYPNET) and the Collaborative HIV Paediatric Study (CHIPS), to identify common features enabling future management and raise awareness in health professionals.
Methods: Adult and paediatric HYPNET members and the CHIPS database identified HIV positive young people aged 13-24 years with a malignancy diagnosed between 2000 and 2014. Anonymised data on demographics, malignancies, CD4, VL, antiretroviral therapy (ART), adherence outcomes (HIV and malignancy) and offer of sperm/egg storage were collected.
Results: 15/70 centres reported 31 cases. CHIPS identified a further 8 cases. Of these 39, 15(38%) had acquired HIV sexually; median age 24 [IQR 21.5,24.0]yrs; 11 were Kaposi's sarcoma (KS) and 4 lymphoma;Further data was not available from contributing centres. 22 acquired HIV perinatally (PaHIV); 17(77%) male, median age at malignancy diagnosis 17 [13.5,18.9]yrs; 16(73%) were lymphoma (5 Hodgkins), 3 KS, 1 disseminated adenocarcinoma, 1 astrocytoma, 1 hepatocellular carcinoma (HBV coinfected). In 2 lymphoma cases route of transmission was unknown. For PaHIV at malignancy diagnosis; median CD4 count was 423 [289.8,592.5], nadir CD4 200 [132,389]. 11/19 with available data had a detectable VL. Median number of prior ART regimens was 2 [2,5], with 7/14 (50%) with data having at least 2 class resistance. 9/20 had an AIDS diagnosis prior to the malignancy diagnosis. Median time from presentation to diagnosis was 8 weeks [4,10], 9/14 had a definite or possible delay in diagnosis. 2/20 patients who received chemotherapy had egg/sperm storage. Median follow-up post malignancy was 50 [18.8,88.5]. Malignancy outcomes: 9/14 achieved remission at 1 year, 3 had active disease. 2 died. 9/20 had >5 year current survival. 13/14 patients were undetectable on ART (6 no data) at last follow-up.
Conclusion: Lymphoma was the predominant malignancy in PaHIV, while KS predominated in those with sexually acquired HIV. VL suppression prior to malignancy diagnosis was poor, but malignancy and HIV outcomes appear good. Adherence support and prompt investigation of symptoms is paramount in this group.

P85

A prospective, randomised study to assess safety, changes in platelet reactivity, plasma cardiac biomarkers, immunological and metabolic parameters in HIV-1-infected subjects undergoing switch in antiretroviral therapy

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Background: A reversible increased risk of myocardial infarction (MI) has been observed with use of the NRTI abacavir (ABC). The potential role of altered platelet reactivity and inflammation to explain this association remains unclear. We aimed to assess changes in platelet reactivity, circulating cardiac, inflammatory and metabolic parameters in virally-suppressed, HIV-infected patients switching away from ABC to the CCR5 inhibitor maraviroc.
Methods: In a 48 week, multicentre, open-label study, virally suppressed subjects on ART containing protease inhibitors and ABC-containing NRTI were randomised 1:1 to immediate or deferred (12 weeks) switch from NRTI to maraviroc. Primary end-point was mean change in platelet reactivity 2 weeks post-switch. Secondary end-points included change in inflammation and lipid parameters. Comparisons were by intention-to-treat, using paired t-tests.
Results: Of 31 subjects screened, 18 had CCR5-tropic virus of whom 6 were randomised to immediate and 12 to deferred switch. Median (IQR) age was 49 (42-54) years, 11 (61%) were male, 13 (72%) Caucasian. Baseline CD4+ T-cell

count was 540 (380-774) cells/mm^3. At baseline, arms were well matched. Mean change in platelet aggregation post-switch in response to agonists; adenosine diphosphate 2.5uM (+9.0%; 95CI -6.0; 24.2), thrombin receptor-activating peptide 2.5uM (-6.4%, 95%CI -27.7; 15.0), collagen 190 ug/mL (+13%, 95% CI, -8.1; 33.9), and epinephrine 5uM (-1.0%, 95% CI -15.8; 13.7), was non-significant and there were no significant changes in D-dimer, fibrinogen, total cholesterol; triglycerides, HDLc or CD4+ T-cell count post-switch (Table 1).

Table 1

	Pre-switch Mean (SD)	Post-switch Mean (SD)	Difference (95%CI)
D-dimer (g/L)	0.26 (0.3)	0.23 (0.2)	-0.029 (-0.14; 0.08)
Fibrinogen (g/L)	2.7 (0.8)	2.6 (0.7)	-0.11 (-0.54; 0.31)
Total cholesterol (mmol/L)	5.5 (1.4)	5.3 (1.0)	-0.18 (-0.78; 0.42)
Triglycerides (mmol/L)	1.5 (0.6)	1.4 (0.5)	-0.09 (-0.42; 0.24)
HDLc (mmol/L)	1.4 (0.4)	1.5 (0.4)	+0.11 (-0.07; 0.28)
Current CD4+ (cells/mm^3)	587 (268)	605 (244)	+18.2 (-47.2; 83.6)

Conclusions: We found no evidence of changes in platelet, inflammation, or lipid parameters with a switch from ABC to maraviroc. Given the small sample size, larger prospective trials are required to verify these findings.

P86

The potential impact of new national guidance on primary prevention of cardiovascular disease in people living with HIV

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Background: Cardiovascular disease (CVD) is the leading cause of death in England and Wales. Management of CVD risk factors is crucial for an ageing HIV population. The long awaited updated NICE CVD guidelines propose statins & lifestyle modification for 40-74 year olds with >10% (previously >20%) 10 year risk of CVD using QRISK2. We currently use Framingham so compared 3 CVD risk calculators (CRC) in our cohort, analysing the impact of a change in CVD threshold on the proportion of our patients eligible for intervention.
Methods: Framingham, QRISK2 and JBS3 CRC were compared in 200 randomly selected patients. To analyse the impact of lowering the primary prevention threshold, we interrogated our prospectively collected database to identify all individuals who had a documented Framingham risk assessment and applied the current/proposed thresholds. We performed the same analysis subgroup to whom 3 calculators were applied. Finally we surveyed HIV services in England & Wales regarding their choice of calculator.
Results: We compared the 3 CRC in 200 patients, table 1:

	Framingham	QRISK2	JBS3
Low/<10%	51	95	122
Medium/10-20%	93	72	53
High/>20%	54	31	21

In total 20.9% (916/4383) of our cohort had documented Framingham risk assessment. Using a 20% threshold, 8.8% (81/916) would require intervention, increasing to 35.2% (322/916) with an intervention threshold of 10%. Restricting analysis to the 200 patients to whom we applied all 3 calculators resulted in the following proportion requiring intervention with a 20%/10% threshold, respectively: Framingham 27%/73.5%, QRISK2 16%/52%, JBS3 11%/38% (8 patients excluded due to incomplete data). We contacted 177 HIV services and 66 (37%) responded. The majority used Framingham with a >20% threshold, screening all patients annually.
Conclusions: A reduced threshold for CVD prevention vastly increases the number of patients requiring primary intervention, by three fold with all CRC. This may have significant implications, including cost, drug-drug interactions and patient experience, that HIV physicians and general practitioners will need to address, in a coordinated, patient-focused manner. Since CV risk is a factor to consider when choosing ART, and the proportion of individuals classified as high risk varies by calculator, national HIV guidelines should consider recommending a single calculator.

P87

HIV testing patients with oesophageal candida: A diagnostic opportunity being missed

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Background: HIV incidence is rising in Northern Ireland (NI) and the UK. In NI in 2012, 56,862 HIV tests were done and 95 people were found positive. Extrapolating from this, approximate HIV incidence is 1.7 per 1000 people in the HIV-tested population in NI. It is estimated that 22% of people with HIV in the UK are unaware and there is a campaign to reduce this by increasing testing by non-HIV specialists. Guidelines published by BHIVA, BASHH and BIS recommend "offering HIV testing for all patients who present for healthcare where HIV enters the differential diagnosis." Oesophageal candidiasis is more common in HIV-infected patients (8.46% of OGDs compared to 0.18% - 1.17% in the general population). It is an AIDS-defining condition. Other factors are known to cause it however HIV should be considered in the differential diagnosis. Aims were to assess: i) how many patients diagnosed with oesophageal candidiasis are tested for HIV and ii) of those tested, how many are found positive.
Methods: A database was composed of all patients in our trust with an oesophageal candidiasis diagnosis based on histology collected at OGD. Diagnoses less than 6 months prior to audit were excluded to provide sufficient time for clinics and tests to be organised. The preceding 100 cases were identified, creating a timeframe of 10th September 2009 to 30th September 2013. Patient records and lab results were then used to assess the cases for evidence of HIV testing, which was considered either by HIV blood test or referral to GUM clinic within 6 months of diagnostic OGD.
Results: Of 100 people found to have oesophageal candidiasis, 11 (11%) were tested for HIV. Of 11 tested, 2 were found to be positive. According to these results, the incidence of HIV in patients with oesophageal candidiasis is 181.8 per 1000 people tested.
Conclusion: 11% of patients were tested for HIV indicating a lack of consideration of HIV by endoscopists when finding oesophageal candidiasis. The small number of people tested means we cannot assume 181.8 per 1000 to be a reliable incidence of HIV in patients with oesophageal candidiasis. However the comparison with the general HIV-tested population is marked: 181.8 compared to 1.7 per 1000. This suggests that testing patients with oesophageal candidiasis for HIV would have a high positivity rate and would be a step towards reducing the number of people who are unaware of their HIV infection. Unfortunately this opportunity is currently being missed.

P88

Obesity in HIV audit and pathway development: Are we addressing an expanding problem?

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Background: In people living with HIV, as in the general population, obesity is increasing. BHIVA recommends recording Body Mass Index (BMI) annually in patients receiving HIV care. NICE guidance outlines management of weight depending on BMI range, waist circumference and presence of comorbidities. To determine the extent of the obesity problem in our HIV cohort and our current management a baseline audit was undertaken. Links were made with our bariatric surgical team and hospital medical obesity team (Tier 3).
Method: Retrospective audit of 75 HIV clinical records of patients who attended for HIV related care from 2013. Standards set were: BMI recorded within last 1 year of attendance, target 100%. Those with BMI over 25 a documented action plan for weight reduction and with BMI over 30 a documented offer of referral to weight management /exercise, both baseline assessments.
Results: 81% had BMI result recorded in the last year of attendance. 7% had no height recorded to allow BMI calculation. In total 26% were obese and

34% were overweight. BMI range 17.5 to 54.2. 94% of Black African (BA) women and 80% BA men were overweight / obese but our white male cohort also had 50% who were overweight / obese. 14% of our cohort met criteria for referral into Tier 3 services. Baseline assessments showed only 24% of those with BMI over 25 had a weight discussion documented and 33% of those with BMI over 30 were referred to a weight reduction programme. Only 4% of those overweight were actively managed, increasing to 67% in those with BMI over 40.

Conclusion: Our HIV cohort had obesity levels similar to the general population. We did not meet our annual recording of BMI standard and our baseline assessment figures were low. Our obesity team recommended routine screening for endocrine function linked with obesity and increased in people with HIV. With complexity in HIV, such as drug absorption issues post-surgery, referral to Bariatrics by the HIV team may be more appropriate than the GP. Our HIV specialist commissioner was contacted regarding this. Key management recommendations agreed based on BMI ranges are: 18.5 to 24.9 (Healthy weight) general advice diet and healthy lifestyle, 25 to 29.9 (Overweight) plus Diet and physical exercise, 30 to 34.9 (Obese) plus perform additional endocrine bloods, 35 to 39.9 (Obese) plus consider referral to Tier 3, 40+ (Obese) plus refer to Tier 3. A clinical guideline will be distributed for use throughout our HIV clinical network.

P89

Change in hepatitis B DNA and correlation with fibrosis score over a five-year period in HIV and hepatitis B co-infected patients in an urban teaching hospital

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Background: This study evaluated the change in Hepatitis B DNA levels over time on patients started on Truvada or Tenofovir (TDF) based therapy and correlated this to fibrosis levels in HIV and Hep B co-infected patients in a large teaching hospital.

Method: Records for 103 HIV and Hepatitis B co infected patients were analysed. Demographic data, hepatitis surface and e antigen status, DNA levels and fibrosis stage estimated using transient elastography were collected and analysed using Microsoft Excel.

Results: 103 patients were analysed. 73/103(71%) were male. 66/103 (64%) were heterosexual. 54/103 (52%) % were Black African. Average nadir CD4 was 188 cells/mm^3.Average CD4 of this cohort was 519 cells/mm^3, 84% had a HIV viral load of <100 copies/ml.

50/103 (48.5%) patients were Hep B e antigen positive at baseline. E antigen seroconversion occurred in 9/50 (18%), 3/103 (3%) patients had surface antigen seroclearance. 2/103 (2%) were Delta Ig G positive. 10/103 (10%) were Hep C Ig G positive. Median first Hep B DNA level prior to a TDF based regimen was 9,999,999 IU (Log 7.05) analysed using Roche assay. One year post TDF initiation 30% (13/44) had a DNA level of <20 IU and 39% had a DNA level of <400 IU. Three years after TDF initiation 84% (36/43) had a Hep B viral load of <20 IU. 4/98 (4%) of patients had Hep B DNA levels > 100 IU (166 - 36,441 IU) on TDF despite an undetectable HIV viral load. Baseline and last recorded Fibro Scan reading for the cohort result showed F1-F2 fibrosis (TE FibroScan7.8 kPa and 7.0 kPa respectively). Time between the baseline and last reading was, on average 2 years. Cirrhosis (F4 and TE Fibro Scan reading >12 kPa) was determined at baseline in 7/103 patients. 3/7 of these had detectable Hep B DNA levels ranging from 55-459,210 IU .Of these 7, 2 died (one of hepatocellular carcinoma). 4/32 (13%) of patients had progression of fibrosis during the follow up period defined as an increase of >2 kPa from baseline. 11/32 (34%) of patients had improvement in the Fibroscan reading of >2 kPa over the follow up period – 8/11 were e antigen positive.

Conclusion: The results are encouraging and indicate that with TDF or Truvada based treatment the majority of patients suppress Hep B DNA levels to < 400 IU after one year and the vast majority to <20 IU after three years. Most patients had no progression in fibrosis during the follow up period, with just under a third showing an improvement in the fibrosis score.

P90

Prevalence of depression and anxiety amongst HIV patients in Sri Lanka

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Background: Mental health problems are known to be associated with HIV infection. The prevalence of mental health issues is estimated to be 38-73% in South East Asian HIV populations. The Hospital Anxiety and Depression Scale (HADS) is a brief self administered questionnaire that can be used to screen for anxiety and depression. It has been translated and validated into several languages including Sinhala.

We aim to determine the prevalence of depression and anxiety in a Sri Lankan HIV cohort and identify associated risk factors.

Method: Patients attending the clinic between April to July 2013 completed the HADS questionnaire during their clinic visit. Patients' anxiety and depression scores were calculated and categorised as follows: normal (0-7), mild (8-10), moderate (11-14), severe (15-21). Information regarding patient demographics, mental health risk factors, and HIV clinical information was collected from the clinical notes. T-tests and Chi-Square tests were performed to look for significant associations.

Results: 144 patients completed the HADS questionnaire. 60% were found to have anxiety and 41% depression. No demographic factors were significantly associated with anxiety or depression. HIV risk group, partner infection, child infection, HIV neurocognitive impairment, AIDS illness, CD4 count, years since diagnosis, years on ARVs and immunological failure were not significantly associated with anxiety or depression. ARV regime was significantly associated with anxiety (p=0.008), but not with depression.

Conclusion: High levels of anxiety and depression were found amongst HIV patients in the Sri Lankan cohort, highlighting the importance of screening this population for mental health issues. Anxiety was significantly related to ARV regimes, and maybe the result of Efavirenz which was the most common NNRTI prescribed.

P91

Critical care mortality in HIV-seropositive patients; a five-year retrospective audit

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Background: Critical care outcomes in HIV-positive individuals have improved since the introduction of highly active antiretroviral therapy. Present analyses show that critical care mortality in HIV-positive patients is comparable to that of the general medical population. We audited 30-day and 6-month mortality in all HIV-seropositive patients admitted to critical care from January 2010 to May 2014, with focus on those with AIDS-defining diagnoses as per the British HIV Association 2013 Standards of Care.

Methods: HIV-positive patients admitted to critical care, including those diagnosed on admission, were identified via an electronic search of the admissions database. Survival was established using electronic inpatient and outpatient records. Outcomes were defined as 1) alive (including discharge and readmission), 2) deceased or 3) follow-up on going. According to this definition, one episode per patient per six-months was counted. Admission diagnoses were classified as 'HIV-related' if an HIV indicator condition included in the BHIVA 2008 Guidelines for HIV Testing.

Results: Thirty-three primary admissions were included. The majority were male (n=26, 79%) of mean age 47 years (range 26-81). Over 50% had CD4 count < 200 cells/ml^3 and/or detectable viral load. The majority of critical care admissions were HIV-unrelated (n=19, 58%). Of 12 HIV-related admissions, 8 were AIDS-defining (67%). The 30-day outcome was known in 25 cases; survival was 100%. The 6-month outcome was known in 23 cases; survival was 87% (n=20) overall, 75% (n=3) in those with non-AIDS HIV-related disease and 71% (n=5) in those with AIDS-defining conditions. All those admitted with HIV-unrelated disease survived.

Conclusions: Our HIV critical care survival rates are similar to general in-ICU survival of 79% reported in the last audit of adult critical care mortality conducted by the Intensive Care National Audit & Research Centre. Though based on a small sample, this is in keeping with a previous report suggesting

that HIV-serostatus does not affect critical care mortality risk. We recommend that HIV-related disease, including AIDS-defining diagnoses, should not be a barrier to admission to critical care.

P92

CD4 and viral load are poor correlates of Intensive Care Unit (ICU) admission: A 1-year prospective observational study of acute respiratory admissions in HIV-positive individuals

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Background: The burden, changing pattern and outcome of HIV associated lung disease following HAART introduction remains to be defined i.
Methods: Consecutive admissions were prospectively collected between June 2013 and May 2014 and notes interrogated where the cause for admission was an acute respiratory illness.
Results: 53/149 (35%) of acute admissions were respiratory causes. Mean age was 45 years and 28% were female. Median CD4 was 109 (range 3-867) cells/mm^3, 14 (26%) were admitted with suppressed viral loads (VL <20 copies/ml). Only 14% had suppressed VL for the preceding year. A new diagnosis of HIV was made in 22% (11), 91% presenting as acute community acquired pneumonia. In 82% CD4 count was <200cells/uL and 55% required ICU.
8% were admitted with non-infectious diagnoses; of the remaining 49, 24% had confirmed bacterial pneumonia on sputum culture, 22% completed treatment for PCP, 16% were confirmed Mycobacterium tuberculosis (1 multi-drug resistant isolate), 8% had confirmed viral pneumonia. 38% patients completed treatment for pneumonia with no positive microbiology/immunology. 49% were current smokers. 19 (36%) were admitted to ICU. 8/19 (42%) were mechanically ventilated, 2/19 required v-vECMO for severe respiratory failure. 1 died and 1 was discharged for palliation. Subgroup analysis of those mechanically ventilated showed 75% had CD4 counts <200cells/mm^3. In 37% viral load was suppressed to <20.

Table 1.

Risk factor for admission	Total (n=53)	ITU (n=19)	Odds ratio (OR) (95% CI)
Age > 50	17	5	0.7 (-0.2 – 1.5)
Smoking	26	7	0.4 (0.1 – 0.8)
COPD	7	1	0.3 (-0.6 – 1.1)
Consolidation on CT	17	9	3.5 (1.0 – 6.1)
CD4 <200 on admission	34	15	3.0 (0.6 – 5.3)
VL <20 on admission	13	4	0.7 (-0.3 – 1.7)
CRP >100 mg/dL	18	9	2.5 (0.4 – 4.6)
Positive bacterial sputum culture	13	8	4.2 (1.5 – 7.0)

Conclusions: Infections, particularly bacterial, dominate respiratory admissions and acuity remains high with 40% being admitted to ICU/HDU. The significant association of ICU admission with positive sputum culture and CT evidence of consolidation, and the absence of association with CD4 count and VL suppression is consistent with the previous published findings of the failure of conventional markers to predict outcome in severe respiratory disease in the context of HIV[1]. The high incidence of pneumococcus and smoking supports the recommendation for pneumovax and smoking cessation support.

P93

Post chemotherapy liver dysfunction and reactivation of Hepatitis B (HBV) and C (HCV) in an HIV-infected cohort

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Background: Reactivation of HCV/HBV can occur in those with chronic or inactive hepatitis (20-50% of Hep BsAg+ & 2-25% of isolated Hep BcAB+) receiving chemotherapy. Complications range from asymptomatic elevated liver enzymes to fatal hepatic failure. HCV reactivations are also described. Risk factors include: Hep BsAg+ status, intense chemotherapy, non-Hodgkin lymphoma (NHL), anthracyclines, corticosteroids & rituximab. Prophylactic HBV-protective drugs can reduce HBV reactivations in HIV negatives to 4.3%, data in HIV have not been reported. We examine an HIV infected cancer cohort for frequency of ALT flares and HBV/HCV reactivations post chemotherapy.
Methods: Electronic records for HIV+ adults receiving chemotherapy for Lymphoma & Kaposi's sarcoma (KS) at a specialist unit between 2005-2014 were reviewed for biochemistry, HBV/HCV markers, antiretroviral (ARV) &chemotherapy regime. Patients were divided into those with/out ALT flare, defined as ≥ 3X baseline/an absolute rise of ≥ 100 IU/L up to 1 year post chemotherapy. Reactivation definition: ALT flare + DNA rise ≥ 10 X (HBV), >1 log RNA (HCV) with inactive or resolved Hepatitis. Analysis was by Chi squared & t test.
Results: 127 HIV+ were included: 97(76%)M, ethnicity: 60(47%) W, 47(37%) B, 5(4%) A, 13(12%) UnK. 60(47%) had NHL, 25(20%) HL, 24(19%) KS, 13 (10%) Castleman's & 5(4%) Grey Zone. 122(96%) were tested for Hep sAg & HCV Ab prechemo, 54(44%) for HBV cAb. 120(100%)(7UnK) received HBV-protection. 34% had ALT flares with 1 HCV reactivation (2%) & no HBV reactivations.

Table 1. Patient demographics & ALT flares post chemotherapy

	ALT Flare 43(34%)	No ALT flare 84(66%)	P
Median ALT Day 1 (D1) chemo	24	21	0.269
Median highest ALT post chemo(PoC)	157	38	<0.001*
Median CD4 count D1	198	176	0.138
Proportion HIV VL<50D1	9(21%)	22(26%)	0.513
PrC serology			
HBV sAg+	1(3%)	5(6%)	0.36
HBV cAb+, s Ag-	5(12%)	21(25%)	0.077
HCV Ab+	1(2%)	4(5%)	0.504
ARV			
On ARVS D1 chemo	27(69%)	53(63%)	0.973
On ARVS post chemo	10(23%)	15(18%)	0.469
Protective HBV ARV	42/42 (100%) 1 UK	78/78 (100%) 6 UK	0
Chemotherapy			
Rituximab	23(54%)	33(39%)	0.127
Anthracycline	40(93%)	70(83%)	0.129
Rituximab+Anthracycline	21(48%)	24(29%)	0.024*
Corticosteroids	31(72%)	34(40%)	<0.001*
CODOXM/IVAC	22(51%)	12(14%)	<0.001*
CHOP	8(17%)	21(25%)	0.417
ABVD	6(14%)	18(21%)	0.308
Liposomal Doxorubicin	3(7%)	21(25%)	0.014*

Conclusions: >95% rates of screening and liver-protective ARV's achieved very low rates of HBV reactivation similar to HIV negatives. Intensive chemotherapies were significantly associated with ALT flares unrelated to HBV/HCV status.

P94

Interventions for tobacco cessation in people living with HIV and AIDS: Cochrane Review

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Introduction: Human immunodeficiency virus (HIV) is now a chronic disease with a near-normal life expectancy. However, tobacco use is highly prevalent amongst people living with HIV/AIDS (PLWHA) and results in high morbidity and mortality from cancer, cardiovascular disease and infections. Specific socio-economic, psychological and health system factors contribute to tobacco use and hinder cessation in PLWHA.
Aim: To conduct a systematic review and meta-analysis to assess the effect of tobacco cessation interventions on achieving abstinence in PLWHA.
Methods: Cochrane registers, Medline, Embase and PsychINFO were searched, in addition to grey literature sources. Studies were selected following report

reviewing using pre-defined inclusion criteria. Data were extracted and bias was assessed in duplicate. Data analysis was undertaken in Review Manager (RevMan). Following this, subgroup and sensitivity analysis were undertaken.
Results: In total, 861 records were identified. Following screening and report review, thirteen studies were selected and contributed to the review. Twelve studies were included in the meta-analyses. All studies combined counselling and pharmacotherapy for the intervention, and gave usual care or a less intense intervention as control. Study design was variable. Risk of bias assessment showed that allocation concealment and blinding were poorly described. The funnel plot for short term outcomes was asymmetrical, indicating that publication bias was present. For long-term abstinence the meta-analysis showed no evidence in favour of the intervention compared to the control. For short-term abstinence there was evidence in favour of the intervention (RR 1.53, CI 1.16 to 2.04). There was insufficient data to fully assess the impact of tailoring cessation interventions for PLWHA. No studies investigated the effect of counselling or pharmacotherapy alone, therefore the objective of single focused intervention compared to combined interventions could not be assessed.
Conclusion: There is no evidence that the intervention is more effective than the control in the achievement of long-term tobacco cessation, although the confidence intervals do not exclude the possibility of an effect. The results for short-term cessation are promising although less clinically meaningful. More work is needed to translate these into long-term abstinence. There are a number of limitations including low quality evidence, low generalisability and high heterogeneity.

P95

Reduced bone mineral density in HIV infection: HIV, ART or lifestyle

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Background: The advent of antiretroviral therapy (ART) has meant most people who are HIV positive and on treatment have a near normal life expectancy. The focus of HIV care has shifted to chronic disease management that includes managing side effects of HIV, its treatment, and age-associated co-morbidities. One of these co-morbidities that has emerged as significant is low bone mineral density (BMD), where it remains unclear whether HIV, ART, or lifestyle factors are the reason for increased rates of low BMD reported in cohorts of HIV positive individuals. Previous studies have indicated there may be low bone density associated with primary HIV infection. Low BMD was found in around 10% of HIV negative participants on tenofovir for PrEP. Seroconverters represent a unique group to investigate the role of the virus compared to antiretrovirals in contributing to low bone density.
Methods: We prospectively recruited seroconverters (SC), identified as having a positive incident RITA (confirming infection likely to have occurred within 4 months) or a negative HIV test within one year of positive HIV diagnosis. They were matched with high-risk controls (C) for age and sexuality. All participants completed a questionnaire relating to risk and bone health, baseline serology (calcium, vitamin D, testosterone, SBG, phosphate and thyroid function) then underwent a DEXA bone scan.
Results: 25 seroconverters and 13 matched controls were recruited. All were men who have sex with men; the median age was 33.7 for the HIV positive group (range 18-47), and 33.0 for the controls (18-47). The median BMD results were 1.174 at the lumbar spine for SC and 1.087 for C, and 1.050 at the hip for SC and 1.010 for C. There were no significant differences between the SC and control group suggesting any reduction in any BMD parameter.
Conclusion: No significant difference in BMD was shown between seroconverters and controls. This contradicts previous research, which has suggested reduced BMD at seroconversion and highlights the need for adequate control groups when commenting on age-associated co-morbidities in the context of HIV. If low BMD is shown to be associated with HIV, this study suggests this is not related to the initial immunological and inflammatory events that are associated with acute HIV infection.

P96

Examining the effectiveness of a non-cognitive-based algorithm in predicting patients at high risk of HIV-associated neurocognitive impairment

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Background: A previously published Australian paper used a noncognitive-based algorithm in HIV+ patients to attempt to predict those at high risk of HIV-associated neurocognitive impairment (HAND). We applied this algorithm to a small number of previously identified HIV+ patients with suspected neurocognitive impairment (NCI) and compared the results to a group of age matched HIV infected controls with normal NC function.
Method: 20 subjects from the MSM Neurocog Study were shown to have suspected NCI after exclusion of mood disorders and calculation of a composite z-score based on the results of 3 simple tests. These subjects with abnormal z-scores were matched to 20 subjects with corresponding ages with normal z-scores. For each subject, data relevant to the algorithm was collated. This included their age (years), current CD4 T-cell count (cells/uL), past occurrence of CNS disease (1 if this had previously occurred and 0 otherwise) and current combination antiretroviral therapy (CART) duration (months). This data was inputted for each subject into an Excel formula version of the algorithm. The original study stated that NCI is predicted to occur when the expression proved to be numerically positive.
Results: 0f 40 for analysis, the expression was shown to be negative in 100%. In the 20 subjects with abnormal z-scores the mean algorithm expression was -23.4. In the 20 subjects with normal z-scores the mean was -20.1. The difference between the two groups was not statistically significant. With this result in mind we formulated a 'test patient'. To gain a small, positive result (+1.748) the following values were required: age=60, CD4=398, no history of CNS disease and CART duration=26 months. These values were markedly different to the average age (44 years) and CART duration (130.3 months) of our patient cohort.
Conclusion: The proposed algorithm failed to predict an increased risk of NCI in HIV+ patients with abnormal cognitive function suggested by formal screening. Our study highlights that the algorithm was an ineffective tool in predicting NCI in HIV+ patients under the age of 60 with a stable CD4 count and a significant CART duration. It may only be useful in older patients with advanced HIV disease, or preexisting CNS pathology. Further work is required to see if this algorithm can be adapted for better utility in a younger HIV infected group

P97

Are rates of HIV infection falling in patients with TB in inner London?

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Background: HIV increases the risk of *Mycobacterium tuberculosis* (TB) and BHIVA guidelines recommend HIV testing in all new presentations of TB. Previous estimated rates of HIV in patients within London are much higher than those elsewhere in the UK. We aimed to quantify the local prevalence of HIV in our population of patients with TB and to compare this to expected figures.
Methods: A retrospective prevalence study was performed at a large London teaching hospital TB clinic. Anonymised data was extracted from the London TB register and local electronic HIV test results. The prevalence of HIV was compared to the expected local prevalence of HIV in the general population, and to previously published estimates of incidence in inner London TB patients.
Results: 114 patients were diagnosed or treated for TB in our clinic between 1st January 2014 and 31st December 2014. 50% were male and the mean age was 34 years (IQR 28-47). 47% of patients were Black-African. 100% of these patients were tested for HIV with informed consent. 3 of 114 patients were HIV positive (2.6%), a rate double that seen in the general populations of Lambeth (1.17%) and Southwark (1.38%). Using Fisher's exact test, prevalence in our clinic of HIV-TB co-infection was compared to estimates from previous studies of TB in inner London in 1999 and 2000.

Table 1: Comparison of HIV-TB co-infection prevalence in our TB clinic with previous prevalence seen in London

Population	HIV prevalence in London TB patients (%)	HIV prevalence in our TB clinic (%)	P value
Inner London TB clinic (study 1) 1999	11.4	2.631	p=0.0054
Inner London TB clinic (study 2) 2000	24.8	2.631	p=<0.001

Discussion: As expected, our study found that HIV was more than twice as common in patients attending our TB clinic than in the local general unselected population. However, we found the prevalence of HIV in our TB clinic to be significantly lower than we expected based on data from previous studies in inner-city London. This is despite an increasing prevalence of HIV since those studies were performed, and suggests that socio-demographic, migration or other factors may be improving rates of co-infection.

P98

Tenofovir and its impact on renal function in patients co-infected with HIV and hepatitis B: Findings from a large teaching hospital in the UK

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Background: The long-term impact of Tenofovir (TDF) on renal function of patients co-infected with HIV and Hepatitis B remains a concern. We aimed to determine the impact of TDF-based HAART regimens on renal function in a cohort of co-infected patients
Methods: Records for 103 HIV and Hepatitis B co–infected patients from a London teaching hospital were analysed. Data on demographics, Hep B surface and e antigen status, estimated glomerular filtration rate (eGFR), urinary protein:creatinine ratio (UPCR) were analysed using Stata. Changes in Hep B DNA and renal function were assessed using the Wilcoxon matched-pairs signed-rank test.
Results: 103 patients were included .73/103(71%) were male. 66/103 (64%) were heterosexual. 54/103 (52%) % were Black African Median duration of HIV was 9 years (iqr 6-14 years). Median duration of HAART was 7 years (iqr 6-8 years). Average nadir CD4 was 188 cells/mm^3.Average CD4 of this cohort was 519 cells/mm^3, 84% had a HIV viral load of <100 copies/ml.
50/103 (48.5%) patients were Hep B e antigen positive at baseline. E antigen seroconversion occurred in 9/50 (18%), 3/103 (3%) patients had surface antigen seroclearance. 2/103 (2%) were Delta Ig G positive. 10/103 (10%) were Hep C Ig G positive Truvada-based HAART was initiated in 58/97 (60%) of patients.96/101 (95%) of patients were currently taking TDF or Truvada.
Median Hep B DNA level prior to initiation of a TDF based regimen was 9,999,999 IU (Log 7.05) analysed using Roche assay (n=96; iqr 23-9,999,999). The last Hepatitis B DNA level recorded was <20 IU/ml (n=102; iqr 0-55).
Baseline median creatinine prior to TDF initiation was 73µmol/L (n=84; iqr 64-88). The last creatinine level recorded was 77µmol/L (n=93; iqr 69-91). Changes in creatinine were statistically significant (p=0.01).Baseline median eGFR prior to TDF (and corrected for race) was 108Ml/min (n=64; iqr 95-131). The last eGFR recorded was 98Ml/min (n=95; iqr 92-110). Changes in eGFR were statistically significant from baseline to year 2 post TDF initiation and to last eGFR (p<0.05). Changes in UPCR were not statistically significant (p>0.05).
Conclusion: The results show a marked fall in eGFR over time, which has not been widely reported in this cohort. Our findings highlight the importance of 6-monthly follow up to monitor the renal impact of TDF in co-infected patients. Future options such as Tenofovir alafenamide fumarate (TAF) have minimal impact on renal function, and switching may be justified.

P99

Hepatocellular carcinoma (HCC) surveillance in HIV+HBV patients: Does a dedicated HIV liver clinic make a difference?

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Background: The risk of HCC is increased in cirrhotic and non- cirrhotic patients with chronic hepatitis B (HBV). BHIVA guidelines recommend HCC surveillance with 6 monthly liver ultrasound (US) for patients with HIV+HBV cirrhosis (C) and suggests 6 monthly US screening for those with HIV+HBV who are non-cirrhotic (NC). The aim of the study was to examine the effectiveness of HCC screening in patients with HIV+HBV attending a HIV liver service compared to those being seen in a HIV clinic.
Methods: A retrospective cohort study of patients with HIV+HBV attending Kings College Hospital between Jan 2005-Dec 2014. Data was gathered on all patients with HBV and C and on black African patients > 20 years who were NC as this group is known to be at high risk of HCC. The time period was divided into 4 periods of 2.5 yrs. The number of US performed in each time frame was recorded. Information was collected regarding place of follow up.
Results: There were a total of 104 patients. 81 were black African (BA) NC patients; 49 men, 32 women. 23 were C pts; 48% BA, 30% white, 4% Asian, 18% other. 17 were men and 6 women. 5 patients were diagnosed with HCC, all C. Of the NC patients, 36% received care in the HIV clinic, 64% received HIV/Liver care. Of the C patients only 4% had HIV care alone and 96% HIV/Liver care. The number of patients achieving ≥ 3 US in each of the 2.5 year time periods 01/2005-06/2007,07/2007-12/2009,01/2010-06/2012,07/2012-12/2014 was:
HIV clinic (NC) 0/7(0%),0/10(0%),2/13(15.3%),1/7(14.3%).HIV/Liver Clinic (NC) 0/34(0%),15/29(51.7%),9/43(20.9%),12/31(40%).HIV clinic (C) 3/8 (37.5%), 3/8(37.5%),0/1(0%),0/1(0%).HIV/Liver clinic (C) 4/6(66.66%), 9/15 (60%),7/16(43.75%),0/1(0%).
Overall rates of scanning were higher in NC patients attending HIV/ Liver clinic. Of patients who had ≥3 US in a 2.5 yr period, the median interval between US was 10.1 (6.7, 13.7) months in NC and 6.6 (5.3, 8.7) in C (p=0.002). For NC patients undergoing HBV follow- up for a period of 2.5 years the likelihood of having ≥3 US was 3/40 (7.5%) if they attended the HIV service and 36/106 (33.96%) if they attended the HIV/Liver clinic (p <0.00008).
Conclusion: Our data shows that patients with HIV+HBV undergo HCC surveillance less frequently than national guidelines recommend. Patients with C have more frequent US scans than those without. Attendance at a HIV/Liver clinic is associated with a greater likelihood of having regular US screening.

P100

Clinical outcomes for severely immunosuppressed young adults with perinatally acquired HIV infection

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Background: Median survival from historical cohorts of adults living with HIV presenting with CD4 <200 cells/mm^3 in the pre-antiretroviral (preART) era was 11.6 months. Extrapolation of survival data from horizontally infected adult cohorts may not be appropriate for young people with perinatally acquired HIV (PaHIV). Anecdotal experience suggests a different survival pattern amongst young adults with PaHIV transitioning care with CD4 <200 cells/mm^3. We sought to explore this within a PaHIV transition cohort.
Method: Retrospective case note review of young adults with PaHIV attending a single UK centre between January 2006 and December 2014. Eligible participants were over 16 years; recorded CD4 <200 cells/mm3 at transition or in adult care. Outcomes measured included survival, new AIDS defining illnesses and hospitalisations. The length of time spent with a CD4 <200 cells/mm^3 was recorded as a comparison to the preART era survival in adults.
Results: Of 38 cases; 20 (53%) were female; 33 (87%) Black African origin and a current median age of 22 years (IQR 20-23). 3/38 (8%) patients died, at a median of 36 months (range 28-98) after first CD4 < 200 cells/mm^3. Causes of death; end stage HIV wasting, gram negative sepsis with end stage HIV and atypical mycobacteria. Of the remaining 35 patients, 20 ever achieved virological suppression on ART and a CD4 count >200 cells/mm^3 at latest follow up. 15 have failed to suppress despite enhanced adherence support,

with current CD4 count <200 cells/mm^3. All have potentially suppressive ART options, 3/15 have triple class HIV-1 associated resistance mutations. 15/35 (43%) have survived for a median of 27.5 months (range 3-60) with a CD4 < 200 cells/mm^3. 22/35 (63%) have required adult inpatient care, with an average admission rate of 2.43 admissions per person (range 0 – 32). 11/35 acquired one or more new opportunistic infections PCP (5), MAI (4), oesophageal candidiasis (4), CMV (1).
Conclusion: From this small cohort of young adults with perinatally acquired HIV it appears the median survival with significant immunosuppression, is enhanced compared to historical adult cohorts; 36 versus 11.6 months respectively. However survival comes with a significant cost to both patients and the NHS, with new opportunistic infections and recurrent hospital admissions. This observation warrants further investigation within collaborative cohort studies and comparative adult populations in the era of ART.

P101

Influenza immunisation: What do HIV-infected adults know and do?

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Background: The British HIV Association recommends annual influenza immunisation for all HIV-infected persons with a target of 95% coverage. However, uptake has rarely been assessed and may be suboptimal.
Methods: We undertook a questionnaire study in a metropolitan HIV ambulatory care service between September and December 2014 exploring: (1) patients' perceptions and knowledge of influenza infection and immunisation; and (2) uptake of the vaccine.
Results: 253 adults completed the questionnaire; participants had similar demographics to the overall clinic population, with 89% currently taking antiretroviral therapy.
64% of participants had or intended to have an influenza immunisation in the 2014/2015 influenza season compared to 67.5% reporting immunisation in the previous year. 42% of the immunisations given in the 2013/14 season were performed by the HIV service and 43% in General Practice, with small numbers immunised in pharmacies, supermarkets or other locations.
Younger patients had a lower rate of immunisation (46% age ≤45 years versus 70% age >45, p=0.018). There was no significant difference in uptake of influenza immunisation between those of white and non-white ethnicity.
29% of people who reported not being immunised in the 2013-14 season said that they hadn't thought about having it. 24% did not get immunised due to concerns about adverse effects whilst 15% didn't think they needed it. Participants seemed well informed about the risks and benefits of influenza immunisation.
Conclusions: Influenza immunisation uptake is significantly lower than the target of 95% coverage and is particularly so in those under the age of 45. Almost half of those not immunised in the 2013-14 season reported that this was either because they did not consider immunisation or they did not know that immunisation was advised for them. Enhanced awareness campaigns in HIV infected populations around influenza immunisation might, therefore, improve uptake.

P102

Treatment of acute hepatitis C with a pegylated interferon-sparing regimen

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Background: There is a continuing epidemic of acute hepatitis C in both HIV infected and HIV un-infected men who have sex with men (MSM). Standard treatment for acute hepatitis C is pegylated interferon and ribavirin for 24-48 weeks but is associated with toxicity and variable efficacy. We describe the first case of an individual treated with an interferon sparing regimen for acute hepatitis C in the UK.
Case review: A 37 year old known HIV infected MSM presented with raised liver function tests in July 2014 and was diagnosed with acute Hepatitis C, genotype 1a. Hepatitis C viral load at diagnosis was 6.1 log and 4 weeks later was 6.22 log. As he had failed to reduce his viral load by 2 log he was considered for acute hepatitis C treatment. His HIV was well controlled at the time on Truvada, Atazanavir and Ritonavir (CD4 785, VL <40). His only other medical history was depression, treated with Citalopram. Due to the fact that he was a healthcare professional in an important role we attempted to access an all oral therapy regimen for him. Two companies were approached both of whom agreed to provide medication. The patient was commenced on a fixed dose combination tablet of Ledipasvir and Sofisbuvir (90mg/400mg). His antiretroviral therapy was switched to Truvada and Raltegravir to minimise any possible drug-drug interactions with continued virological suppression. His blood tests prior to, during and after treatment are shown in table 1.
The patient was treated for 12 weeks and at the end of treatment his Hepatitis C PCR was negative. He required only three short clinic visits and there was no toxicity. He was able to successfully continue his role within his hospital.

Table 1: Blood test at baseline, week 4 and week 12 of treatment

	Baseline	Week 4 of treatment	Week 12 of treatment
ALT	295	34	22
Hep C RNA (IU/ml)	92526	<15	Undetectable

Conclusions: This is the first case of successful therapy for acute hepatitis C with an all oral regimen. Importantly, it shows that patients may be treated with minimal follow up and adverse effects as compared to the frequent monitoring and toxicities associated with pegylated interferon and ribavirin. SVR 12 will be presented at the conference.

P103

Better together: The outcomes and impact of a joint HIV-renal virtual clinic

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Introduction: HIV can directly cause renal dysfunction in HIV associated nephropathy as well as indirectly from chronic inflammation. In addition, antiretrovirals and medications used in the treatment of opportunistic infections may contribute to acute or chronic renal impairment. It can be challenging to diagnose the underlying cause of renal dysfunction in patients with HIV. In 2012 a joint HIV-renal virtual clinic was created to provide advice on management and investigation of these patients. This study aimed to analyse the outcomes and impact of the clinic.
Methods: Online notes of all patients referred to the virtual clinic from 2012-2014 were reviewed. Reasons for referral and outcome information were gathered.
Results: Overall, 49 patient reviews took place. 41 patients were reviewed at least once and 7 of these were reviewed more than once with a median of 1 (range 1-3).
44 out of the 49 were discussed as they had low creatinine clearance, including 10 with an element of acute renal impairment, and 3 patients who were on dialysis or who had a renal transplant. The remainder of cases were discussed due to haematuria, hypertension, and recurrent UTIs. All patients discussed in the virtual clinic were on antiretroviral therapy.
Conclusion: Control of hypertension was the most frequent outcome of the clinic, recommended in 15/41 (37%) of patients discussed. This suggests hypertension is an under-recognised contributing factor to renal impairment in these patients. Commencement of an angiotensin receptor blocker or angiotensin converting enzyme inhibitor was recommended in 5/41 (12%). Of the 41 patients, renal impairment was attributed to a known and previously diagnosed CKD in 12/41 (29%), required further investigation in 11/41 (27%), was due to medications in 7/41 (17%), was attributed to hypertensive or diabetic nephropathy in 6/41 (15%), was due to HIVAN in 3/41 (7%), and creatinine supplementation in 2/41 (5%).
Running this virtual clinic aids the diagnosis of underlying cause of CKD in patients with HIV on antiretrovirals, and the timely and optimal investigation and management in this group. Renal clinic follow up was not required in 20/41 (49%) after discussion in the virtual clinic, reducing unnecessary follow up appointments.

P104

Risk factors for and prevalence of osteoporotic fractures in an HIV cohort: An audit using BHIVA guidelines

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Background: Reduced bone mineral density (BMD) is more common among HIV-infected patients. Studies have identified the importance of traditional risk factors alongside HIV factors including duration of infection, CD4 count, and antiretroviral therapy (ART), particularly tenofovir. Scoring systems have been developed to assess fracture risk. Classifying HIV as a cause of secondary osteoporosis in these systems has not been validated. BHIVA recommend assessing risk factors at first diagnosis; prior to ART commencement; every three years thereafter. DEXA scan is recommended for those at increased risk and women >65 and men >70 years of age.
Methods: We reviewed 100 case notes of patients attending one HIV clinic in November 2014. Documentation of risk factors for low BMD and assessment of fracture risk as per BHIVA guidelines were audited alongside blood results to calculate a FRAX score and 10-year risk of major osteoporotic fracture. FRAX score was calculated with and without HIV as a cause of secondary osteoporosis.
Results: 100 cases were reviewed (49% female, range 17-82 years), with mean duration of infection 122 months (range 3-443 months). 88% had a CD4 >350 cells/mm^3 (range 119-1709 cells/mm^3) and 95% were on ART, 89% of whom took tenofovir. Levels of documentation varied. Common risk factors were age >50 (73%), white ethnicity (61%), smoking (43%), and alcohol >3units/day (24%). Endocrine disorders and previous fractures were rare. 6% had previous DEXA scans, 5/6 had low fracture risk. One patient had a previous fracture and was on treatment. When calculating FRAX risk without HIV as a cause of secondary osteoporisis, fracture risk was low in 87%, medium in 12% and high in 1%, meaning DEXA is recommended for 13 patients based on FRAX, and one more based on age. Including HIV as a cause of secondary osteoporosis, the fracture risk was increased (low 22%, medium 77% and high 1%) with DEXA recommended in 78%.
Conclusion: In the context of a busy clinic dealing with acute and chronic cases, bone health may not be prioritised and BHIVA recommendations not always met. Few patients were high risk and only one osteoporotic fracture was seen. With the ageing HIV population major osteoporotic fractures are likely to be increasingly seen and primary prevention is of increasing importance. Bone health should be integrated into annual patient review.

P105

Prevalence of neurological disease at a joint HIV neurology clinic in East London

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Background: There is an increased burden of neurological disease within HIV cohorts in the post HAART era. Neurological problems can be the result of HIV, post neuroAIDS complications, or non-HIV neurological disorders. Diagnosis is clinically challenging, and as a result a combined HIV/neurology clinic was set-up in an inner East London centre to improve management and build knowledge.
We aim to describe presentations and prevalence of neurological disease at the joint HIV/Neurology Specialist clinic.
Method: A retrospective analysis of all patients that attended the HIV neurology clinic between Feb-13 to Feb-14 was performed. Reason for referral, primary diagnosis and underlying HIV related disease was collected.
Results: 67 patients were identified. 19(29%) patients were referred for complications of old neuroAIDS including: 9(13%) toxoplasmosis, 1(1%) cryptococcal meningitis, 1(1%) tuberculosis, 6 (9%) PMLs, 1(1%) HIV vacuolar myelopathy and 1(1%) HIV encephalopathy (HIVE). 6(9%) were referred for spasticity, 6(9%) for epilepsy treatment optimisation, 4(6%) for movement disorders, 5(7%) with neurocognitive deficits and 1(1%) with paraplegia. After assessment 2(3%) new HIVEs were identified with CSF escape and 1(1%) with small vessel disease. 48(71%) patients without known underlying neuroAIDS were referred. Reasons for referral and diagnosis are outlined in the table. 40% had HIV related complications, 44% had non-HIV causes and 16% a combination of HIV and other non-HIV risk factors.

Referral reason-n(%)	Diagnosis-n(%)
Cognitive issues 34(51%)	New HIV associated neuro-cognitive disorders 13(19%)
	Small vessel disease 5(7%)
	Efavirenz toxicity 1(1%)
	Depression/Anxiety 13(19%)
	Stroke 2(3%)
Tremors 4(6%)	Anxiety 2(3%)
	Parkinson's disease 1(1%)
	Tardive dyskinesia 1(1%)
Neuropathic pain 7(10%)	HIV/Drug peripheral neuropathy 5(7%)
	Phantom limb pain 1(1%)
	Post Guillan Barre Syndrome 1(1%)
Headaches 3(4%)	Migraines 2(3%)
	Stroke 1(1%)

Conclusion: Many referrals were patients with complications of previous neuroAIDS disease. Additionally, 2 HIVE cases were identified as a result of specialist assessment. Presentations with cognitive issues or neuropathic pain were more likely to be associated with HIV related neurological disease, compared to presentations with tremors or headaches. Some conditions were multifactorial, with HIV as a contributing factor. The results highlight the benefits of joint HIV and neurology specialist input in these settings.

P106

Acute hepatitis C in HIV: A review of management and auditable outcomes comparing with the 2013 BHIVA Hepatitis Guidelines – an inner city teaching hospital experience

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Background: Estimated Global Hepatitis C (HCV) prevalence is 3%. UK HCV prevalence is 0.4% and 9% in people living with HIV (PLWHIV). Our aim is to evaluate the management of acute HCV in PLWHIV, in a tertiary centre, based on the 2013 BHIVA guidelines.
Method: Data was collected between 01/01/13 and 31/12/13. All patients diagnosed with acute HCV were included in this audit. Data were collected from the patient records.
Results:

- There were 23 patients diagnosed with acute HCV during this 1year period. 50% of were aged between 31-40 years.
- 92% of acute HCV was seen in men who have sex with men (MSM).
- 8% in this cohort had a history of recreational drug use, but 48% did not have this information documented. 34% had syphilis, 40% had gonorrhea, 17% had chlamydia, 4% had herpes, 8% had LGV within 12 weeks of acute HCV.
- 39% of patients had HCV RNA measured as a screening test.
- All but 1 patient had their HCV genotyped (one was lost to follow up). 3 failed to amplify because of low level HCV RNA. 50% had genotype 1, 44% genotype 4 and 6% genotype 3.
- Monitoring RNA at baseline, weeks 4, 8, 12 and 24 was done in 100%, 78%, 57%, 74%, and 52% respectively.
- All the patients who failed to achieve a decrease of 2 log in HCV RNA at week 4 or had a positive HCV RNA at week 12 were offered therapy. 5 cleared spontaneously and 1 patient cleared HCV with 24 weeks of telaprevir-based therapy.
- 16 patients elected not to have treatment at the acute stage, preferring to wait for directly acting antivirals (DAA).
- 61% were on HAART at the time of acute HCV diagnosis. Those with a CD4 count below 500 were commenced on HAART.
- 65% of the patients had a liver fibrosis assessment within the first year of diagnosis.
- Of the patients who had elevated liver enzymes at the time of diagnosis, 44% were tested for hepatitis E and one had evidence of previous infection.

Conclusion and Recommendations: We achieved 100% of auditable outcomes (all eligible patients were offered treatment and the 1 patient was successfully treated with 24 weeks of pegylated interferon, ribavirin and telaprevir). 94% of acute HCV were GT 1 or 4. Increasing number cases of

acute HCV and concurrent STIs raises concern regarding transmission. Urgent need for DAAs in acute HCV, as patients are deferring treatment (16/22).

HIV Testing, Epidemiology and Surveillance

P107

Trends in undiagnosed HIV and HIV testing behaviour in community samples of men who have sex with men in London, UK: Results from repeat cross-sectional surveys between 2000–2013

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Background: HIV testing can reduce undiagnosed and late HIV diagnosis. We examine trends between 2000-2013 of overall and undiagnosed HIV prevalence, and HIV testing among men who have sex with men (MSM) and factors associated with it.
Methods: Repeat cross-sectional anonymous behavioural surveys with oral specimens for HIV antibody (Ab) testing were conducted in community venues in London. Participants were treated as undiagnosed HIV+ if they tested HIV Ab+, and had never tested for HIV, last tested or perceived themselves as HIV negative, or did not know their HIV status. Undiagnosed fraction is the proportion of undiagnosed HIV Ab+ results of the total number of HIV Ab+ results. Trends between 2000-2013 and factors associated with undiagnosed HIV and HIV testing among perceived HIV negative/unknown status men (2011 and 2013 data) were examined using logistic regression. Adjusted odds ratios (AOR) and 95% confidence intervals (CI) were calculated.
Results: The majority of 11876 men included in the analysis were White, employed with median age of 33 years. No trend in overall and undiagnosed HIV prevalence was observed. In 2013, overall and undiagnosed HIV prevalence was 13.6% (106/782) and 3.2% (25/782) respectively. Overall undiagnosed fraction remained unchanged: 34% (45/131) in 2000 and 24% (25/106) in 2013. Undiagnosed fraction among sexual health clinic non-attenders in last year also remained unchanged: 62% (23/37) in 2000 and 59% (10/17) in 2013. Ever HIV testing increased: 63% (629/997) in 2000 to 91% (709/777) in 2013. HIV testing in the last year increased: 26% (263/997) to 60% (467/777) and among undiagnosed HIV+ men, it increased from 28.6% (10/35) to 66.7% (16/24). Compared to men aged >45, men aged 15-25 (AOR: 7.47, 95% CI: 1.56-35.74); and compared to sexual health clinic attenders in the last year, non-attenders (AOR: 4.39, 95% CI: 1.90-10.16) were more likely to have undiagnosed HIV. Compared to non-attenders, sexual health clinic attenders (AOR: 35.59, 95% CI: 24.30-52.14); and compared to men with 0/1 sex partner in the last year, men with 2-4 partners (AOR: 1.59, 95% CI: 1.00-2.55), and >4 partners (AOR: 2.70, 95% CI: 1.76-4.16) were more likely to have tested for HIV in the last year.
Conclusions: HIV testing has increased yet undiagnosed HIV remains unchanged among younger MSM and non-clinic attenders. Effectiveness of increasing testing frequency and testing in non-sexual health settings to reduce undiagnosed HIV should be examined.

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An investigation into general practitioner perceptions on HIV testing in England

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Background: Late and undiagnosed HIV statistics in England suggest that the rate of HIV test offering lags behind national guidance on testing. Since general practice represents a key opportunity for the offer of a test, the Halve It coalition decided to investigate General Practitioner (GP) knowledge, current practice, and perceptions on the barriers and solutions to offering an HIV test at a practice and community level.
Methods: The Halve It Secretariat surveyed 93 GPs over the first two days of the RCGP Conference, ACC Liverpool 2–4 October 2014. Respondents were approached by Halve It representatives during conference recesses and confirmed they were practising GPs. Respondents were then presented with the survey on tablet devices.
Results: The responses of 88 GPs were analysed according to inclusion criteria. 37.5% of GPs did not know whether they practise in an area of high HIV prevalence. Almost 30% of GPs who practised in an area of high HIV prevalence believed that they practise in an area where HIV prevalence is not high. The majority of GPs were unaware of key national guidance documents, including NICE public health guidance 33 and 34, and the BHIVA/BASHH/BIS UK National Guidelines for HIV Testing 2008 (59.1%, 56.8% and 67.0% respectively). 86.4% GPs indicated that they test for HIV in their practice. The most frequently reported challenge to HIV testing for GPs was time pressure (27%). Respondents thought that the most important contribution to scaling up testing involves increasing public awareness (17%).
Conclusion: This survey highlights that HIV testing is possible and acceptable to GPs in practice and that the majority are offering some testing; however, there is a gap in GP knowledge and implementation of key national guidance. The bodies responsible for the development of HIV testing guidelines should take steps to encourage their adoption in general practice, while GPs should be given a greater opportunity for education on when to offer a test and how to overcome their perceived barriers to testing. GPs should be reminded that lengthy pre-test counselling is not required in the majority of cases. Government should focus on steps it can take to raise awareness of HIV testing and encourage greater provision and uptake in general practice, particularly in high prevalence areas. We believe these factors can help augment the HIV tests being appropriately offered in general practice in line with national guidance.

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London initiative for glandular fever HIV testing for diagnosis of primary HIV infection: Initial results

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Background: Undiagnosed HIV infections are driving the HIV epidemic with more than a half of new infections being acquired from individuals with primary HIV infection (PHI). PHI is a clinical differential diagnosis of glandular fever (GF) like illness. Despite clinical guideline recommendations and printed advice on GF results, local research showed low levels of concomitant HIV tests in GF screens. The LIGHT (London Initiative for GF HIV Testing) project aims to increase PHI diagnosis through inclusion of an opt-out HIV test in electronic GF screen panels in a high HIV prevalence area (Lambeth & Southwark).
Methods: We describe HIV testing practice prior to and following the introduction of the LIGHT project. The retrospective analysis of GF screens requested was undertaken in 2013 to ascertain concomitant HIV testing rates. The LIGHT project initiated in July 2014 for GP's using the St Thomas' Hospital laboratories of ViaPath. Electronically requested GF screens underwent HIV testing on an opt-out basis for patient's >16 years (GF+ test).
Results: Between January & December 2013, 880 requests for GF screens for patients >16 years were received from 66 practices. 44% (388/880) of the GF tests were requested by only 15% (10/66) of practices. 34% (295/880) had a concomitant HIV test requested. The average number of monthly requests for concomitant HIV tests was 28. HIV prevalence for these tests was 1% (3/295). All three cases were male aged 30-39 years. Preliminary data from the first 5 months of the LIGHT project show that 60% (193/322) of electronically ordered glandular fever screens now have an HIV test included. The equivalent number of concomitant HIV tests from practices not using electronic ordering was 9% (12/138) during this period. Within the GF+ screen, 2 HIV diagnoses were made (1 patient was negative July 2014, but p24 antigen positive on GF+ screen August 2014).
Conclusions: We found a skewed GF screen requesting pattern in our baseline analysis suggesting variation in clinical practice between primary care practices. Only a third of GF screen requests in this high prevalence area

had a concomitant HIV test. Preliminary results suggest that the automated addition of an opt out HIV assay in the diagnostic laboratory panel for electronically requested GF screens can increase concomitantly requested HIV tests, targeting a high prevalence group and with the potential for impacting on onward transmission with early diagnosis.

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Survival and causes of death among people diagnosed with HIV infection in England and Wales in the era of effective antiretroviral therapy

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Background: There has been a sharp decline in the number of deaths among people infected with HIV since the introduction of effective antiretroviral therapy (ART) in the mid-1990s. We describe mortality among persons diagnosed with HIV in England and Wales (E&W) in the era of ART, describing AIDS and non-AIDS causes of death.
Methods: Data on the national cohort of adults aged ≥15 years diagnosed with HIV in E&W between 1997 and 2012 were linked to data from the Office of National Statistics. Deaths to the end of 2012 were categorised into AIDS and non-AIDs causes using a modified CoDe protocol. Kaplan-Meier was used to examine cumulative mortality.
Results: 83,276 persons diagnosed between 1997 and 2012 contributed 443,818 person-years (pyrs) of follow-up. Over half (57%) acquired their infection through heterosexual contact and 40% through sex between men. By the end of 2012, 5,302 (6.4%) had died. Median age at death was 40 years (IQR: 33-50). Median time from diagnosis to death was 16 months (IQR: 1.3-57), with an age adjusted all-cause mortality rate of 116 per 10,000 pyrs. Survival probability of the whole cohort at one, five and ten years from diagnosis was 96%, 94% and 91%. Survival improved significantly by diagnosis year ($p<0.001$), with a 95% five-year survival probability of those diagnosed 2007-2012. Survival was directly related to CD4 count at diagnosis regardless of risk group; women generally survived longer than men. A definitive cause of death was available for 92% of the cohort; 46% (2,443) died of AIDS illnesses (52.7/10,000 pyrs). Of the 2,427 non-AIDS deaths, most were caused by non-AIDS infections (768; 32%; 16.8/10,000 pyrs), followed by: non-AIDS malignancies (388; 16%; 8.39/10,000pyrs), CVD and/or stroke (378; 16%; 8.33/10,000 pyrs), liver disease (234; 9.6%; 5.10/10,000 pyrs), accident or suicide (190; 7.8%; 4.25/10,000 pyrs) and substance abuse (121; 5.0%; 2.69/10,000 pyrs); 14% (348) died of other causes (7.51/10,000 pyrs).
Conclusion: Survival continues to improve in the era of ART. However, a large number of HIV-diagnosed persons continue to die of AIDS, despite the availability of free HIV care and treatment in the UK. These findings highlight the importance of prompt HIV diagnosis, ART adherence and linkage to and retention in care in reducing mortality among persons living with HIV. Optimal management of co-morbidities like liver disease, CVD, mental health and substance abuse may further reduce mortality in the coming years.

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HIV and hepatitis C (HCV) amongst men who have sex with men (MSM) previously infected with *Lymphogranuloma venereum* (LGV): A 10-year retrospective analysis in a central London clinic

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Background: *Lymphogranuloma venereum* (LGV) has been reported amongst MSM in London with a large proportion co-infected with STIs including HIV and hepatitis C (HCV) either due to high risk behaviour or the ulcerative nature of LGV. We aimed to determine the prevalence of pre-existing or new HCV infection amongst MSM who presented with LGV.
Methods: Demographic, behavioural and STI data were reviewed for 193 cases of LGV diagnosed at a London GUM clinic from 2004-2014. Definitions: LGV case - *Chlamydia trachomatis* serovar L2 positive; pre-existing HCV – HCV Ab pos at LGV presentation; subsequent HCV - HCV RNA neg at 2 months and/or HCV Ab neg at 4 months post LGV, followed by HCV pos test.
Results: 168/193 cases were known HIV positive or newly diagnosed at the time of LGV diagnosis; 4 were status unknown. 21 were HIV negative, of whom 12 later acquired HIV (57.1%; 95% confidence interval (CI) 35.9-78.3), at a median 549 days post LGV diagnosis (IQR 104-1171). 50.5% (97/193) remained HCV Ab/RNA negative by Dec 2014. 29.5% (57/193; 23.1-35.9%) were already or became HCV co-infected, comprising 13.0% (25/193; 8.3-17.7%) with pre-existing, known HCV, 6.7% (13/193;3.2%-10.2%) with pre-existing HCV diagnosed at the time of LGV and 9.8% (19/193) who tested positive later. 4.6% (9/193; 1.6-7.6%) met our definition for subsequent infection (median of 647 days later (IQR 337-1246)); in the remainder the timing was not certain. 20.2% (39/193) were not tested for HCV. MSM with LGV reinfection (16 cases, rate 10.4%) had a higher prevalence of concurrent HCV (75% vs 28%; OR 10.55, 95% CI 2.0-55.3) than those with one episode. Re-infection cases had a higher prevalence of subsequent HCV infection (80% vs 15.8%; 25.3, 4.9-131).
Conclusion: The HCV prevalence among LGV cases was high (29.5%); higher than in the cohort of HIV positive MSM as reported previously (7.7%). Of those not already infected, a high proportion became infected with HIV (57.1%) and/or HCV (4.6%), a median of nearly 2 years later. This suggests ongoing high risk of infection beyond the period of active infection with LGV. Variation in testing frequency may have affected the median time to new infection. All cases of LGV (but multiple LGV infections in particular) should be re-screened regularly and offered risk reduction interventions.

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Requests, returns and retentions: Ways to improve the outcomes of a regional HIV home sampling service

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Background: Despite improved HIV testing in genitourinary medicine (GUM) clinics, 24% of people with HIV remain undiagnosed. Men who have sex with men (MSM) are disproportionately affected by HIV and novel ways are needed to improve access to testing and retention into care. Home sampling services have shown return rates of 59.0%, and retention into care rates of 66.4%. We developed a regional HIV home sampling service to improve MSM testing, with the addition of a text reminder and phone call to improve returns. Reactive tests were highlighted to the local GUM clinic of residence prior to the result delivery to facilitate HIV confirmatory testing and entry into care.
Methods: MSM aged over 18 years in the region ordered 4th generation dried blood spot tests online, or picked up from a community outreach venue. The patient collected the sample and returned it to our lab, where the results were processed and fed back. Demographic data, HIV risk factors and test results were collected and analysed.
Results: 1409 HIV sampling kits were ordered from 08/11/13 to 29/12/14, with an average request rate of 101 per month. Social media advertising increased the daily request rate from an average of 3.4, up to 55 on one day. Median age was 25 (range 16-67) and 1404 (99.6%) were male. 1351 (95.9%) requests were from the study region, with the remaining out of region, or unknown. 936 kits were returned to the lab. The median time for kit return was 7 days (range 1-342 days) with 757 (80.9%) returning within 2 weeks. After 7 months an optional 2 week text reminder, followed by a 4 week phone call were introduced to improve return rates. This increased the overall return rate from 68.8% to 73.4%. In those consenting to a text reminder the return rate was improved to 80.3%. The follow up phone call provided opportunities to remind patients about the test, provide advice about testing and resend misplaced tests. There were 9 (1.0%) positive tests, all were informed, and 8 (88.9%) were seen by GUM and retained in care. 6 (66.7%) were seen within a week of diagnosis.
Conclusions: Our study shows a feasible and cost effective method of increasing HIV sampling kit return rates up to 80.3%, far above the return rates of previous community sampling projects, via the introduction of a text reminder service. Social media and community group advertisement improved the test request rate and the involvement of local clinics within our results process increased retention into care.

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Routine HIV testing on an Acute Admissions Unit (AAU) is feasible and affordable, but a challenge to sustain

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Background: HIV testing guidance recommends routine HIV testing of adults admitted to hospital in areas of high HIV prevalence (>0.2%). There are a lack of data to support the efficacy, feasibility and sustainability of this recommendation.
Methods: AAU clinical staff implemented and delivered routine HIV testing on AAU to adults 16-65 years in an area of HIV prevalence of 0.9%. Staff in the sexual health (SH) department prospectively tracked key outcome measures (HIV test offer rate; HIV test uptake; HIV prevalence). We employed sustainability and quality improvement methodologies to improve (and sustain) testing rates. Plan-Do-Study-Act (PDSA) interventions from the SH and AAU teams included delivery of education and training to medical and nursing staff; electronic and paper HIV testing prompts; introduction of oral fluid HIV tests; identification of AAU staff champions; and individualised feedback. Here, we describe the key outcome measures over the first 21 months, and characteristics of patients newly diagnosed with HIV. As a secondary outcome, we calculated the cost per new diagnosis, accounting for non-pay costs only.
Results: Of 8566 age-eligible admissions to AAU, 1027 (12%) were offered and accepted an HIV test. Total test offer rate is unknown, as completion of data capture form on the electronic patient record is unreliable, but the fraction tested varied from 3 - 23% with marked week-week and month-month variation. Most PDSAs generated positive changes in the fraction tested, but few generated sustained change over time. Seven individuals were newly diagnosed with HIV infection (prevalence: 0.68% [95%CI 0.30-1.43%]). All presented with HIV indicator conditions and 50% had CD4<200/mm^3. The cost per new diagnosis was £735. SH staff time to monitor the outcome measures and facilitate PDSAs was approximately two hours per week.
Conclusions: Routine testing has been sustained over 21 months, but overall coverage is poor. PDSAs generate change, but positive change has been a challenge to maintain. Discussions suggest rapid junior staff turnover, rotational senior leadership, and competing quality standard targets as key barriers, plus minor logistical issues. Attitudes are generally supportive. The observed HIV prevalence supports routine testing, and the cost per new diagnosis is affordable, but SH staff costs to support the programme are not inconsiderable. Both SH and AAU staff remain committed to striving to embed HIV testing in this setting.

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Do UK specialty guidelines recommend testing for HIV indicator diseases?

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Background: UK National Guidelines for HIV testing were published in 2008 by the British HIV Association (BHIVA), British Association of Sexual Health and HIV (BASHH) and the British Infection Association (BIA). The guidelines identify 11 AIDS-defining conditions (ADC) and 37 clinical indicator diseases (CID) for which HIV testing is recommended. Clinicians managing these diseases may not be aware of HIV testing guidelines; therefore it is important that all UK specialty guidelines relating to these ADCs and CIDs recommend HIV testing.
Methods: We searched for ADC and CID guidelines using relevant specialty Society, Association or College websites, the National Institute of Clinical Excellence (NICE), NICE Clinical Knowledge Summaries (CKS), the Scottish Intercollegiate Guidance Network (SIGN) and Google (including related synonyms of diseases). The most recent guideline on each ADC or CID was considered. HIV- specific and BASHH sexually transmitted infection guidelines were not included. We examined each guideline to determine if HIV testing was recommended for patients diagnosed with a clinical indicator condition.
Results: We identified guidelines for 5 of 11 ADCs (45%) and for 26 of 37 (70%) CIDs. A total of 60 guidelines were reviewed comprising 37 specialty guidelines and 23 NICE CKS; median 1 (range 1-14) guidelines were identified per disease. HIV was mentioned in 16 of 37 (43%) specialty guidelines and testing was recommended in accordance with the UK national HIV testing guidelines in 13 of 37 (35%). For NICE CKS, 10 of 23 (43%) mentioned HIV and 7 of 23 (30%) recommended testing, p=0.76 for difference between specialty guidelines and CKS (Fisher's exact). We identified at least one guideline recommending HIV testing for 2 of 11 (18%) ADC and 9 of 37 CID (24%). One BASHH guideline failed to recommend HIV testing for the CID vulval intraepithelial neoplasia. Guideline publication year ranged from 2001 to 2014, of which 11 of 60 (18%) were published prior to 2008. No association was observed between the recommendation to test and year of publication, p=0.24 (Mann-Whitney test).
Conclusions: The majority of specialist guidelines for CIDs do not recommend HIV testing. BHIVA, BASHH and BIA should engage with relevant guideline development groups, including NICE, to make the case for HIV testing to be recommended in future guidelines in order to maximise opportunities for diagnosis.

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Missed opportunities: An audit of and attitudes of staff towards HIV testing in the emergency department

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Background: The Royal College of Emergency Medicine guidelines state that HIV testing in the Emergency Department (ED) setting should be performed when it influences immediate clinical management and improves patient care. BHIVA guidelines recommend ED opt-out testing in certain situations, and also considering universal testing when prevalence exceeds 2/1000. The area served by the ED audited has an HIV prevalence of 6.5-8.5/1000.
Method: We audited the number of patients who presented to the Emergency Department diagnosed with Bacterial Pneumonia (an indicator condition) between October 2013 and April 2014 to examine how many patients were offered an HIV test during their Hospital visit. In addition we surveyed FY2 Doctors working in the Emergency Department to establish their attitudes towards HIV testing.
Results: Of 160 patients diagnosed with Bacterial Pneumonia, 15 (9%) had an HIV test. 3 of these patients had their test in the ED, with the majority of tests (9) performed in the Emergency Admissions Unit. There was a bias towards testing 36-45 year old patients (p=0.007 CI 4.35%-56.8%), and neglect of those aged 56 or older (p=0.038 CI 3.9-40.5%). When surveyed as to barriers towards HIV testing, 88% considered the ED appropriate for testing, and 94% felt comfortable in gaining consent for the test in the ED setting, but only 23% knew of the guidelines for offering an HIV test, and 6% knew of the referral pathway once a positive test had been returned. 71% felt that there was not enough time for HIV testing in an ED setting.
Conclusion: Despite staff considering the ED an appropriate setting for HIV testing, and being comfortable in gaining consent for an HIV test, we found that HIV testing in patients with Bacterial Pneumonia does not meet BHIVA guidelines, similar to the low adherence observed in other settings. In addition, those aged over 56 years old remain an under-tested group, considering the growing trend of HIV in the elderly population. We can consider these missed tests missed opportunities in earlier diagnosis of HIV, and therefore a missed opportunity in reducing transmission rates and improving health of these individuals. Barriers identified that may explain this include a lack of time in a busy ED setting, and a lack of knowledge of guidelines. We therefore propose for a more robust education of guidelines amongst Emergency Department staff, and the availability of rapid HIV test kits in the ED setting.

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The HIV Care Cascade: 'Gap' analysis of those linked to, but not retained in care

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Background: The HIV Care Cascade model, increasingly utilised to assess efficacy of care within HIV positive populations, has identified significant gaps between the proportions linked to, versus retained in care. We aimed to apply this model to explore differences in characteristics of those linked to, but not retained in care (NRIC).
Methods: In a prospective cohort of patients attending a tertiary referral HIV service, we defined patients NRIC as those without a clinic visit or routine diagnostic test within the previous 6 months. We attempted direct and indirect (through GPs / next of kin) contact with those NRIC, classifying their current status as emigrated, transfer-of-care, deceased, stopped attending but contactable and lost to follow up (LTFU) (un-contactable with no further information available). Using parametric and non-parametric analyses, we compared demographic and disease-related characteristics of those NRIC and LTFU, to those retained in care (RIC).
Results: Of 1000 patients linked to care, 213 (21.3%) were NRIC. Compared to those retained in care, those NRIC were more likely younger and of African origin (P=0.045). There was no significant difference in transmission risk between groups. Of those NRIC, 56 (26.3%) emigrated, 27 (12.7%) transferred care, 15 (7.0%) stopped attending and 38 (17.8%) had died, with non-AIDS conditions (17(44.7%)) unnatural death/misadventure (7 (18.4%)) and AIDS (7(18.4%)) the commonest causes of death. As a result of direct contact, 6/15 (40%) of those not attending reengaged with care. Recalculating the cascade, excluding those who died, emigrated or transferred care, the percentage of those linked to and who are retained in care rises to 89.5% (787/879).

	RIC	NRIC	p	LTFU	p
Age (Mean(SD))	41.0(5)	38.3(9)	0.001	37.6(9.6)	0.003
Male gender	466(59.2%)	127(59.6%)	0.9	45(58.4%)	0.9
Transmission risk					
Injecting Drug Use	167(21.2%)	54(25.4%)	0.09	12(15.6%)	0.4
Heterosexual contact	397(50.4%)	98(46%)		44(57.1%)	
Homosexual contact	166(21.1%)	37(17.4%)		12(16.9%)	
African Race	281(35.7%)	92 (43.2%)	0.045	43(55.8%)	0.1

Conclusion: There is a significantly higher proportion of people of African origin not retained in care. Interestingly there is no significant difference in the number of injecting drug users in the NRIC group. That 40% of those not attending re-engaged in care as a result of direct contact suggests that regular 'gap' analyses can contribute to better overall patient retention.

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Review of missed diagnoses of HIV at a tertiary referral centre from 2007–2014

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Background: Missed diagnoses of HIV are cause of significant avoidable morbidity and mortality. Many HIV patients remain undiagnosed. Recent guidelines suggest broader scope for HIV testing within healthcare settings to reduce poor health and economic consequences as a result of late diagnosis.
Methods: We reviewed all missed HIV diagnoses at our centre from years 2007-2014; classified as those diagnosed from 2007-2014, with prior healthcare attendance since universal testing guidelines were introduced, who did not receive an HIV test. These were classified as "missed opportunity" i.e. hospital contact but no indicator illness, or "missed diagnosis" i.e. met diagnostic criteria with HIV indicator illness. Outpatient appointments were classified as simple, or complex depending if invasive procedures were required. Frequent attenders were those with 2 or more attendances per year, compared to standard of care for patients with HIV undergoing routine review as per BHIVA standards.
Results: There were 3555 new diagnoses. Of these, 43 were missed at CWH; 13 patients with "indicator illness" which should have prompted HIV testing. This group had median CD4 285 X 10*9 cells/L, 20.2%, range (51- 1009 X 10*9 cells/L, 6.1- 58.2%). The total number of attendances by these patients during this period was 109; 98 outpatient appointments; (86 simple [median 6, range 0-22], 12 complex [median 0, range 0-7]); 11 inpatient admissions, (total of 15 inpatient days from these admissions, median 2 days (range 1-5 days)). 10 patients met criteria for frequent attendance; median attendances 3 (range 2.2- 15.5). 30 patients had no "indicator illness"; 15 MSM who should have undergone screening as per National testing guidelines, and 14 patients who should have received screening as standard of care within a high prevalence area. This group had median CD4 302 X 10*9 cells/L, 23.8%, range (45- 728 X 10*9 cells/L, 5.7- 23.8%).
Conclusion: We identified a number of patients who, despite healthcare contact, or indicator illnesses, did not receive a HIV test. This group presented with a low median CD4, raising concern for poorer health outcomes. They had multiple attendances, which has healthcare cost implications. Universal HIV testing as recommended by NICE and BHIVA will help avoid missed opportunities for diagnosis.

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Effectiveness of opt-out HIV testing on a medical assessment unit in a high-prevalence area

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Background: In the UK a third of HIV infections remain undiagnosed and 25% are late diagnoses with significant mortality in the year following diagnosis. UK guidelines recommend routine HIV testing of all medical admissions where the HIV prevalence exceeds 2 per 1000. The prevalence in east London exceeds this at 6 per 1000. Testing rates in intensive care and emergency departments where universal testing is offered revealed testing rates of 52% (ITU) and 30% (ED), however previous audit in MAU found only 26% of patients with a clinical indicator condition were being tested. We audited HIV testing rates on a Medical Admissions Unit (MAU) employing an opt-out testing policy before and after an HIV testing campaign.
Methods: A pre-audit questionnaire was distributed to all doctors on the medical on-call rota to identify barriers to HIV testing on MAU. Following this, HIV testing rates were audited for all MAU admissions during 4 separate weeks between September 2013 and January 2014 before, during and after an NHS HIV testing campaign supported by education. Patients were identified using the acute medical take list and electronic records to determine whether or not HIV tests were performed according to local policy and whether indicator diseases were present.
Results: 232 patients were admitted to MAU during a week audited 2 months prior to HIV testing week; 20 (9%) were tested for HIV. During HIV Testing Week 177 patients were admitted to MAU of whom 49 (28%) had an HIV test and one patient was newly diagnosed with HIV. During the week immediately following HIV Testing Week 201 patients were admitted to MAU of whom 34 (17%) had an HIV test. During the final week two months following HIV Testing Week 212 patients were admitted of whom 25 (12%) had an HIV test. According to the doctor questionnaire, the most common reason for not performing an HIV test on MAU was the perception that the test was not clinically indicated. Other barriers included time constraints and awareness of the policy.
Conclusion: Despite an opt-out HIV testing policy on MAU, baseline uptake was only 9%. A hospital-wide campaign improved this only transiently within the MAU setting despite additional education and far better testing uptake in other parts of the hospital such as ITU and ED. MAU patients are managed by many different medical teams which may make it harder to enforce policies. This is an important factor to consider when planning where to test for HIV.

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Measuring undiagnosed HIV infection among GUM clinic attendees

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Background: In 2013 in the UK an estimated 107,800 people were living with HIV of whom around 24% were unaware of their status. Among those attending GUM services 71% accept testing but specific surveillance techniques are required to measure rates of infection among those not testing, leaving the clinic undiagnosed.
Methods: Unlinked anonymous seroprevalence surveys have been used since the late 1980s to monitor undiagnosed infection and in 2012 changes were made to the survey of GUM attendees to focus on patients not having HIV tests. Residual urine specimens were collected from men attending 22 sentinel GUM clinics during 2 collection periods between 2012 and 2014. Eligible men were those who were not known to be HIV positive, were not having an HIV test and were providing a routine urine sample. Specimens were tested anonymously for HIV infection and linked to six non-identifying data items. Positive specimens were tested for markers of ARV to allow exclusion of patients not declaring a known infection.
Results: A total 4,599 men were included in the survey of which 36 (0.78%) were positive for HIV. Prevalence was highest among MSM where 5.25% (29) were HIV positive compared to 0.15% (6) of heterosexual men. Higher prevalences were also observed among men born in sub-Saharan Africa and men of black African ethnicity. Prevalence varied significantly by clinic and London clinics had a higher prevalence. The majority of untested patients (81%) had declined an HIV test and of those 0.91% (34/3,719) were HIV positive compared to 0.15% (1/670) among men for whom a test was deemed inappropriate. Of those declining testing, most reported not having had a test in the last 3 months, there was no significant difference in prevalence between those who had tested recently and those that hadn't. Limitations of the survey are that we could only include men as women do not routinely provide urine samples. The response rate was low, only 20% of the estimated samples available were submitted. The urine Ab assay developed for the survey is a suitable surveillance tool but has a less than optimum sensitivity this may have led to an underestimation of prevalence.
Conclusions: Data from this survey show rates of undiagnosed HIV infection among men not testing in GUM that vary significantly by sexual orientation, clinic location, country of birth and ethnicity. However prevalence in heterosexuals in particular was relatively low. Most untested patients had been offered a test but had refused and reported not having had a test in the last 3 months. However, the same rates of infection were found in men who had tested recently as those who had not. Continuing efforts to increase rates of HIV testing in GUM services particularly among MSM, even those who report recent testing can increase HIV diagnoses in those already attending GU services. However these data suggest that this alone will not be enough to address rates of undiagnosed infection in the population particularly in heterosexuals.

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Routine opt-out HIV testing in the emergency department: feasible and acceptable

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Background: Routine HIV testing in non-specialist settings has the potential to significantly reduce late diagnoses. We report a 3 month pilot exploring feasibility and acceptability of HIV testing in an Emergency Department (ED) at a busy London teaching hospital.
Methods: Between March-May 2012, all patients aged between 18–65 years attending the ED, were offered opt-out HIV testing by ED clinical staff. Patients were given information leaflets on HIV, including how to obtain results. Multivariable models were run to determine predictors for offering (feasibility) and accepting (acceptability) an HIV test. Information regarding reasons for not offering an HIV test and reason for patients declining was also recorded.
Results: During the study period 24,171 patients aged 18-65 were seen in the ED. Data was collected from a convenience sample of these patients who underwent serological investigation (5,657). The mean age was 38 years; 57% female and 27% white. 48% were offered HIV testing, of which 65% accepted. Patients 47 years were more likely to be offered HIV testing, particularly those aged 28-35 (aOR:1.65, 95%CI:1.42-1.92). Male patients were more likely to accept (aOR:1.34, 95%CI: 1.14-1.58). 'Recent HIV test' (38%) and 'I do not want to know (my status)' (31%) were the commonest reasons for declining a test. One new HIV diagnosis was made.
Conclusion: Our experience demonstrates that routine HIV testing in the ED is feasible and acceptable. However to make HIV testing effective and part of routine clinical care, considerable clinical leadership, staff training and additional resources are required.

P121

Evaluation of the Cepheid Xpert® HIV-1 Viral Load assay

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Background: HIV viral load measurement is used to determine prognosis and monitor the success of antiretroviral therapy. Xpert® HIV-1 Viral Load (Cepheid) allows the quantification of HIV-1 RNA from plasma in 1 hour 30 min with limited hands on time. Nucleic acid extraction, amplification and detection occur in a single cartridge with multiple internal assay controls. Our aim was to compare the results of the Xpert® assay with our routine assay in clinical samples and to determine the performance against an external quality control panel.
Methods: After routine testing with the Abbott RealTi*m*e HIV-1 assay, leftover plasma from known HIV-1 positive adults were anonymised and tested on the Xpert®. The limit of quantification for both assays is 40 genome copies/ml. Samples were stored at -20°C prior to testing. A total of 183 plasma samples were tested on the Xpert®: 99 samples collected consecutively between 12/05/2014 - 26/05/2014 and a further 84 with an Abbott result of >40 copies/ml from 31/03/2014 - 28/07/2014. Two panels of Quality Control for Molecular Diagnostics (QCMD) HIVRNA14B were tested and results compared to the final distribution report to determine performance. Samples were vortexed for 15 sec, centrifuged (14,000 rpm; 15 sec) and 1 ml loaded into the assay cartridge. Negative and positive external controls were tested every day. Ethical approval was granted by NHS Lothian SAHSC BioResource.
Results: In total 97 samples were quantified by both assays and results correlated well ($r = 0.982$; $R^2 = 0.963$). Of the 99 consecutively collected samples, 98 had a valid result. Of these, 63 (64.3%) had qualitative results that agreed on both platforms. Fourteen (14.3%) samples were quantified >40 copies/ml by Abbott but <40 copies/ml or negative by Xpert® (Abbott median 59 copies/ml, range 40 – 131). Xpert® detected <40 copies/ml HIV in 19 (19.4%) samples negative by Abbott. The QCMD quantitative score was five on both runs with two subtype C samples being significantly under-estimated and one subtype B sample on each run being slightly over-estimated. Points are awarded based on the distance from the median result of all respondents in the distribution (n = 95), 70 (73.7%) respondents attained a score below five. Reasons for this are being investigated
Conclusion: Xpert® HIV-1 Viral Load performed reasonably well in clinical samples; the Xpert® platform enables point of care testing and could change patient management pathways.

P122

Providing rapid HIV testing in their homes for men who have sex with men, recruited via social media

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Background: In an English county with HIV prevalence of 1.7 per 1000 the three main towns have HIV prevalence >2 per 1000. The latest data from Public Health England suggests that 24% of HIV infections remain undiagnosed, the greatest number being amongst men who have sex with men.
Terrence Higgins Trust (THT) uses accounts on social media to provide health promotion to MSM.
Methods: Inspired by door-to-door HIV testing programmes in South Africa, the local sexual health service approached THT to suggest using its accounts

with the social media websites *Facebook*, *Grindr* and *Squirt* to offer rapid HIV testing in the homes of MSM recruited via social media. A survey was placed on *Facebook* while THT-worker approach was used on *Grindr* and *Squirt*. Testing was offered in one town and its immediate environs on Friday evening and Saturday afternoon during International HIV Testing Week 2014.
A clinical nurse specialist in HIV and HIV services coordinator (THT) visited men together; personal safety was assured using mobile phone technology and THT's remote provider; the test used was the *Insti HIV1/HIV2 Rapid Antibody Test*. Men were provided with information about local services, post exposure prophylaxis, condoms and lube.
Results: On *Facebook* 103 people clicked on the survey; 6 people completed it; 3 requested a HIV test at home and 2 made appointments. On *Grindr* THT approached 152 men online; 20 engaged in 'chat'; 6 requested a HIV test at home and 3 made appointments. *Squirt* elicited 50 contacts; 3 men engaged with THT online; no tests were requested. 5 rapid HIV tests were performed in the homes of MSM; the results were all HIV not detected. One man (age 38) had never had a HIV test; three estimated that it was many years since last testing; only one man was registered at the local sexual health clinic and had tested 2 years previously. All had engaged in unprotected anal intercourse; one had a partner recently diagnosed HIV positive. No tests were performed on the Friday evening.
Conclusion: Although a small number of tests were requested, these MSM proved to be at high risk of HIV acquisition and had either never tested or had not tested for many years. This pilot initiative demonstrates that home testing for MSM, recruited via social media may be successfully utilised to test hard to reach MSM at risk of HIV. Home testing MSM recruited via social media could be further piloted in areas with a higher population of resident MSM and higher HIV prevalence.

P123

Barriers and enablers to routine HIV testing in colposcopy clinics in Liverpool: A qualitative study

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Background: Identifying HIV infection early is key to successful treatment and may also improve treatment outcomes of high-grade cervical intraepithelial neoplasia (CIN2+) among HIV positive women. However, a significant proportion of HIV in the UK is diagnosed late and nearly a quarter of people living with HIV remain unaware of their infection. Previous research in UK colposcopy clinics shows that routine HIV testing is both feasible and acceptable yet, few colposcopy services offer routine testing. We describe barriers and enablers to routine HIV testing from the perspectives of colposcopy service providers and users; and report on identified opportunities and methods for its integration in Liverpool colposcopy clinics.
Methods: This qualitative study was conducted at colposcopy clinics of the Royal Liverpool Hospital and Liverpool Women's Hospital. We purposively selected 10 colposcopy service providers and 28 patients for semi-structured interviews. We also conducted direct structured observations to understand the broader colposcopy context. We used the framework approach to analyse data and triangulated findings from interviews and observations to identify barriers, enablers and opportunities for HIV testing in colposcopy.
Results: We found willingness and high acceptance to testing among patients despite experiences of raised anxiety related to colposcopy. Our findings suggest that normalizing HIV testing through routine offers in colposcopy and educating women on the link between HIV and CIN2+ as well as benefits of testing may play an important role in removing fear, stigma and discrimination barriers. Our findings suggest it is possible to offer HIV testing to patients alongside cervical screening tests and/or during colposcopy follow-up visits. However, service providers' reluctance due to unfamiliarity with HIV testing discussions, time constraints and concerns' over patients' negative experience were identified as significant barriers.
Conclusion: HIV testing in colposcopy is acceptable, needed and it is possible for testing to be routinely offered during follow-up visits. Since the numbers of previously untested individuals were found to be small the anticipated impact on clinic function may be very little in order for this important, simple and potentially lifesaving diagnostic intervention to be implemented. Barriers and enablers to testing among older women require further investigation.

P124

Analysis of an HIV cohort cascade in the context of the UNAIDS 90:90:90 strategy

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Background: Recognition that effective antiretroviral therapy (ART) can prevent transmission of HIV, has led to an international strategy from UNAIDS, increasing the targets of HIV detection and care linkage, ART coverage and ART efficacy to >90%. We aimed to determine alignment with this strategy through analysis of the treatment cascade in the cohort attending our tertiary referral HIV service.
Methods: Analysis of retrospective data from our cohort, comprising all patients with HIV linked into care, with ≥1 attendance to the Infectious Diseases service, then determined the proportion retained in care (defined as those with either 2 documented clinic attendances and/or diagnostic tests ≥3 months apart or ≥2 ART drug dispensations ≥3 months apart within the preceding year). We then calculated the proportion of those retained in care who were on ART and the proportion of those who were virally suppressed, defined as HIVRNA ≤40 cps/ml for at least 3 months, comparing characteristics between these groups using parametric analyses.
Results: Of 1001 patients linked to care, 59.3% were male, mean (SD) age was 40.4 (9.5) years and 37% were of African origin. HIV transmission risk included heterosexual sex (50%), intravenous drug use (IVDU) (22.2%) and homosexual sex (20.9%). Of those linked to care, 78.7% were retained in care, of whom 91.5% were on ART, with 89.9% of those on ART virally suppressed. Those on ART who were virologically suppressed were significantly older (42.0 (9.5) vs 39.0 (8.7) years, $P<0.01$)] and less likely to be IVDU (19.2% vs 41.3%, $P<0.001$) but did not differ in gender or race/ethnicity.
Conclusions: Target goals set out by UNAIDS in 2014 include increasing to 90% the proportion of people living with HIV who know their diagnosis, 90% the proportion of people with HIV receiving ART and 90% the proportion of people on ART virally suppressed (the 90:90:90 concept). These data suggest that at least 2 of these 3 targets are achievable within a contemporary European cohort of HIV patients. The largest deviation from the proposed target is in linkage to care, with 21.3% patients linked but not retained and suggest that greater research and focus of resources is required within this group in order to attain international targets for management of HIV infection.

P125

Reducing very late diagnosis of HIV infection in south west England using serious incident reporting (SIR)

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Background: The aims of the study were:
1. To pilot the use of Serious Incident Reporting (SIR) in the HIV clinic to enable root-cause analysis (RCA) of very late HIV diagnosis in primary and secondary care settings
2. To formulate and implement an action plan based on identified causes
3. To review whether the SIR and audit process were an effective catalyst for improving awareness of testing and preventing late diagnosis.

Very late diagnosis of HIV (CD4 <200 cells/mm^3 or AIDS condition) is detrimental to individual well-being, costly to NHS, and impacts public health as it allows opportunities for HIV transmission. SIR may be useful in identifying reasons for late diagnosis and missed opportunities for testing across the entire patient pathway. SIR must be discussed at the hospital executive level and therefore may provide the impetus for improving testing policies, and preventing future occurrences of late diagnosis.
Methods: Cases of very late HIV diagnosis were reported via SIR in two six month batches between January 2011 and June 2012 in Bournemouth and Poole, and Bristol (high prevalence areas). Case notes were reviewed for

missed opportunities for earlier diagnosis in primary and/or secondary care using RCA.
Results: 40/102 (39%) diagnoses were very late. Of these, 33 lived in the study areas. 66% were male and ages ranged from 30 to 67 years. Black African (n=9, 27%) and Eastern European (n=4, 12%) ethnicities were over-represented compared to the background population although the majority were white British (n=17, 52%). Nearly all patients had one risk factor for HIV acquisition and 13 (39%) had 2 or more. Frequently identified risk factors included men-who-have-sex-with-men (n=11), partner HIV-positive (n=11), patient from high prevalence area (n=7) or from sub-Saharan Africa (n=5). The majority of individuals (80% for audits 1 and 2 in Bournemouth and Poole, 60% and 75% in Bristol for audits 1 and 2 respectively) had clinical indicators (CI) for HIV. Actions from SIR included increasing awareness of clinical indicators, HIV education days within primary care, and initiatives to increase testing within hospital specialities.
Conclusions: SIR was effective in raising awareness across the health community of the need for improved HIV testing strategies and should be recommended as a tool for achieving earlier HIV diagnosis. Ongoing education for health professionals of risk factors and CI for HIV testing are paramount.

P126

Audit of HIV testing in adult patients, aged over 16, admitted to an acute care unit for medical and surgical patients, January to April 2014 inclusive

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Background: The 2011 HINTS study addressed the feasibility and acceptability of implementing the 2008 National HIV testing guidelines, including in an Acute Care Unit (ACU). The purpose of this audit was to review rates of HIV testing, in our ACU which has an opt-out policy. Local diagnosed HIV prevalence is 8.25/1000.
Methods: Electronic patient records (EPR) were searched for all ACU admissions. Data were collected on demographics, admitting speciality, presenting complaint, HIV tests and results. For new positives, data were also collected on time from diagnosis to CD4 count result, baseline CD4 and viral load (VL), time to starting antiretroviral treatment (ART), retention in HIV care and partner notification (PN).
Results: There were 2251 eligible admissions. 80.2% were medical admissions and 18.5% surgical. The mean age was 57years. 8.4% were Black African (BA). Overall, 24.3% had an HIV test. Higher proportions of under 60s (33.3%) and BAs (37.9%) were tested compared with over 60s (14.1%) and all other ethnicities (23%). 26.5% of medical admissions were tested versus 15.3% of surgical. 17.1% presented with symptoms suggestive of a clinical indicator condition (CIC), of which 37.9% were tested versus 21.4% of those without symptoms suggestive of a CIC. These differences in testing rates by age, ethnicity, admitting speciality and symptoms were all statistically significant using a Chi-square test ($p<0.01$). 1377 patients met the HINTS inclusion criteria, of which 32.6% were tested versus 30% in the HINTS ACU. There was 1 false positive and 4 confirmed positives. All positives were under 60; 2 were BA. 1 presented with seroconversion, 3 with CICs. Baseline CD4 counts were available within 1-10days, ranging from 55-487cells/mm3, median 120 cells/mm3. 2 started ART within 2weeks, 1 at 2months. 2 patients presenting with AIDS died within 3months. The other 2 remain in HIV care at 18months with undetectable VL. There were no further diagnoses as a result of PN.
Conclusion: The overall testing rate was similar to HINTS, showing the feasibility of opt-out HIV testing without extra resources to implement this. There was some evidence of more testing in higher risk groups. However, there is still much room for improvement. Locally, the opt-out policy should be reinforced across all specialities, particularly to surgery. Nationally, guidelines need to consider inclusion of surgical admissions for routine testing in high prevalence areas.

P127

Don't forget the children: An audit of the outcome of all children born to HIV-positive mothers in a large tertiary centre

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Background: The introduction of antiretroviral therapy (ART) has significantly reduced HIV-related morbidity and mortality therefore it is important to detect all HIV-positive children as early as possible in order to rapidly initiate treatment. Methods of identifying HIV-positive children include testing all pre-existing children of recently diagnosed women in addition to following up all newborn infants of HIV-positive women and testing any symptomatic children. The aim of this audit was to extend and update a previous one year audit in 2008- 2009 of 178 women which found that 6/138 (4%) of children under 17 years old born to HIV-positive women in the tertiary centre were untested (predominantly due to recent move to UK). Interventions to address this were put in place. The gold standard set for this audit was for 100% of children, aged 17 years or less, born to HIV-positive mothers, to be tested for HIV and for these results to be documented in the notes.
Methods: All women with HIV, cared for at a large tertiary centre, between March 2008 and December 2013 were included. Anonymous data regarding number of children and the HIV and Hep B/C co-infection status of their children were recorded in April 2014. All children are termed "offspring", with those 17 years or under being termed "children" who could still be at risk of undiagnosed mother-to-child transmission.
Results: 264 women were included of whom 260 (98%) had notes accessed. Ages of women ranged from <20 to > 60 years old. 172 women (66%) had 349 offspring, median 2 children each (range 1-9). 141/349 (40%) of all offspring had been tested for HIV. Reasons for offspring not being tested included: 1) Offspring being >17 years old after which the manifestation of vertically transmitted HIV is unlikely; 2) Offspring NOT living in the UK; 3) Mother having a documented negative HIV test >3 years after the offspring was born.
218 offspring were living in the UK, of whom 140 were children aged 17 or under. 139/140 (99.3%) of these UK children had been tested, and one family refused testing of their child and have moved back overseas. 12 (9%) are HIV-positive and 127 (91%) are HIV-negative. 1/172 women has hepatitis B and 1/172 have hepatitis C co-infection. From the notes audit the hepatitis status of the 2 children are unclear.
Conclusion: 99.3% of children born to HIV positive mothers in a large tertiary centre have been HIV tested. Improved documentation regarding hepatitis status is now needed.

P128

Views of the public regarding HIV home testing

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Background: Home sampling as a way of testing for HIV is already available. It offers an additional approach to HIV testing, which may help to reduce undiagnosed HIV and prevent late diagnosis. Previously, users of a home sampling service were asked their views regarding HIV home testing and they expressed high levels of acceptability (69%). We wanted to seek views from the public regarding HIV home testing.
Methods: A short, confidential questionnaire was designed to gather demographic data and four questions in relation to HIV testing. The questionnaire was distributed to members of the public in social venues (sauna, nightclub and pubs) during HIV testing week 2014. Completed questionnaires were analysed using Statistical Package for the Social Sciences. Significance was considered when the *P* value was 0.05 or less.
Results: One hundred and eighty questionnaires were completed; 130 males, 44 females, 4 transgender and 2 no response. One hundred and thirty four stated their age; 38% were 18-25 years, 33% were 26-45 years and 29% were over 46 years. One hundred and seventy eight stated their sexual orientation; 66% were heterosexual, 22% were gay, 10% were bisexual and 2% other. Eighty one (45%) had previously tested for HIV; 45% of males, 45% of females, 50% of transgender, 31% of heterosexuals, 71% of bisexuals and 77% of those who were gay had previously tested.

There was no difference between gender regarding those who expressed a preference to test at home; 40/130 (31%) were males and 20/44 (46%) were female (*P=0.08*). Preference to test at home was associated with sexual orientation; 20/39 (51%) gay and 35/118 (30%) heterosexual (*P = 0.01*).

Question	N	%
I would prefer to test (< one option could be chosen)		
1. in clinical setting (hospital / GUM / GP)	128	71%
2. community setting (HIV charity / supermarket)	39	22%
3. at home	62	34%
Answered "yes" to would you consider using a home testing kit in the future (result in 20 minutes at home)?	127	71%

Conclusion: From this limited survey (180 people in social venues) it appears that home testing will be an acceptable option to the public – 71% would consider using a home HIV test and 34% stated a preference for home testing. There may be reasonable uptake when HIV home tests become available and they may add to the strategy of increasing access to HIV testing.

P129

The ability of the Alere™ HIV Combo point-of-care test to detect acute HIV infection

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Background: Detection of acute HIV infection is important in preventing HIV transmission and for consideration of early antiretroviral therapy. Fourth generation (4G) HIV tests detect p24 antigen and HIV antibody. As such, they should detect acute HIV infection prior to the development of antibodies. An early version fourth generation (4G) point-of-care (POCT) test demonstrated low levels of sensitivity for p24Ag. Alere has developed a new 4G POCT with possible improved detection of p24Ag. We assessed the ability of the Alere™ HIV Combo 4G POCT to detect p24 antigen in patients with laboratory confirmed p24 antigenaemia.
Method: P24 antigen positive serum samples, confirmed with the Abbott Architect HIV Ag/Ab combo assay and VIDAS quantitative HIV p24 11 assay, were tested from 28 individuals infected with clade B virus using the Alere™ HIV- Combo POCT. Results were recorded at 20 and 40 minutes. An invalid result was obtained from 1/28 samples and excluded from analysis. P24 antigen levels from the VIDAS quantitative HIV p24 11 assay and antibody results from the Immunocomb® HIV 12 Bispot assay, used as routine HIV confirmatory tests by our laboratory, were recorded for comparison.
Results: Twenty-four out of 27 samples (89%) were p24 antigen positive at 20 minutes and 25/27 (93%) samples were positive at 40 minutes. There were two false negative samples, which had the two lowest levels of p24 antigen (27.6 and 8.3 pg/ml) of the 27 samples with the VIDAS quantitative HIV p24 11 assay. The mean p24 antigen level with the VIDAS quantitative HIV p24 11 assay for the cohort was 236.2 (Range 8.3->400 pg/ml) and the Alere™ HIV Combo POCT detected all P24 antigen at levels > 30pg/ml. Eight out of 21 samples were antibody positive with the Immunocomb® HIV 12 Bispot assay. Of these 7/8 were positive for HIV antibodies using the Alere™ HIV Combo POCT. In addition, the Alere™ HIV Combo POCT detected antibody in 3 further samples, which were negative for antibody with the Immunocomb® HIV 12 Bispot assay. There was no difference in antibody results between 20 and 40 minutes.
Conclusion: The Alere™ HIV Combo POCT has 89% sensitivity for p24 antigen at 20 minutes and 93% at 40 minutes. We recommend samples from high risk individuals are read at 40 minutes, as levels of antigen may be low at this time, although this is based on one sample. These preliminary results suggest that the new Alere™ HIV Combo POCT may be able to detect early infection adequately.

P130

User feedback of online-ordered, postal HIV dry blood spot tests: Experience of a large UK city

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Background: Increasing the uptake of HIV testing is a public health priority and innovative ways of extending the reach and scope of testing are constantly sought. Postal dry blood spot (DBS) testing, ordered online, offers users an alternative to standard and outreach HIV testing services. It is convenient, relatively quick, accurate and private: removing the need for face-to-face interaction with a healthcare worker. The aim of this qualitative analysis is to examine the feedback left by users, of an online-ordered postal HIV DBS testing kit, to determine satisfaction with the product and concept of this alternative testing approach.
Methods: Qualitative analysis was carried out of user feedback left on the website from where the HIV DBS testing kits are ordered. Inclusion criteria include aged =/>16 years and a local resident. Data was analysed in Excel and categorised using a five stage framework analysis: 1) Becoming familiar with the data; 2) Developing a thematic framework; 3) Indexing data; 4) Devising a series of thematic charts; 5) Mapping and interpretation.
Results: Between 08/11/13 and 29/12/14, 1409 individuals requested a DBS testing kit online. 936 (66.4%) kits were returned for processing of a result. Feedback was left by 228 (24.3%) individuals who had used the kit. The results were overwhelmingly positive with 195 (85.5%) providing overall positive feedback. The most prevalent themes that materialised included convenience, with particular emphasis on time/work restraints, simplicity and ease of the process and test, and privacy and confidentiality. Other important themes included recommendations on improving the service; this a preferred method of testing with embarrassment and shyness highlighted; and some indicated that this is the only method of testing they would use.
Conclusion: User feedback of online-ordered, postal HIV DBS tests demonstrates a very high level of satisfaction with the service and the concept of online, postal testing. It is an accessible, convenient and (for some) preferable alternative to standard HIV testing services. These results show this approach is particularly appealing to those with busy, working lives with the potential to increase testing in this group. Additionally, others who may not access standard and outreach testing, owing to stigma and embarrassment, indicated they would use online-ordered postal DBS.

P131

Understanding factors behind the late testing and diagnosis of HIV: UK results from the IMPRESS Health 2 study

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Background: Over 100,000 have HIV in the UK. However, while effective treatment exists, there is neither a cure nor a preventive vaccine, so 500+ people die from AIDS every year with many others dying undiagnosed. Health policy focuses on prevention and support, but it is necessary to increase the number of early diagnoses and reduce the rate of spread (Public Health England, 2014). Approximately 25% of HIV positive individuals do not know their status however, and almost half of all UK diagnoses occur late. It is vital therefore, to understand and address barriers to early testing and diagnoses to address this trend.
Methods: Clinical data for 240 patients diagnosed with HIV in 3 trusts in Kent and Medway over 5 years were analysed in relation to clinical, social, demographic and psychosexual factors likely to affect knowledge of HIV and their decision to seek a test. Fifty-three semi-structured interviews were also conducted with patients and healthcare professionals to elicit experienced and perceptions about barriers to testing and ways to increase uptake.
Results: Patients were aged 19-81 (mean 40 years) and 67.5% were men. Women were more likely to be diagnosed late however (67.9% versus 56.8%), and late diagnosis was higher than the national average for both sexes (60.4%) with the highest rates in Medway (66.1%) and Maidstone and Tunbridge Wells (64.6%). Patients diagnosed late were 4 years older than those diagnosed early, and late diagnosis was higher in ethnic minority groups (70.2%) compared to white British (53.0%). Those born outside the UK were also generally diagnosed later (69.8%). The most frequent categories affected

were heterosexuals (56.2%), men who have sex with men (36.6%) and intravenous drug users (2.0%). Patients diagnosed during an acute hospital admission were far more likely to be diagnosed late (89.1%) compared to other settings (49.6% - 57.1%). Qualitative data suggested that outmoded notions of HIV as a 'gay' disease still prevailed and heterosexuals did not generally consider themselves to be at risk. Healthcare professionals sometimes failed to acknowledge risks in 'non-traditional' groups and often overlooked HIV as a likely cause of symptoms until they were seriously unwell.
Conclusion: Clearer public health messages should be targeted at the general population and there is a need to better educate healthcare professionals, especially GPs about the clinical indicators of HIV which also needs to be de-stigmatised.

P132

Text messaging to encourage uptake of HIV testing amongst African communities: Findings from a theory-based feasibility study

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Background: There is a public health need to tackle high levels of undiagnosed (or late diagnosed) HIV amongst the UK's African communities. This research aimed to assess the feasibility and acceptability of using a text messaging intervention to encourage uptake of HIV testing amongst this population in a UK city.
Methods: Participatory research adopting a mixed-methods design. Four distinct stages included:
[1] Formative Research: Six focus group discussions (FGDs) were conducted with diverse sections of the African community to assess perceptions about HIV and to inform message development (n=48). The Health Belief Model (HBM) was used as an organising framework for data analysis and interpretation.
[2] Message Development: SMS messages were developed based on HBM constructs, existing HIV campaigns and FGD findings, and tailored according to language, gender and religion. 12 HIV-related and 12 generic health-related text messages were developed and piloted using elicitation interview processes.
[3] Intervention and outcomes: 172 participants were recruited. They received 2 messages per week for 12 weeks. Data was collected in pre and post questionnaire surveys assessing uptake of HIV testing, HIV-related attitudes and knowledge and perceived general health.
[4] Evaluation: Acceptability and meaningfulness of the intervention were explored via semi-structured telephone interviews (n=21). Data were analysed using thematic content analysis.
Results: Follow up data was collected for 76 of the participants (44%). Of these, 8 (10.5%) reported having had an HIV test during/after the intervention. Risk perception remained low at pre and post-test. Non-significant improvements were observed in HIV-related knowledge (testing procedures and treatment availability) and attitudes towards HIV. Qualitative evaluation (n=21) showed that messages were perceived to be highly acceptable, useful and appropriately targeted. The majority of those interviewed had shared the messages with others and reported intentions to test in future.
Conclusions: SMS text messaging is an acceptable and feasible method of promoting HIV testing in African communities, with widespread appeal. Rate of testing uptake is comparable to other community-based strategies in this population. More research is needed to fully understand outcomes and impact on testing uptake, and methods of improving response to follow-up.

P133

Treatment regimens for people living with HIV with primary antiretroviral drug transmitted resistance

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Background: Antiretroviral treatment regimens for PLWH with transmitted baseline drug resistance (TDR) should preferably include a protease inhibitor (PI) in addition to a nucleoside backbone. Recent data from 3 HIV clinics in the Chelsea and Westminster Foundation Trust (CWFT) Directorate show that a significant proportion of patients initiating new cART regimens possess baseline TDR. This analysis reviewed cART selection in this cohort and examined virological outcomes.
Methods: We included all PLWH attending CWFT with a baseline viral resistance test performed at CWFT, detectable primary resistance and who initiated a new cART regimen between 2011 and 2014. Viral genotype sequencing was performed by population genotypic sequencing on reverse transcriptase (RT) and protease regions. Key drug resistance mutations were identified according to the Stanford University HIV Drug Resistance Database. Using Microsoft Excel, data was collected detailing cART regimen, CD4 count and viral load (Roche RT-PCR ©), time to undetectable viral load post-ART initiation and the most frequent mutations expressed. Key mutations reviewed were: nucleoside reverse transcriptase inhibitor (NRTI) (M41L, M184V/I, T215S/C/D/E/I/V/N/A/L); non-nucleoside reverse transcriptase inhibitor (NNRTI) (K103N, V179D/E/T); PI major mutations (G48V, I54T/V, L90M).
Results: 385 patients were enrolled in this study. 287 (74.5%) were treated with PI and 98 (25.5%) with alternative regimens. Of these 98, 87 (88.8%) were treated with 2 NRTI and 1 NNRTI, and 11 (11.2%) were treated with 2 NRTI and 1 Integrase Inhibitor (INI). Mean CD4 count at regimen initiation was 416 cells/microL (median 379; range 3-1197). Viral load parameters were available in all 98 patients. 95 patients achieved a suppressed viral load of under 50 copies/mL; mean time to undetectability 5.0 months; median (with 95% confidence interval) was 4.7 months (range 1.5-11.5). 3 patients failed to achieve an undetectable viral load. Patients not treated with PI included 13.4% (9 of 67) with K103N, and 6.9% (4 of 58) with M184V/I, 13.5% (7 of 52) V179T/E/D, 27.5% (10 of 40) with T215S/C/D/E/I/V/N/A/L, and 5.0% (2 of 40) with M41L.
Discussion: This analysis showed a 74.5% rate of PI containing regimen use in those with baseline TDR. Of 98 patients not on PI, mean CD4 at new cART initiation was 416 cells/microL and median time to undetectable viral load was 4.7 months.

P134

National HIV Testing Week: How ambitious expansion is being achieved through widening stakeholder engagement

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Background: National HIV Testing Week (NHTW), initiated in 2012, promotes testing to England's most at risk populations: men who have sex with men (MSM) and Africans. Data from testing centres and community surveys indicates increased testing in these groups in previous years.
Methods: NHTW is promoted by four weeks of targeted print, social media and outdoor advertising. Stakeholders provide expanded testing services. A campaign website provides information about testing services, risk assessments, clinic finder and free home sampling kits. Free printed materials are available and over 30 local delivery partners are contracted to hold testing-focused events. In the eight months prior to NHTW key stakeholders (commissioners, clinicians, African faith leaders, testing services and public health bodies) are briefed and their participation encouraged.
Results: The period around NHTW 2014 saw a significant growth of activity from the previous year. Promotion expanded, including 440 bus adverts (86% increase) and ads on 44 websites for Africans (up from 4). New advertising platforms included Youtube adverts (180,000 views), 154 telephone kiosks, 38 bus stops and 82 ads on London underground. Visitors to the campaign website rose 84%, use of its clinic finder increased 200% with 7,863 finding local clinic details. 8,656 test kits were ordered, up almost 350% from the 1,936 ordered in 2013. In the previous year 55 reports of testing activity were

received from stakeholders; in 2014 353 testing events were reported (23% from NHS organisations, 3% from local authorities). Local authorities in Bedford and South London funded local amplification of the campaign and testing activity. 304 agencies ordered 909,620 resources. 344 organisations expressed support for NHTW, up a third on 2013. Promotion of NHTW led to 8,464 home sampling HIV tests being ordered in the two weeks leading up to and during NHTW compared to 618 orders in the three weeks before.
Conclusion: The effectiveness of NHTW is increasing thanks to growing support from a wide range of stakeholder agencies, including NHS, community and local authority partners. Ongoing evaluation will provide further data on the utility of NHTW to these stakeholders and on the impact of this concerted effort on reducing undiagnosed infection.

P135

'Positive Voices' a survey of the behaviour, experiences, and healthcare needs of people living with HIV: A pilot study methods and respondent characteristics

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Background: In the UK, robust data are needed to identify the met and unmet needs of people living with HIV (PLHIV) to inform HIV service planning and provision. We propose to supplement current HIV surveillance with a nationally representative survey to monitor the behavioural and healthcare needs of PLHIV. We present the methods, response rate, and respondent characteristics of the pilot of the 'Positive Voices' survey which aims to collect this data.
Methods: The survey instrument and methodology were developed using an iterative and participatory process of expert review, literature review, and qualitative methods with PLHIV and HIV providers. A protocol was designed as a pilot RCT of an anonymous, self-completed, web-based survey recruiting individuals from 30 HIV clinics in England and Wales, testing two recruitment methods (pre-selected vs sequential) for the clinic and a prize draw incentive for the patient. The survey covered a broad range of topics and took 20-40 minutes to complete. Primary outcomes were response rate, representativeness of respondents compared to SOPHID, and data quality measures.
Results: Between May-November 2014, 3,316 eligible patients were invited to take part in the pilot and 3,032 (91.4%) accepted the invitation. 779 people completed the online survey (25.7% response rate): 527 (68%) were MSM, 114 (15%) heterosexual men, and 135 women (17%) and 605 (78%) of white ethnicity. Median age of respondents was 47 years (IQR 40-54). Compared to SOPHID, respondents were older (median age 47 vs 43), white (78% vs 53%), and MSM (68% vs 47%). Regarding data quality, 94% of participants completing the survey once started, and item completion ranged from 88-100% with high internal validity and >90% linkage to clinical data in SOPHID records. Prize draw incentive had no effect on response rates, and pre-selected recruitment resulted in a higher response rate than sequential (30.7% vs 21.9%), and representativeness was similar for all study arms.
Conclusion: Recruitment of PLHIV through clinics was feasible with a response rate which reflects the limited-resource recruitment methods. The pre-selected recruitment strategy was the more resource-intensive, but was associated with a higher response rate. Weighting on a range of respondent characteristics will further improve representation and generalizability of survey results. Findings from this pilot study will inform the methodology used in the national roll-out of the survey in late 2015.

P136

The effect of hospital-wide and departmental teaching events on HIV testing rates over time

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Background: BHIVA guidelines recommend HIV testing based on regional prevalence; our regional prevalence is 1.76 per 1000, therefore testing should be targeted at individuals with indicator conditions. However, local surveillance data shows prevalence in the hospital catchment area is between 2.11 and 6.12 per 1000. About 70% individuals in our region are diagnosed late compared with a UK average 48.3%. Teaching sessions represent the most common means to promote HIV testing. We deliver regular teaching with the aim of increasing HIV testing. We studied numbers and rates of HIV test by hospital departments. Our hypothesis was that the number of tests requested would increase after teaching.
Method: We performed a retrospective review of laboratory tests requested between 1st November 2012 and 31st December 2014 (excluding Genitourinary Medicine). We recorded total hospital HIV tests per week and month and dates of hospital-wide HIV testing initiatives. We compared tests by specialty with dates of departmental teaching where delivered.
Results: The total number of tests performed in this period was 7729. The number of HIV tests fluctuated month by month showing no consistent trend. By department, Emergency Medicine tested 0.2% admissions (9 positive), Acute Medicine 1.3% (5 positive), and Intensive Care 15% (0 positive). There was no year on year increase in rate of testing in these departments. There were 6 hospital wide teaching events: 2 Grand Rounds, 2 RCP teach-ins, and 2 sessions for junior doctors. There were 11 departmental sessions: 6 in Emergency Medicine, 2 in Gerontology, 2 in Intensive Care, and 1 in Haematology. We observed no temporal relationship between delivery of teaching on HIV testing and number of HIV tests performed, both hospital-wide and by department.
Conclusion: Based on an estimated prevalence of bacterial pneumonia (one indicator condition) of 2.2% of UK emergency admissions, testing rates should be higher. Our testing rates are much lower. This supports previous reports that targeted testing of individuals with indicator conditions is not effective. Educating staff does not seem to influence HIV testing in the short term, and there is no evidence for a cumulative effect of teaching. The current strategy for HIV testing in our local area of high prevalence results in inadequate rates of HIV testing. Universal testing or point of care testing in AMU would increase HIV testing and reduce late diagnoses.

P137

HIV testing on the Medical Admissions Unit

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Background: United Kingdom (UK) National guidelines state that HIV tests should be offered to people aged 15-59 in high prevalence areas (>2/1000)[1,2]. Of the 100,000 with HIV in the UK, 1/4 are unaware of their infection[3,4]. In a high prevalence area such as our hospital (2.7 HIV infections/1000), it would be ideal to offer routine HIV testing to avoid late presentation/diagnosis[3].
Aims: This audit aimed to assess 1) implementation of NICE guidelines on HIV testing on the Medical Admissions Unit (MAU); 2) patient response to the offer of HIV testing; 3) HIV knowledge amongst healthcare professionals (HCPs).
Methods: Case notes of 120 patients admitted to MAU over a 7-day period in November 2013 were reviewed for HIV test offer, patient consent and HIV testing. Subsequently, 10 random patients with HIV-indicator conditions (HIC) were offered HIV tests and their responses evaluated. Lastly 10-point HIV Knowledge questionnaires were issued to HCPs. After HCP/patient education, 2nd cycle re-audit was undertaken (n=57, June 2014). In July 2014, our hospital received funding to pilot routine HIV screening tests of patients, aged 15-59, presenting to MAU. 3rd audit was undertaken in July 2014 (n=63).
Results: All ten patients from MAU with HIC offered HIV tests accepted; none were sero-reactive. Ninety-three percent of HCPs responded to the questionnaires; 24/39 (62%) had poor knowledge on HIC; 35/39 (90%) were unsure of management strategies in HIV positive persons. With education, knowledge of HIC increased in 7/10 areas covered in the questionnaire. Of 12/120 patients (10%) in the first cycle, who met NICE criteria, only one was offered an HIV test; which was negative. In the second cycle 4/57 (7%) met NICE criteria, none was offered an HIV test. 10/63 (15%) met NICE criteria in the 3rd cycle, 4 were offered an HIV test. 1 was sero-positive.
Conclusion: There seems a low index of HIV suspicion in MAU, despite apparent universal acceptability for HIV testing amongst patients. HCPs appear to have limited HIV knowledge. As a result, HIV education/posters were initiated. This proved useful in increasing general knowledge of HIV, but was unsuccessful in increasing HIV testing were appropriate. Public health funding for routine HIV testing at our hospital was pledged in July 2014. Early results of this intervention show encouraging increases in HIV testing to patients who meet NICE criteria, with one positive test at early seroconversion.

P138

Reversible severe HIV-associated dementia: implications for non-HIV specialists

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Background: Dementia was a common complication of HIV during the AIDS epidemic prior to the availability of highly-active antiretroviral therapy (HAART). Currently, milder forms of HIV-associated neurocognitive disorder increasingly predominate over more severe HIV-associated dementia (HAD).
The 2011 NICE guidance on dementia recommends HIV testing only in at-risk patients or if clinically indicated, rather than routinely in dementia workup.
We present a case of missed opportunity for earlier diagnosis of HAD, which subsequently reversed following appropriate HAART.
Physicians involved in the management of dementia should have a low threshold for HIV testing. NICE guidance on dementia may need to be modified to include HIV testing routinely in all cases as part of dementia workup.
Case report: A 50-year-old lady originally from Zambia had been living in a psychiatric institution under Section 2 of the Mental Health Act for two months. She had a working diagnosis of young-onset Alzheimer's disease following a 5-year period of cognitive decline with generalised atrophy on MRI brain.
She was admitted acutely to hospital with subacute deterioration in her mobility, double incontinence and progressive disorientation. Review of previous brain imaging prompted an HIV test, which was positive. She had a high plasma HIV viral load of 465,395 c/ml and very low CD4+ count of 27 cells/mm3 (4%).
Secondary causes of cognitive impairment were investigated and excluded. She commenced HAART (Truvada, darunavir, ritonavir). 8 weeks post-commencement of HAART there was resolution of incontinence and gait disturbance, and improved Mini-Mental State Examination score from 10 to 28/30.
Discussion: This patient's rapid and significant cognitive and motor improvement was impressive. This highlights the potential reversibility of HAND with appropriate HAART treatment even in advanced cases.
The continuing increase in HIV prevalence (including the older patient subpopulation), ease of diagnostic testing and availability of effective treatment highlights the need for clinicians to exercise a very low threshold in HIV testing in the workup of patients presenting with a dementia syndrome.
We support modifying the current NICE guidance on dementia to incorporate routine HIV testing in the workup of all dementia cases.

P139

An eight-year (2007–2014) audit of newly diagnosed HIV late presenters in Newcastle; do we need to do more than just the UK 2008 HIV Testing Guidelines?

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Background: The diagnosed prevalence of HIV in Newcastle-Upon-Tyne according to SOPHID is 1.91/1000 and the audit data from past 7 years suggests that late presentation is still a problem, contributing to morbidity, mortality and onward transmission. This audit aims to identify late presenters and missed opportunities in new HIV diagnoses to assess the impact the BHIVA 2008 screening guidelines may have had.
Methods: A retrospective case note audit of patients whose HIV care was initiated by the ID unit and GUM in 2014 was undertaken to determine the number of new HIV diagnoses. Patients with CD4<200/AIDS at diagnosis were classed as "advanced disease". Indicator diseases for adult HIV infection were documented. Data collected using the same methods from 2007-13 is included.
Results: In 2014, 12 patients in the ID Unit and 20 in GUM were diagnosed with HIV. 9 (75%) of the 12 ID patients were late presenters and 7 (58% of ID patients) had advanced disease. Their median CD4 count was 223 cells/μl (Range 10-809 cells/μl). 10 (50%) of the 20 GUM patients were late presenters 4 (20% of GUM patients) had advanced disease. Their median CD4 count was 469 cells/μl (Range 45-1180 cells/μl). Overall in 2014, 29 (59%) were late presenters, compared to 13 (42%) in 2013 and 12 (23%) in 2012.

	ID 2014	GUM 2014	ID 2013	GUM 2013	ID 2012	GUM 2012	ID 2011	GUM 2011	ID 2010	GUM 2010	ID 2009	GUM 2009	ID 2008	GUM 2008	ID 2007	GUM 2007
New HIV Diagnosis	12	20	14	17	18	34	38	20	42	22	32	11	46	14	35	26
Late Presenters %	75	50	50	35	72	21	74	25	81	36	75	55	67	36	77	38
Advanced Disease %	58	20	36	6	39	15	50	5	52	5	53	27	59	21	63	31
M:F (%)	67:33	95:5	71:29	88:12	78:22	97:3	76:24	90:10	67:33	95:5	72:28	100:0	54:46	79:21	57:43	81:19
MSM (%)	17	70	43	76	17	82	42	80	12	68	38	91	35	79	17	54
White British (%)	42	55	57	88	71	94	61	75	64	17	59	82	54	79	37	65
Black African (%)	17	20	7	12	29	3	21	15	31	4	34	18	43	14	49	15
Median CD4 on Diagnosis	223	469	316	459	246	506	187	501	195	389	188	347	169	419	159	388
CD4 Range on Diagnosis	10-809	45-1180	0-572	134-885	11-900	39-979	0-955	15-894	0-1145	162-851	0-833	109-1019	4-1042	38-953	0-671	61-809
Previous Indicator Disease %	33	35	36	29	33	38	58	55	50	23	53	9	35	29	46	50
AIDS at/prior to presentation %	25	0	7	0	22	0	29	0	26	0	25	0	28	0	31	0

Conclusions: In 2014 there has been an increase in late presentation (43% to 59%) and patients presenting with advanced disease (19% to 34%), compared to 2013. The number of missed opportunities has remained within the 25-40 percent range since 2012, suggesting that the guidelines may not have had an impact despite being in place since 2008. More educational efforts need to be undertaken particularly in primary care settings.

P140

Testing times: A national review of HIV testing policy in termination of pregnancy (TOP) services in Scotland

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Background: UK studies estimate the prevalence of HIV among women attending TOP clinics to be similar to that of women attending established HIV testing sites such as GUM clinics and higher than women attending antenatal clinics. UK HIV Testing Guidelines therefore recommend universal HIV testing in TOP services. Royal College of Obstetricians and Gynaecologists (RCOG) clinical guidelines for TOP services differ slightly in recommending that all services have HIV testing policies, but suggest local HIV prevalence will influence testing strategies. We undertook a Scotland-wide audit of all providers of TOP services to ascertain what proportion had HIV testing policies in place and the content and implementation of these policies.
Methods: All TOP providers in Scotland were asked to complete an online survey on HIV testing policy and practice. Results were collated, analysed and further compared to a recent similar published survey of English TOP providers undertaken by PHE.
Results: 17 organisations responded (94%) to the survey, of whom 59% had an existing HIV testing policy or one in development. Of those with an HIV testing policy 70% had an 'opt-out' policy for testing and only one provider thought it inappropriate to even offer HIV testing in their TOP service. In terms of actual testing practice, 41% of services stated that they offered HIV testing to all women and a further 18% offered testing to selected women. However, when services were asked to estimate the proportion of their users who actually underwent HIV testing in 2013, 75% of providers reported that they only tested 0-10% of attenders. Perceived barriers to HIV testing in Scottish TOP services included a lack of time/staff resources, training needs of clinical staff and a lack of public knowledge. These differed from the perceived barriers identified most strongly in the previously conducted PHE study.
Conclusions: This is the first national survey of HIV testing policy in TOP services in Scotland. Although the proportion of services with an HIV testing policy (and opt-out testing) compares favourably to the PHE survey, there remains considerable scope for improvement in both policy formation and implementation.

P141

Re-audit of serological investigations in newly diagnosed patients with HIV

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Background: Guidelines published by the British HIV Association (BHIVA) 2011 recommend multiple investigations for each new diagnosis of HIV. These include markers of disease activity such as CD4 count and viral load, detection of previous or co-existent infection by serology, and baseline haematological, biochemical and metabolic testing. An audit in 2009, of newly diagnosed HIV patients in our unit, revealed variation in baseline serological testing, with underperformance in some areas. Following this, a 'new patient' investigation label was introduced in March 2011 with the aim of improving compliance with the guidelines, and streamline the process for clinic staff.
The labels are pre-printed stickers that list all 'new patient' investigations. The stickers are applied directly to blood request forms. A duplicate is included to be signed, dated and stuck in the patient's notes. Brief clinical details are listed on a separate sticker.
We examined the success of this intervention by re-auditing baseline new patient investigations.
Method: 49 patients, newly diagnosed with HIV between January and December 2012, were identified from our database. 33 of these were suitable for evaluation. Temporary and transferred patients were excluded. The results from this sample were compared with a similar sample from 2009.
The following serological tests were analysed by review of case notes and laboratory records: Syphilis serology, Hepatitis A IgG, Hepatitis B surface antigen, anti- core total antibody, anti-surface antibody, Hepatitis C IgG, Toxoplasma IgG, VZV IgG, CMV IgG Measles IgG, Rubella IgG.
Results: Table 1 shows the performance in serological testing in the 2012 audit compared with 2009.

Serology	*2009 performance*	*2012 performance*	*Percentage difference*
Syphilis	88%	97% (32/33)	+9
Hep A	34%	85% (28/33)	+51
Hep B	56%	100% (33/33)	+44
Hep C	88%	100% (33/33)	+12
Toxoplasma	95%	88% (29/33)	-7
VZV	10%	82% (27/33)	+72
CMV	80%	88% (29/33)	+8
Measles	-	82% (27/33)	-
Rubella	-	3% (1/33)	-

Table 1: Serological testing in new HIV +ve patient: 2009 and 2012

Conclusion: There was an overall improvement in the investigation of newly diagnosed HIV patients following the introduction of a 'new patient' label. It ensured less error, was not solely reliant on clinician choice and complied better with BHIVA guidelines. In general those tests that were 'missing' were associated with non-use of the 'new patient' label. This improvement should continue with sustained use of the label and ensure a standardised approach to care.

P142

Undiagnosed HIV: Can at-risk groups be identified for a new testing strategy?

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Background: Local HIV testing, where estimated prevalence is 2.2/1000, is limited to patient self-presenting and indicator disease. Prior studies across the UK have shown indicator diseases frequently missed. Public Health England reported in Nov 2014 the number of HIV tests in the UK is increasing, the number of positive diagnoses decreasing, but the proportion of undiagnosed HIV is unchanged. Does this call for a change in HIV testing?
This study aimed to suggest a new local testing strategy. By demographically identifying late diagnoses (CD4<350 cells/mm^3 at diagnosis) in the local area, particular groups within the population more likely to receive a late diagnosis would be found. Testing that group could identify undiagnosed early HIV.
Methods: All new diagnoses of HIV made in our city Jan 2009-Dec 2014 were examined. Data on age, gender, ethnicity, sexual orientation, previous test, indication, place of test, was gathered. Chi-Square test compared early and late diagnoses in demographic groups. Once under-served demographics were identified, data was interrogated to understand where and how these people presented. This was compared to well-served demographics.
Results: 251 new diagnoses in the past 5 years. 125 early, 126 late. Female 48 (19%), male 203 (81%). Bisexual male 20 (8%), heterosexual male (HSM) 48 (19%), MSM 119 (47%), unknown orientation male 15 (6%). IVDU 5.
Disproportionate late diagnoses:
1. females (p=0.023) without previous documented test (p=0.006)
2. HSM (p=0.068) without previous documented test (p=0.004)

No significant difference between early and late diagnosis:
- ethnicity: Caucasian, sub-Saharan African, other (p = 0.103)
- age: <50 vs >50 (p = 0.74)
- bisexual males (p = 0.87)

Disproportionate early diagnoses:
- MSM males (p = 0.032) with previous documented test (p = 0.052)

	Females	HSM no prev test	MSM
Total	48	37	119
Median age	34 (20-64)	43 (22-76)	35 (17-66)
Median CD4	221 (8-941)	177 (2-718)	419 (8-1003)
Indications	Antenatal testing 8/48 Partner positive 7/48	Partner positive 7/37 Respiratory illness 7/37	SH screen asymptomatic 34/119 SH screen symptomatic 17/119 Partner positive 17/119
Place	GUM 13/48 GP 10/48 Secondary care 10/48	Secondary care 15/37 GP 9/37	GUM 59/119 GP 19/119 GUM outreach 14/119

Conclusion: Barriers to earlier self-presentation of females and HSM should be examined and addressed. MSM benefit from specialised clinics and outreach services yet make up <50% diagnoses. Likely public and clinician unawareness of perceived risk excludes earlier testing.

P143

Which patients start anti-retrovirals with a CD4 count above 500cells/μL and why? How do they compare to late treatment starters?

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Background: UK guidelines recommend that HIV positive patients with CD4 count<350cells/μL start anti-retroviral therapy (ART). In our HIV service we have both very late HIV presenters (CD4<200), and increasingly, patients starting ART with CD4>500 for clinical indications including prevention of onward transmission. We were interested in investigating clinical outcomes and potential service requirements for these patient groups.
Aims: To describe patients starting ART with CD4>500 and CD4<200; to investigate differences in patient characteristics and clinical outcomes in relation to CD4 count at start of therapy.
Methods: We performed a retrospective case-note review across two sites in an urban setting. All previously ART naive patients were included if they started ART with a CD4 count >500 or <200 between August 2013 and November 2014. Pregnant women starting ART solely for prevention of vertical transmission were excluded. Virological suppression was defined as viral load <200copies/ml within 6 months or by the end of follow up.
Results: 97 patients met our criteria, 92 patients were included. 69(75%) patients started ART with CD4<200 and 23(25%) with CD4>500. In the 23 starting ART with CD4>500 median age was 36(range 24-62). 19(82.6%) were male. 14(60.9%) were white, 4(17.4%) black, 2(8.7%) Asian. In those starting ART with CD4<200, median age was 41(range 17-76). 48(69.6%) were male. 21(30.4%) were white, 32(46.4%) black, 8(11.6%) Asian. 7(10.1%) had previously been lost to follow up.

Of those starting ART with CD4>500, 11(47.8%) started to reduce risk of onward transmission, 4(17.4%) seroconversion illness, 3(13.0%) hepatitis co-infection, 7(30.4%) for other reasons including patient preference. Patients could have >1 indication.
74(80.4%) patients achieved virological suppression. Virological suppression was higher in those who started with CD4>500 than in those who started with CD4<200 (95.6% vs 75.4%; P<0.05). Additionally, ART regimen switch within 6 months of starting was higher in those who started with CD4>500 than in those who started with CD4<200 (26.1% vs 15.9%).
Conclusion: In our service, patients that start ART with CD4>500, including for prevention of onward transmission, are able to achieve high rates of virological suppression. In comparison, those that start with CD4<200 have poorer virological outcomes. We need to improve earlier diagnosis and retention in care to optimise treatment outcomes in all our local HIV positive population.

P144

Reducing loss to follow-up – results of a local strategy to encourage retention in HIV care

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Background: Despite attempts to engage HIV-infected individuals in care, a significant proportion are subsequently lost to follow up (LTFU). Reasons for disengagement are manifold. A local audit in 2012 showed 5.8% of clinic attendees had been LTFU over a 3 year period. A local strategy was devised in order to reduce this rate, encompassing: recurrent confirmation of all contact details and primary care information, standard recall attempts following non-attendance, and the production of a recurrent IT-generated list of all patients failing to attend over the previous seven month period. Assertive recall from the Health Adviser team was implemented to engage patients on this list. After two years, we wished to measure the effect of this package of interventions.
Methods: The local database was interrogated to reveal individuals who had not engaged in care for more than12 months during December 2013 to December 2014. Demographics, laboratory results and ARV experience were reviewed. Further health adviser efforts were made to contact these patients. With the assistance of the Public Health England (PHE), the HARS database was used to identify individuals who may have presented for care elsewhere.
Results: Of 814 regular clinic attendees 46 individuals (5.7%) were identified as being LTFU. Of these, 34 were known to have formally transferred their care or moved abroad. Standard attempts to recall the remaining 12 individuals (1.4% of cohort) proved unsuccessful. Following enhanced recall from the Health Adviser team, two patients were found to have moved abroad and one had transferred care. Two patients had no current contact information. Nine individuals (1.1% of cohort) were thus truly LTFU of whom eight were male (89%), seven were white (78%) the remaining two black African. At the time of last clinic visit, median CD4 count was 437 cells/μl (range 185-848) and 3 (33%) were on antiretroviral therapy with two having an undetectable viral load. Subsequent investigation of HARS database revealed that none of these patients had engaged at alternative centres.
Discussion: Following the instigation of a local strategy to reduce LTFU, only 1% of clinic attendees appear to have been 'lost', demonstrating a clear improvement from the 5.8% identified as LTFU in our previous evaluation.
Conclusion: Implementation of a dedicated LTFU local strategy has substantially reduced rates of LTFU. Use of the PHE HARS database may serve to further reduce true LTFU.

P145

Late diagnosis of HIV in a large teaching hospital

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Background: Late diagnosis of HIV is a significant problem across the UK, carrying significant morbidity and mortality. The 2010 BHIVA National Audit found that 52.2% of all new HIV diagnoses were diagnosed late, defined as CD4 T lymphocyte count of <350 cells/mm3. Public Health England found that this figure was 42% in 2013. In our region, there are over 800 people living with HIV, with 100-120 new registrations per year. The aim of this study was to analyse our rates of late diagnoses, and compare to the rest of the UK.
Methods: A retrospective chart analysis was carried out on all new HIV registrations over a 1 year period, from July 2013 to June 2014. Patients who had previously been diagnosed elsewhere were excluded. Data collected included: patient demographics, mode of acquisition and CD4 count at diagnosis. Patients with CD4 <350 cells/mm3 were classed as having a late diagnosis of HIV, with CD4 <200 cells/mm3 signifying very late diagnosis. Other factors included history of previous investigations and clinical indicator diseases. Data was recorded on an Excel spread sheet.
Results: Of 76 patients identified, 45 (59.2%) had a late diagnosis, with 31 (40.8%) very late. Only 15 (20%) of these cases were diagnosed through GUM clinic attendance. The remainder were diagnosed in a range of other specialities, most commonly acute medicine and general practice. 48.9% were men having sex with men (MSM) and 46.7% heterosexual, with 6.7% IVDU. 71% of patients were local. Clinical indicator diseases were present in 84.4%, with the most common conditions being blood dyscrasias, weight loss and diarrhoea; 28.9% had pneumocystis jiroveci pneumonia. 56.8% had previous investigation for unexplained symptoms and signs, most commonly coeliac serology, autoimmune screen and chest X-ray. Three patients died, with 31 having prolonged inpatient stays.
Conclusion: Our study found that late diagnosis of HIV is a significant problem in our cohort, with rates higher than in the rest of the UK. The number of very late presentations was also significantly higher. We found that late diagnoses were evenly split between heterosexuals and MSM, though MSM rates were higher than in the rest of the UK. A high proportion of patients were diagnosed in non-GUM settings, which may reflect increased provision of testing. Unfortunately, the majority of patients had one or more clinical indicator diseases present; this would suggest that opportunities are still being missed.

P146

Audit of HIV testing in adult sickle cell disease patients, aged over 16, being admitted to an Acute Care Unit, January to April 2014 inclusive

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Background: Literature on the interaction of sickle cell disease (SCD) with HIV is limited, particularly with regards to HIV testing. 2014 NICE guidance advises acute hospital admissions with sickle cell crises (SCC) are treated as acute medical emergencies (AME). Whilst the local SCC protocol advises blood tests for all admissions, in practice, this is discouraged for recurrent uncomplicated SCC (USCC). Our Acute Care Unit (ACU) has an opt-out HIV testing policy, in line with national guidance to test medical admissions in areas of high HIV prevalence. The local HIV prevalence is 8.25/1000 and the SCD admission rate the highest in the UK at 837.4/100 000 (2009/10). The purpose of this audit was to review HIV testing in SCD patients (SCDP) presenting to our ACU.
Methods: Electronic patient records (EPR) were searched for all ACU admissions and data collected on demographics, presenting complaint, HIV tests and results. Where SCDPs did not have an HIV test in the audit period, EPR was searched for evidence of testing in the 6months either side.
Results: There were 125 SCDP admissions accounting for 4.7% of all ACU admissions. 64 were readmissions. Admission rate in the audit period ranged from 1-7 per SCDP, mean 2.0 admissions per SCDP. For the 61 SCDPs making up the 125 admissions, mean age was 35years. 98.4% of SCDPs were under 60 versus 47.0% of other AMEs. 50.8% were Black African (BA) versus 7.0% of other AMEs. Of the 61 SCDPs, 18 (29.5%) had an admission HIV test in the audit period. 18 SCDPs (29.5%) did not have a test either in the audit period or in the 6months either side of it. 71 of 108 admissions with USCC had admission blood tests, with HIV tests included for only 15 of these (21.1%). Overall, for first presentation in the audit period, testing rates were similar for SCDPs (24.6%) and other AMEs (26.6%), reducing to 16.0% taking into account all SCDP admissions over the audit period (23.1% for other AMEs). There were no new HIV diagnoses in SCDPs, 4 in other AMEs.
Conclusion: Although there is no significant difference in HIV testing rates between SCDPs and other AME admissions, there is room for improvement and with 2011 NICE guidance on increasing the uptake of HIV testing in BAs, SCDPs are a key group for testing. Given their frequent contact with acute

medical services, in addition to outpatients, opportunities should not be missed for testing SCDPs. A more comprehensive audit of HIV testing in SCDPs across both settings is recommended.

P147

Is the acute medical unit (AMU) the right place for HIV testing? A real life look

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Background: Previous studies have looked at the feasibility of offering HIV testing to all patients attending an AMU. They have found that the test was acceptable to patients, but was still not being routinely offered. Physician imposed barriers and the difficulties of implementing widespread testing often being cited as the cause. This study aimed to look at whether or not testing was offered, in line with 2008 BHIVA guidance, where 'HIV, including primary HIV infection, enters the differential diagnosis' to see if this was a more practical way to offer testing on an AMU.
Methods: Data was collected prospectively on 212 patients (100 in the first round and 111 on reaudit). Patients were included if they had been reviewed by a Consultant this admission. Those that had a diagnosis where HIV entered the differential diagnosis were cross checked against their investigations to see if a HIV test had been done. The findings were presented at a meeting of the 28 Consultants who cover the AMU before being reaudited.
Results: Of the 100 patients assessed in the first round only 16% were appropriately offered HIV testing. The most common indicator for which patients were appropriately tested was thrombocytopaenia (n=10). On reaudit 20% (n=22) of patients were offered a test. Thrombocytopaenia was still the most common indicator (n=6), however tests were more appropriately offered with the next most common diseases being pyrexia of unknown origin (PUO), bacterial pneumonia and co-infection with other blood borne viruses (BBV), (all n=3). It is worth noting that not all patients presenting with these were tested. Patients under 65yrs with indicator diseases were significantly more like to be tested in both audits, 37% vs 7% ($p<0.0001$). All of the patients tested were negative.
Conclusions: Although in many cases it was felt that it was probably appropriate for HIV testing not to have been offered, there was no clear documentation regarding this decision. Equally there were some cases where HIV testing should have been offered and wasn't.
As the brief intervention did help to increase the number of patients tested appropriately, this suggests that, in part, a lack of awareness by physicians is still playing a role in these low numbers. Whilst the AMU may not be an appropriate setting for all patients to be offered a HIV test, it is still appropriate for targeted screening and the logistics of effectively implementing this need to be considered.

P148

HIV testing of acute medical admissions – any sign of progress?

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Background: BHIVA 2008 guidelines state that in high prevalence areas, all medical admissions should be offered an HIV test. We have previously identified low rates of offer and uptake of HIV testing in the acute medical setting despite our busy district general hospital serving three boroughs with high local HIV prevalence. We sought to determine whether testing rates had changed under the existing opt-in model.
Methods: We conducted an audit of all adult medical admissions over a 7 day period in September 2014. Individuals tested for HIV within 24 hours of admission were identified by searching on our lab portal. We also performed a qualitative survey of 31 doctors of all grades from the Acute Medical Unit (AMU) regarding their attitudes to HIV testing.
Results: 232 individuals were admitted over the period examined, 2 of whom (0.9%) were tested for HIV. Of the 31 doctors surveyed, 22 (71%) expressed an awareness of recommendations for testing all medical admissions, of whom 4 specified this was determined by high local prevalence. However, only 8 (26%) said they tested everyone in practice, with 19 (61%) performing a degree of risk-assessment of the patient, quoting a range of arbitrary criteria. Drivers for not testing all patients included anxieties around consent ("not sure if discussion with the patient is still obligatory"); patient reaction to the offer of a test ("afraid to ask"; "may think that you suspect them of being HIV positive") and whether the doctor felt the test was clinically indicated ("not relevant to the patient's condition"). Other issues were the time to do the test or receive a result, the practicalities of obtaining a specimen to test, or the test being perceived as too costly ("waste of resource"). Some doctors admitted to forgetting about testing, or cited issues with the medical admissions proforma.
Conclusion: Observed rates of testing in the acute medical setting have actually fallen since we last examined this. Awareness of testing guidelines amongst clinicians does not necessarily lead to their implementation, and barriers to testing persist despite several educational and awareness-raising interventions since 2008. We believe that an opt-in model, or indeed any model that requires specific discussion around HIV testing, does not work in the setting of acute medical admissions in a high-prevalence area. We propose embedding HIV testing in the routine battery of investigations performed in all medical admissions.

P149

An audit reviewing contraceptive methods in a small group of HIV-positive women at a sexual health clinic

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Background: Regular review of contraceptive methods in HIV positive women is important to help prevent on-toward drug interaction and un-intended pregnancies. The British HIV Association (BHIVA) recommends all HIV positive women not on therapy be offered all forms of available contraception and those on therapy to avoid certain hormonal combinations. The aim of the audit was to determine whether the contraceptive needs of HIV positive women attending a sexual health clinic were met in accordance with guidelines.
Methods: All HIV positive women were selected from an electronic patient record (EPR) system. Twelve patients were found. A Microsoft spreadsheet was constructed and the following areas were recorded: length of diagnosis, CD4, Viral Load, HIV regimen, contraceptive method and partner/ child status.
Results: Of the patients reviewed, 10 (83%) were White British, 1 of mixed background (8.5%) and 1 Black African (8.5%). Patients' age ranged between 25 and 50 years, suggesting many will be of child-bearing age. The length of diagnosis ranged from 1996-2014. The majority of women 8 (66.6%) had a CD4 count of >500 and the remaining 4 (33.3%) possessed a CD4 count of <500, the lowest recorded being 102. The viral loads were undetectable in 7 (58%) of the cases, 3 (25%) had low level virus (long-term non-progressors) and 2 (17%) failed to suppress post switching. 9 (75%) women were on HIV therapy and the remaining 3 (25%) were deemed long-term non-progressors not requiring treatment. Of the patients on therapy the regimens included Eviplera, Truvada/ Darunavir/Ritonavir, Striblid, Truvada/Atazanavir /Ritonavir and Darunavir/Maraviroc. 8 (66.6%). Only one (8.5%) patient had a documented form of contraception, the IUD coil in her notes. A quarter of the patients had children who ranged in age from 12 months to 25 years. They all tested negative for HIV. Half of their partners were tested for HIV. 4 (66%) tested positive.
Conclusion: The cohort demonstrated stable well controlled HIV infection on and off therapy however, their contraceptive needs may have been over-looked. There is need for a robust system to ensure all patients where necessary are established on a reliable form of contraception, especially those between age 25-35 years as they all have regular partners.

P150

Missed opportunities for HIV testing: A look-back at newly diagnosed patients attending an outer London HIV clinic

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Background: Almost a quarter (24%) of people with HIV in the UK are unaware of their infection. Late diagnosis is associated with increased mortality and morbidity, increased transmission and cost. National guidelines for HIV testing (2008) aimed to normalise and increase testing in all

healthcare settings. We work in an area of high HIV prevalence (>2:1000) and high rates of late diagnosis, but these guidelines are not fully followed. We aimed to look at our newly diagnosed patients and assess whether there were missed opportunities for testing earlier.
Methods: A retrospective case-note review of all newly diagnosed patients seen in our HIV clinic from 1st January – 31st December 2012. Electronic and paper records were interrogated for hospital attendances. GP attendance was inferred from referral letters or blood tests requested by GPs.
Results: 56 patients were identified. The median age was 39.5 years (range 20 – 64) and 55% were male, 45% female. Ethnicity: 59% Black African, 30% White, 11% Other. Mode of acquisition: 57% heterosexual, 14% MSM, 29% Other/Not known. 87.5% were already registered with a GP and 75% had never had an HIV test prior to their diagnosis. Site of testing: 39% genitourinary clinic, 23% inpatient setting, 16% antenatal clinic, 13% other outpatient clinic, 7% primary care and 2% emergency department (ED). 63% were diagnosed late (CD4 < 350 cells/mm^3) with 45% diagnosed very late (CD4 <200 cells/mm^3). Within the preceding year 52% of patients had seen a doctor without being tested and 39% of them had an indicator condition which should have prompted an HIV test being offered. One patient had been seen by 13 different specialities in the year before HIV testing was prompted by CMV retinitis.
Conclusions: Our study shows high rates of late diagnosis with 63% of our patients diagnosed with CD4 counts of < 350 cells/mm^3. Half of these patients had been seen by a doctor within the year preceding diagnosis representing missed opportunities for HIV testing. Most diagnoses occurred in settings where opt-out testing is already routine (genitourinary and antenatal clinics). We recommend educating our colleagues in primary and secondary care targeting in particular those working in medical admissions, ED and GPs. We also recommend expanding HIV testing with a pilot offering opt-out testing in medical admissions.

P151

Prevalence of eosinophilia in newly diagnosed HIV

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Background: The prevalence and significance of eosinophilia in HIV remains unclear. We determined the prevalence and aetiology of eosinophilia in newly diagnosed HIV infected individuals.
Methods: Retrospective case note review on all patients newly diagnosed with HIV between June 2011 and June 2014. Data collected included eosinophil count, ethnicity, sex, CD4 count, and viral load (VL). Patients classified as eosinophilic at diagnosis (> 0.5 x 10^9 cells/L) had details of seroconversion status and medications collected from communication notes. Descriptive analysis and inferential statistics were done using Microsoft Excel, with Chi squared contingency tables and t-tests used for analysis.
Results: 1601 patients were newly diagnosed with HIV at this regional centre of which 1550 had eosinophil data at diagnosis. Of those with eosinophil data at diagnosis 95.8% were male, 75.9% Caucasian, mean age 34 years, median VL 71,497 copies/ml, and mean CD4+ count 513.53. 58 patients (3.74%) had eosinophilia at diagnosis.
Of the 58 eosinophilic patients, 6 (10.3%) were on medication at time of diagnosis, none of which was anti-parasitic medication or commonly associated with eosinophilic drug-reactions. 9 (15.52%) of the 58 eosinophilic patients were seroconverting at time of diagnosis. 33 patients had an eosinophilia at diagnosis and had eosinophil data available at 1 year. 18 of the 23 patients who began antiretroviral (ARV) therapy during that year (78.3%) had resolution of their eosinophilia compared with 5 of the 10 (50.0%) who did not start ARV therapy (p = 0.105).

Table 1:

	Patients with Eosinophilia (n=58) n (%)	Patients without Eosinophilia (n=1492) n (%)	p-value
Ethnicity			
Caucasian (n = 1102)	31 (53)	1071 (72)	0.036
Non-Caucasian (n = 350)	18 (31)	332 (22)	
Missing ethnicity data	9 (16)	89 (6)	
Sex			
Male (n = 1485)	56 (97)	1429 (96)	0.773
Female (n = 65)	2 (3)	63 (4)	
Mean CD4+	502.00	513.99	0.713
Mean Viral Load (copies/mL)	631,235	1,128,507	0.575

Conclusion: Our case note review found that eosinophilia is significantly more likely to be found in Non-Caucasians newly diagnosed with HIV than Caucasians. CD4 count, HIV viral load and gender were not found to be associated with eosinophilia. Aetiology remains unclear – ARV treatment was not significantly associated with eosinophil count changes.

P152

An audit of HIV testing in general medical patients within 24 hours of admission at a university teaching hospital in North West England

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Background: Acute medical admissions are an opportunity to offer HIV testing to patients, either as a routine test during initial diagnostic workup in specific patients or targeted testing for individuals presenting with indicator conditions, particularly in areas of prevalence exceeding 2 per 1000 population. This study aimed to ascertain if HIV testing was being offered to general medical patients within 24 hours of admission, in particular those with indicator conditions based on current BHIVA UK national guidelines HIV testing 2008. Data collection took place in the acute medical unit (AMU) of a teaching hospital in North West England where the prevalence of diagnosed HIV was <1 (0.93) per 1000 population.
Method: A spot audit of new patients admitted to the acute medical unit (AMU) was performed over a 4 day period in March 2014. Case note documentation was audited for evidence of consideration or performing HIV testing, within 24 hours of admission. All sexes and patients over age 16 years were included, admitted to AMU via A&E or GP route. Patients were seen by a variety of grade of doctor, from Foundation Year 2 (FY2) level to consultant. Those with a known HIV diagnosis or admitted by the corresponding author were excluded.
Results: 93 patients were audited, age range 19-91 years. No patients had documented evidence of consideration or performance of HIV testing. 11 patients had a working diagnosis of an indicator condition detailed in the guidelines and therefore testing should have been considered and performed as appropriate. The most common indicator condition was bacterial pneumonia.
Conclusion: HIV testing is not being considered early in general medical admissions, despite patients presenting with indicator conditions for HIV testing. Regardless of low local prevalence (0.98 per 1000 population) some patients should have been considered for testing in this data set. Relevant social, travel and sexual history is often poorly documented. The reasons for this may be lack of understanding of consent, confidentiality and current guidelines; as well as time constraints imposed during an acute medical take. Targeted education of medical staff guidelines may improve the number of HIV tests performed in this setting in future.

P153

HIV testing in clinical indicator disease, a retrospective re-audit

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Background: HIV is a treatable medical condition and the majority of those 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 HIV infection and remain at risk to their own health and of passing their virus unwittingly on to others. Late diagnosis is the most important factor associated with HIV-related morbidity and mortality in the UK[2]. Patients should therefore be offered and encouraged to accept HIV testing in a wider range of settings than is currently the case[3]. Patients with specific indicator conditions should be routinely recommended to have an HIV test[1].
Aim: To conduct an audit evaluating how effectively the UK guidelines for HIV testing are being followed, with regard to patients presenting with the clinical indicator condition of TB.

Objectives: A retrospective re-audit, to identify if standards of diagnosing and managing TB and HIV had improved at GWH in 2011 and 2012 compared with 2008, 2009 and 2010.
Methods: The respiratory department retrospectively identified new cases of TB, between January 2011 and December 2012, using the tuberculosis register and coding of inpatient notes. The patient hospital numbers were used to search for them on the Trust patient management system. Correspondence from clinic letters, microbiology samples and blood test results were used to identify several criteria.
Results: 72% of patients were offered HIV tests. 90% accepted.
65% of patients were HIV tested.
Of all patients who accepted HIV testing 100% had a confirmed negative test.
Conclusion: Patients are either not being offered testing when appropriate or they are declining testing when it is offered. There needs to be greater education about who should be tested for HIV, and what the benefits of a routine HIV test are. There also needs to be better documentation of who has been offered a test.
Further auditing of other clinical indicator diseases would help to evaluate current practise in relation to the guidelines.
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2. BHIVA/BASHH/BIS UK National Guidelines for HIV Testing, 2008.
3. Sir Liam Donaldson, CMO & Christine Beasley, CNO. Improving the detection and diagnosis of HIV in non-HIV specialties including primary care. 13 September 2007.

Psychosocial Issues and Quality of Life

P154

What do young adults with perinatally acquired HIV think about onward HIV disclosure interventions? A survey of attendees at a London transition service

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Background: An important challenge for young people with perinatally acquired HIV (PaHIV) is onward disclosure (disclosing their HIV status to others). There is little onward disclosure guidance for young people with PaHIV or professionals working with this population and no published disclosure interventions for PaHIV. Increasing onward disclosure to friends, family and partners may enhance social support, improve self-esteem and wellbeing, facilitate antiretroviral adherence and decrease onward HIV transmission.
Methods: Anonymised survey of young people with PaHIV attending a specialist transition service in London to inform the development of a behavioural onward disclosure intervention. Paper based questionnaire assessing: HIV disclosure difficulty, interest and desirable features of a future HIV disclosure intervention (e.g., format, sex, peer support), and barriers to HIV disclosure.
Results: 57 young people, median age 21 (range 17-28) years, 26 female, completed the survey. Thirty six of 57 (63%) either agreed or strongly agreed that onward disclosure was difficult. Twenty one of 57 (37%) were not interested in taking part in a future intervention, 25 (44%) were unsure, and 11 (19%) expressed interest. There was no correlation (r=0.04) between perceived HIV disclosure difficulty and interest in a future intervention. Group (23/57) and mixed individual and group formats (21/57) were preferred. Most were keen on mixed sex groups (52/57) and peer worker involvement both within and outside of the intervention (54/57). Barriers to HIV disclosure included; attitudes (e.g., *"I do not want to tell anyone I'm HIV positive"*), normative beliefs (e.g., *"My friends or family would not want me to take part in a course"*) and control beliefs (e.g., *"I would not trust other people taking part in the course to keep my HIV status secret"*).
Conclusion: Perinatally infected young people experience significant difficulties in disclosing their HIV status to others but are ambivalent about receiving structured disclosure interventions. Efforts to develop HIV disclosure interventions should engage with young people to address (a) HIV disclosure barriers and (b) barriers to taking part in disclosure interventions. Designing interventions with features that are preferred by young people (e.g., group or mixed format, mixed sexes and with peer worker involvement) is likely to enhance the acceptability and uptake of future HIV disclosure interventions.

P155

Patient-reported outcome measures used in the evaluation of a specialist HIV psychology service

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Background: People living with HIV (PLWH) are more likely to develop mental health problems than the general population. In 2011 BHIVA published standards for psychological support for adults living with HIV including the use of Patient Reported Outcome Measures (PROMs) to audit services. This study uses PROMs to evaluate the efficacy of psychological support for adult PLWH by a specialised HIV psychology team at an HIV treatment centre.
Methods: In this cross-sectional study, 663 patients were referred to the HIV psychology team from June 2012 to September 2014. Referrals are accepted for new and existing HIV patients and therapy sessions focus on specific problems with brief models of intervention. At the end of therapy, patients were invited to complete an anonymous questionnaire, asking them to evaluate on 5-point Likert scales: a) the scale of the problems they experienced before and after therapy, b) the impact of therapy on eight specific issues and c) their overall experience of the service. They were also asked whether or not they would recommend the service to family or friends.
Results: 74 responses were received. The largest group of patients (27%; 20/74) were seen 7 to 9 times. Before intervention, 81% (60/74) of patients reported that their problems were affecting them either "very much" (Likert = 4) or "extremely" (Likert = 5). After intervention 93% (69/74) of patients noticed an improvement and there was an average of 1.9 Likert score reduction. 86% (64/74) reported that others had noticed a positive change in their ability to cope. The commonest specific issues covered were "dealing with depression" and "dealing with anxiety" (91% and 86% respectively) and the least common issues covered were "discussing safer sex" and "disclosing HIV status" (58% and 59% respectively). 55% (41/74) of patients noticed an improvement in how they were able to cope with their specific issues; no patients reported a deterioration. All the patients were satisfied with the service (Likert = 4-5) and 82% (61/74) were very satisfied (Likert = 5). 97% (71/73) of patients would recommend the service to family or friends and 93% (68/73) would be prepared to use the service again if needed.
Conclusion: Psychological therapy provided to PLWH at our HIV treatment centre has a beneficial effect on psychological wellbeing as evidenced by PROMs. Further evaluation is required to determine the efficacy of intervention at various time points in the patient's disease course.

P156

Health and financial problems in HIV-positive MSM aged 50 and older

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Background: An increasing proportion of patients with HIV accessing care are aged 50 and older. Previous studies of this group have found high levels of health problems including depression, and financial difficulties. However these studies are limited, including only self-selected participants and lacking control groups. We report findings from a questionnaire-based study of fifty randomly selected HIV-positive MSM aged 50 or over, and fifty aged-matched, HIV negative MSM controls.
Methods: HIV positive gay men were recruited from a patient-led cross-sectional study at a large hospital. Patients were randomly selected from clinic lists to minimise selection bias. Controls were recruited from settings including the social networking application Grindr, a GUM clinic and newspaper advertisements. Subjects were recruited between April 2013 and December 2014. Patients completed a pseudo-anonymised questionnaire which included a depression screening tool (PHQ-9), and questions on health, working status and finance. Outcomes in the groups were compared using Fisher's exact and Wilcoxon rank-sum tests.
Results: A significantly higher proportion of positive subjects scored highly on the PHQ-9 scale (moderate to severe depression) compared to controls (30.6% versus 4.1%, p-value=0.001). A greater proportion of positive individuals were also unable to work due to long term illness (30.5% versus 4.0% p-value=0.003) and had difficulty managing on their income (42.9% versus

22.9% p-value= 0.05). Positive men had a greater number of self-reported health problems (1 to 18 versus 1 to 6, p-value=0.01) and symptoms (1 to 40 versus 1 to 16 p-value= <0.001). The most commonly reported symptoms in the positive group were diarrhoea, fatigue and disturbed sleep while for controls it was disturbed sleep, heartburn and dermatological problems.
Conclusion: This study confirms previous findings of significant health and financial problems in HIV positive gay men aged 50 years or older. The prevalence of several problems was significantly higher than in age-matched HIV-negative controls. Despite the success of long-term ART this group experiences ongoing poorer health.

P157

Self-reported adherence to antiretroviral therapy amongst young adult patients at a London HIV centre

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Background: Adherence to antiretroviral therapy (ART) has been shown to be poorer in young adults (15-25 years) living with Human Immunodeficiency Virus (HIV) compared to younger or older patients. The aim of this study was to determine current ART adherence support methods used by patients at the Young Adults' Clinic (YAC) to guide the future management of YAC patients.
Methods: An anonymous questionnaire was distributed to YAC patients at a large London HIV centre between December 2013 and December 2014. Participation was voluntary and the inclusion criteria were: age 15-25 years, HIV infected and currently on ART.
Results: 28 YAC patients responded: median age 21 years; 52% female; 50% vertical transmission. 74% took three or more pills per day, 100% took ART once daily; 57% patients had good adherence in the past month, defined as having taken >95% ART doses.
Methods to support adherence used: 61% having a routine; 50% understanding health benefits; 46% "just remembering" to take ART; 18% having a reminder system.
Reasons for missed ART: 57% forgetfulness; 32% being too busy; 29% being fed up with treatment; 25% in the presence of others at the time ART was due; 14% due to side effects.
At weekends: 42% missed a weekend dose (MWD). 80% who had MWD reported <95% adherence versus 29% who had not MWD. There was a strong association between MWD and having <95% adherence (p=0.01).
On a scale of 1-10, patients were asked about: importance of taking medication regularly; support from family and friends to take ART; optimism to live a long and healthy life on ART (mean scores of 9.8, 8.3 and 9.4 respectively). Patients who rated the above factors highly were more likely to have >95% adherence (p=0.02, 0.07 and 0.05 respectively).
Conclusion: A significant proportion of YAC patients reported <95% adherence. Patients using physical methods (dosette boxes, pill key rings, phone apps) were not shown to have better adherence. Patients who MWD were more likely to have <95% ART adherence. One study from Miami reported "weekend-ing" (skipping ART during the weekend due to alcohol) in 20% of all adults living with HIV that were surveyed. Exploration of possible interventions that could support young adult patients at weekends, addressing their psycho-social needs and improving social support and motivation is vital.

P158

Peer Navigators – can patient-led support contribute to clinical and well-being outcomes?

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Background: HUH is in a high HIV prevalence area with a diagnosed prevalence of 8.11 per 1000 (London average 5.8/1000).

- Approximately 1,100 adults receive HIV care at HUH.
- 75% women and 75% from ethnic minority communities
- Approximately 100 new diagnoses are made annually
- Approximately 50 women living with HIV give birth in the hospital.
- Significant numbers are within the immigration system, compromising their eligibility for statutory support and increasing their vulnerability.
- Poverty, housing and food security are common problems, exacerbated by welfare reforms

We wanted to increase capacity to meet growing support needs by appointing "Peer Navigators" (PNs): patients trained and employed to provide peer support.
Methods: Working in partnership with Positively UK, 3 patients were appointed through a competitive selection process. They were trained and accredited, receiving an NVQ Level 2 in Peer Mentoring from the Open College Network. Supervision was provided by the clinic's Social Care Co-ordinator and Positively UK's Peer Case Worker. Support was provided during all HIV clinics. PNs worked with patients to identify needs and priorities, set action plans, work towards agreed goals and undertake advocacy with third party agencies. The service was evaluated internally using an outcome star, with patients self-assessing on a 10-point Likert scale upon registration, with reviews throughout, and upon completion of the support programme. Exit interviews with patients assessed to what extent needs had been met.
Results: 40 patients with high level needs were supported through 200 hours of one-to-one support; 70% had increased uptake of services ranging from benefits advice to immigration and hardship support. 76% reported an increase in disclosure and talking to others about HIV; 53% reported being in a better financial position. Adherence to HIV medications was generally high across the cohort nevertheless just under half said their understanding and adherence had improved, 23% reported a significant improvement. One Peer Navigator has since gained further employment as a result of the project
Conclusion: Embedding peer support within the clinic is an effective way of skilling up patients and providing essential peer support, information and advocacy. Collaboration and harnessing the skills of the clinic and voluntary sector were crucial to the success of the project. The Peer Navigator model is replicable and could be rolled out to other centres.

P159

Altruism and medical advice are key factors in decision-making about participating in HIV cure research: Results from a UK-wide survey of people living with HIV

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Background: The importance of involving People Living with HIV (PLHIV) in the conception and design of HIV research has long been recognised. It is particularly important in early-phase HIV cure research (HCR) which has uncertain risks, and low likelihood of personal benefit. We explore patient interest in HCR, motivations for participating, and factors involved in the decision-making process.
Methods: PLHIV were recruited through social media, HIV websites, and HIV list-serves to complete an online survey exploring attitudes towards HCR participation. An optional free-text box at the end of the survey elicited a large and detailed response from many participants. Themes were identified from the survey topics and text was coded and analysed.
Results: Comments were provided by 26% (258/982) of respondents. 81% were male, 71% MSM, 71% white, 49% aged 45-64, median 9 years from diagnosis, and 90% on ART. Overall, support for HCR was high, with 86% of comments supportive of HIV cure and HCR. Whilst many expressed a desire for a cure, few expressed a preference for a particular type of cure (eg. sterilising - 4 participants (1.5%)) or functional - 5 participants (1.9%)). Reasons for desiring a cure included treatment fatigue (4 participants), concerns for long term effects of HIV (5 participants), and psychosocial issues (stigma, self-esteem, and relationships) (9 participants). Many (39 participants (15%)) discussed the decision-making process and weighing up potential risks (eg treatment interruption) and benefits. For some, the expectation of personal health benefit was important to counteract risking good health. However, participation without benefit was a more emotive topic, where social and scientific altruism were strong drivers to participate (mentioned by 18 (7%) participants). Regardless of personal drivers and risks-benefits, many stressed

their decision would be based on having adequate information, time and, ultimately, medical advice.
Conclusion: A cure for HIV remains a research priority for PLHIV, reflected by the high number contributing comments to the survey. The importance of patient-clinician trust in decisions about participating in HCR is demonstrated and highlights the need for clear and independent patient information. Altruistic reasons are the main motivator in decision-making for many potential participants, regardless of risks-benefits, and ethical implications must be critically evaluated in this context when designing studies.

P160

Evaluation of patient satisfaction with antiretroviral therapy using a discrete choice experiment

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Background: Current antiretroviral therapy (ART) is highly effective although often associated with side effects, long-term toxicities, and sometimes food restrictions. It is important to understand treatment preferences of people living with HIV (PLWH), as well as factors that impact treatment satisfaction and quality of life which may influence adherence. This study explores the relative strength of patient preference for different attributes of treatment through a quantitative discrete choice experiment (DCE) and their satisfaction with treatment through qualitative interviews.
Methods: The DCE template was constructed with seven treatment characteristics (viral load, CD4 count, diarrhoea, long term health problems, treatment failure, food restrictions and drug-drug interaction; each with three categories) that were defined following a literature review, input from DCE design experts, PLWH and clinicians as the most important treatment attributes. Recruitment was conducted via vendor panels and at two clinical sites. Odds ratios (ORs) were calculated by fitting a mixed logit model of patient preference for ART with all respondents (with alternative-specific constant term). Concept elicitation interviews were conducted with PLWH following a semi-structured interview guide. Data was analysed using coding software MAXQDA.
Results: A total of 329 PLWH in the UK took part in the DCE; 68% male, mean age 51 years (SD, 11.2) and a total of 20 PLWH were interviewed, 80% male, mean age 49 years (SD, 12.72). Analysis of the DCE data demonstrates that all seven attributes were important in predicting PLWH treatment choice. The strength of some of these of these attributes such as avoidance of long term toxicities, diarrhoea, drug-drug interactions (DDIs) and food restrictions were most important. The qualitative interview results reinforced these findings and demonstrated the importance of treatment satisfaction and adherence.
Conclusions: This is the one of the largest studies using a DCE to explore the strength of preference of medication characteristics for PLWH. A number of treatment attributes are strong drivers of treatment preference such as avoidance of long term toxicities and diarrhoea. Qualitative interviews have contextualized these attributes by highlighting the importance of impact on employment, their social environment and adherence to mediation. However, they are not exhaustive and additional attributes may also be important.

P161

Disutilities associated with central nervous system (CNS) side effects of antiretroviral therapy (ART) in HIV

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Background: The introduction of highly effective anti-retroviral therapy (ART) in human immunodeficiency virus (HIV) has led to substantial reductions in morbidity and mortality. However adverse events (AEs) associated with ARTs are common and may lead to discontinuation, reduced adherence and worsening of health-related quality of life (HRQL). This study aimed to elicit societal disutility values for central nervous system (CNS) side effects associated with ARTs in the UK, France and Spain (only UK data are shown).
Methods: Health states were developed from concept elicitation interviews with HIV patients (N=9) and one specialist clinician in the UK. Health states were developed to describe a stable HIV health state (on treatment), and nine CNS side effects associated with ARTs (abnormal dreams, insomnia, anxiety and depression, suicidal thoughts, balance and coordination problems, attention difficulties, dizziness, headaches and somnolence). Draft health states vignettes were developed and cognitive debriefing interviews were conducted with patients and clinicians (N=3 in total). Revisions were made following the interviews and the health states were piloted with general public in each country to check understanding. The vignettes were evaluated by 100 members of the public in the UK using the time trade-off method.
Results: The sample (N=100) was representative of the general UK population demographics in terms of age, ethnicity and education level. The stable health state had a utility value of 0.96 (95% confidence intervals (CI): 0.95 – 0.98). The overall disutility of the CNS side effects ranged from -0.11(attention difficulties; 95% CI: -0.08 - -0.14) to -0.72 (suicidal thoughts; 95% CI: -0.64 - -0.80) from the stable state. The overall disutility values for the other side effects were: -0.12 (headaches), -0.14 (dizziness), -0.15 (insomnia, somnolence), -0.16 (abnormal dreams), -0.21 (balance and coordination problems) and -0.49 (anxiety and depression).
Conclusions: The results suggest that CNS side effects cause significant burden and impact on HRQL. Society places particular value in avoiding AEs such as suicidal thoughts, anxiety and depression and balance and coordination problems. The current utility values highlight the negative impact of AEs of ARTs and can be used in future economic evaluations of ARTs.

P162

Compassion-focused therapy for people living with HIV: Pilot of a mindfulness and compassion-based cognitive therapy group

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Background: Low mood, distressing physical symptoms, medication side effects and/or disability are part of the experience of many people living with HIV. Low mood and distress can affect long-term health as well as adherence and sexual risk-taking. Shame and stigma associated with HIV impact on disclosure, ability to access social support and long-term adjustment to the diagnosis. Compassion Focused Therapy (CFT) was developed to target shame and complex mood difficulties (Gilbert, 2011). The aim of the group is to assess whether CFT is a useful adjunct to usual MDT care for HIV outpatients.
Method: Develop, facilitate and evaluate an eight week CFT group for people living with HIV in a community voluntary sector setting. Patients were screened individually for suitability including mood, stressors, vulnerability and ability to attend sessions. The group comprised weekly two hour sessions of psychoeducation on attention, affect and emotional regulation, mindfulness practices and CBT around self-criticism and shame. Outcome measures included daily functioning (WASAS), distress (HADS), self-compassion (Raes et al, 2011) and visual analogue scales on coping and support. Qualitative feedback and patient satisfaction data were gathered through questionnaires and participant interviews at the six week follow-up group.
Results: Of 15 patients, 12 participants completed the programme, one dropped out and two were unable to attend sessions. Feedback and outcomes from the group were positive. Participants reported less distress, feeling calmer and more connected, understanding emotions and learning to be mindful. The group valued exploring ideas around HIV shame/stigma, self-compassion and mindfulness practice skills focussing on the 'here and now'. Closer links to community services and development of a monthly mindfulness drop-in group were service related outcomes.
Conclusion: A pilot Compassion Focused Therapy group was found to be supportive and useful for patients living with HIV. Participants valued education around emotions and role of self-criticism, group support, developing mindfulness skills and the challenge of learning to be accepting of difficult experiences and 'to be kind to ourselves'. CFT groups may be an affective way to improve access to psychology services and alleviating psychological distress and facilitating acceptance and resilience in PLWH.

P163

How many different non-HIV outpatient specialty services do people living with HIV typically attend? Potential implications of HIV service centralisation on journey times and quality of care in rural areas

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Background: Nationally, 1 in 4 people living with HIV (PLWH) are over 50 years old. Ageing PLWH exhibit increasing HIV and non HIV related co-morbidities. Polypharmacy, with potential for anti-retroviral drug-drug interactions is concerning. Discussion with colleagues in primary and secondary care and experience of local pathways facilitates safe management. Proposed centralisation of HIV inpatient and complex outpatient care to larger regional centres risks weakening links between local HIV physicians and other specialties and may compromise local outpatient management of HIV and co-morbidities. For our rural HIV population, we investigated 1) how many local hospital outpatient specialties patients accessed in the last 2 years; 2) how far they travel to attend these clinics 3) distance from their homes to our regional centre.
Method: Retrospective review of electronic health records for all our registered HIV patients, to assess type and number of outpatient specialities each patient attended over the previous 2 years. Acute attendances and hospital admissions were excluded as were psychiatry attendances as these records are kept on a separate hospital system. Specialties were only included once per patient.
Results: 15 of 182 registered patients with no matching local hospital records were excluded. Over 2 years, 167 patients attended 46 outpatient specialities. Mean age of patients was 48yrs, range 25-75yrs. 30(18%) were aged 60yrs or over. Mean number of specialities seen was 1.96 per patient. Excluding 51 patients with no appointments, average number of specialities increased to 2.83per patient. The most specialities seen by a patient was 9. The most frequently attended were: Oral Surgery (27), General surgery (22), Gastroenterology, Hepatology, Dermatology and Rheumatology (15-17 each). Excluding 4 patients who did not live in-county, patients are currently travelling up to 52.2 miles to attend appointments. Average distance between a patient's residence and the regional HIV centre is 160 miles.
Conclusion: Cross-specialty attendances are common and likely to increase as PLWH age. Patients already travel large distances to access care. Downgrading local HIV services would increase journeys for some of our most unwell patients to over 200 miles each way. Local expertise in managing medical and surgical conditions in PLWH would decrease. The risk of late HIV diagnosis by other secondary care specialists may increase as they see fewer HIV patients.

P164

Perceptions of support amongst adolescents living with and affected by HIV

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Background: Adolescents living with and affected by HIV are disproportionately vulnerable to poor health and social outcomes. The purpose of this service-improvement related needs assessment was to identify factors that the adolescents (herein referred to as participants) view as risky or protective in their lives, with a focus on factors that bring confidence or strength. This abstract specifically focuses on participants' relationship with key individuals. Results from this assessment were used to shape third-sector support services.
Methods: A survey comprising multiple choice and short-answer questions was administered to a convenience sample of 24 adolescents between the ages of 13-20. Survey questions were developed along with HIV-positive peer mentors. The survey focused largely on relationships and relationship quality, as it was an area that peer mentors identified as essential to young people's lives.
Results: Half the participants were female. All identified as Black-African or Black-British. 1/6 lived alone or with siblings, and 5/6 lived with at least one parent, of whom 1/5 lived with both parents. 2 respondents talk about HIV with friends outside of charities. Participants inconsistently discussed HIV with family members. 7 never had discussed HIV directly with family members, 5 only ever discussed HIV with family during naming of HIV, 5 only talked to certain people in their family about HIV, 5 felt they could talk to someone in their family about HIV whenever they wanted to, and only 1 participant stated that their family was open about HIV. Despite inconsistently discussing HIV in the home, participants rated their overall quality of communication with parents as good (mean 7.29/10). All HIV positive participants felt more confident communicating with their HIV consultant than wit their friends (means 6.31 and 5.79 respectively), a result which should be explored in greater depth.
Conclusions: Reliable support improves health outcomes of people living with long-term conditions. Social support and acceptance is especially important in stigmatised conditions like HIV. This assessment provides initial evidence that the degree of connection between adolescents living with HIV and key persons around them is highly variable and dependent on the individual. This information could help improve service provision, especially as it relates to transition. Further, better powered research is needed.

Service Development, Education and Training

P165

Transfer audit: Review of the local pathways for HIV patients transferring their care into the unit and of the quality of information provided by the 'sending' unit, June 2013–2014 inclusive

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Background: Standard 2 of the 2013 BHIVA Standards of Care for People Living with HIV states the need for clear pathways for sharing information, in line with the BHIVA Investigation and Monitoring Guidelines, when patients transfer their care between units. Neither the Standards of Care, nor the Guidelines set audit standards for this. The purpose of this audit was to review local pathways for patients transferring in to the unit and to assess the quality of transfer information (TI) given by 'sending' units (SU).
Methods: Electronic patient records (EPR) were searched for patients transferring their care to the Unit. Paper notes and EPR were reviewed for documented evidence of the local transfer pathway being followed, including requests for TI being sent. Timing of receipt of TI was checked. Quality of the TI received was reviewed for inclusion of all the data advised in the Guidelines.
Results: Of 68 cases audited, over 30% transferred from non-UK based units and almost 25% had previously had care at more than 1 unit. For 47/68 cases, there was documented evidence of the local TI request proforma being faxed to the SU. In 7 cases, more than 1 request was sent. Where TI was requested, this was received within the recommended 2 weeks for 38% of cases. In 18 cases, TI was received prior to first presentation to the unit. Overall, TI was received in 59/68 cases, of which 13 were from non-UK units. For 50/59 cases, TI was available for their first doctor review in the unit. The full set of data as set out by the Guidelines was not received in any cases. Most had TI sent about their current CD4 count (93%), current viral load (88%) and date of diagnosis (86%). More limited was TI about most recent negative HIV test (34%), vaccination history (42%), staging of HIV infection (15%), baseline resistance tests (61%), tropism (14%) and HLA B5701 status (46%). 15/48 on ARVs had the indication for starting documented. 19/37 who had stopped or changed regimens had the reason provided.
Conclusion: Optimal management of patients with HIV depends on a comprehensive medical record. Communication between HIV units on both a national and international level needs to be improved. A nationalised transfer proforma should be considered. National transfer standards, with regular audits against the standards, are needed.

P166

How the use of social media and online platforms can enhance recruitment to HIV clinical trials

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Background: In this era of technological dominance, online platforms particularly social media, have begun to dictate almost all aspects of

business and personal lives. Despite how frequently these platforms are used in everyday life, few have been utilised to aid clinical trial recruitment. Many trials face recruitment challenges, particularly if attached to stigmatised diseases such as HIV. We present our use of social media and online platforms in successfully enrolling 30 participants to a preventative Phase I HIV vaccine trial, which initially struggled to recruit.

Methods: Building on our established Twitter page, we created a trial-specific Facebook page, Blipfoto account and Wordpress blog. All platforms were linked to each other. Blog posts focused on participant experience and provided insight into the trial, while remaining anonymous and in line with ethics. We also used adverts to promote the trial costing £6750 in total. Data was collected on the number of enquiries returned per advertising source, and how this translated to enrolled participants.

Results:

Source of advertising	No. Enquiries (N=392)	No. enrolled (N=30)
Online platforms	174	10
Metro	168	9
London Pride Guide/QX magazine	16	2
Other Centre Referral	14	2
Word of mouth	9	5
AIDS Map Website	6	0
Radio advert	3	0
Guardian supplement	2	2

Conclusions: Our online platforms returned the most enquiries (174/392) converting to the highest number of randomised participants using this recruitment method (10/30). The Metro advert returned the 2nd highest number of enquiries (168/392) equating to 9/30 randomised participants, however this was costly and the response short-lived. Online resources by contrast are free to create, maintain and can remain accessible for as long as necessary. Furthermore we have created a solid database of interest with 349 subscribers to our Facebook page, 347 on Twitter and an ever-growing blog readership, with hits from all over the world. The audiences of all platforms are still growing, suggesting a definite and growing role for online platforms in clinical trial

P167

Developing nursing competencies for the delivery of integrated HIV and primary care services

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Background: Increasingly people living with HIV (PLWH) are stable and nurses deliver their HIV care. BHIVA standards recommend better involvement of primary care, however there are no evaluated models, competency frameworks or training programmes to define how best to develop the workforce. We aimed to:

1 Develop an integrated competency framework for nurse-led care of stable HIV patients
2 Develop a competency assessment tool
3 Benchmark a sample of HIV and practice nurses against the competencies
4 Identify training needs to bridge the gap between current and required competency

Methods: We undertook a literature search on 'nurse led HIV management' and 'long term condition management' and used this to inform development of a competency framework. We designed an on-line competency assessment tool and asked HIV nurses and Practice Nurses to self-assess against each competency using 4 skill levels: No experience, require further development, competent and expert.

Results: The literature review identified the National HIV Nurses Association (NHIVNA) competencies as the most relevant and they formed the basis of the competency framework. The assessment tool was sent to 135 nurses. 17 HIV nurses (53%) and 15 practice nurses (47%) completed the assessment (24% response). There was a significant difference in existing knowledge and skills for HIV competencies between HIV and practice nurses. 65-76% of specialist nurses were expert whereas 60-65% of practice nurses had no experience. HIV nurses were competent or expert in the majority of areas relating to psychological and emotional well-being. Practice nurses were more likely to need further development or have no experience. For more 'generic' competencies the self-assessed level correlates more with experience and seniority. For men's and women's health, sexual health and contraception there was a spread of competency across both groups and less difference between the groups. Overall the gap between HIV nurses being competent in all areas was smaller than the gap for primary care nurses.

Conclusions: We have developed a functional competency framework and assessment tool for nurses delivering integrated HIV and primary care services and identified skill gaps in both workforces. Training HIV nurses in aspects of primary care would be quicker than training practice nurses in HIV care. Further work is on-going to design training packages, which could be used either in primary care or specialist services.

P168

Significant benefit of a targeted HIV testing module on medical students' knowledge and confidence

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Background: Despite national guidelines for HIV testing, this issue can be overlooked by medical school curriculums and medical students may graduate with a limited knowledge about when and how to offer testing. With one quarter of HIV in the UK remaining undiagnosed, it is important to equip the next generation of clinicians to offer appropriate HIV testing. Our medical school introduced a targeted-testing teaching (TTT) session for fifth year medical students; here we evaluate its efficacy.

Methods: A short survey was developed and distributed to fifth year medical students. The survey assessed knowledge of HIV testing guidelines, confidence to offer testing and outcomes of TTT. Results were compared for those students who had completed GU/HIV modules (GU+) and those who had not (GU-) and chi-squared testing performed where appropriate GU+ students were also asked to rate the impact of TTT on their knowledge.

Results: 100 and 119 questionnaires were returned by GU+ and GU- students (a response rate of 92.6% and 97.5%) respectively. For the 3 knowledge-based questions, GU+ students were significantly more likely to provide correct answers for 2 ($p<0.001$). Similarly for the 2 confidence questions GU+ students were significantly more likely to feel confident in offering HIV testing ($p<0.001$). After TTT 92%, 98% and 62% felt more confident about when to test, more confident about how to discuss testing and more knowledgeable about testing respectively. Most students said they would be happy to offer and conduct HIV testing in a variety of medical settings; significantly fewer reported this for an acute admissions unit (AAU) compared with antenatal clinic (79% vs 96%).

Conclusion: GU+ students scored significantly better for 2 of 3 counterparts. Most students felt more confident and knowledgeable about HIV testing after TTT. Although most students were happy to offer and conduct testing significantly fewer were happy to do so in AAU compared with an antenatal clinic (where opt-out testing is well-established). This may warrant further exploration and consideration of context-based teaching (eg providing TTT in an AAU setting). For the future, the duration of the impact of the GU module and TTT could be assessed by repeating the questionnaire 12 months after completion or by assessing the impact of TTT on provision of HIV testing post-qualification.

P169

Antiretroviral drug wastage in a teaching hospital's sexual health and infectious diseases clinics

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Background: Antiretroviral therapy (ART) is expensive. Increasing demands on clinicians and departments to provide care with serious resource constraints have resulted in a shift from prescribing ART based on national guidelines (BHIVA, 2012), to protocols agreed locally and regionally with particular focus on minimising cost. Drug wastage is a significant, often unnecessary, drain on resources. We set out to quantify ART wastage in our cohort of HIV patients managed by the Sexual Health and Infectious Diseases units in a large city centre teaching hospital.

Methods: Pharmacy records were interrogated to identify all ART prescriptions from 1st April 2013 to 31st October 2014 inclusive. We calculated how much each patient should have received relative to their appointments and prescriptions in an 18 month period. Case notes, clinic letters and discussion with specialist nurses were used to determine reasons for excess dispensation in those identified to have more than the expected amount of ART. Broadly, these were labelled as 'switch', 'stable excess' and 'unscheduled visits', after which further descriptions were applied.
Results: From our cohort 950 patients were receiving ART whilst 150 did not require treatment. Of the stable patients (no switch) 303 had more than 18 months supply. Unscheduled visits by patients with lack of documentation was a common cause of ART wastage. In addition switches in ART led to thousands of days of drugs being discarded. Lost ART and stockpiling were also evident. Patients on STRs were less likely to have more than 18 months supply or discarded ART. In many instances the reason for repeat prescription was not clearly documented.
Conclusion: We found ART wastage to be common and significant. We recommend reducing the duration of prescriptions, for example to monthly for the first 6 months of ART, and 3 monthly then return for a restock without seeing a clinician for stable patients (same ART for >1 year). Use of electronic prescribing would make both prescriber and dispenser aware of quantity dispensed, and form a database allowing real-time interrogation of quantities. Stockpiling should result in 1 monthly prescriptions with pill counts and return of empty bottles. STR use can discourage partial adherence due to confusion over dosing and make self monitoring easier. Finally we recommend a poster with rough cost of ART to be displayed in clinics to reduce wastage.

P170

Experience of switching patients from Atripla to Truvada and generic efavirenz in a medium-sized HIV clinic: Patient attitudes, safety and cost savings

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Background: Switching patients to generic antiretroviral drugs could potentially save the NHS £1.25 billion over the next 5 years (Hill *et al*, Glasgow 2014). As the second NNRTI to go off patent, generic efavirenz became available in December 2013 and has led to cost-savings in procurement of both the individual drug and the fixed-dose combination Atripla (ATP). A decision to switch most patients on ATP to Truvada and generic efavirenz (gEFV) was made by two physicians in our clinic from December 2013. Given the possible disadvantages of moving to two tablets we assessed the actual and potential acceptability of this strategy to patients, as well the safety and cost savings achieved.
Methods: A questionnaire-based survey of patient attitudes and experiences of switching antiretroviral therapy was undertaken in clinic and by post. Separate questionnaires using Likert scales were provided to patients who had switched, and those who had remained on ATP. Notes from all patients taking ATP in late 2013 were also analysed to determine how many had experienced virological failure, not tolerated gEFV or suffered significant toxicity of ART between December 2013 and December 2014. Pharmacy records were assessed to determine drug costs for the patients.
Results: 121 patients taking ATP were identified, of whom 51 (42%) switched to gEFV over the study period. 14 (27%) patients who switched and 27 (39%) who remained on ATP responded to the survey. In switchers, the majority were comfortable with switching, and very few had problems with toxicity or adherence post-switch or had to revert to ATP. Overall 71% were satisfied/very satisfied with gEFV. In non-switchers, only 44% felt positive about potentially switching to gEFV. A higher proportion of switchers (100%) versus non-switchers (88%) maintained viral load suppression (p=0.01). Despite the price of ATP falling in early 2014, an estimated additional cost saving of £316 / patient/year was achieved with a total cost saving of £16,138 in 2014. If all patients who remain on ATP switched to gEFV, a total annual saving of £63,888 would be made in our clinic.
Conclusion: Switching patients to gEFV seems to be largely acceptable to patients, is safe and doesn't lead to problems with adherence, side effects or virological failure. However most patients remaining on ATP would prefer not to switch. The costs saved through this strategy probably justify the continuing policy of asking, however not compelling, patients to switch to gEFV.

P171

Development of a new measure to characterise engagement in outpatient HIV care

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Background: Engagement in outpatient HIV care is a key measure of quality performance for specialist HIV service providers. There is, however, no gold standard measure of engagement in care and commonly used measures do not, furthermore, take into account that frequency of patient attendance is often related to health status. As part of the REACH project, we developed an algorithm to describe the extent to which patients re-attend for care within an appropriate period of time, according to a time-updated measure of their health.
Methods: We interviewed eight HIV physicians based in five London HIV clinics about the factors associated with the time to the next appointment for their last ten patients. Data provided informed the development of an algorithm to define engagement in care which was refined in discussion with the research team.
The algorithm was applied to data from the UK Collaborative HIV Cohort (CHIC). Factors recorded at the time of any clinic visit associated with a lab measure were used to define engagement in care - whether a patient was retained in care or became absent from follow up each month until the occurrence of the next visit. Follow up was censored at the time of the last recorded visit.
Results: The interviews indicated that clinical factors such as drop in CD4 and virological breakthrough should be incorporated into the algorithm which is summarised below:

Factors at clinic visit:	Engaged in care for (months):
Within 1 month of diagnosis	2
AIDS diagnosis	2
Starting treatment/new drug	2
Not on ART	2–6 mostly dependent on CD4 (actual & change)
On ART	2–6 mostly dependent on VL (actual & change)

The algorithm was applied to 44,432 patients, which indicated that 83.9% of 3,021,224 patient months were spent in care. Similar to other analyses, being in care was associated with being male (85.1% of months), white (85.5% of months vs black African: 81.2%; other: 81.8%), MSM (86.2% vs heterosexuals: 81.4%; IDU: 76.3%) and older (over 45s: 87.4% vs under 25s: 77.1%).
Conclusion: While physicians highlighted the importance of clinical factors in determining time to next appointment, such factors are not included in standard measures of engagement in outpatient HIV care. We have developed an algorithm to describe engagement in care which incorporates a time-updated measure of patients' health and adds to the options available for measuring this key performance indicator.

P172

Enquiries to the National Travel Advice Helpline by healthcare professionals regarding travellers with HIV infection

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Background: Twelve percent of all calls to the National Travel Advice Helpline by healthcare professionals are regarding travellers with immunocompromise. This study aimed to identify how many of these were regarding travellers with HIV infection, to characterise these enquiries, and to identify training needs of healthcare professionals seeking advice.
Methods: Documentation for all calls taken by advisors at the main helpline site during 2013 were reviewed. All calls relating to travellers with HIV infection were recorded and details entered onto a spreadsheet. Information on traveller demographics, drug history (DH), CD4+ count, viral load, travel destination, purpose of travel and nature of enquiry, was recorded.
Results: There were 44 calls regarding travellers with HIV infection (11%). Over half (55%) were enquiries about vaccines, 22.5% were regarding malaria chemoprophylaxis and 22.5% were regarding both. The CD4+ count was

recorded in only 14 travellers (32%). In 19 calls the healthcare professional did not know the traveller's CD4+ count (43%) and in 11 calls (25%) the CD4+ count was either not known by the caller or documented by the advisor. One traveller had a CD4+ of <200cells/mm^3 and the 6 had CD4+ of <500 (range 180–1133cells/mm^3).
Viral load was documented in only 12 enquiries (27%); it was undetectable in 10 travellers (23%) and documented as 'low' in one and 'high' in another. In 32 calls the viral load was either unknown or not documented (73%). Twenty-one (48%) travellers were on antiretroviral therapy (ART) and one was known not to be on ART (2.3%). In 21 calls the healthcare professional did not know whether they were on ART (48%) and in 1 call this is either not known or not documented by the advisor.
Conclusion: Information provided by healthcare professionals to the helpline advisor was generally very poor. Most healthcare professionals seeking travel advice for their patients did not know their CD4+ count or viral load and almost half did not know their DH. This greatly impacts on accurate advice that can be given on all aspects of travel advice but specifically on safe and effective use of vaccines and malaria chemoprophylaxis. Reasons for this may be inadequate communication of results and ART between specialists and primary care, or a lack of understanding by healthcare professionals of HIV infection in general. More work is required to identify and address these factors and to target educational interventions.

P173

Outsourcing outpatient HIV pharmacy provision: Can patients' involvement make a difference?

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Background: In England & Wales, medicines dispensed by hospital outpatient departments are subject to VAT, currently 20%, while drugs dispensed via commercial pharmacies or Homecare are VAT exempt. Hospital Trusts increasingly contract VAT-exempt dispensing to commercial pharmacies on Trust premises; this VAT saving makes such contracts attractive to private providers. This outsourcing has potential to lose the specialist HIV pharmacists' knowledge and experience.
The Caldecot Centre at King's College Hospital (KCH) provides outpatient care for patients with HIV, including prescribing and dispensing HIV medications. This dispensing, with allied advice and support, is provided via the Centre's in-house specialist pharmacy.
In 2012 KCH announced that *all* out-patient dispensing was to be outsourced to a commercial supplier, with possible closure of the in-house HIV pharmacy. HIV patients and clinicians were concerned about potential loss of expertise and patients' confidentiality.
The Patients Representative at the Caldecot Centre led a patients' survey to explore how patients engage with and use a specialist HIV pharmacy, and survey data were used to negotiate with the Trust a more acceptable solution.
Materials and Methods: A patients' survey was devised and implemented by the Patients Representative who is an HIV patient at this clinic; the survey ran for 8 weeks in the summer of 2012. The questions were mainly tick-box, with spaces for optional free-text; of the 14 questions, 10 were about current provision and 4 about changes. 90 responses were received.
Results: The survey results showed congruence between the views of HIV patients and specialist HIV pharmacists. A tiny minority of patients (1%) wanted to collect from hospital pharmacy; 52% from Caldecot Centre and 42% via Homecare. The survey results were brought into discussions with the Trust and the service model changed accordingly: the specialist pharmacy and staff remained *in situ* for dispensing to specific sub-groups and for screening all antiretroviral prescriptions.
Conclusions: Health services in England are being delivered by an increasing range of public and private providers. Potentially negative effects of this can be lessened by patient-led evidence collection that directly informs a negotiation process. At KCH this process resulted in the retention of a specialist HIV pharmacy service. Thus it is vital to survey patients' views when undertaking changes in service delivery.

P174

Providing integrated HIV treatment and care for stable patients in general practice

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Background: As a result of successful antiretroviral therapy (ARV) people living with HIV are increasingly stable and well and do not always require the input of HIV specialists. Community delivered services may be more acceptable to patients, however there is no consensus or evaluated models to indicate how best to deliver this.
Methods: In 2012 we developed a nurse-delivered integrated HIV and primary care service for stable patients in two local inner city General Practices. Patients are eligible if they are on therapy with an undetectable viral load (VL) or ARV naive with a CD4 count > 500 cells/μL. A specialist HIV nurse runs the service and was trained to delivery primary care services as well as routine HIV monitoring and care. Clinics run outside working hours and patients are encouraged to register with a secure on-line electronic patient record (EPR) to enable communication. An HIV consultant supervises the clinic. We present the data describing those patients; their treatment outcomes and the results of a satisfaction survey.
Results: 96 patients have been recruited to the clinic of which 82% are male. The average age is 43 (26 – 68). The most common ethnic groups are white British (33%) and Black African (23%). 64% are MSM and 31% acquired HIV via heterosexual transmission. 10 were ARV naïve on joining and 86 were on treatment. Of these 78 had a VL <40 copies/ml, 7 had a VL of < 100 copies/ml and one patient had a VL of over 100 copies/ml. At the point of data analysis 3 of the naïve patients had started treatment and are now undetectable; the rest do not require treatment according to BHIVA guidelines. Of those patients on treatment and with a VL <100 only one had a viral load of over 100 at most recent bloods. In total only 2 patients have disengaged from care which compares favourably to national rates. All the patients registered on the EPR (64) were sent a link to a survey monkey questionnaire assessing their experience of the service; 32 responded. 93% stated that they preferred the environment and 90% preferred the locations. 97% would recommend the clinic to a friend.
Conclusion: Our service represents a novel model of nurse-delivered HIV care with a greater emphasis on patient convenience. We are seeing high levels of patient satisfaction and favourable treatment outcomes. Further work is on-going to determine the health economic impact of this service and implications for potential roll-out.

P175

Telephone clinics in HIV care: An evaluation of a new clinical service

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Background: In 2008, we established a telephone clinic in order to enhance our HIV service and to free up capacity in a rapidly expanding but resource-limited clinic. This is in addition to Option E, an email service in which stable patients are managed by specialist nurses. The telephone clinic provides a means by which patients who need medical or other advice can speak to a clinician without the need for a face-to-face consultation. As the clinic does not offer an HIV walk-in service, the aims of the telephone clinic were to facilitate triage for patients who were unwell and to enable patients to discuss non-urgent medical problems and test results. Telephone clinics run daily for 2 hours from Monday to Friday with 6 clinics per week (two on a Tuesday). Patients call into the clinic and are answered on a first come first served basis enabled by a queuing system.
Methods: We reviewed the records of all patients who used our telephone clinic service in February 2014.
Results: During February 2014, there were 24 telephone clinics during which 204 calls were received with a median 7 calls per clinic (range 4–17). Most callers were male (99%; 202/204) with median age 37 y (IQR: 32 – 43 y). Median CD4 count was 620 cells/μL; most (85%, 163/192) were on antiretroviral therapy. 58% calls (119/204) were related to clinical results: blood (106), microbiology (6), imaging (7). 17% calls were to discuss clinical symptoms (35/204). 10% (21/204) callers asked for repeat HIV medication and 8% (17/204) called to rearrange an appointment. As a result of the telephone

consultation, 20% (41/204) callers were referred for further assessment (doctor review - 21; nurse review - 5; GP - 5; GUM clinic - 3; ultrasound scan - 3; other - 4).
Conclusion: The majority of patients used the increased access to medical staff appropriately. For example only 8% of calls were related to appointment management. A fifth of users were identified as needing further assessment and were appropriately referred. The remainder were able to be managed within the telephone service without the need for a clinic appointment. As a new model of HIV care, telephone clinics allow remote management of appropriate problems and onwards referral where necessary thus freeing capacity in clinic for face-to-face consultations.

P176

A tale of two services – patient satisfaction across two different HIV units in one city

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Background: A patient feedback questionnaire to assess satisfaction with current care, and patient opinion on new ways of delivering care, was conducted in a city in which 1424 HIV patients are registered with HIV services. The cohort is split approximately 50:50 between Infectious Diseases (ID) and Genitourinary Medicine (GUM) units. An Integrated Care Pathway (ICP) has recently been developed and introduced to both services but current care models are markedly different.
Methods: A paper-based self-completion questionnaire was developed based on validated sexual health questionnaires. It underwent piloting with 10 patients and was duly modified. The final questionnaire consisted of 44 questions covering background demographics and 13 different elements of the services. All responses were anonymised.
Results: 270 questionnaires were completed, 134 from GUM and 136 from ID, representing 19% of the total cohort. Of those disclosing ethnicity, 200 (79%) were White British, 20 African British and 35 were of other ethnicity – similar proportions as seen in the whole cohort – indicting a representative sample was surveyed. Of those patients reviewed in clinic on a 3 monthly basis over both sites, 88% felt this was about right but 7.2% felt 3 monthly was still not often enough. Of those seen 6 monthly, 92.8% felt that this was about right. 5.6% of these patients felt that 6 monthly review was still too often. 50% of patients don't mind what type of clinician they see. 23.1% would prefer to see a consultant and 5.3% would prefer to see a nurse. Levels of patient satisfaction were very similar across all aspects of care between the two units. A larger proportion of patients attending GUM were amenable to the option of receiving care in different ways: 30.5% of GUM patients vs 22.4% of ID patients would be interested in having routine blood tests done at their GP surgery. 34.6% of GUM (vs 24.8% of ID patients) are interested in accessing results over the phone, and 25.8% (vs 18.5% of ID patients) are interested in accessing results by e-mail.
Discussion: Patient satisfaction levels are high across two units offering different service models. Novel ways of receiving care and follow-up are more acceptable to GUM patients, likely to be a reflection of the different demographics of the two cohorts. The questionnaire functioned well in practice and provided meaningful and useful information, which will be used to help guide ongoing service improvement and modernisation.

P177

A regional HIV service users' satisfaction survey; a successful implementation of BHIVA Standards of HIV Care

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Background: patients' reported outcome measures offer invaluable insight into patients' experience and involvement in their care. The British HIV Association's Standards of Care for People Living With HIV 2013 highlights the significance of service users' involvement in their care adequately in standard 10. The aim of the present study was to survey the level of satisfaction of the service users of HIV services in West Midlands.
Methods: This project was designed by the HIV committee of the West Midlands' BASHH group as part of the regional HIV network standard. After approval of the details of the survey by the consultants in the 19 HIV centres in the region, West Midlands' Field Epidemiology Service, Public Health England (PHE) was invited to coordinate, carry out and analyse the survey across the region. Colleagues in PHE liaised with the senior nurses in each HIV centre for execution of the survey. At each centre, a nominated member of the nursing or administrative HIV team handed over the survey questionnaires to each patient attending the service within two weeks in August and September 2014. Each centre received questionnaires for the total number of HIV patients booked within the survey period. Patients were invited to fill in the questionnaire at the end of their clinic visit and to drop them in enclosed boxes within each clinic. At the end of the second week, each centre sent the completed questionnaires to the PHE office in Birmingham. PHE staff recorded the responses in a database and carried out the analysis. The results of the survey were presented to the West Midlands' BASHH meeting in January 2015.
Results: A total of 1476 patients were booked to attend 19 HIV clinics in the region within the two-week survey period. Of those, 919 (62%) attended the clinics and 689 (75%) participated in the survey. Satisfaction of clinic times, level of privacy and respect and courtesy by the reception staff was reported as good or excellent by 607 (88%), 555 (81%), and 629 (91%) respectively. Patients reported agreement or strong agreement with the following statements: "The health professional explained the details of my care clearly" (653; 95%); "We talked about what I wanted to talk about" (640, 93%); and "I was happy with the care I received" (645, 94%).
Conclusion: To the best of our knowledge, this is the first regional satisfaction survey of HIV service users in the UK. The results of the survey showed patients' reported outcomes above targets set by the BHIVA standards of care document. West Midlands HIV services plan to conduct the regional survey once a year. We also recorded a high participation rate by the HIV service users.

P178

What happens after the HIV test is taken? A local review of linkage into care

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Background: Robust and prompt referral into HIV care following a positive result is vital to allow timely medical review and alleviate patient anxiety. Health Improvement Scotland Guidelines (2011) state that all confirmed HIV positive results must be communicated to the patient within 7 days of the sample being taken and that all newly diagnosed individuals should be assessed by an HIV physician within 14 days of receiving a positive result. We sought to determine whether linkage into care at our local HIV clinic met these standards.
Methods: A retrospective case note review was performed on outpatients in our health board area with a positive HIV result between 01/08/13–31/07/14. For each patient we recorded the setting in which the test was taken, the time in days to receive their result, the time in days to see an HIV physician and the CD4 count at diagnosis.
Results: All 64 patients identified were successfully linked into care. 36/64 (56.3%) were tested in GUM clinics, 9 (14.1%) in primary care, 13 (20.3%) in secondary care, 2 (3.1%) via antenatal screening and 4 (6.3%) in other settings. 21/64 (32.8%) of patients did not receive a positive result within 7 days; 4/9 (44.4%) in primary care, 5/13 (38.5%) in secondary care and 10/36 (27.7%) in GUM.
37 (59.7%) of all patients did not see an HIV physician within 14 days. Linkage into care was swifter for patients diagnosed outwith GUM clinics; 55.6% (5/9) of primary care diagnoses and 61.5% (8/13) from secondary care were seen within 14 days compared to 28.6% (10/36) of new diagnoses from GUM clinics. Of the 15 late presenters (CD4<200), 4 (26.7%) were diagnosed in primary care and 8 (53.3%) in secondary care. 6/15 (40%) of late presenters were not seen by an HIV physician within 14 days. 4/64 patients had an AIDS defining illness at diagnosis.
Conclusion: A significant proportion of patients did not receive their diagnosis in a timely manner and were not promptly seen by a physician. This highlights the need for a more co-ordinated approach to ensure optimal linkage into care and treatment. We are in the process of identifying factors associated with delays. A number of strategies have been implemented including a multidisciplinary failsafe system to ensure rapid identification of late presenters where early specialist HIV intervention is crucial.

P179

HIV clinical network audit on routine monitoring and investigations: Sharing practice to raise standards

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Background: The 2013 BHIVA 'Standards of care for people living with HIV' document outlined measurable audit outcomes, with targets in all aspects of HIV care including monitoring and routine investigations. Medical evidence supports a wide range of routine investigations and monitoring required in HIV care. Over screening can lead to patient fatigue in attendance, unnecessary investigation costs. Omitting screening can cause missed opportunity to prevent medical complications. A network audit of 8 services was undertaken.
Method: Audit standards were sourced from BHIVA guidance. Audit was undertaken in each trust by trust employees and anonymous data shared with the regional HIV audit team for collation. Data was presented regionally, with services anonymised. Retrospective case notes review of clinical consultations of the first 50 attendees (or whole cohort if less than 50) for HIV related care from 1st January 2012.
Results: 319 notes were sampled. The only standard which all services achieved was the proportion of people with known HIV infection who had accessed services within last 12 months. Other standards and baseline assessments showed great variability in the network with ranges from 0 to 100%. Targets met by region but not all services included CVS risk assessment and Hepatitis C screening in MSM met in 50% and 29% of services respectively. Targets not met by region, but met by some services included urinalysis and sexual history in last year both met by 50% services and recommendation of annual influenza vaccine met by 13% of services. No service met the 95% target for GP letter within last 1 year (achieved in 79%). Vaccinating those susceptible to infections had ranges 0 to 100% for Hepatitis A, VZV, Rubella and Measles. Only 51% of those susceptible to Hepatitis B being vaccinated overall.
Conclusion: Undertaking a regional audit demonstrated the large variability of routine monitoring and investigation taking place amongst services and allowed good practice to be shared throughout the network. Services that achieved more standards utilized some/all of the following; Consistent use of clinical proforma, results with actions needed next visit documented, use of standardized GP letter kept up to date each visit, routine urinalysis / weight / blood pressure by Health Care Assistant, having service supply of vaccinations. Services have reviewed their practice to incorporate shared good practice and a re-audit is planned in three years.

P180

Experience of switching from Atripla® to generic efavirenz at a metropolitan HIV clinic: Outcome and cost analysis

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Background: In December 2013 generic efavirenz (gEFV) became available and in view of cost pressures, Atripla® was removed from the local formulary with plans to switch all patients to Truvada®/ gEFV at their routine follow-up.
Methods: In December 2014 we reviewed virological suppression and antiretroviral combinations of all patients 1 year after the change. Estimated cost savings were calculated.
Results: 67/389 (17%) patients on treatment were switched off Atripla®: 46 men who have sex with men [73%], 8 female (12%) and median age was 47 years (range 30-80). 31 (46%) patients had previously received separate Truvada®/EFV prior to Atripla® becoming available. Nadir CD4 count was available for 65 patients (median 213 $x10^6$/L, range 4-600). Pre-treatment viral load was available for 60 patients (median 465,000 copies/ml, range 400-1,595,000). 66/67 (99%) of patients remained undetectable following the switch (minimum follow up 6 months). One patient became detectable after missing approximately 5 doses of Atripla® pre-switch. He was changed to Truvada®/ darunavir/ritonavir (DRV/r) and his most recent viral load was 56 copies/ml. 59/67 (88%) remained on gEFV as of Dec 2014; 2 (3%) patients were switched from Truvada® to Kivexa® due to a decline in renal function. 5 (7%) patients took the opportunity of the switch discussion to raise concerns about central nervous system (CNS) side effects from EFV and were changed to Truvada® plus raltegravir. A second patient was switched to Truvada®/DRV/r as he had missed a number of doses of Atripla® and wished to change because of lipodystrophy. One switch was made to Eviplera® due to patient choice. All patients with hepatitis B (5/67 [7%]) and hepatitis C (4/67 [6%]) co-infection remained undetectable and on Truvada®/ gEFV.
Based on our April 2014 pricing, switching from Atripla® to Truvada®/ gEFV generated an estimated saving of £30 per patient per month. For the 59 patients who remained on Truvada®/ gEFV this would be a saving of approximately £21,200 per annum.
Discussion: Switching from Atripla® to gEFV has been virologically safe, acceptable and cost effective in our cohort. Discussion about switching highlighted a small number of patients who were persisting on Atripla® despite CNS side effects enabling them to be changed to an alternative regimen.

P181

Approaches to recruitment of patients presenting with Primary HIV Infection (PHI) into clinical studies

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Background: Receiving a new HIV diagnosis can be a challenging and emotional time, particularly for individuals with Primary HIV infection (PHI). Clinicians may be reluctant to refer such individuals to research studies at this time, based on preconceived ideas that this group may be particularly vulnerable. However, clinical trials should be part of the discussion when starting ART. We present our experience of enrolling individuals with PHI into an observational study of immediate ART in the UK.
Methods: We reviewed referral pathways to a prospective PHI study at an HIV research centre in London over an 18-month period (Jun 2013-Dec 2014). PHI was defined as: (i) HIV +ve antibody (Ab) within 12 weeks of a previous -ve HIV Ab test, (ii) Incident RITA, (iii) 4th generation antigen (Ag) / Ab test, with a +ve p24 Ag in the absence of Ab. Individuals enrolled gave written informed consent and consented to initiate ART within 12 weeks from confirmed HIV diagnosis. We assessed the recruitment rate, referral source, and time from diagnosis to enrolment. Strategies to improve enrolment were introduced from June 2014. These include earlier identification of incident cases through: weekly liaison with diagnostic virology and Public Health England for RITA incident results; development of additional referral pathways through study updates at HIV departmental education and research team meetings; advertisements on social media and websites; and community peer support, enabling self-referral or referral from other sites as well as increased staff capacity.
Results: 85 individuals enrolled; 83 were male and median age 35 years, (range 30-39). 46/85 were referred locally, and 39 were external referrals. Median time from HIV diagnosis to study entry was 4 weeks (range 0.5-13). Clinicians referred twenty-five participants whilst 21 were from clinical nurse specialists. 2-3 participants were enrolled per month between June 2013-14 compared to 9-10 per month after June 2014 when enhanced publicity, and referral pathways were introduced.
Conclusions: Implementation of strategies supporting timely identification of individuals with PHI and pathways allowing early discussion around trials enhanced recruitment into studies in PHI at our centre. Development and support of PHI pathways by staff may improve recruitment to PHI studies as well as opportunity for enhanced clinical management.

P182

Developing a new virtual HIV network: Our region's experience

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Background: Like many others, our HIV network covers a large area. Over approximately 100 miles, 'spoke' sites are supported by a central 'hub'. Since

multidisciplinary (MDT) and scientific meetings are held centrally, clinicians working at other sites have had to cancel direct clinical care activities to attend. Many of these centres are staffed by fewer HIV specialists so the adverse impact of attending Network meetings is disproportionate. There is a need for web-based, real time participation, requiring minimal additional equipment and compatibility with NHS firewalls which allows meaningful two-way interaction using office computers and tablet devices.
Method: We developed a regional virtual network using Adobe Connect. Six sites were enrolled with no new equipment required, except a webcam and microphone. Meetings were broadcast from the central site with live video and audio web conferencing. Confidentiality was maintained as the central site had control over participants and cases presented were anonymised.
Results: The virtual MDTs have been a success, allowing more clinicians to be involved whilst reducing travel and clinic cancellations. This has had clear implications for clinician productivity and ease of access to specialist opinion that will also have a positive impact on patient care. The cost of setting up the service was minimal; no new equipment, apart from a webcam and microphone was needed. It required very limited technical expertise at both hub and user sites as joining the meeting only required knowledge of using a web browser. Meetings could be accessed via smartphones, tablets, laptops or desktop machines. This virtual HIV network, like any innovation, had advantages and disadvantages; initial technical difficulties were experienced and an improved microphone resolved problems with sound quality. Quality depends on bandwidth at the Trust, which has been adequate for our needs.
Conclusion: A truly virtual network is feasible and effective with minimal cost and staff training. Future developments include training more clinicians at 'spoke' sites to use the software. Freeing attendees from the need to be physically present at meetings has the potential to enlarge participation, expand the geographical reach of our Network, include access to specialist opinion within and beyond our existing footprint and will allow us to invite external speakers to our educational meetings.
Disclosure: financial grant and technical support from Gilead.

P183

Patients' preferences for the delivery of HIV services: A qualitative study of the roles of secondary versus primary care

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Background: Various models of shared-care have evolved over recent years to support increasing numbers of HIV positive patients who have age-related comorbidities. These models include the wider involvement of GPs, similar to the integrated model applied to other long-term conditions in the NHS. Contrary to Department of Health recommendations, these changes in service design have been developed in the absence of evidence on patients' preferences. This study examined patients' preferences for the future delivery of services.
Methods: Twelve focus groups of HIV positive patients were conducted in community settings in south east England. Groups were quota sampled on age, sex, sexual orientation, and African/non-African ethnicity. Data were analysed using Framework Analysis.
Results: 74 respondents (61% male). Participants' concerns about changes to their healthcare were focused on the following main areas:

- perceptions that GPs are likely to have low levels of HIV knowledge and skills or lack confidence to treat HIV positive patients
- a lack of care coordination and poor communication between services
- concerns about disclosure of HIV in non-HIV services
- a lack of understanding of the social/emotional experience of living with HIV.

There was a strong preference for maintaining all care within specialist HIV clinics among participants with longer histories of HIV and/or comorbidities. Participants were typically unclear or confused about who had responsibility for prescribing, referrals and care-coordination. The value of electronic patient records to facilitate communication was balanced against risks to confidentiality.
Conclusion: The findings of this large qualitative study highlight areas of concern and aspects of care that are important to people with HIV. They suggest that any future reconfiguration of services to meet the needs of an ageing population needs to have patient views at the centre. These findings have been used to inform the design of an ongoing Discrete Choice Experiment which will determine the relative importance to patients of different service characteristics.

P184

The contribution of advanced nursing practice to HIV care: Preliminary findings of a national study

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Background: Changes to the commissioning of HIV services are a powerful catalyst for widespread review and re-organisation of HIV care. Nationally, substantial variability in the nature and extent of the advanced HIV nursing role exists. The cost-effectiveness and impact on HIV care of this role is unclear. This project examines how advanced nursing practice currently contributes to HIV care and the potential for maximising that contribution.
Methods: This mixed method study comprises two parts:
Stage 1. 15–20 key stakeholder interviews exploring HIV service delivery: challenges, opportunities and the advanced nursing contribution.
Stage 2.

- Paired nurse / doctor interviews in a purposive sample of 22 HIV services across England to understand the diversity of services and contribution of advanced nursing.
- Case studies for in-depth exploration of factors influencing the development of the advanced nursing role.

Results: Stage 1 findings identified several factors impact the development of the HIV specialist nurse role including: changing needs of patients as life expectancy increases; reduced funding for stable well patients; destabilisation of sexual health and community services from fragmented commissioning arrangements.
Five aspects of the specialist nursing role were identified: support for new diagnosis, self-management, re-engagement, care co-ordination and health promotion. There was considerable variability in the degree of involvement and the extent of advanced nursing practice within these roles
Conclusion: These preliminary findings provide a framework for detailed exploration in stage 2 which is currently underway.

P185

Whose stable infection is it anyway? Patient and staff perspectives of HIV as a stable condition

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Background: The HIV Care pathway indicates that up to 80% of people accessing HIV care in the UK have stable infection measured by CD4 and viral load and funding streams are planned based on these parameters. However, there is little evidence of how HIV is perceived as a stable long-term condition and how these perceptions influence service planning and utilisation. This research aimed to explore the perceived needs of people with HIV and the relationship with processes of care.
Methods: A grounded theory approach was adopted utilising semi-structured interviews with 13 HIV patients and 21 healthcare workers in one HIV clinic and two HIV centres. Constant comparative analyses of emerging data concepts were undertaken and a dimensional analysis strategy applied to develop conceptual categories and the connections between them. An academic theory was developed using an explanatory matrix. NHS ethics approval was obtained.
Results: 40 interviews were undertaken with 34 participants. Most patients described themselves as medically stable but did not view their stability in relation to CD4 and v/l. Instead they perceived their HIV condition based on physical and social factors. Those with minimal illness/symptom experience preferred virtual models of care such as telephone or e-mail clinics. Patients with higher symptom/ illness experience were more reliant on face to face

interactions with their HIV care providers irrespective of CD4 and v/l. Those who experienced uncertainty about their future health and those who had a negative social identity had a stronger attachment to HIV services.
The 21 healthcare workers were comprised of specialist and non-specialist staff from acute, community and 3rd sector settings. Healthcare workers perceived HIV as a long-term condition depending on job role, caseload and whether they viewed stable patients as "well" or as "requiring ongoing engagement in care" or as holistically complex. These perceptions influenced the model of care used.
Conclusion: This research indicates a broad perception of HIV as a stable condition that spans a spectrum of illness and health. These findings are in keeping with the Common Sense Model of illness representation and suggest that cognitive and emotional constructions of HIV influence how patients use services and how staff plan them. While further testing of this theory is needed, caution should be exercised in using over simplistic definitions of the stable HIV patient.

P186

Assessing the uptake of cervical screening amongst HIV-positive women attending an HIV clinic in the UK

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Background: Women living with HIV (WLWHIV) are at a higher risk of persistent high-risk Human papillomavirus (HR-HPV) infection, the aetiological agent of invasive cervical cancer. The British HIV Association (BHIVA) therefore recommends that WLWHIV have annual cervical screening. Many HIV clinics refer patients to general practitioners (GPs) for screening. Little is known about factors influencing access to cervical screening among WLWHIV in the UK.
Methods: The study used mixed-methods (audit and qualitative study) to determine the uptake of cervical screening and factors influencing access to screening amongst women attending the HIV clinic at North Middlesex University Hospital Trust. The clinic sends annual reminders to GPs about screening. All women, aged 25-64yrs living in Haringey and Enfield districts were eligible for inclusion. Demographic and clinical data were extracted from electronic records. Cervical screening history and results were ascertained from the national cervical screening database. Semi-structured interviews and a focus group discussion were conducted. Transcripts were analysed using thematic analysis.
Results: 437/590 women enrolled in care were eligible for inclusion (median age 42yrs, 79% black African, 98% on ART, 74% viral suppression, median CD4 540 cells/ml). In 82% a reminder about annual screening had been sent to the GP within the last year; however only 39% had been screened. 71% of women aged 25-49yrs and 82% aged 50-64yrs had been screened in the last 3 and 5 years, respectively. Eight women were interviewed and 5 took part in a focus group (mean age 43yrs, 100% Black African, 100% on ART, 92% viral suppression, 46% screened in last year). Knowledge about the purpose of screening and causes of cervical cancer were poor; most had never heard of HPV. Lack of knowledge and misinformation about screening, fear of the procedure and of the outcome and cultural norms (e.g. unacceptable to undress in front of male healthcare workers) were key patient-related barriers to uptake. Other barriers included structural barriers (scheduling appointments with GPs) and relationship barriers (low levels of trust in GPs and failure to disclose status).
Conclusion: Despite annual reminder to patients and GPs the uptake of annual cervical screening at this clinic was poor. Better understanding of patient- and GP-related barriers to annual screening are needed in order to plan effective strategies for cervical cancer prevention among WLWHIV.

P187

Cervical cytology in HIV-positive women under 25 and over 65 years of age: Are we missing abnormalities?

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Background: Cervical cancer is the commonest cancer in the UK in women below the age of 35 years (yrs). Cervical intraepithelial neoplasia (CIN) and invasive cervical cancer are more common in women with HIV infection. National guidelines recommend that HIV infected women have annual cervical cytology from when they become sexually active until the age of 65 yrs. Patients over the age of 65 yrs should have ongoing surveillance if their last smear was abnormal. We aimed to determine if female patients under 25 and over 65 yrs of age were being screened appropriately.
Method: Retrospective case note review and use of the NHS South London Cervical Screening Database for all women under 25 and over 65 yrs of age currently attending an urban HIV care centre. Patients were excluded from the analysis if paper or electronic notes were unavailable or if the patient was deceased.
Results:

	Under 25 yrs	Over 65 yrs
Number	41	29
Age range	14-25	65-77
Age of HIV diagnosis	0 to 24	49-69
Patient <25 documented as sexually active/pregnant/on contraception	26 (63%)	n/a
Patient <25 confirmed as not sexually active	5 (12%)	n/a
Patients with smears performed age <25 or >65 in cervical screening database	9 (21%)	5 (17%)
Abnormal cervical smear	4 (all mild dyskaryosis)	0
Patients who should have been offered cervical cytology	21 (51%)	0

Conclusions: In HIV infected women over the age of 65, 17% (5 out of 29) were inappropriately offered cervical screening. For the patient this can result in unnecessary investigations and anxiety,
Our data shows that the commencement of sexual activity was not documented in 24.4% of HIV infected women under the age of 25. This may have a number of implications: cervical screening is not offered if the clinician is not aware that the patient is sexually active; important contraception choices may not be discussed, and appropriate partner notification may not be performed. Cervical screening was performed in only 34.6% of sexually active young women under the age of 25 and abnormalities were detected in 44.4%. This suggests that clinicians awareness of cervical cytology guidelines in HIV positive women < 25 and access to cervical screening for this group of patients needs improving.

P188

Extending networking arrangements across providers of HIV services in England

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Background: People living with HIV (PLWH) now experience HIV as a long-term condition. The 2013 BHIVA standards recommend that HIV care should be planned and delivered through networks.
Health and social care providers, commissioners and service users need to identify how networks facilitate the delivery of cost-effective care. New commissioning structures means that new partnerships and working arrangements need to be forged.
Aims:
- Appraise current networking arrangements
- Explore future models of care using provider networks
- Identify locally appropriate solutions to meet national specification and BHIVA standards
- Share and disseminate best practice

Method: Led by local CRG reps and commissioners, working with independent facilitators, 14 clinical networking meetings were held, one per clinical senate (CS). A diverse range of stakeholders attended including PLWH.
A national template for identifying network features was drawn up. All areas presented
- Local epidemiology
- Local models of networked care
- Lessons learned
- Key issues
- Future scanning

Results: Every area demonstrated some degree of networking. Most had informal arrangements, formed around geography, professional relationships and historical links. Few areas were operating as network delivery organisations.
Most networks were led by HIV specialists. Primary and community care involvement often lacking or limited to an educational role.
Higher degrees of formalisation driven by
- low patient numbers, spread over large areas, expertise concentrated in few providers
- high complexity with competency to effectively manage complications in limited supply
- clinical leaders respected by peers

Challenges reported in moving to network organisations included
- clarity of purpose and desired outcomes
- commissioning intentions (collaboration vs competition)
- role conflict
- infrastructure & resource requirements
- time commitments
- levels of authority vs autonomy

Conclusion: There was enthusiasm for networks to manage complex cases, improve training, education, share good practice and tackle local challenges. With good clinical outcomes and patient experience, dissatisfaction with current systems is low. There is no nationally defined model of networked care - the vision for the future is unclear and open to local determination. In many areas, moving to a delivery network seems a step too far. Many could not see benefits given the positive aspects of current models.

P189

Making the vision a reality: An examination of services supporting people living with and at risk of HIV in Scotland

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Background: This research examined the services available for people living with and at risk of HIV in Scotland, to assess whether national policy initiatives and strategies on health and social care have delivered person-centred services and holistic care.
Method: Surveys, interviews and focus groups were completed with people living with HIV (96), people at risk of HIV (208), local authorities (15), third sector organisations (14) and health boards (10). Questions related to the range of services available and people's experiences of accessing services.
Results:
- Gaps in services exist, particularly relating to mental health and peer support;
- Geographical differences in the availability of services is causing some service users to seek support outside their local area, and outside of Scotland;
- A significant number of people living with and at risk of HIV are frustrated at the inflexibility of some services;
- Confidentiality is a key concern for people accessing services;
- People at risk describe a lack of information about available sexual health services and how to access them, and also a lack of information for people with learning difficulties;
- Services are increasingly being designed and delivered on a generic basis (rather than specifically for those with particular conditions or from particular groups);
- Local authorities identified self-directed support as having a significant impact on the commissioning, planning and delivery of services;
- Service providers identified key challenges they face as: funding and budget constraints; increased demand for services; variations in provision of services across Scotland; staff development and training; and uncertainty over whether the needs of people living with or at risk of HIV are properly understood.

Conclusion: National policies and strategies have the potential to greatly improve the experiences of people living with and at risk of HIV when accessing services. This research found a number of ways in which policy had positively impacted on practice and on the experiences of people. However, there are some inconsistencies in the quality and availability of services across Scotland, and uncertainties over how future policies may impact on sexual health and BBV services.

P190

What are the best practices in effective, high-quality HIV support for women in the UK?

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Background: There are over 35,000 women living with HIV (WLHIV) in the UK. Women are the second largest group affected by HIV after men who have sex with men (MSM), yet women are more likely than MSM to be undiagnosed or to be diagnosed late. WLHIV also face a higher risk of poverty, mental ill health, and gender-based violence than the general population. Cuts to HIV services mean that women-centred support is scarce, but research has highlighted the importance of women's services as a way of improving physical, mental and social wellbeing.
Methods: In December 2014, we hosted a national conference which brought together 47 WLHIV from across the UK for a day of presentations and workshops. We aimed to provide a safe space for women to discuss key issues that affected their lives, share experiences, and develop recommendations to improve services. We held workshops on motherhood, gender-based violence, mental health, ageing, and health care services, all facilitated by positive women. We also conducted a supplementary desk-based literature review to identify best practices in HIV care and showcase a range of best practice "case studies", with a focus on UK settings. Building on the conference, we used women's feedback and opinions to produce a bottom-up report grounded in the real-life experiences of WLHIV, which provides a helpful evidence base for support organisations and commissioners to improve and expand services.
Results: We received excellent feedback from the conference:
- All 5 workshops were rated excellent or good by 100% of women
- 100% of women felt that their opinions and contributions were valued

Evidence from the conference and literature review highlighted a number of key areas for improvement in HIV care. These include mental health care; stigma, discrimination and violence; sexuality and relationships; pregnancy and motherhood; poverty; isolation, and unclear pathways through clinical care.
Conclusion: In the wake of austerity and cuts to HIV services, the health of WLHIV is suffering. Support organisations must work closely with clinical services to integrate health and social care, with a specific focus on women's issues. Peer support and education is a vital part of this work. Above all, WLHIV must continue to be involved in decision making about their health, and must be proactively supported and included to shape policy and programme development for HIV services.

P191

Assessment of HIV transfer of care documents

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Background: BHIVA standards recommend "HIV services must have defined pathways for the safe transition of care. Patients who transfer their care to another centre should have a full clinical summary provided from their former to their new treatment centre within 2 weeks of request". BHIVA standards suggest several investigations that should be included in transfer documentation. It was decided to audit our transfer process after the introduction of a transfer pro forma. Transfers of care form a large proportion of patients within the investigating site as it is an asylum dispersal centre.
Methods: A list of patients coded as transfer of care from 1st October 2013 to 1st October 2014 was generated. These notes were audited against a standardised audit form utilising recommendations from the BHIVA investigation and monitoring guidelines.
Results: 31 patient notes were audited (m=18, f=13, 16 heterosexual and 15 homosexual), with the average age being 36. 58% of transfers were due to personal reasons, 20% due to professional reasons and 10% due to domestic abuse. 36 working days was the average time between the transfer request being faxed and transfer letter being typed. 52% (n13) did not have baseline resistance reported in the transfer document. 93% (n29) had a viral load recorded and 71% (n22) had a CD4 recorded in the document. Interestingly 29% patients (n9) were diagnosed HIV positive at a different site from the transferring site. Only 52% (n13) had co-morbidities documented; the most

frequent co-morbidity documented was depression. During the first year of transfer to our clinic, 5 patients had their cART regimen switched, and 2 patients commenced cART. 89% (n9) of female transfers did not have their cytology documented and only a third of female transfers were on contraception (excluding those who were pregnant).
Conclusion: This audit highlighted the varying levels of clinical information provided from different clinics when patients transfer care. To improve our transfer process the clinic has modified its transfer information request document. Furthermore, the clinic has standardised its paperwork for any patients transferring away. It is imperative that any patient transferring from outside the UK should still have transfer documents requested. Finally due to the changes in HIV provision across the UK; clinics need to ensure they provide all relevant HIV results, especially to Welsh hospitals due to the 'prudent healthcare' initiative.

P192

Sexual history taking and testing in men who have sex with men (MSMs): A standards-based clinical audit project

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Background: The aim of the audit is to review data collection on all new and rebook MSM patients who have a GUM clinic pro-forma completed as part of sexual health consultation.
This will enable assessment of documentation of sexual health risk, HIV and STI testing and hepatitis A and B vaccination to support the department's review of its current MSM proforma and screening protocols.
Methods: Initially a retrospective audit was performed randomly identifying a sample of new and rebook men who have sex with men. Patients (n = 35) were identified via the "Lilie" IT system. Data was collected over a 3 week period in June 2013. The data was collected from case notes using a data collection tool.
The re-audit was performed using the same methodology and data was collected on a different sample of new and rebook MSM patients (n = 30) in May 201 (approximately one year after the initial audit).

Standards used for comparison were identified from the 2006 British Association for Sexual Health and HIV (updated in 2013):

Statement which you are to measure	% Expected Standard
1. HIV test discussed at current visit	100%
2. Syphilis test offered at current visit	100%
3. Hepatitis B status discussed at current visit	95%
4. Hepatitis A vaccination offered	100%
5. Full genital MSM STI screen offered (INCLUDING HIV TESTING)	100%
6. Full genital MSM STI screen performed (INCLUDING HIV TESTING)	80%

Results:

Standard	Re-audit Results (2014)	Original Audits Results (2013)	Standard Met? Yes, No or Partially (within 10% of expected standard)
1. HIV test discussed at current visit	100% (Same)	100%	Yes
2. Syphilis test offered at current visit	100% (Same)	100%	Yes
3. Hepatitis B status discussed at current visit	100% (Improved)	97%	Yes
4. Hepatitis A vaccination offered	75% (Same)	75%	No
5. Full genital MSM STI screen offered (INCLUDING HIV TEST)	100% (Same)	100%	Yes
6. Full genital MSM STI screen performed (INCLUDING HIV TEST)	80% (Improved)	68%	Yes

In relation to HIV risk stratification and testing in the initial audit there was:
- Poor documentation of high risk behaviours for HIV acquisition such as casual sex work and types of sex (passive anal intercourse for example).
- Little documentation of previous STI screening and HIV testing including dates, locations and outcomes.
- The HIV status of only 43% of patients was recorded.
- 86% of patient's partners HIV status was not recorded.

In the re-audit there was:
- Better documentation of condom use.
- Good documentation of types of sex (including active vs passive).
- More detailed information regarding previous HIV testing and dates.
- 50% of patient's partners HIV status was recorded (an improvement).

Conclusions: Initial audit results were presented to the department in August 2013 and recommendations were made that aimed to raise awareness of the shortcomings in standards. The local MSM screening protocol was updated and the MSM history taking pro-forma was completely redesigned to address points highlighted as areas of poor documentation and standards failure.
After implementation of these changes a re-audit was performed approximately one year later. Results (as shown above) indicated all standards were either improved or remained the same as during the initial audit.
Fundamentally through developing a new MSM clinic proforma we have improved our performance surrounding history taking to better enable HIV risk stratification and through this we have also increase our rates of HIV testing.

P193

An observational study of HIV-infected patients admitted via a tertiary HIV referral unit to intensive care between 2007 to 2014

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Background: In the post HAART era patterns of HIV disease are changing. Life expectancy has increased and patients admitted to hospital are likely to be older. Historically outcomes of HIV-infected patients in intensive care were poor but recent studies have demonstrated improvements in survival[(1)]. A retrospective observational review was undertaken to examine the demographics and predictors of outcome in HIV-infected patients admitted to ITU.
Methods: Patients presenting between January 2007 and 2014 were identified from the ICU electronic patient record system; either by entry of HIV or a CD4 count. Diagnosis was confirmed using pathology reporting systems and HIV department patient records. Data including demographics, acute diagnosis, CD4 count, viral load and ITU outcome were collected. Comparison was made to data available from 1996 to December 2006.
Results: Between 2007-14, 75 HIV-infected patients were admitted to ITU, an increase from 45 in the previous period. Several patients were admitted multiple times and patients were more likely to have been diagnosed prior to admission (p=0.0001). There was a preponderance of male patients in both groups (38:7 in 1997 – 2006; 71:4 since 2007) but since 2007 male patients are older (mean 50.7 compared to 41.6, p=0.0002). From 1996 to 2014 annual data suggests a change in cause of ITU admission, with non-HIV related disease becoming more prevalent. There was no correlation between ICU mortality and either CD4 count (p=0.52) or viral load (p=0.85) after 2007. Overall ITU outcome was not significantly different between HIV-infected and general ITU patients (10% vs. 17.7% ITU mortality, p=0.39).
Conclusions: ITU admission of HIV patients remains low. There is a trend towards increasing male age and presentations of patients with previously diagnosed HIV but with non-HIV related disease. Overall ITU outcome of HIV-infected patients is similar to the general population and since CD4 count or viral load do not correlate with ITU mortality all HIV patients should be considered for ITU admission if clinically indicated.
Reference:
1. Survival trends in critically ill HIV-infected patients in the highly active antiretroviral therapy era; Coquet I et al; Critical Care; 2010,14:R107

P194

Outcomes of bariatric surgery in HIV-positive individuals: A single centre experience

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Background: Obesity is global pandemic that is also affecting HIV-positive individuals receiving combined anti-retroviral therapy. When conservative strategies such as diet and exercise fail to result in weight loss in obese individuals, bariatric surgery is an option. We present the outcomes of a cohort of HIV-positive individuals who underwent bariatric surgery. The primary outcome was weight loss including secondary end points such as use of hypoglycaemic and/or antihypertensive medication.
Methods: A prospective hospital electronic database was used to identify individuals that were HIV-positive and had bariatric surgery between 2003 and 2013. The criteria for patients having bariatric surgery were based on the National Institute for Heath and Care Excellence (NICE) guidelines. Detailed morphometric, immunological and virological data including post-operative follow-up information were obtained from the database.
Results: Twelve HIV-positive individuals (male = 8, female = 4) underwent bariatric surgery following a multi-disciplinary team meeting and engagement in the pre-operative bariatric surgery care pathway. Their mean age of 46 years (range 33 - 66) with a median BMI was 43 kg/m^2 (range 37 - 55) and a mean duration of HIV prior to surgery of 6 years (range 3 – 24). All procedures were performed laparoscopically and included adjustable gastric band (n = 8), sleeve gastrectomy (n = 1), gastric ileo-bypass (n = 1) and a Roux -en –Y gastric bypass (n = 2). Two patients had wound infections related to their gastric bands. Nine patients achieved weight loss (excess weight loss 22%) and all but one patient remained normotensive and euglycaemic after 12 months.
Conclusion: Bariatric surgery is safe in stable HIV-positive individuals receiving multiple drug therapies with no detrimental effect on viral suppression. It should therefore be offered as a management strategy for obesity in HIV-positive individuals as per the general population.

P195

Abstract withdrawn.

P196

What aspects of health care are most valued by people living with HIV? Results of a systematic review

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Background: Increasing numbers of people with HIV are living into older age and experiencing comorbidities. The development of new models of care to meet the needs of this population is now a priority. It is important that the views and preferences of patients inform the development of services in order to optimise patient satisfaction and engagement. The aim of this systematic review was to determine which aspects of healthcare are particularly valued by people living with HIV.
Methods: We searched electronic databases and hand-searched the reference lists of relevant articles. The search strategy was developed to identify articles reporting on HIV positive patients' perceptions, evaluations or experiences of healthcare services and factors associated with satisfaction with care. Peer-reviewed papers and conference abstracts were included if the study reported on aspects of health care that were valued by people living with HIV, data were collected during the era of combination therapy (from 1996 onwards), and the paper was published in English. A thematic approach to data synthesis was used.
Results: Twenty-one studies met the inclusion criteria. Studies used both qualitative (n=12) and quantitative methods (n=11). The valued aspects of care identified were grouped into seven themes. These highlighted the importance to patients of: a good doctor patient relationship, HIV specialist knowledge, continuity of care, ease of access to appointments, access to high quality information and support, effective co-ordination between HIV specialists and other healthcare professionals, and involvement in decisions about their treatment. We were unable to determine the relative importance to patients of different aspects of care because of methodological differences between the studies.
Conclusions: This review identified several attributes of healthcare that are valued by people living with HIV, some of which would be relevant to any future reconfiguration of services to meet the needs of an ageing population. The results have been used to inform the design of a Discrete Choice Experiment which is currently being conducted across South East England to determine the relative importance to patients of different aspects of care.

P197

WISEUP+ in action: Can women with HIV be supported to increase their advocacy skills?

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Background: Women are substantially affected by HIV in the UK: 35,500 women are estimated to be living with HIV in 2013 and 29% are still unaware of their diagnosis (PHE2014). Women living with HIV (WLHIV) are disproportionally affected by poverty and experience high levels of Gender Based Violence and poor mental health. WLHIV are also under-represented in clinical trials and face difficulties with their HIV treatment and adherence. In recent years support and services directed specifically to WLHIV have shrunk, and positive women's voice in decision making is limited.
Methodology: WISE UP+, a peer led workshop aiming to increase advocacy skills of WLHIV was delivered over 3 days in Manchester. The training included sessions on human rights, gender based violence, sex and relationships, understanding the NHS participation structures, poetry, yoga and advocacy planning. All sessions were led by WLHIV. Small group discussions created a safe space to explore the experiences and skills of participants, who were encouraged to recognize what they had learnt though their HIV diagnosis and how they could use it for advocacy to improve the quality of life of all WLHIV.
Results: Workshop was attended by 24 WLHIV (20 BME and 4 Caucasian) from across the UK.Time of diagnosis ranged from 3 months to over 20 years.The evaluation showed that over 95% of participants found the sessions good. Women identified 4 advocacy asks to improve the lives of WLHIV in the UK. Increasing healthcare workers understanding of issues facing WLHIV, in order to improve quality of care. Increasing WLHIV's involvement with NHS participation structures. Promoting an holistic and integrated approach to the health of WLHIV. Ensuring the media portrays WLHIV in a positive light
Conclusions: The workshop was highly successful in its aims.
WLHIV need ongoing support and opportunities to meet, to ensure they can continue advocating in their communities.More work needs to be done so that women develop the strength and confidence to develop and advocacy agenda around GBV and HIV. In order for the advocacy asks to be heard they need a broader support from NGOs in the HIV sector as well as from other activists from broader social justice movements. NHS structures need to review engagement opportunities and barriers to participation for women e.g. knowledge and confidence to participate. Media campaign to address portrayal of WLHIV is needed.

P198

HIV 20:20 – engaging primary care to meet future challenge in HIV service delivery

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Background: People living with HIV (PLWHIV) are living longer and are at risk of co-morbidities associated with increasing age. HIV care therefore needs

coordination between all stakeholders in both primary and secondary care settings. Most primary care practices may be expected to have PLWHIV amongst their population. This consensus project examines the issues impacting clinical professionals working with PLWHIV and aims to understand the perceptions and attitudes of key stakeholders in delivering HIV care, informing practitioners of the attitudes of their peers.
Methods: A small, multidisciplinary group of clinicians, nurses and patient representatives involved in the treatment of PLWHIV met in Summer 2014 with the objective of defining themes for future development in the management of HIV across the UK. 48 consensus statements were developed and submitted to respondents by questionnaire. Respondents were asked to rate their agreement with each statement using a 4-point Likert scale. A modified Delphi methodology was used to review responses.
Results: 116 respondents working with PLWHIV across the UK completed questionnaires. 28 statements achieved > 90% agreement (58.3%), 47 statements had >66% agreement (97.9%) and 1 statement had <66% agreement (2.1%). All 48 statements achieved agreement scores in excess of 62%.
Respondents clearly agree that communication between stakeholders is important and that patient involvement should be a priority.
Conclusion: The likelihood of future co-commissioned HIV services will have a large impact on HIV knowledge and communication between care providers. Strong support for these statements suggests that the role of primary care should be clearly defined and adopted across the UK. Roles and responsibilities for primary and secondary care should be made explicit and accountability should provide PLWHIV with a clear understanding of who will do what. GPs must continue to increase their involvement in HIV in order to reduce the overall costs of care.
Once an HIV service is commissioned through PBR (in England), CCGs will have to manage HIV within the community setting where possible in order to save money. This should mean that stable patients are routinely managed in the primary care setting (this is already common in Scotland). In addition, we should strive to identify political and economic targets as well as processes and tools that will support the development of HIV services across the UK.

P199

Abstract withdrawn.

P200

The first year after HIV diagnosis – what is a good outcome, and how do we get there?

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Background: The first twelve months after HIV diagnosis are key for ensuring a positive longer term outcome for HIV+ people. We sought to describe what we achieve for our newly-diagnosed patients in their first year of care, and how we delivered it.
Methods: All newly-diagnosed patients over a 12 month period (01/10/12 to 30/09/13) were identified and a retrospective notes review conducted. Data here represents 6 months; full 12 month data will be presented at conference. Five domains produced a composite "good outcome": retention in care, starting therapy according to national guidelines, disclosure to/testing of partners, testing of children, and communication with primary care.
Results: 26 patients were newly diagnosed with HIV: 57% (15) male, 62% (16) black African. All patients had comprehensive baseline assessment in line with national guidelines. Median baseline CD4 was 340, (range 24-845). At 12 months, 92% (24) of patients remained in our care. Patients had a median of 10 face-to-face appointments in the clinic (5-24). Of 14 patients with baseline CD4 <350, 11 (78%) were on treatment at 12 months. Of those not treated, two spent considerable time out of UK, and one had CD4 >350 at 1yr. All had viral load checks at 6 months with 71% (10/14) undetectable at 1 year.
At 12 months, all patients' partners were identified, but only half had completed disclosure. Only 2 of our male patients were asked about children born since last negative HIV test, compared to all women. 95% (23/24) of patients were registered with a GP, and communication was established for 61% (14/23). A composite "positive" outcome was achieved in 17% (4) patients.
Conclusions: Some measures of good care were more readily achieved than others, with partner and child testing an ongoing challenge. The first year of care is resource-intensive and there is considerable variation in patient need. These findings have guided the creation of a one-year-visit proforma to improve composite positive outcomes for our patients.

P201

HIV networks; regional experience of developing new models of care

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Background: Specialised commissioning of HIV services aims to deliver high quality, equitable treatment and care for all people living with HIV in the UK. In order to meet the service specification and BHIVA standards providers and commissioners need to work collaboratively to plan and deliver networked care which is appropriate to local circumstances. We review our experience of developing a new model of networked care across a large and diverse geographical region.
Methods: Network membership consisted of multidisciplinary team representatives from all provider organisations, including community and 3rd sector, specialist commissioners, public health lead and patient representatives from each locality. Participation was sought from sexual health commissioners and management support provided by the local NHS managed clinical network. Informal network arrangements in existence prior to 2012 were reviewed and developed through a comprehensive work programme with key QIPP deliverables. Work streams included: 1) Review providers against standards of care 2) Develop and implement an impatient model of care 3) Develop and implement an outpatient model of care 4) Review ARV utilisation to ensure quality and savings delivered.
Results: Audit against BHIVA standards highlighted variation across the region; in particular access to specialist clinics for complex morbidity, provision of 24/7 inpatient care and access to research. A single inpatient centre meeting BHIVA standards was identified and care pathways developed for patients across the network. Outpatient pathways for specialist services including hepatology, renal, neurology and endocrinology were developed as were criteria for referral to HIV viral load meeting. Research links were improved throughout the network with support of the local CLRN which resulted in increased research activity across the region.
Conclusion: Through collaboration across geographical and professional boundaries new models of inpatient and outpatient HIV care were successfully developed in order to deliver high quality, equitable care. Critical success factors included multi agency and patient involvement in addition to management support provided by local PCT. Audit of compliance with agreed pathways, analysis of financial savings and effect upon patient experience and clinical outcomes will continue to inform service planning. Lack of ongoing management support represents a challenge to the future of the network.

P202

Involving people: An examination of patient and service user involvement in Scotland

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Background: This research examined patient and service user involvement in Scotland, to ascertain how people living with and at risk of HIV are involved in the design and delivery of services and policymaking, and how they might be better involved in the future.
Method: Desktop research was undertaken to map the evolution of involvement and the legal and policy drivers for involvement in Scotland. Interviews were completed with people living with and at risk of HIV and support organisations. Interviews were also conducted with individual staff who had key responsibilities for service user involvement, including staff working within Scotland, England and Norway.

Results:
- HIV changed the face of healthcare through the involvement;
- The range and extent of involvement can vary, particularly as challenges and pressures increase;
- There is a strong legal and policy requirement to service user involvement in Scotland, and a current focus on ensuring increased co-production and personalisation within Scotland's public services;
- There are some good examples of involvement in Scotland, but many people living with and at risk of HIV do not have opportunities to influence the design and delivery of services and policymaking in Scotland;
- We found many examples of how different approaches to involvement have been used in practice to improve services and outcomes for individuals and communities. They range from involving people in designing HIV related services and care pathways, to involvement in evaluating and delivering services, including peer support;
- There can be particular barriers to involvement for people living with or at risk of HIV that need to be understood and addressed;
- A range of good quality toolkits do already exist to support services to better involve communities and service users.

Conclusion: Involvement has the potential to significantly improve the quality and appropriateness of services and policymaking. It has been written into the policy landscape of health and social care and is seen to be a crucial aspect of the reform of public services. However, agencies supporting people living with and at risk of HIV could do more to involve people in their activities, and stand to benefit from the use of existing involvement tools and strategies.

STI, Reproductive Health, Contraception and Sexual Dysfunction

P203

Hepatitis C testing – does it matter in HIV-negative men who have sex with men (MSM)?

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Background: The number of HIV affected men who have sex with men (MSM) co-infected with hepatitis C (HCV) continues to rise. Previous data suggested no need for routine HCV screening in HIV -ve MSM. We offered HCV testing and risk assessment in all MSM clinic attenders as part of a Public Health England initiative.
Methods: All MSM attending a large inner city sexual health clinic from April to December 2014 were offered routine HCV antibody testing and risk assessment. Demographic data, HIV status, HCV risk factors, drug behaviour and sexually transmitted infection (STI) results were collected and analysed.
Results: 1101 HCV risk assessments were completed in 990 patients, and 1037 HCV antibody tests were performed. Median age was 34 (range 16-83) and 767 (77.5%) were White British. There were 10 (1.1%) new HCV diagnoses, 7 in HIV +ve MSM, and 3 in HIV -ve MSM. 480 (48.5%) patients were HIV +ve and 510 (51.5%) were HIV -ve. 14 (1.4%) reported sex with a known HCV contact. 66 (6.7%) reported practicing fisting. 107 (10.8%) patients reported group sex, 44 (4.4%) shared sex toys and 294 (29.7%) participated in receptive unprotected anal intercourse (UPAI). 289 (29.2%) participated in insertive UPAI and this was statistically more common in HIV -ve patients (n=178, p=0.0001). 62 (6.3%) patients had more than 10 sexual partners in the last 3 months, which was statistically more common in HIV -ve patients (n=40, p=0.036). 74 (7.5%) had injected drugs, of which 9 (12.2%) shared needles. 342 (34.5%) patients took recreational drugs in the last 12 months with cocaine and ecstacy the most popular. 229 (67.0%) patients had sex under the influence of drugs. Injecting drugs (n=50, p=0.007) and recreational drug use (n=183, p=0.023) were both statistically significant in HIV +ve men, compared to HIV –ve men. There were 561 STI screens and 17 new HIV diagnoses (4.0%).
Conclusion: Our study shows HIV +ve MSM were statistically more likely to inject and take recreational drugs which may explain the higher number of new HCV infections in HIV +ve MSM. However new HCV cases were found in HIV –ve MSM engaging in high risk sexual and drug taking behaviour. HCV risk assessment should be carried out in HIV –ve MSM attending sexual health clinics and HCV testing should be offered based on the risk. Education to raise the awareness and collaboration with community drug and alcohol services remain essential to combat the HCV endemic.

P204

Factors associated with human papillomavirus vaccine acceptability in HIV-infected and HIV-negative men who have sex with men

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Background: The Joint Committee on Vaccination and Immunisation have recommended targeted HPV vaccination for MSM aged 18-40 years given the high burden of HPV associated disease in this group. When considering feasibility of targeted immunisation programme it is important to understand factors influencing vaccine acceptability as high levels of vaccine coverage are required for such programmes to be successful. The aim of this study was to examine HPV infection knowledge, HPV vaccine acceptability and associated factors in MSM.
Methods: MSM ≥18 years were invited to complete a self-filled questionnaire. Socio-demographic information, sexual behaviour, knowledge and cognitions on HPV infection and vaccine were recorded. HPV vaccine acceptability was assessed based on modified scenarios relating to vaccine cost and efficacy. Statistical analysis was performed using the chi-square test or Fisher's exact test, as appropriate.
Results: 302 MSM participated.117 (39%) were aged 18-30 years, 87 (29%) 31-40, 97 (32%) 41-60. 223 (74%) were educated to third level. 90 (30%) reported an STI while 187 (62%) reported multiple male sex partners in the previous 12 months. 146 (48%) were HIV-infected.
Only 58% were aware HPV could affect men while 46% and 26% were aware that HPV could cause genital warts or anal cancer respectively.
29% were aware of the availability of HPV vaccine for men.
24% perceived that prevalence of HPV in MSM was high, 44% that infectivity of HPV infection was high while only 33% felt their chance of catching HPV was high
HPV vaccine acceptability was 51% (conditional on efficacies and a market price), 65% (conditional on efficacies and a discounted price) and 78% (conditional on efficacies and no cost).
Based on no cost vaccine, third level education was associated with vaccine acceptability (83% versus 62%, p=0.002). Perception that vaccine could prevent genital warts (p=0.01), could prevent anal/penile cancer (p=0.001) and could prevent other STI's (p=0.05) were associated with vaccine acceptability.
Conclusion: MSM who participated in our study were at high risk of HPV infection. Study participants were poorly informed and misconceptions regarding HPV infection were common. Cost was a strong determinant of HPV vaccine acceptability regardless of stated vaccine efficacy p<0.001.
The acceptability of no cost HPV vaccination among MSM would be expected to increase substantially following implementation of targeted education/health promotion programs outlining the risks of HPV associated disease and efficacies of the HPV vaccine.

P205

Contraception and fertility issues amongst people living with HIV (PLWH)

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Background: Fertility/contraception is highlighted in BHIVA 2013 Standards of Care summarised as a need for contraception discussion for women and fertility discussion with all PLWH. We aimed to audit current routine provision in our HIV outpatient clinic (OPC). We currently have a pre-conception clinic run by a midwife open to PLWH who express an interest; we aimed to conduct a questionnaire to identify if there is a need to extend this service.
Method: A retrospective audit of 40 patient notes randomly selected during a week of HIV clinics were assessed against BHIVA Standard 8. All female cases from the same week were additionally reviewed. A questionnaire asking about attitudes towards conception and current provision of fertility services was left opportunistically for PWLH to complete in our OPC.

Results: 52 notes were audited: 36 male, 16 female, median age 51y. 85% were MSM (n=34/36). All were on antiretrovirals, 92.3% (48/52) had a VL<40. 11% (6/52) of patients had discussed fertility previously, one was male. 15.3% (n=8/52) had children and 56.3% of females (9/16) had discussed contraception. 19 patients completed the questionnaire (17 male, median age 52 years). 15/17 men were MSM (82%) and none had ever discussed fertility with a doctor. Of these, 6/15 (40%) considered having children, wanted information regarding fertility and would use a fertility service if offered. 2/17 (11.7%) heterosexual males and 1/2 females had discussed fertility with a doctor.
Discussion: Unsurprisingly there was an absence of discussion with MSM regarding the desire to have children yet in this small survey 40% had considered this. Our findings are limited by a small sample size and the possibility that respondents were self-selecting; a further survey is planned. We suggest service enhancement by including fertility/contraception in our annual review checklist and in discussions with newly diagnosed patients, perhaps via Health Advisors. A clinician survey to assess doctors' knowledge on contraception/fertility in PWLH and their practice would identify opportunities for education. Clear guidelines on fertility options for non-heterosexual patients, and engagement with the Human Fertilisation and Embryology Authority, would help to support our existing fertility service.

P206

Fertility amongst perinatally infected women attending a young adult service

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Background: The impact of perinatally acquired HIV infection (PaHIV) and exposure to ART through childhood and puberty on female fertility is unknown. General population, UK female infertility rates <30 years old are estimated at 2-5%. We audited fertility outcomes for young women with PaHIV attending a single UK centre.
Methods: Case note review of all PaHIV infected young women in care between 2006-2014. Fertility problems were defined as; confirmed infertility or failure to conceive (>2 year). Data collection included nadir CD4, smoking, years on ART, BMI and STI's.
Results: Of 59 women, current mean age 22 years (range 18-30), 41/59 black African, 19/59 ever smoked, mean BMI 22.6. 10 pregnancies occurred in 6 women resulting in 8 live births, 1 termination and 1 ectopic pregnancy. 8 of 59 women (13.6%) have a diagnosis of infertility, mean BMI 21.6, mean nadir CD4 count 395. 7/8 ever received ART, mean duration 8.4 years at latest follow up, 6 with current VL<20c/ml and 7/8 CD4 >350. 3/8 had primary ovarian failure, one with streak ovaries. 5/8 had secondary infertility; tubal obstruction and multiply ovarian cysts (1), polycystic ovaries (2) and continuing investigation (2). Of these 5, three had a prior STI; Chlamydia (2) and Gonorrhoea (1).
Conclusion: Whilst this is a very small cohort, there appears to be a higher than anticipated level of fertility issues amongst an emerging cohort of PaHIV infected young women that warrants further investigation within collaborative cohort studies.

P207

Does the integration of sexual health services improve the sexual and reproductive healthcare of HIV-positive women?

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Background: Guidelines exist to aid provision of effective contraceptive methods to HIV positive women. NHS Lothian Genitourinary Medicine (GUM) and Sexual and Reproductive Healthcare (SRH) services integrated in June 2011. Contraceptive use, pregnancies and uptake of the recommended annual cervical cytology were audited in a cohort of HIV positive women pre- and post-integration of services.
Methods: Case notes and electronic data recording systems were interrogated for the 5 years preceding integration of services. The audit cycle was repeated 3 years after integration.
Results: The cohort attending the service regularly remained largely unchanged. 107 women were still engaged in care post-integration, 14 had left and 36 were new to the service.
Contraception
Pre-integration 24.9% of 70 women who were deemed to require contraceptive counselling and provision, were on effective prescriptions. Post-integration this proportion rose to 39.3% - of 74 women (figure 1).

Figure 1. Use of effective contraceptive methods.

Contraceptive method	Pre-integration (n=68)	%	Post integration (n=74)	%
IUD	0	0%	6	8.1%
IUS	9	13.2%	15	20.3%
Depo	4	5.9%	6	8.1%
Nexplanon	2	2.9%	1	1.4%
COC	2	2.9%	0	0%
POP	0	0%	1	1.4%
Total	17	24.9%	29	39.3%

Pregnancies
In the 5 years pre-integration 32 women had 42 pregnancies. 47.6% of these pregnancies were unplanned (UP), occurring in 16 women. In the 3 years post-integration 13 women had a total of 18 pregnancies, 50% were UP pregnancies (in 7 women).
Cervical cytology
Pre-integration 47.3% of those eligible had a cervical cytology result documented in the preceding 12 months, which improved to 74.6% post-integration. 61.4% and 91% in each respective group had had a smear within the preceding 3 years.
Conclusion: Contraceptive provision to women who needed it improved after service integration although there remained fewer than 40% of women using a suitable method. Despite improved contraceptive provision, UP pregnancy rates did not fall. In a cohort of women who are seen regularly by clinicians with contraceptive expertise, and who are known to have an infection which can be vertically transmitted, it is disappointing that rates are comparable to those seen in the general population. The proportion of women who have had, as recommended, a smear test in the last year has improved from 47.3% to 74.6%.

P208

Retrospective assessment of cervical surveillance and adherence to BHIVA 2014 guidelines in HIV-positive women

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Background: There is a high incidence and prevalence of cervical intraepithelial neoplasia (CIN) among women living with Human Immunodeficiency Virus (HIV). British HIV Association (BHIVA) guidelines 2014 recommend that all women newly diagnosed with HIV have colposcopy at time of diagnosis followed by annual cervical cytology. Here, we assess whether an HIV clinic in a large tertiary teaching hospital in the UK complied with these guidelines.
Method: We performed a retrospective cohort study of 144 HIV-positive women using confidential patient records from January 2011 to December 2014, 39 of whom were diagnosed within the study period.
Results: Since the 2014 guidelines were introduced, only 15% (3/17) of women underwent colposcopy at time of diagnosis in the clinic. In addition, the proportion of women with a documented annual cytological examination was low, decreasing over the study period, from 75% in 2011 to 50% in 2014. Furthermore, 13% (5/39) of newly diagnosed women had never had a confirmed cytological examination (add median age of study group). Of the newly diagnosed women that underwent cytology, 21% (4/19) exhibited pathological cytological findings: herein, three displayed mild dyskaryosis and one showed borderline changes. Six women presented with a low CD4 count (<350 cells/mm^3) at diagnosis and 2/6 (33%) of these women had contemporaneous CIN.
Conclusion: The prevalence of CIN among women living with HIV in the UK continues to be high. Our findings demonstrate poor compliance with BHIVA 2014 guidelines, both with regard to colposcopy at time of diagnosis and in follow-up cytology, among a high risk population. In our clinic patients, there appears to be an association between low CD4 count at diagnosis and increased prevalence of cytological abnormalities that are associated with CIN. Higher compliance with the guidelines will be necessary to avert a large future potential burden of disease among women living with HIV in the UK.

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BHIVA/BASHH Mentoring Scheme

Since the introduction of the BHIVA/BASHH Mentoring Scheme, we have received very positive feedback from newly appointed consultants about the benefits of the scheme. Over the past decade interest has arisen in the NHS regarding the concept of 'mentoring' within clinical medicine. Experience in the UK so far demonstrates that physicians with mentors reap substantial benefits. Doctors already have established frameworks for assessment, appraisal and revalidation but the emphasis in mentoring is to provide an opportunity for the mentee to reflect and develop their own career aspirations and priorities.

Mentoring is a process of proactively engaging in career advancement and addressing career developments early on. It is not a process to address failing clinicians.

The BHIVA/BASHH Mentoring Scheme is currently open to all newly appointed GUM consultants and SAS doctors at any point in their careers, to provide guidance and support. For new GUM consultants it is thought that the initial period of mentoring would be for 18 months but this can be extended if necessary.

We would like to invite new doctors to become mentors on the scheme. If you are a Consultant or SAS doctor who would like to become a mentor on the programme, please complete the nomination form, which can be downloaded at:

www.bashh.org/BASHH/BASHH_Groups/Mentoring/BASHH/BASHH_Groups/Mentoring.aspx.

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Thursday 9 July 2015
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This course has been developed by both Associations in order to help prepare candidates for this important examination. It is open to those candidates sitting the examination in autumn 2015.

A nominal fee of £80 will be charged to attend the course.

If you are planning to sit this examination in autumn 2015, please register online at www.bhiva.org

Key Dates

BHIVA Autumn Conference
incl CHIVA Parallel Session

12–13 November 2015 · QEII Centre, London SW1

BHIVA Annual General Meeting 2015

Friday 13 November 2015 · QEII Centre, London SW1

European HIV Hepatitis Co-infection Conference

10–11 December 2015 · QEII Centre, London SW1

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REYATAZ® (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 and paediatric patients (6 years of age and older). **DOSAGE AND ADMINISTRATION:** Oral. Adults: 300mg with ritonavir, 100mg once-daily with food. Paediatrics: dose of Reyataz is based on body weight. If co-administered with didanosine, recommend didanosine to be taken two hours after Reyataz with ritonavir with food. **Hepatic impairment:** use with 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 window or products containing St. John's wort. Reyataz with ritonavir is contraindicated in patients undergoing haemodialysis. PDE5 inhibitor sildenafil is contraindicated when used for the treatment of pulmonary arterial hypertension (PAH) only. Co-administration of Reyataz with simvastatin or lovastatin is contraindicated. **SPECIAL WARNINGS AND PRECAUTIONS:** Adults with chronic hepatitis B or C treated with combination antiretroviral therapy are at increased risk of 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. Patients should be monitored for Stevens-Johnson syndrome (SJS) erythema multiforme, toxic skin eruptions and drug rash with eosinophilia and systemic symptoms (DRESS) syndrome which have been reported. Reyataz should be discontinued if severe rash develops. Reyataz may induce PR prolongations. Caution with medicines that may increase QT interval. Caution in haemophiliac patients. Combination antiretroviral therapy has been associated with lipodystrophy and metabolic abnormalities. Particular caution is required when prescribing PDE5 inhibitors (sildenafil, tadalafil, or vardenafil) for the treatment of erectile dysfunction in patients receiving Reyataz with concomitant low dose of ritonavir. Co-administration of salmeterol and Reyataz is not recommended. Co administration of voriconazole and Reyataz with ritonavir is not recommended, unless an assessment of the benefit/risk justifies the use of voriconazole. In clinical studies, Reyataz (with or without ritonavir) has been shown to induce dyslipidemia to a lesser extent than comparators. Hyperbilirubinaemia has occurred in patients receiving Reyataz; no dose reduction is recommended. Nephrolithiasis and cholelithiasis have been reported in patients receiving Reyataz. If signs or symptoms of nephrolithiasis occur, temporary interruption or discontinuation of treatment may be considered. On initiation of combination therapy immune reactivation syndrome may occur. Paediatrics: Caution should be used with products known to induce PR prolongations and with paediatrics with pre-existing conduction problems. Cardiac monitoring is recommended. **DRUG INTERACTIONS:** Co-administration of Reyataz with the following agents is not recommended: nevirapine efavirenz, proton pump inhibitors, atorvastatin. If co-administered with pravastatin or fluvastatin, caution should be exercised. Co-administration of Reyataz with ritonavir is not recommended for the following unless justified by the benefit/risk ratio; voriconazole, fluticasone, other glucocorticoids and medicinal products that are metabolised by CYP3A4. If Reyataz with ritonavir is co-administered with both tenofovir and a H_2-receptor antagonist, a dose increase of Reyataz to 400mg with 100mg of ritonavir is recommended; and a dose equivalent to famotidine 40mg twice daily should not be exceeded. Interaction studies have only been performed in adults. **Oral contraceptives:** If co-administered with Reyataz 300mg and ritonavir 100mg OD, it is recommended that the oral contraceptive contain a minimum of ethinyloestradiol 30µg combined with norgestimate. Remind patient of strict compliance with dosing regimen. Co-administration with other hormonal or oral contraceptives containing progestogens other than norgestimate has not been studied therefore avoid. Alternate reliable methods of contraception recommended. **HCV Protease Inhibitors:** Boceprevir 800mg three times daily co-administered with Reyataz/ritonavir 300/100mg OD resulted in lower exposure of atazanavir which may be associated with lower efficacy and loss of HIV control. This co-administration might be considered on a case by case basis if deemed necessary, in patients with suppressed HIV viral loads and with HIV viral strain without any suspected resistance to the HIV regimen. **PREGNANCY AND LACTATION:** The use of Reyataz during pregnancy may be considered only if the potential benefit justifies the potential risk. Consult the SmPC for further information on clinical use of Reyataz during second and third trimesters. **UNDESIRABLE EFFECTS:** *Common:* nausea, headache, ocular icterus, vomiting, diarrhoea, dyspepsia, abdominal pain, jaundice, rash, fatigue and lipodystrophy. *Uncommon:* angioedema, insomnia, asthenia, pancreatitis, peripheral neurologic symptoms, hepatitis, nephrolithiasis, cholelithiasis, erythemia multiforme, toxic skin eruptions, drug rash with eosinophilia and systemic symptoms (DRESS) syndrome, diabetes. *Rare:* Stevens-Johnson syndrome, myopathy. Consult SmPC 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.
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Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Bristol-Myers Squibb Pharmaceuticals Ltd Medical Information on 0800 731 1736, medical.information@bms.com

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