HIV MEDICINE

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HIV Medicine aims to provide an alternative outlet for publication of international research papers in the field of HIV Medicine, embracing clinical, pharmacological, epidemiological, ethical, preclinical and *in vitro* studies. In addition, the journal will commission reviews and other feature articles. It will focus on evidence-based medicine as the mainstay of successful management of HIV and AIDS.

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Contents

Oral Abstracts

Antiretroviral Therapy

O1

Safety of switching raltegravir 400mg twice daily to raltegravir 800mg once daily in virologically suppressed patients

A Moore, S Sonecha, M Boffito, A Pozniak, D Asboe and T Barber
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Background: In October 2015 a local guideline was produced for switching HIV-infected patients established on anti-retroviral treatment (ART) to raltegravir (RAL) 800mg once daily (OD) & patient outcomes were evaluated.
Methods: Criteria for switch to RAL OD:

An undetectable viral load (VL)<40 copies/mL (VL<40) for >6 months with 2 consecutive VL<40
Full virological history of no viral resistance/virological failure to any ART
All switches required approval from the virtual HIV MDT clinic

In this retrospective observational cohort study, HIV-infected patients on RAL 400mg twice daily (BD) or alternate ART who preferred an OD regimen & who met the criteria were offered a switch to RAL 800mg OD. Patients switched to RAL 800mg OD were analysed for a minimum of 1 year post switch. Primary end point was the proportion of patients who sustained VL<40 for two VL results post-switch. Secondary endpoint was the number of patients switching off of RAL OD due to adverse events (ADRs).
Results: A total of 271 patients with a mean CD4 of 703 (range 185–1591) cells/mm^3 switched to RAL OD. Of 271 patients, 200(74%) patients switched to RAL OD from a regimen containing RAL 400mg BD, 205 (75%) were concomitantly taking tenofovir/emtricitabine or 61(23%) abacavir/lamivudine. A total of 5 patients were on a non-nucleoside reverse transcriptase inhibitor backbone. To date, 192(71%) patients have one VL result at a mean of 15 weeks post switch & 85(43%) of these have a second VL result at a mean of 32 weeks post switch. 188/192 (94%) patients had a 1st VL<40. Of 4 patients with VL>40 (range 43–68 copies/mL), 3 patients repeat VL result was<40 with no change to the ART regimen. The 4th patient's repeat VL is pending. 81/85 (95%) patients with a 2nd VL post switch maintained VL<40. 4 (1.6%) patients had a VL>40 (range 41–153 copies/mL) at the 2nd VL post switch. 3 of the 4 patients repeat VL results show VL<40 with no change to their ART. The 4th patients 2nd VL=41 at analysis, a repeat test is pending. Only 12/271 (4%) switched off RAL OD, 3 patients switched back to RAL BD, and 4 simplified to a STR with no RAL ADRs reported. Only 5/12(1.8%) patients switched to an alternate regimen due to reported ADRs (1 suicidal ideation, 1 insomnia/nightmares, 1 joint inflammation, 2 gastro-intestinal symptoms).
Conclusions: In patients established on ART who desire a once-daily regimen & who meet the local guideline criteria, the use of RAL 800mg OD is efficacious & safe in terms of ADRs.

O2

Clinical pharmacology of the HIV integrase strand transfer inhibitor bictegravir

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Background: Bictegravir (BIC) is an investigational, once-daily, unboosted HIV integrase strand transfer inhibitor(INSTI) currently in development coformulated with FTC/TAF for treatment of HIV-1 infection. Pharmacologic properties were assessed.
Methods: A single (SD) and multiple-dose (MD) randomized, double-blind, placebo-controlled (6 active 2 placebo/cohort) of staggered dose-escalation evaluated SD BIC 5, 25, 50, 100, 300 or 600mg; or once-daily MD 5, 25, 50, 100 or 300mg for 14 days (fasted) in healthy volunteers. An ADME/mass balance study dosed with a SD 100mg plus 100 μCi[14C]-labeled BIC. Blood, urine and faeces samples were analyzed for total radioactivity. An open-label fixed sequence and cross-over study assessed the DDI liability of BIC. Safety was assessed throughout each study.
Results: BIC exposure was dose proportional following SD of 25–100mg. Observed half-life was ~18 hours. Following a SD of [^{14}C]-labeled BIC, the total recovery of radioactivity was 95%±1.5%, with 60%±5.5% from faeces and 35%±5.0% from urine. Balanced glucuronidation and oxidation contributed to the major clearance pathways of BIC. The DDI study(Table 1) showed increased BIC AUC(61–74%) by CYP3A4 inhibitors voriconazole and DRV/COBI but showed a greater increase(~4x) by potent dual inhibitors of UGT1A1 and CYP3A4, ATV and ATV+COBI. Coadministration of BIC with a potent CYP3A4/UGT1A1/P-gp inducer, rifampin resulted in a 75% decrease of BIC AUC. A lesser reduction (38%) was associated with the moderate CYP3A4/P-gp inducer, rifabutin. BIC was well tolerated at all doses studied.
Conclusions: The favourable BIC PK profile supports once daily dosing. DDI results of BIC are consistent with its ADME profile in which both CYP3A4 and UGT1A1 contributed to BIC elimination.
Table 1. Effects of Concomitant Medications on BIC PK in Healthy Volunteers

BIC Coadministered Drug(s)/ Dose(s)	Dose(s) of BIC	Geometric Mean Ratio%(90%CI) of BIC PK with/without Coadministered Drugs		
		n=15 for each cohort		
ATV(400mg) QD	BIC(75mg) SD fed	128 (123,134)	415 (381,451)	NA
ATV(300mg) + COBI(150 mg) QD	BIC(75mg) SD fed	131 (123,140)	406 (376,438)	NA
Voriconazole (300mg) BID	BIC(75mg) SD fasted	109 (96.1,123)	161 (141,184)	NA
DRV/COBI(800/150mg) QD[c]	BIC(75mg) MD fed	152 (140,164)	174 (162,187)	211 (195,229)
Rifabutin (300mg) QD [c]	BIC(75mg) MD fasted	80.4 (66.9,96.5)	62.0 (53.1,72.5)	44.0 (37.1,52.1)
Rifampin (600mg) QD	BIC(75mg) SD fed	72.2 (67.1,77.8)	24.5 (22.0,27.3)	NA

ATV=atazanavir; COBI=cobicistat; DRV=darunavir; NA=not applicable; [c]Test arm *n*=13

O3

Integrase inhibitor resistance in HIV-positive patients undergoing routine testing: frequency and clinical implications

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Background: Integrase Inhibitors (INI) are increasingly used in first-line antiretroviral regimens. Although baseline INI resistance (INI-R) testing is not recommended routinely[1], our laboratory, which serves 5 clinical sites, has included it with all HIV resistance testing since September 2014 when we began validating new resistance sequencing methodologies. We reviewed the frequency and implications of INI-R in our cohort.

Methods: All INI-R reports (01/09/2014–1/10/2016) were retrospectively reviewed. For patients with INI-R attending 2 clinical sites, we had access to clinical data.
Results: 513 samples from 463 patients were tested. 58 samples (11.3%) from 51 patients (11.0%) had INI-R. There was no difference in age of patients with INI-R and those without (median 40 years, IQR 34-50 versus 40 years, IQR 30-49: p=0.445).
51 samples were resistant to Raltegravir (R) and Elvitegravir (E) but not Dolutegravir (D), and 7 samples to all three (see Table 1). No high-level resistance to D was found. 5 major and 20 accessory mutations were detected: the most frequent mutation associated with INI-R was E157Q (n=20). 46 patients had ≥2 samples tested: 4 patients had INI-R on both samples, and 3 patients on the second sample only.

Table 1. Samples tested for INI-R (n=513)

Level of resistance	Raltegravir	Elvitegravir	Dolutegravir
High-level	2	5	0
Intermediate	3	0	1
Low-level	42	28	1
Potential low-level	11	25	5
Total	58	58	7

INI-R was reported in 42 samples from 38 patients with clinical data available (median age 40 years (IQR 35–51), 25 (66%) males). Median CD4 count was 298 cells/mm^3 (IQR 126–470), and viral load 21,650 copies/ml (IQR 3,070–74,700). 15/42 (36%) samples were from ARV-naïve patients: INI were initiated in 8 (D n=7, R n=1). 1 patient seroconverted whilst taking R for post-exposure prophylaxis (PEP; virus resistant to R and E). 9/42 (21%) samples were from patients already taking INI (R n=6, E n=2, D n=1); INI-R led to a treatment change in 8/9 (89%) of these patients.
Conclusion: INI-R rate was 11% in this population, and was observed in treatment-naïve patients. Baseline INI-R testing should precede initiation of INI, particularly R or E, and inclusion in baseline screening is justifiable. These findings may have implications for the use of R in PEP. Further work is needed in order to understand clinical implications and dynamic changes in INI-R.
Reference: 1. British HIV Association guidelines for the routine investigation and monitoring of adult HIV-1-positive Individuals, 2016

O4

Timing of detection of treatment-emergent resistance during rebound viraemia

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Background: HIV treatment guidelines recommend confirmation of viral load (VL) rebound prior to resistance testing. Targeting subjects that experienced rebound viremia on first-line NNRTI-based ART and who showed treatment-emergent drug resistance mutations (DRMs) prior to changing therapy, we examined the diagnostic yield of resistance testing in early vs. confirmed rebound using conventional (Sanger) sequencing (CS) and next generation sequencing (NGS, Illumina).
Methods: Subjects (n=12) started an NNRTI + TDF or ABC + 3TC or FTC in the absence of CS- and NGS-determined DRMs in the pre-ART sample, achieved VL suppression<50 c/ml, underwent ≥2 VL measurements per year during follow-up, experienced a first VL>50 c/ml after median 15.3 months (IQR 12.1–25.0) of ART followed by ongoing viremia for median 1.9 months (IQR 1.2–4.1), and were found to harbour DRMs by clinic-based CS immediately prior to changing therapy. Stored samples collected during rebound viremia (n=29; 2–3 per subject) were tested by CS and NGS. For samples with VL<10,000 c/ml, NGS used pooled triplicate amplicons.
Results: The VL was median 312 c/ml (IQR 225–1845) in the first rebound sample, rising to 10,588 c/ml (IQR 1322-21,999) in the last sample. In the first sample, 7/12 (58%) subjects showed NRTI DRMs by NGS+CS (5/12; Illumina reads frequency ≥90%) or by NGS alone (2/12; frequency 1.2-7.9%) (Table). In the same sample, 10/12 (83%) subjects showed NNRTI DRMs by NGS+CS (8/10; frequency 19–99%) or by NGS alone (2/12; frequency 1.6%). DRMs prevalence and patterns remained overall consistent in the second rebound sample collected a median of 1.4 months (IQR 0.9–3.2) after the first; additional DRMs were observed in 5/12 subjects and DRM frequencies often increased over time. Results obtained in the first sample were also consistent with those of the clinic-based CS.
Conclusions: In subjects experiencing VL rebound and treatment-emergent resistance during first-line NNRTI-based ART, DRMs were already detected in the first rebound sample, with excellent agreement between the profiles detected by NGS and those found to emerge simultaneously or subsequently by CS. Transient detection of DRMs at very low frequency (<2%) can occur, requiring careful interpretation. Early confirmation of VL rebound and sequencing may be of benefit in individuals on NNRTI-containing regimens, including those showing low-level rebound viremia.
BHIVA Research Awards winner 2017: Nicola Mackie

O5

Patient's perceptions of switching from Atripla to generic Truvada and efavirenz

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Background: *Atripla*® was approved as a fixed dose combination drug in 2006. As the patent for *Atripla*® has expired, generic *Truvada*® and efavirenz has become available. In the current financial climate and constraints to the NHS budget, significant cost savings can be achieved with the use of generics. The aim of this project was to gain the perceptions of our cohort of patients on *Atripla*® planned to be switched to generics.
Methods: All patients established on *Atripla*® were identified; those to remain for clinical reasons or switched to a different drug regimen were excluded. Demographic data was collected, time in months established on *Atripla*®, CD4 count and viral load. Patients were contacted by telephone, given information about the switch and then a questionnaire completed concerning the switch.
Results: 98 patients were identified on *Atripla*®; 10 were to remain, 4 were switched to a different drug regimen. Data was analysed for 42 patients with whom contact was made and responses recorded. Age range 24–73 years (median 51; mean 50). 95.2% (40) male, 90.5% (38) MSM, 97.6% (41) white British. 95.2% (40) had a viral load<20 copies/ml and median CD4 count was 627. The mean time established on *Atripla*® was 53.5 months.
Responses to the statement 'I am in favour of switching to generics' resulted in 64.3% (27) of patients being in agreement [(17) strongly agreed and (10) agreed]. Responses to 'it is important to achieve cost savings in the NHS' resulted in 83.3% (35) of patients being in agreement [(20) strongly agreed and (15) agreed]. 33.3% (14) of patients had concerns about switching; of these the main concern reported by 57.1% (8/14) was taking two tablets.

Table 1. Concerns reported by patients for the planned switch to generics

Response	Number of patients
No concern	66.6% (28/42)
Taking two tablets	19.0% (8/42)
Side effects	7.14% (3/42)
Concern viral load may be affected	4.76% (2/42)
Concern over quality	2.38% (1/42)
Tablet size	0% (0/42)

Conclusion: The majority of patients (64.3%) were in favour of switching to generics. The main concern identified was taking two tablets. Patient support and awareness of financial savings in the NHS was highlighted by the majority (83.3%) of patients agreeing with the cost savings statement.
As further antiretroviral patents expire, more patients are likely to undergo switches to generics, resulting in significant reductions in drug expenditure. This study highlights that many of our patients are in favour of such switches.

O6

The next genericiton update

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Background: With the increasing availability of generic ARVs, it was identified that significant cost savings could be achieved if patients are willing to switch from Truvada® (TVA)-based fixed-dose combination ARVs such as Atripla® to generic containing multi-tablet combinations (MTCs).
Method: Clinicians identified suitable patients stable on Atripla® who had no clinical reason to switch. Patients either switched to tenofovir (TDF)/ generic lamivudine (g3TC)/ generic efavirenz (gEFV) or TVA/gEFV. The switch was discussed during the patient's routine clinic appointment, followed by a consultation with a pharmacist and a two-week post switch telephone call with a pharmacist. A retrospective review of case notes and pharmacy data was undertaken from August 2015 to December 2016 for patients who were taking Atripla® focussing on the financial impact and tolerability of the MTCs.
Results: 16 months of follow up data was available for 428 patients. 117 patients (102 male) opted to switch to MTCs: 86/117(74%)remain on them, 3/117 transferred out whilst still on MTCs and 1/117 was lost to follow up; they were treated as discontinuations. 20/117 (17%) patients switched back to Atripla® (12-central nervous system (CNS) toxicity, 3-concerns about potential side-effects & didn't take any doses, 2-pill burden, 2 -no reason documented, 1 -no data).7 patients (4 -TDF/g3TC/gEFV and 3-TVA/gEFV) switched to an alternative regimen (1-TVA/Raltegravir, 5-TDF/g3TC/Rilpivirine and 1-Eviplera®) due to Hep C treatment drug interaction (1) and CNS toxicity (6). 62/86 patients who remain on MTCs had a 6-month post switch viral load result available and these patients remained virologically suppressed.
Annual cost savings will be approximately £155,000 if 86 patients remain on MTCs.
(see table below)

Switched from	Switched to	Cost saving per pt per month (£)	No of pts	Cost saving per month (£)
Atripla®	TDF/g3TC/gEFV	180.56	64	11555.84
Atripla®	TVA/gEFV	63.1	22	1388.2
Total			86	12,944.04

Conclusion: Patients are willing to switch to MTCs including generic ARVs to save money for the NHS. Side-effects and not pill burden remains the main reason for discontinuation from MTCs. The supply problems of some generic ARVs need to be urgently addressed in order to maximise cost savings and minimise inconvenience to patients. Pharmacists' time remains unaccounted for and they are intrinsic to the success of the NHS England improving value program to achieve the intended savings of £11.4 m.

Testing and Early Infection

O7

HIV self-testing: feasibility and acceptability of a large scale national service

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Background: The UK needs a dramatic increase in HIV testing rates to reduce undiagnosed HIV and late diagnoses and to support prevention strategies such as PrEP and early treatment. HIV self-testing offers the potential to significantly increase the number and frequency of tests undertaken in a cheaper and, for some, more acceptable way.
Methods: We piloted a national HIV self-testing service, which was delivered online to men who have sex with men (MSM) and Black Africans living in the UK. A dedicated website was created and the service was promoted through social media. Participants provided demographic information, contact details and answers to HIV risk assessment questions. An HIV self-testing kit was then posted to them. Service users were asked to log onto a secure page on the website to inform us of their result. Anyone with a reactive result was called for support or advice and to ensure access to care for confirmatory testing. An online satisfaction survey was sent to everyone who gave consent to be contacted.
Results: The pilot ran from 24th June to 5th Aug 2016. A total of 4,879 kits were ordered. 3,021 people (62%) informed us of their result. 4,865 (97.8%) orders were from men and 4,820/4,865 (99%) identified as MSM. 96 women (1.8%), 16 trans women and 6 trans men ordered a test. The mean age was 31. 3780 (76%) tests were ordered from people of white British ethnicity and 168 (3.3%) identified as Black African. 4,458 (91.4%) of kits were ordered from urban settings. 19% had never had an HIV test before and a further 37% had last tested >1 year ago. 81% reported 2 or more partners in the last year. 68% reported condomless anal sex in the previous 3 months with 28% reporting this with 2 or more partners. 28 people (0.92%) reported a reactive result. 3 (10.7%) people already knew they were HIV positive and one result was confirmed as a false positive. Of the remaining 24 all were MSM. 15/24 (62.5%) identified as white British. Contact was made with 22 (92%) all of whom had accessed confirmatory testing and HIV services. 602 people responded to the survey. 98% would use the service again, 91% felt self testing encouraged them to test and 91% were happy with the support they received.
Conclusions: We have demonstrated both the feasibility and acceptability of HIV self-testing in a large-scale UK pilot. We believe that an investment in HIV self-testing will complement existing options and provide a cost-effective way to scale up our approach to testing.

O8

Routine blood-borne virus testing for HIV, hepatitis B and hepatitis C in the emergency department: the 'new normal'?

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Background: UK guidelines recommend routine HIV testing in emergency departments (ED) in high prevalence areas but only targeted testing for hepatitis B (HBV) & C (HCV). We implemented opt-out blood-borne virus (BBV) testing in adults between 20/11/15 to 07/08/16 in a high prevalence ED to assess its value.
Methods: Uptake was defined as those receiving routine bloods and BBV tests (HIV Ab, HBV sAg & HCV Ab). Diagnoses were grouped as 'new' (N), 'known' [disengaged (Kd), engaged (Ke), unknown (Ku)] or 'status unclear' (U). Linkage to care was defined as patient informed plus ≥1 clinic visit. The average number of contact attempts made to follow-up each positive BBV test was analysed.
Results: 6,211 of 24,981 ED attendees were tested (uptake 25%); 257 (4.1%) were BBV positive (15 co-infected), 86 (33%) required linkage to care (N or Kd). 44/147 (30%) HCV positives were viraemic and required linkage (13 N, 17 Kd, 3 Ku, 11 U); 103 were cleared or Ke. 16/71 (23%) HIV required linkage (10 N, 5 Kd, 1U); 55 were Ke. 26/54 (48%) HBV required linkage (7 N, 11 Kd, 8U); 28 were Ke. 25/86 (29%) patients requiring linkage had advanced disease (CD4<350, APRI >1 or fibroscan F3/F4), including 5 with AIDS-defining conditions and 3 hepatocellular carcinomas (HCC). There were 3 BBV related deaths.

Table 1 HIV, HBV, HCV prevalence and demographic breakdown of positives

	HIV n=71	HBV n=54	HCV n=147
Prevalence, % (95% CI)	1.2 (0.92–1.5)	0.9 (0.69–1.2)	2.4 (2.0–2.8)
Median age (years)	43	43	46
Male, n (%)	57 (80)	36 (67)	105 (71)
Ethnicity, n (%)			
1. White	27 (38)	14 (26)	104 (71)
2. Black	26 (37)	14 (26)	7 (5)
3. Asian	3 (4)	15 (28)	8 (5)
4. Other	15 (21)	11 (20)	28 (19)
Requiring Linkage, n (%)	16	26	44
1. Informed to date	11 (69)	17 (65)	30 (68)
2. Linked to date	11 (69)	13 (50)	19 (43)
Avg contact attempts	1	2	6

Conclusion: ED testing was valuable as 1/3 of those requiring linkage for treatment of viraemia (new, disengaged or unknown status patients) had advanced disease. Overall BBV prevalence was high (4.1%); most were HCV (2.4%). HIV patients were more successfully linked to care and required fewer contact attempts than HBV or HCV patients.

O9

HIV testing in a London emergency department: the first 21 weeks

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Background: NICE guidelines recommend expanded HIV testing in areas of very high prevalence (>5 per 1000) including Emergency Departments (ED). We report the results of the first 21 weeks of opt-out HIV testing in an ED in an area where local prevalence exceeds 5 per 1000.
Methods: Opt-out testing in adults ≥18 years was introduced in the ED on the 8/8/16. A list of all HIV tests done each week is generated by virology. The number of full blood counts (FBC) taken over the same week is used as a surrogate for the number of patients having bloods taken to calculate testing rates. Electronic notes were checked to determine if HIV had been considered and thus if the patient would have been tested otherwise. Demographics of the patients diagnosed in ED were compared to those tested over the same period in GU.
Results: By the end of week 21 8112 patients had had an HIV test. In total 17603 adults had a blood test amounting to a testing rate of 46%. 63 patients tested positive; 13/63 were newly diagnosed and 3/63 had disengaged from care. 3 patients did not have contact details and it is unclear if their status is known. The remaining patients were in care. 10/13 of the newly diagnosed patients have been linked into care; 1 declined,1 has not returned to any follow up following discharge and 1 is being recalled. Of these 13, 11 are male, mean age 45 (28-61), 8 are Black African/Caribbean. CD4 count is available for 10 patients and the mean CD4 count was 221 (13-506) at diagnosis. 4 had presented with AIDS defining conditions and 2 were seroconverting, however HIV had been considered in the differential in only 2. Testing in ED enabled prompt management of these conditions. Over the same period 12 patients were newly diagnosed in GU. Of these 9 are male and 6 Black African/Caribbean. Of these 2 did not attend HIV services, 1 disengaged after an initial appointment and 1 has moved. These patients are younger with a mean age of 40 (24-56) and mean CD4 at diagnosis was 544 (24-884).
Conclusion: Early results from testing in our ED demonstrate that it provides an excellent opportunity to diagnose HIV and linkage of patients into care is comparable to GU. Relative to patients tested in GU the patients were older and had more advanced HIV, reflecting the fact that this group is more unwell. Reducing late diagnosis may therefore require testing patients who are not otherwise having bloods taken or expanded testing in primary care.

O10

Source of HIV-1 drug-resistant minority variants in people who are recently infected

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Background: Drug-resistant minority variants (DRMinVs) in patients who recently acquired HIV-1 can be either transmitted or generated *de novo* through virus replication errors. The former are likely to persist and result in treatment failure while the latter could be stochastic. However, DRMinV transmission contradicts the current understanding that most HIV-1 infections arise from a single founder clone. We aim to investigate the transmission of DRMinVs and their impact on virological failure (VF).
Methods: As part of a national transmitted drug resistance (TDR) surveillance program, we performed ultra-deep sequencing on 655 men who have sex with men (MSM) ascertained to have recently acquired HIV-1 between 2011 and 2014. The variant frequency threshold for detection of DRMinVs and DR majority variants (DRMajVs) was 2–20% and >20%, respectively. Cluster Picker software was used to identify transmission clusters of sequences with DR. This analysis included >100,000 HIV-1 partial *pol* gene sequences deposited with the UK HIV Drug Resistance Database (UKHDRD) that were generated as part of routine clinical care in the UK from 2000 to 2014. We used a bootstrap support of >90% and maximum genetic distances of 4.5% and 1.5%, the latter to limit detection to the most recent transmission events. VF was defined as at least one viral load count >1,000 copies/mL 9 months (range 6-15 months) after ART initiation.
Results: DRMajVs were detected in 53 (8.1%) and DRMinVs in 61 (9.3%) of the recently infected MSMs. High levels of clustering to sequences in UKHDRD were observed for both DRMajV (n=39; 73.6%) and DRMinV (n=52; 85.2%) sequences. Of these, 34 (64.2%) with DRMajVs were in a transmission cluster with sequences that harboured the same DR mutation compared to only 2 (3.3%) of sequences with DRMinVs ($p < 0.001$; X^2 test). Evidence of recent transmission of DRMajVs was observed for 15/53 (28.3%) whereas none was observed for the DRMinVs ($p < 0.001$). VF rate among those harbouring DRMinVs was 15% (5/34) vs 12% (39/334) among those with no TDR ($p = 0.6$). In contrast, VF rate was 24% (8/33) among those harbouring DRMajVs ($p = 0.04$).
Conclusion: Using a densely sampled MSM population in the UK we show that there is no evidence DRMinVs were transmitted among recently infected MSM. Furthermore, the presence of DRMinVs had no significant impact upon VF rate. This means the detection of DRMinVs to inform first-line treatment options is unlikely to be of clinical benefit.

O11

Impact of ART in primary HIV infection on T cell immune exhaustion in gut-associated lymphoid tissue: implications for HIV persistence

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Background: ART alone cannot cure HIV due to a reservoir of latently infected cells. Gut-associated lymphoid tissue (GALT) harbours the largest anatomical HIV-1 reservoir. Exhausted T cells are enriched for HIV-1 DNA in peripheral blood. Furthermore, T cell exhaustion predicts disease progression and viral rebound on treatment cessation. The significance of exhausted T-cells in tissue is less clear. This study investigates the expression of immune exhaustion markers in GALT and explores the relationship with their expression in peripheral blood.
Methods: Gut biopsy samples were collected from HIV+ virally suppressed individuals enrolled into the HEATHER gut sub-study. Biopsy tissue was processed by collagenase and mechanical digestion. Markers of immune lineage (CD3, CD4 & CD8), exhaustion (PD-1, Tim-3, TIGIT), and activation (HLA-DR and CD38) were assessed on mucosal mononuclear cells and peripheral blood by flow cytometry. Comparisons were made with healthy control GALT (obtained at routine endoscopy). Non-parametric tests were used to test associations.
Results: 24 individuals were included in this analysis; 12 HIV-positive individuals and 12 controls. No difference was noted in rectal CD4/CD8 ratio, but a significantly lower ratio was noted in terminal ileum GALT from HIV + individuals compared to controls (p=0.03). Higher PD-1 and TIGIT expression on CD4 T cells were observed in GALT compared to peripheral blood (p<0.001), with higher PD-1 expression seen in HIV+ rectal tissue compared to the terminal ileum. Expression of exhaustion markers in rectal GALT correlated with terminal ileum GALT (r=0.7, p=0.005), while there was no correlation between markers of exhaustion measured in either GALT site compared to peripheral blood.
Conclusion: Differential expression of immune exhaustion markers by anatomical compartment may reflect and support differential levels of HIV persistence in GALT despite early ART initiation in PHI. Measurement of immune exhaustion markers in blood does not reflect expression in the gut and highlights the importance of tissue sampling in HIV cure studies.
BHIVA Research Awards winner 2017: John Thornhill

O12

The impact of immunoglobulin in acute HIV infection on the HIV reservoir: a randomised controlled trial

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Background: Antiretroviral therapy (ART) during acute HIV infection (AHI) restricts the HIV reservoir, but additional interventions will be necessary to induce a cure. Potential candidates include the passive infusion of neutralising antibodies. Intravenous immunoglobulin (IVIG) is not HIV-specific but is safe and temporarily reduces HIV reservoir in chronic HIV infection. We present a randomised controlled trial to investigate whether IVIG plus ART in AHI reduces the HIV reservoir and immune activation compared with ART alone.

Methods: Ten males diagnosed with AHI (Fiebig II-IV) defined as HIV antibody negative with p24/PCR DNA positive or HIV antibody positive with a previous HIV negative test in the preceding 3 months or HIV incident assay (estimating virus acquired within 3 months) were enrolled. All subjects initiated 4-drug antiretroviral therapy (tenofovir, entricitabine, ritonavir boosted darunavir and raltegravir) and were randomised to ART alone or ART plus 5 days high dose IVIG (Octagam® Liquid (10% normal immunoglobulin)] 30 g per day, once virally suppressed (w19). Blood samples were evaluated for viral reservoir (total DNA, low copy VL), immune activation (frequencies of CD4 and CD8 T cells expressing CD38 and HLA-DR), immune exhaustion (PD-1, Tim-3, Lag-3 expression on CD4 and CD8 cells) and microbial translocation (16s RNA). Flexible sigmoidoscopy was performed at weeks 19, 24 and 48, and gut proviral DNA and cell numbers determined.

Results: IVIG was well tolerated and no viral blips (>50 copies/ml) occurred during IVIG therapy. From baseline to w48, total HIV DNA in PBMCs (controls: -5045.9: cases -7513.1 copies/million CD4+ cells; p=0.49) declined with no differences observed between the groups. Similar declines were observed in both groups from w19 to w48 in total HIV DNA in PBMCs (p=0.55) and low copy RNA (p=0.77). In the gut, total HIV DNA declined from w19 to w48 in both groups, with no significant differences between arms (-10891 vs. -8965 copies/million CD4 cells, respectively; p=0.67).

Plasma levels of CRP, levels of immune activation, immune exhaustion, microbial translocation and CD4:CD8 ratio were similar between arms for all comparisons.

Conclusion: Although safe, IVIG in AHI did not impact total HIV DNA, immune function or microbial translocation in peripheral blood or gut tissue.

O13

Engineered affinity-enhanced immune-mobilising monoclonal T cell receptors (ImmTAVs) for HIV cure

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Background: HIV establishes a reservoir comprising long-lived latently-infected CD4+ lymphocytes and monocytic cells within days of primary infection (PHI). Functional cure might be achieved by administration of latency-reversing agents (LRA) followed by an immunotherapeutic to eliminate reactivated T cells ('shock and kill'). ImmTAVs are novel dual-affinity T cell re-directors that recruit effector T cells with any specificity to kill infected cells expressing Gag peptides. The aims of this study were: 1) to assess the potency of ImmTAVs at redirecting CD8+ T cells from patients initiating ART during PHI (<6 months since infection); 2) to evaluate the susceptibility of the HIV reservoir to ImmTAV-mediated killing in a latency model.

Methods: We used a flow cytometry-based assay to determine % killing of HIV Gag+ CD4+ T cells after culture with ex vivo CD8+ T cells +/- HIV ImmTAV (1–10 nM) for ≤7 days. For Aim 1, CD8+ T cells from PHI patients (SPARTAC cohort, n=9) were tested with autologous mitogen-activated CD4+ T cells. For Aim 2, healthy donor (HD) CD8+ T cells were tested with latently infected (CD25/CD69/HLA-DR^{neg} Gag+) CD4+ T cells before and after reactivation with LRAs, bryostatin (10 nM) and romidepsin (40 nM).

Results: PHI patients' CD8+ T cells eliminated autologous HIV-infected cells more efficiently when redirected by HIV ImmTAV: mean (SD) – 64% (12) vs. 39% (27) than with PHI CD8+ T cells alone; p=0.003 (paired t test). Comparison of ImmTAV effects with CD8+ T cells from PHI, chronic ART-treated patients (CHI) and HD subjects indicated that PHI and CHI were similar and were inferior to HD at higher drug concentrations (60% (14), 60% (21), 87% (7) respectively, p=0.002, 1-way ANOVA). In the latency model, mean (SD) peak ImmTAV-redirected killing of Gag+ resting CD4+ T cells by healthy donor effectors (n=10) was 40% (8) without any latency reversal. LRAs had minimal effects on reactivation of virus in this model.

Conclusions: These data extend our previous results showing that HIV ImmTAVs enhance autologous CD8+ T cell killing of reactivated HIV-infected cells from ART-treated patients. In addition, our latency model indicates that latently infected T cells can be eliminated by ImmTAV-redirected killing in vitro, without viral reactivation. ImmTAVs have potential as a CD8+ T cell re-targeting agent in shock and kill strategies. However, maximum benefit may depend on optimising CD8+ T cell function by initiating ART as soon as possible.

BHIVA Research Awards winner 2017: Zoe Wallace

O14

Rapid initiation of antiretroviral treatment in newly diagnosed HIV: experience of a central London clinic

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Background: Achieving viral suppression is associated with a reduced risk of onward HIV transmission. In primary HIV, BHIVA treatment guidelines recommend offer of immediate antiretroviral therapy (ART). ART is also recommended in chronic HIV infection. Inspired by the San Francisco RAPID programme, in July 2016, we increased capacity at our clinic to enable individuals with newly diagnosed HIV to have a first medical review within 48 hours of diagnosis rather than the standard 2 weeks. We set out the results from the first 5 months of the new service.

Methods: Case-note review of all individuals newly diagnosed with HIV at a central London clinic between 1st July and 31st November 2016 up to 3rd January 2017. Comparison data was taken from all new HIV diagnoses at our service between 1st May 2015 and 30th September 2015, before the new service was introduced.

Results: There were 128 new HIV diagnoses, all MSM. Median age was 33 y. Median baseline CD4 was 466 cells/mm3 and viral load was 73287 copies/mL. 29% presented with a CD4 count <350 copies/mL. 50% (58/117) tested positive on the recent infection testing algorithm (RITA), suggesting HIV acquisition within 4 months.

59% (76/128) had attended our service previously; 57% (73/128) had a documented negative HIV result previously at our service.

Of 128 new diagnoses, 11 had no further follow-up (5 moved away, 6 lost to follow-up) and 117 attended first doctor appointment, all were offered ART. Of these, 76% (89/117) started ART at first doctor appointment. Of those starting ART at first appointment, 31% (28/89) did so within 2 days of diagnosis. To 3rd January 2017, 97% (113/117) had initiated ART.

The median time from HIV diagnosis to first doctor appointment decreased from 16 days (IQR 14-21 d) in 2015 to 6 days (IQR 2-12 d) (p<0.05). The median time from diagnosis to ART initiation decreased from 26 days (16–55 d) in 2015 to 7 days (IQR 3-18 d) (p<0.05).

Early data suggest excellent outcomes at 6 months; of the 26 who initiated ART in the month July 2016, 24 had VL <200 by 3rd January 2017 in a median time from HIV diagnosis of 59 days compared to the RAPID programme (56 days).

Conclusion: Our new service has resulted in significantly shorter time to medical review and ART initiation. Uptake of ART is high suggesting that rapid initiation is both acceptable and feasible for patients with newly diagnosed HIV who attend our service.

O15

A time-updated continuum of care in a UK cohort

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Background: Though a useful and widely adopted framework, the HIV continuum of care (CoC) has limitations when used as a measure of patient outcomes. We consider a time-updated CoC, that incorporates mortality, to describe outcomes of a HIV-positive cohort over 10 years.
Methods: Individuals who entered the UK CHIC Study between 2000-2003 were included. Follow-up end was set at 10 years after cohort entry. Each month was classified into 9 stages (Figure 1) according to current engagement in care, ART use, viral suppression, death and transfer or loss to UK CHIC follow-up (LTCFU). Engagement was defined using the REACH algorithm, which determines a next scheduled visit based on clinical status at each visit, and classifies months between visits as engaged (EIC) or out of care (OC) according to when the next visit occurs. Viral suppression was a viral load ≤200 copies/ml, recorded in the past 6 months. Transfer or LTCFU was defined where an individual was last seen >12 months prior to follow-up end.
Results: Of 10,682 included individuals, 65.5% were male, 43.7% white, 48.7% heterosexual. Mean (SD) age at entry was 33 (9.3) years. Transfer or LTCFU was high (23.5% of months) as this is not a national cohort. Over 10 years, 470,930 (36.7%) months were spent virally suppressed on ART, increasing with time from entry, with 44.2% of individuals suppressed at 10 years (Figure 1). The proportion of months not on ART and unsuppressed decreased dramatically with time from entry into the cohort. 819 (7.7%) individuals died, reflecting a total 53,210 person-months lost.
Conclusions: Though limited by LTCFU, estimates of viral suppression rates are somewhat lower in a cohort over time than in a traditional CoC.

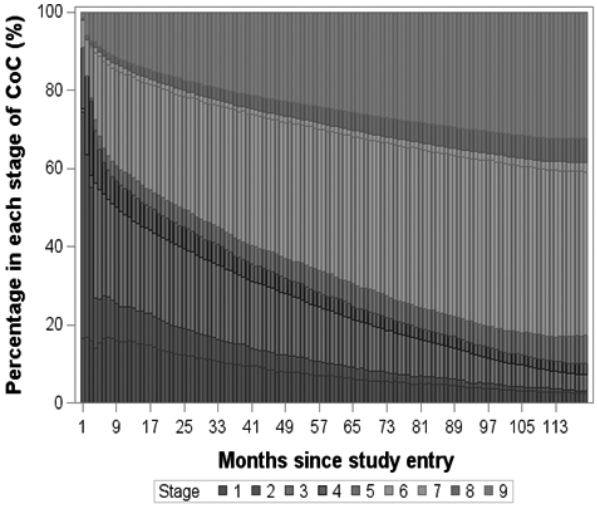

Figure 1: Stages of time-updated CoC
1 = EIC / no ART / unsuppressed *(CD4 > 350)*
2 = EIC / no ART / unsuppressed *(CD4 ≤ 350)*
3 = OC / no ART / unsuppressed
4 = EIC / on ART / unsuppressed
5 = OC / on ART / unsuppressed
6 = EIC / on ART / suppressed
7 = OC / on ART / suppressed
8 = Died
9 = Transfer or LTCFU

Toxicities and Comorbitites

O16

Suicide among people diagnosed with HIV in England and Wales compared to the general population

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Background: Evidence from the United Kingdom (UK) suggests high rates of depression and suicidal ideation among people with HIV. We investigate deaths attributable to suicide in a large national HIV cohort in an attempt to reduce avoidable mortality.
Methods: We conducted a retrospective analysis of suicide deaths among adults (≥15 years at diagnosis) diagnosed with HIV between 1997 and 2012 in England and Wales. Deaths were ascertained through clinician reporting and through linking to death records from the Office of National Statistics (ONS). To compare suicide among people with HIV to the general population, standardised mortality ratios (SMR) were calculated using ONS population data.
Results: There were 88,994 people diagnosed with HIV between 1997 and 2012, contributing 448,339 pys to analysis. Suicide accounted for 96 (1.8%) of the 5,302 deaths, representing a mortality rate of 2.1 per 10,000 pys (95% confidence interval (CI): 1.8-2.6). Suicide rates were highest among men (3.2 per 10,000 pys; 95%CI: 2.6-3.9), those born in the UK (3.8 per 10,000 pys; 95%CI: 2.8-5.1) and people infected through injecting drug use (4.0 per 10,000 pys; 95%CI: 1.5-10.8). The median age of death of people who died from suicide was 38 years (interquartile range: 32-43); 13% (12) committed suicide within one month of HIV diagnosis, 40% (38) within the first year. Almost all people dying from suicide were linked to HIV care following diagnosis (93%; 89), but only 62% of these individuals were ever on treatment. Suicide among people with HIV was double that of the general population of the same sex and age structure (SMR 2.0; 95%CI: 1.6-2.4). This was driven by higher rates among men (SMR 2.2; 95%CI: 1.7-2.7), with no significant difference between women living with HIV and the general population (SMR 0.83; 95%CI: 0.27–1.9). Suicide among HIV-positive men was particularly high in the year after diagnosis (SMR 5.3; 95%CI: 3.7-7.3) and remained slightly elevated from one year post-diagnosis onwards (SMR 1.5; 95%CI: 1.1-2.0).
Conclusion: Suicide rates among men diagnosed with HIV remain significantly higher than in the general population, particularly in the first year after diagnosis. Suicide deaths may be under-reported, as intention is not always known. Our findings highlight the need for a reduction in the stigma surrounding HIV, improvements in psycho-social support and routine screening for depression and drug and alcohol misuse, particularly at the time of HIV diagnosis.

O17

The effect of HIV comorbidity on mental health outcomes among people accessing services for serious mental illness (SMI) in South London

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Background: People living with SMI experience significant health inequalities. SMI+HIV is associated with poor clinical outcomes including death. This increase may be linked to factors unrelated to HIV such as suicide and substance use (SU) or due to a syndemic effect of HIV+SMI
Aims: Compare mortality in SMI and SMI+HIV; the probability of reported suicidal risk in SMI and SMI+HIV; the probability of MH inpatient stay in SMI and SMI+HIV; examine the effect of comorbid SU on these outcomes.

Methods: Retrospective cohort study of data obtained from the South London and Maudsley NHS Foundation Trust (SLaM) Biomedical Research Centre (BRC) Case Register using the Clinical Record Interactive Search Application (CRIS). The SLaM BRC Case Register contains electronic records for all those accessing services within SLaM. CRIS provides anonymised information extracted from over 250,000 SLaM records. All participants had a diagnosis of SMI (schizophrenia, schizoaffective or bipolar disorder). A rules-based approach was used to identify patients within CRIS with HIV. Using the search term "HIV" the TextHunter programme was used to annotate clinical text. Data on MH outcomes (mortality, suicidal risk, inpatient stay) were extracted. The study period was 2009-2015. Chi-squared tests were used to compare MH outcomes between groups and logistic and linear regression to examine associations between HIV status and outcomes. Multivariable analysis was used to adjust for potential confounders.
Results: 8474 patients with SMI and 176 with SMI+HIV were identified. 57% SMI 61% SMI+HIV male. Demographic characteristics were matched apart from ethnicity and age with more SMI+HIV black African, Caribbean, 24-44 year age group. There were no deaths in the SMI+HIV group. Adjusting for confounders suicidal risk was greater in cases (OR2.08 95%CI1.39–3.10 p<0.01) as was inpatient stay (OR1.84 95%CI1.32-2.55 p<0.01). SU was more common in cases in all exposure groups apart from alcohol. Unadjusted data showed suicidal risk and inpatient stay were both increased with comorbidities with SMI+HIV+SU having the greatest increase compared to SMI (OR4.03 95% CI1.79-9.05 P<0.01 OR2.81 95%CI1.29–6.12 p=0.01).
Conclusion: This is the first UK study to examine the effect of HIV on MH outcomes of people with SMI compared to SMI alone. Although we were unable to test mortality outcomes, MH outcomes were worse and SU more common in SMI+HIV. Further work is required to refine MH outcomes and examine the impact of SMI+HIV on the course and outcome of physical illness.

O18

Clinical correlates of cognitive function in people living with HIV (PLHIV): a cross-sectional study

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Background: Highly active antiretroviral therapy (HAART) has led to a dramatic decline in HIV-associated mortality and morbidity. However, the prevalence of HIV-associated cognitive impairment has increased and differing patterns of impairments have emerged among PLHIV. In this cohort the causes remain unclear.
Aims: To establish correlation between clinical factors and cognitive deficits in PLHIV on stable HAART. Comparison was made with a control group of HIV negative individuals. The primary dependent variable was cognitive performance on neuropsychological tests. Quantitative MRI metrics were done in a subset of participants.
Methods: 78 HIV positive MSM and 48 matched HIV negative controls were recruited. Individuals with previous /current CNS-AIDS defining illnesses, or serious or confounding comorbidities were excluded.
Participants underwent:
(i) *Clinical evaluation:* Structured Clinical Interview, Beck Depression and Anxiety Inventory (BDI, BAI) and the Prospective and Retrospective Memory Questionnaire, CD4, Illness and treatment duration, CNS Penetration Effectiveness (CPE) score, metabolic co-morbidities, alcohol, and drug use.
(ii) *Neuropsychological assessment:* Measures of executive function, complex attention, memory, and perceptual motor function.
(iii) *MRI brain imaging*
Results: There were significant differences between the PLHIV and the control group on all domains. These remained significant after correction for multiple comparisons. Regression models were run to explore the influence of clinical, psychiatric, and lifestyle variables on the four cognitive domains; anxiety showed a relationship with memory, complex attention, and executive function. Illness duration and treatment duration correlated with perceptual motor function. Interestingly no correlation was found between cognitive function and CD4, nadir CD4 or metabolic factors. The PLHIV had lower fractional anisotropy and higher mean diffusivity-imaging patterns typically seen in ageing.
Conclusion: In this cohort PLHIV had greater global cognitive deficit than the seronegative controls. Imaging showed accelerated ageing in PLHIV. Anxiety and illness and treatment duration correlated with cognitive function but CPE did not.

Table 1 The relationship between clinical, psychiatric and lifestyle variables and cognitive function

Variable	Memory p	Complex attention p	Executive function p	Perceptual motor function p
Current CD4	.256	.552	.440	.128
Nadir CD4	.035	.119	.378	.601
Illness duration	.053	.842	.452	.965
Treatment duration	.319	.600	.601	.266
Time without treatment	.704	.773	.654	.512
CPE score	.048	.558	.659	.900
Metabolic co-morbidities	.236	.771	.639	.836
BDI	.814	.144	.061	.967
BAI	**.005**	**<.001**	**<.001**	.078
Weekly alcohol units	.891	.397	.499	.361
Drug use in past 3 months	.717	.716	.652	.979

All analyses adjusted for age, years in education and English speaking background.

O19

TDF associated renal tubular dysfunction: non-invasive assessment of mitochondrial injury

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Background: TDF appears to be free from systemic mitochondrial toxicity. However renal biopsy studies of TDF-associated renal Fanconi Syndrome have suggested mitochondrial involvement. Many inherited mitochondrial DNA (mtDNA) disorders can be detected in urine. We therefore aimed to determine whether TDF-associated renal tubular dysfunction is associated with evidence of mitochondrial injury in urine.
Methods: We performed a single centre cross-sectional observational study of HIV positive outpatients. Biochemistry was performed on paired serum and urine samples. MtDNA was studied by real-time PCR and long-range PCR on cellular fractions of urine.
Results: 48 subjects were enrolled of whom half were TDF-treated. Mean age was 43 years. 58% had eGFR ≥90, with no differences between ART treatment groups. Hypophosphataemia was common and independently associated with TDF exposure (p=0.04) and lower eGFR (p=0.02). Hypophosphataemia was explained entirely by renal phosphate wasting. No subjects had low molecular weight proteinuria. Cellular mtDNA content in urine was heavily influenced by the cellularity of the sample (β-0.74, p<0.001), but was also weakly associated with serum phosphate concentration (β-0.24, p=0.04). The mtDNA 'common deletion' mutation (CD) was detectable significantly more commonly in the urine of TDF exposed subjects compared with unexposed (13/22 TDF+ subjects (59%), 4/21 TDF- (19%), p=0.01). CD levels were not associated with age, eGFR or hypophosphataemia. No mtDNA measures were associated with current or nadir CD4 lymphocyte counts, duration of disease or anti-retroviral therapy, or historical exposure to NRTIs with systemic mitochondrial toxicity.
Conclusions: The presence of mtDNA mutations in the context of TDF exposure adds weight to the hypothesis that TDF associated renal damage is at least in part mitochondrially-mediated. The assessment of mtDNA markers in urine may be a feasible non-invasive investigation for TDF-treated patients. This could identify a subgroup of TDF-treated patients who might benefit from treatment switch.

O20

Plasma Epstein–Barr virus DNA does not predict outcome in advanced HIV-associated Hodgkin lymphoma

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Background: In a large study in HIV seronegative patients with advanced (stage 3/4) Hodgkin lymphoma (HL), plasma EBV viral load predicted outcomes, with patients with detectable EBV viraemia at HL diagnosis having a worse disease-free survival, independent of the international prognostic score (IPS) REF: Blood 2013 121:3547-3553.

Methods: Plasma EBV DNA was measured at HL diagnosis in people living with HIV (PLWH) with advanced HL using quantitative PCR. Chi squared test was used to compare categorical variables between patient groups. Multivariate Cox proportional hazards models were constructed to evaluate associations between plasma EBV DNA status, IPS and survival outcomes.
Results: In a cohort of 44 PLWH with advanced HL, plasma EBV DNA levels were measured at HL diagnosis. The mean age at HL diagnosis was 42 years (range: 21-69), 40 (91%) were male and 79% were established on cART of whom 88% had undetectable HIV viral load. The median CD4 count was 169/mm^3 (15-782), 84% had an IPS>2 and the median follow-up is 4.5 years. Following first line chemotherapy, 10 patients relapsed, 9 received salvage chemotherapy and 6 proceeded to autologous stem cell transplantation. The 5 year overall survival (OS) is 95% (95%CI: 88-100%) and the 5 year disease free survival (DFS) is 76% (95%CI: 6-092%). At diagnosis 26 (59%) had detectable plasma EBV DNA, median 600 copies/mL (range:0-161,000). Detectable plasma EBV was not associated with CD4 cell count (p=0.9) or detectable HIV viral load (p=0.6). In univariable and multivariable models detectable plasma EBV DNA did not predict overall survival or disease free survival.
Conclusions: Although EBV is invariably detectable by in situ hybridization in HL in PLWH, plasma EBV DNA was only detectable in 55% patients with advanced HL. Detectable plasma EBV DNA did not predict outcomes and did not add to the prognostic value of IPS.

O21

Impact of HTLV-1 co-infection on T cells in patients with fully suppressed HIV infection: an open, single centre, cross-sectional study

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Background: In the pre-ART era the impact of HTLV-1 co-infection on HIV presentations, spuriously high CD4 counts and high rates of myelopathy, was well recognised. The mutual impact of these retroviral infections in the context of fully suppressed HIV infection is not known. An estimated 1% of HIV infected persons in UK are HTLV-1 co-infected.
Methods: Cross-sectional open, single-centre UK study. Eligible patients had fully suppressed HIV infection on ART for >12 months, with or without HTLV-1 infection or HTLV-1 mono-infection. Routine measures of T-cell activation (expression of CD25 and of HLA-DR on T-cells, ß2 microglobulin [ß2 m]), and HTLV-1 DNA were used and plasma for cytokine analysis obtained after written consent. T-test to examine differences between continuous variables.
Results: HTLV mono- and co-infection groups were similar predominantly females of African heritage. HIV mono group were younger, predominantly Caucasian males. Neither HTLV-1 DNA between the two HTLV groups nor ß2 m across groups differed significantly. Compared with either mono-infection, HTLV-1/HIV co-infected patients had significantly lower CD4 cells counts, lower CD4/CD8 ratios and higher rates of CD25 and HLA-DR expression on both CD4 and CD8 T-cells (p=<0.05).

Medians	HTLV-1 mono n=14 (age 46)	HTLV/HIV-1 n=16 (age 47)	HIV mono n=11 (age 37)
CD4 /µL	879	489	682
CD4 %	46	28	39
CD8 /µL	349	751	794
CD8 %	24	42	40
CD4:CD8 Ratio	2.0	0.6	1.0
CD4/CD25%	31	44	20
CD4/HLA-DR%	10	31	7
CD8/CD25%	6	10	6
CD8/HLA-DR%	18	58	19

Conclusions: Compared with HIV alone HTLV-1/HIV co-infected patients have high frequencies of circulating activated T-cells and detrimental CD4:CD8 ratios despite >12 months fully suppressive ART. The T-cell activation phenotype of these patients is more similar (data not shown) to patients with HTLV-1-associated myelopathy than HTLV-1 carriers. Whether these patients have higher rates of opportunistic infections and retrovirus-related myelopathy risk, as in the pre-ART era, or of other inflammation-related morbidity is unknown.

O22

Clinical research cerebral MRI findings in HIV positive subjects and appropriate controls

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Background: Cerebral magnetic resonance imaging (MRI) abnormalities are frequently reported in persons-living-with-HIV (PLWH). We assessed factors associated with clinical MRI research governance report abnormalities in PLWH and appropriately matched controls.
Methods: 59 PLWH on antiretroviral therapy (ART) with suppressed HIV RNA and 29 HIV-negative controls with similar demographic characteristics were recruited into a neuroimaging sub-study of POPPY and underwent cerebral MRI scan at 3-Tesla. Clinical research governance MRI reports were analysed and the prevalence, location and likely aetiology of common abnormalities were recorded. Findings were compared between PLWH and controls and their relationship to cognitive function scores, demographic factors (age, gender, ethnicity, education, sexual orientation), lifestyle factors (body mass index (BMI), hypertension, smoking, alcohol consumption, dyslipidaemia) and HIV serostatus were assessed in multivariable logistic regression models.
Results: Amongst PLWH and controls, mean age was 59 (standard deviation [SD] 7) and 61 (SD 7) years, 30 (52%) and 11 (39%) subjects were hypertensive, 16 (27%) and 10 (35%) were current smokers and median BMI was 25 kg/m^2 in both groups. There were no significant differences in the prevalence of abnormal clinical reports (n=28 (48%); n=14 (48%), p=0.94) and common MRI abnormalities such as white matter lesions (WML) (n=27 (46%); n=14 (48%), p=0.84), microvascular disease (n=14 (24%); n=6 (21%), p=0.71) and reduction in cerebellar volume (n=6 (10%); n=4 (14%), p=0.72) in PLWH and controls, respectively. No significant differences in cognitive scores were observed in subjects with or without WML (p=0.45), microvascular disease (p=0.14) or a reduction in cerebellar volume (p=0.08). In multivariable regression models, only hypertension was associated with the presence of WML (odds ratio [OR]=3.0 [95% confidence interval=1.2-7.8], p=0.02) and an increasing BMI was associated with microvascular disease (OR=1.1 [1.0-1.2] kg/m^2, p=0.05) but other demographic/lifestyle factors were not associated with either abnormality. HIV sero-status was not associated with the presence of WML (OR=0.7 [0.3-1.9], p=0.49) or microvascular disease (OR=1.2 [0.4-4.0], p=0.76).
Conclusion: Clinical cerebral MRI abnormalities were frequently observed in PLWH on ART and appropriate controls. Such abnormalities are associated with higher BMIs and hypertension, rather than HIV-serostatus.

O23

The role of hepatitis C core antigen (HCV-cAg) testing in the era of hepatitis C direct-acting antivirals (DAAs)

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Background: The standard Hepatitis C ribonucleic acid (HCV RNA) test is currently used in monitoring virological response during and after HCV treatment, and to investigate HIV-positive patients with raised liver enzymes who are at risk of Hepatitis C (HCV) infection. HCV core Antigen (HCV-cAg) testing has been suggested to be comparably sensitive and specific to the HCV RNA test, and is less expensive, time-consuming.
Aims: To assess whether HCV-cAg assay can be a cost effective alternative to the HCV RNA assay for the diagnosis of HCV and monitoring of sustained virological response(SVR) in both HIV positive and negative individuals.
Methods: HCV-cAg tests were done on stored samples between 1st January 2014 to 31st December 2016. Sample 1) known HCV positive serology with detectable HCV RNA; 2) Patients on and or completed HCV direct-acting antiviral (DAAs) treatment. For patients on DAAs, testing for HCV-cAg was done on samples

taken at baseline, weeks 2, 4, 8, 12, 16 and 24 after DAA initiation. Samples were tested using [name of test], and statistical analysis performed with SPSS.
Results: 202 HCV-cAg tests were performed on selected samples from 71 individuals. Median age was 44 (IQR 37-50), 93% (66/71) were male. 87% (62/71) were men who have sex with men (MSM), of which 74.1 % (46/62) reported sexualised drug use. 89% (63/71) of all patients reported unprotected sexual intercourse, and 42% (30/71) reported previous intravenous drug use. All (71) HCV RNA positive patients had confirmed HCV-cAg. 66% (47/71) were on HCV DAAs. Of those on DAAs, 70% were of Genotype 1a, 13% Genotype 1b, 0.2% Genotype 3, 15% Genotype 4. 96% (68/71) were on HIV antiretroviral therapy. 19% had fibroscan scores ≥11.5 kPa.
38 patients had paired samples of HCV RNA and HCV-cAg to monitor response to DAAs. 29%, 89%, and 100% of patients were both RNA and HCV-cAg negative, at weeks 2, 4 and 12 respectively. There were no discordant results.
The sensitivity of the HCV-cAg assay and HCV RNA was 78%, specificity 100%, positive predictive value 100%, and negative predictive value was 93%.
Conclusion: In patients co-infected with HIV and HCV, HCV-cAg is a cost effective and reliable alternative to HCV RNA testing for monitoring virological response during and after HCV DAAs therapy. HCV-cAg tests are less labour intensive, faster turnaround time and less costly than HCV RNA. HCV-cAg is a cost effective option to HCV RNA in monitoring patients who have achieved SVR.

O24

Acute hepatitis C infection in lower risk MSM: an evolving picture

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Background: Hepatitis C acquisition in HIV-positive men who have sex with men (MSM) has been well documented over the past decade and most recent reports describe increasing acute HCV in HIV-negative MSM also. Traditional risk factors for hepatitis C (HCV) infection include intravenous drug use and blood product exposure and cases in MSM have classically been linked with high-risk sexual practices such as group sex, fisting and chem sex. Anecdotally, we noted several cases of new HCV reporting lower risk sexual practices (i.e. condomless anal sex (CLAI) only). We aimed to review the reported risk factors of all acute HCV diagnoses over a 12-month period.
Method: We performed a retrospective notes review of all patients identified with acute HCV (April 2015 to April 2016). Data collected included HIV status, concomitant sexually transmitted infections (STI) and reported risk HCV factors including snorting/injecting drug use (IDU), chem sex and sexual practices. Chem sex was defined as written documentation of "chem sex" in the notes or sex under the influence of GHB, crystal meth or mephedrone.
Results: 48 patients with acute HCV were identified. 88% were male, median age 38 and 67% were HIV co-infected. Of the 16 HIV-negative individuals with acute HCV, 4 reported pre-exposure prophylaxis (PrEP) use (3 via PROUD study and 1 self-sourced). In terms of risk factors 35% reported IDU and 48% snorting drugs. Of those reporting chem sex, 35% injected. Of note, 13% reported CLAI as their only risk factor for acquisition of HCV; all of these were HIV-positive.
Concomitant STI rates at the time of hepatitis C identification were high: 42% had any STI, 23% syphilis and 17% had a rectal bacterial STI (chlamydia or gonorrhoea).
Conclusions: Consistent with other reports our data suggest rising HCV in HIV-negative MSM, possible related to declining rates of condom use associated with knowledge of treatment as prevention and PrEP. Locally our HIV-positive MSM cohort is well-informed about high-risk drug use and sexual practices but less so about transmission related to CLAI only. While our results may in part be explained by under-reporting of higher risk practices to clinicians we believe that CLAI should be included in HCV risk discussion with all HIV-positive MSM. Patterns of infection in HIV-negative men should be actively monitored to best guide screening and advice.

Living with HIV

O25

Experiences of HIV disclosure and stigma in the dental setting: findings from the *People Living with HIV Stigma Survey UK 2015*

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Good oral health and equitable access to dental services is important for overall health and wellbeing. Dentists are well-positioned to detect and assist in the management of the oral manifestations of HIV and could be involved in point of care HIV testing. We report on current experiences of stigma and discrimination in dental practices among people living with HIV in the UK.
The People Living with HIV STIGMA Survey UK 2015 was a community initiated project that enrolled 1576 people living with HIV to complete an anonymous online questionnaire about their experiences in the last year. Recruitment took place through >120 cross-sector community organisations and 46 HIV clinics. We used a collaborative approach involving community members and HIV experts in the analyses and reporting the data. Descriptive, univariate and multivariate analyses were performed using Stata13.
Of the 1528 (97%) participants who completed the healthcare section, most identified as men who have sex with men (63%) and of white ethnicity (67%). Mean age was 44 years, range 18–82 years. 61% of participants felt in control over the disclosure of their HIV status to their dentist practice. 814 (53%) had disclosed to dental staff and of those 29% had felt poorly supported. In 2015, participants who had disclosed were significantly more likely to report being treated differently to other dental patients (18% vs 10%) and refused or delayed dental care (8% vs 3%) (both $p<0.001$). Furthermore, participants who reported being treated differently were over six times more likely to avoid seeking dental care compared to other participants (51% vs 8%). A similar association was found for those who felt refused or delayed treatment (72% vs 11%) (all $p<0.001$). Both experiences were strong predictors of dental care avoidance in a multivariate model (aOR:7.12; 95% CI 4.81-10.56 and aOR:8.98: 95% CI 4.84-16.63), respectively.
Overall, a high proportion of people living with HIV did not feel in control over the disclosure of their HIV status or supported when disclosing to their dentist, and just under half had disclosed to dental staff. Although we cannot infer causality from a cross-sectional study, the findings of this research show a strong relationship between experiences of HIV related discrimination and avoidance of future dental care. We recommend that relevant educational tools targeting the dental team should be developed to address HIV related stigma and discrimination in this setting.

O26

Perceptions of HIV within the general public

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Background: Stigma prevents people from getting tested for HIV, and affects quality of life for people living with HIV. It is often fuelled by inaccurate beliefs among the general public about how HIV is transmitted and what an HIV diagnosis means for an individual. This research aimed to measure how widespread myths about HIV are within the public.
Methods: The survey was commissioned by an HIV charity and carried out by a leading research company, using online interviews. Three multiple choice questions were asked, covering HIV transmission, living with HIV, and the scale of the HIV epidemic in the UK. Emails were sent to panellists selected at random from the base sample. The figures were weighted and are representative of all GB adults (18+).
Results: The total sample size was 2,030 adults. 20% of respondents thought HIV could be transmitted by kissing, and 30% believed that sharing a toothbrush with someone who is HIV positive can pass on HIV. One in 10

thought that HIV can be transmitted by sharing scissors or clippers at the hairdressers. There were also mixed beliefs about the impact of the virus on people on effective HIV treatment - 29% were aware that people on effective HIV treatment can have children without passing on the virus, and 58% of British adults believed that people with HIV can live into old age. 39% were aware that people with HIV can have sex without passing on the virus, if they are on effective treatment. 16% per cent of Brits in the survey agreed that there was currently an HIV epidemic in the UK. A majority (53%) disagreed.
Conclusion: This research demonstrates that, despite medical advances, many myths that were commonly seen in the 1980s about HIV transmission are still deeply entrenched in the British public's mindset. The survey also shows that public perceptions do not reflect how far HIV treatment itself has come. It also showed a degree of complacency – the majority of respondents disagreed that there was currently an HIV epidemic in the UK. The evident combination of stigma and complacency among the public's awareness of HIV may be because there hasn't been a major national government campaign on HIV since the tombstone advertisement in the 1980s. When we talk about HIV today, most people's point of reference (if any) is a campaign that associated HIV with a death sentence. Much more needs to be done to bring the British public up to date with what HIV means in 2016.

O27

Affording formula: HIV-positive women's experiences of the financial strain of infant formula feeding in the UK

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Background: Although the risk of transmitting HIV through breastfeeding is low on ART with undetectable viral load, UK guidance recommends that HIV+ mothers feed infants with formula milk. This is still perceived as lower risk than breastfeeding. This study aimed to understand the financial strain of formula feeding for HIV+ mothers, many of whom live in poverty.
Methods: HIV+ women attending a support group in London with HIV- children under the age of 3 were eligible to take part. They were invited to answer questions in semi-structured interview format over the phone or in person with 42 consenting.
Results: Participants had a wide range of immigration statuses and 48% (n=20) did not have recourse to public funds (NRPF). 1/4 did not receive any provision to access formula milk, although 3 participants said they were able to get formula milk from food banks. Almost half of participants did not receive any grants to help with costs for their baby. 71% spent £10+/week on formula milk with 7% spending £20+. More than 2/3 felt the provision given was not adequate and over 50% admitted there were times when they or a family member went hungry in order to buy formula milk. 2 women revealed they had resorted to breastfeeding as they didn't have enough money. 1 in 2 women reported feeling unsupported to formula feed their baby.
"[It was] really difficult to afford formula milk. I would rather walk the streets asking for change than resort to breastfeeding, which I did have to do sometimes. I went to my hospital crying because I was really struggling to afford formula milk."
"We bought less food to make sure we could afford milk. I will be happy when my baby is [weaned] so there is less financial strain. . .I found it a struggle to afford. I felt sad not being able to breastfeed especially as culturally I am expected to."
Conclusion: The cost of feeding infants with formula milk can take a huge financial toll on women because of low income, inability to work or NRPF. Most women do not feel they receive adequate provision to feed their babies and the joint financial and emotional strain (e.g. lying to family because of cultural expectations) of not breastfeeding can leave women having to make difficult decisions about which family members they can afford to feed or how to afford milk. A lack of choice of feeding options was also an issue. The majority of women (74%) suggested that receiving vouchers for use in a supermarket would be their preferred way of accessing formula milk.

O28

Does the introduction of a dedicated postnatal contraception clinic improve reproductive choices for HIV-positive women?

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Background: The post-natal (PN) period is an opportune time for implementation of an effective contraception method as prevention of unplanned pregnancies improves maternal health and new-born outcomes. Post-natal contraception (PNC) for HIV positive women is complicated by a) early return to fertility in the absence of breastfeeding and b) significant interactions between some antiretrovirals and contraceptives.
Aim: To compare the uptake of contraception methods (UPCM), unplanned pregnancies and timing of subsequent pregnancies following the establishment of a dedicated postnatal contraception clinic (DPCC).
Methods: An initial case note review of women attending an HIV antenatal clinic (ANC) in south London between September 2009 and July 2012 (pre-intervention) was conducted. Data was obtained on planning of pregnancy, antenatal (AN) and PN advice on contraception, UPCM, and time interval between subsequent pregnancies. Following this a DPCC was launched to coincide with mothers' 6 week follow-up post-partum and babies' 2nd HIV test. The clinic offered counselling and provision of PNC. Clinicians were encouraged to discuss options for PNC in the AN period. Data post-intervention was obtained from July 2013 to June 2015.
Results: Over 85% of women attended post-partum. Pre-intervention review highlighted 25% of women had a history of a termination of pregnancy (TOP), 48% of pregnancies were unplanned with 40% having had a discussion on PNC.
There were 102 pregnancies in 102 women in the post-intervention period. 90 (88.2%) were of black ethnicity; median age 34 years; 72(70.6%) partner negative or of unknown HIV status; 34(33.33%) had a history of a TOP; 45 (44.1%) of pregnancies were unplanned. 77 of the 102 pregnancies had a live birth outcome. Table below comparison of contraception discussion and provision pre and post-intervention.

	Pre-intervention	Post-intervention	
	Sep 2009 – July 2012	July 2013 – June 2015	p-value
Contraception discussion (AN / PN or both)	60/140 (41%)	58/77 (75%)	<0.0001
Attended 6 weeks postpartum	123/140 (88%)	68/77 (88%)	1
Uptake all contraception	44/123 (36%)	34/68 (50%)	0.06
Uptake LARC	21/123 (17%)	22/68 (32%)	0.02
Subsequent pregnancy	7/140 (6%)	3/77 (4%)	0.53

Conclusion: Implementation of a DPCC has led to a significant increase in uptake of all contraception methods. LARC uptake increased by nearly 50%. This will potentially result in a significant decrease in unplanned pregnancies.

O29

Age-related viral suppression in adolescents living with perinatally acquired HIV infection

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Background: With suppressive antiviral therapy (ART) most children living with perinatally acquired HIV (PaHIV) in resource rich settings survive into adulthood. However suboptimal adherence remains a major cause of treatment failure particularly during adolescence, with risk factors poorly understood.
Methods: Rates of viral suppression were measured in a PaHIV cohort of 12-21 year olds on ART. Young people were grouped according to viral suppression (VS) pattern over the preceding 12 months: sustained

suppression **SS** (VL <50 c/ml, single blip <400c/ml allowed), intermittent suppression **IS** (VL 50-400 c/ml on 2 occasions), unsuppressed **US** (VL >400 c/ml). Characteristics; demographic, peer support, CDC status, co-morbidities and ART regimen were compared between suppression groups. Differences in suppression status, ART and peer support were subsequently compared in 3 age bands (12-15, 16-18, 19-21 years).

Results: 123 PaHIV; 57% female, 82% black African, median age 17 (IQR 15–19) years, current ART regimen: PI (39%), NNRTI (38%), integrase (15.5%), other (6.5%) with a median time on ART of 11.4 years (SD 5.15). 95% had once daily dosing, 27% single tablet regimens and 35% were on first line ART. Viral suppression grouping: **SS** n=86 (69%), **IS** n=21, **US** n=15 with CD4 counts >500 cells/uL SS v IS/US 89.5% v 62.2% (p<0.0007). Age, ART regimen and latest CD4 count were significantly associated with viral suppression. Mean age was 0.92 years lower in the suppressed than the non-suppressed groups (SS v ISUS p<0.03), and 1.71 years lower (SS v US p<0.004). Age related suppression SS; 12–15 yrs: 78.4% and 16–18 yrs: 73.5% with 19-21 yrs: 56.8% and comparing age groups (12-15 vs. 19-21 yrs) RR of VS was 0.72 [95% CI 0.52-1]. PI v all other ART regimens were associated with non-suppression (ISUS v SS: OR 4.5, 95% CI 2.05–9.96). Documented peer support engagement within 2 years was associated with age 12–15 yrs: 51%, 16–18 yrs: 57% and 19–21 yrs: 19% (p<0.008) but not viral suppression (SS v ISUS; OR 0.96). No effect on viral suppression of CDC status, length of time or age at starting ART, comorbidities, registered disability or parental loss was demonstrated.

Conclusions: Rates of viral suppression were stable through early and middle adolescence but decreased in late adolescence, resulting in second line PI based ART and poorer immune function. With a median age of transition to UK adult services of 17.5 years, enhanced adherence support in middle adolescence in preparation for transition is critical.

O30

Assessing the clinical complexity of a national cohort of adults accessing HIV outpatient care

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Background: Data on all persons accessing HIV specialist care in England are collected by Public Health England through the HIV & AIDS Reporting System (HARS). Fields to capture clinical complexity were agreed upon in collaboration with HIV clinicians and commissioners and collected since 2014/5. For the first time we analyse clinical complexities reported on patient accessing HIV care.

Methods: Attendance-based HARS data were collected from HIV clinics on a quarterly basis in 2015 and 2016. Clinics that had submitted 4 consecutive quarters of data were included and an eligible patient cohort was generated by linking patient attendances across quarters. A hierarchical method was used to classify patients by clinical complexity, based upon the previous 4 quarters of attendance.

Results: By the end of September 2016, 153 clinics had submitted records for 61,953 patients (77% of all patients receiving HIV care in England in 2015). The demographic characteristics of eligible patients were similar to all patients, except fewer London residents. Over a 12 month period 7,110 (11%) patients had a least one complexity reported. The most commonly reported complexities were psychiatric care (25%; 1,754/7,110), end organ disease (22%; 1,622/7,110) and chronic viral liver disease (15%; 1,046/7,110). Other complexities reported were AIDS (14%; 1,011/7,110), pregnancy (13%; 916/7,110), persistent viraemia (11%; 787/7,110), malignancy (7%; 531/7,110) and tuberculosis (6%; 407/7,110). Discounting pregnancy, among those with a complexity reported women were more likely than men to be reported with persistent viraemia (16% vs 9%).

Of those with no complexity reported, 4,932 (8%) were 'new', comprising newly diagnosed persons (987), those starting ART (2,002) within a year of diagnosis and 1,943 previously diagnosed and initiating ART. The remaining 49,911 (81%) patients were neither newly diagnosed nor initiating treatment 'stable'.

New patients and those with at least one complexity reported attended for HIV care more frequently, with an average of 7.9 and 9.1 attendances per year, respectively, compared to an average of 6.4 times per year among other patients.

Conclusions: As HARS becomes fully operational, it will be possible to produce complexity breakdowns to inform clinical practice. The use of HARS for commissioning requires further validation, in particular the coding of complexities.

Poster Abstracts

Antiretrovirals: Efficacy, Interactions and Pharmacokinetics

P1

After TAF

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Background: Tenofovir alafenamide (TAF) yields lower plasma concentrations of active drug compared to tenofovir disoproxil fumarate (TDF). Clinical trials have indicated that maintenance of virological suppression is non-inferior, whilst the negative impact on bone and renal markers is reduced. BHIVA guidelines were updated to include use of TAF in 2016. We sought to evaluate the outcomes of early TAF usage in our HIV cohort.
Methods: We performed a case note review of patients taking TAF, documenting demographics, co-morbidities, HLA-B*5701 status, previous use of antiretrovirals (ARVs) and TDF, reasons for selecting TAF, and renal and bone markers before and after switch.
Results: 57 patients started TAF since November 2015. Male=46 (80.7%), Female=11 (19.3%). Ages: 21–30=5 (8.8%), 31–40=12 (21.0%), 41–50=17 (29.8%), 51–60=18 (31.6%), 61–70=5 (8.8%). Ethnicity: British=44 (77.2%), African=10 (17.5%), Other=3 (5.3%). Co-morbidities: 10 (17.5%) hypertension, 4 (7.0%) previous MI, 2 (3.5%) type 2 diabetes, 2 (3.5%) hepatitis B co-infected. HLA-B*5701: 8 (14.0%) positive. Total duration of exposure to ARVs per patient ranged from 1–310 months (median 75 months), with cumulative use of TDF of 0–177 months (median 29 months). Three (5.3%) started TAF as a first ARV, 52 (91.2%) switched from another regime, 2 (3.5%) restarted ARVs following a treatment break. 47/52 (90.4%) patients were switched from a regime containing TDF. Reasons for TAF cited as: bone concerns 5/57 (8.8%) and renal concerns 17/57 (29.8%). Other reasons for switching ARVs included side effects (14, 24.6%), to facilitate use of other medications (2, 3.5%), simplification of regime (9, 15.8%). eGFR following TAF available for 37 patients. 16 (43.2%) increase eGFR and 6 (16.2%) no change. 9 (15.8%) had eGFR 45–59 (CKD 3a) prior to TAF. 5/6 showed an improvement in eGFR of between 3–9 ml/min.
24/37 (64.8%) alkaline phosphatase (ALP) reduced after starting TAF indicating possible bone change. Similarly, 13/30 patients (43.3%) phosphate increased after initiation of TAF. 46 (80.1%) had an undetectable viral load prior to TAF, and all remained virologically suppressed post-switch.
Conclusion: TAF has proven to be a useful addition to our choice of ARVs, particularly in patients with renal and bone disease. Our experience thus far has been reflective of the trial data.

P2

ARTs in naive patients: are we following national or local prescribing guidelines?

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Background: The latest BHIVA guidance published in September 2015 recommends starting treatment for HIV at any CD4 count in line with WHO guidance. The choice of preferred and alternative agents has also been updated. In contrast to BHIVA guidelines our regional prescribing guidance recommends kivexa and efavirenz as first line treatment choices, with raltegravir as an alternative option in patients. This is largely driven by cost. We sought to review clinical practice in our centre for naïve patients.
Methods: We performed a retrospective case note review for all patients receiving a new diagnosis of HIV between 1st September 2015 and 17th June 2016. Data was gathered on demographics, antiretroviral choice and indication for starting treatment.
Results: We identified 48 new diagnoses: 40/48 (83.3%) male, 8/48 (16.7%) female. Age: 20–78 years (median 31.5 years). Ethnicity: 32/48 (66.6%) Caucasian, 7/48 (14.6%) Black African, 9/48 (18.8%) other. Route of infection: 32/48 (66.6%) MSM, 14/48 (29.2%) heterosexual, 2/48 (4.2%) unknown. Treatment was started on 44/48 (91.7%) new diagnoses. The 4/48 (8.3%) patients not yet on treatment were all recent diagnoses within the last 1 month. Indications for starting treatment documented as CD4<350: 25/44 (56.8%), CD4 351–400: 3/44 (6.8%), treatment as prevention: 8/44 (18.1%), primary HIV: 1/44 (2.3%), patient pregnant: 1/44 (2.3%), patient choice: 4/44 (9.1%), very high viral load despite good CD4: 1/44 (2.3%), opportunistic infection despite good CD4: 1/44 (2.3%). Only 2/44 (4.6%) patients were prescribed kivexa/efavirenz. The majority of patients had different third agents: 26/44 (59.1%) single tablet regimens with integrase inhibitors, 4/44 (9.1%) multi tablet regimens with integrase inhibitors, 6/44 (13.6%) NNRTIs and 6/44 (13.6%) protease inhibitors. The reasons for choice varied from drug-drug interactions, baseline resistance, baseline viral load, anticipated CNS toxicity, patient choice and pill burden.
Conclusion: There is significant disparity between our local prescribing guidelines and BHIVA guidance. Sixty eight percent of naive patients in our unit were treated with an integrase inhibitor; with clear preference for once daily regimens, highlighting patient requirements. Prioritising tolerability, pill burden and drug interactions may ultimately reduce costs associated with toxicity and switching therapy.

P3

Before and after the algorithm

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Background: A supra-regional prescribing algorithm (PA) for antiretroviral (ARV) drugs was imposed in our unit following a consultation process in April 2015. An audit of ARV prescribing was performed before and after this policy change and the results compared to evaluate ARV management and patient outcomes at the centre throughout this period of change. Other relevant changes also occurred during this time as newer ARVs became available and commissioned by NHS England.
Methods: Retrospective case record review of patients starting ARVs for the first time in our centre before (Jan 2011-April 2014) and after (April 2015–16) the PA was introduced. We assessed whether treatment was consistent with BHIVA guidelines and the PA, those with undetectable HIV viral loads (VLs) and still on first line treatment (persistency) after starting ARVs and the cost savings achieved. In the first audit differences in prescribing patterns between consultants was also assessed, following the introduction of the PA this was no longer considered necessary and all prescribing members of the multi-disciplinary team (MDT) were included.
Results: Records from 180 patients were examined; 110 in the first and 70 in the second audit. Compliance with BHIVA guidelines was high; 92% and 97%. In the first audit there were only minor differences in consultant's prescribing practices. Following introduction of the PA only 6% were on the first line regimen (Kivexa/Efavirenz) and 76% on other PA regimens with justification for 81% and documented MDT in 63%. Those with an undetectable VL 6 months into treatment increased from 49% to 94% but persistency rates were similar. The largest changes in prescribing are the increase in use of lamivudine/abacavir; from 6% to 64% and integrase inhibitors (INI) from 10% to 84%; the single most commonly prescribed regimen was Atripla (32%) in the first audit and Triumeq (54%) in the second. Cost savings were of approximately £500 per patient per year.
Conclusion: Significant changes in prescribing practice have been noted at our unit in the past 5 years with improvements in rapid virological control noted. As so few patients are on first line regimen of the new PA this is unlikely to be the reason; it is more likely the increase in use of INI, especially Triumeq. The cost savings from the PA introduction are modest and should be weighed against the increased need for MDT discussion for even straightforward prescribing decisions.

P4

Bictegravir has potent activity against wild-type and INSTI-resistant HIV-1, and has a longer dissociation half-life than dolutegravir, elvitegravir, and raltegravir

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Background: Bictegravir (BIC) is a novel HIV-1 integrase strand transfer inhibitor (INSTI) with potent activity against HIV-1 in vitro and in vivo. For INSTIs, the high barrier to drug resistance is correlated with a long dissociation half-life ($t_{1/2}$) from HIV-1 integrase (IN)/DNA complexes. The antiviral activity and dissociation $t_{1/2}$ of BIC are compared to dolutegravir (DTG), elvitegravir (EVG), and raltegravir (RAL).
Methods: 47 patient-derived HIV-1 isolates with INSTI resistance mutations were phenotyped. The apparent dissociation $t_{1/2}$ of ^{3}H-labelled INSTIs were measured using WT and the clinically relevant G140S/Q148H mutant IN/DNA complexes with a scintillation proximity assay and analyzed using single exponential decay and equilibrium binding models.
Results: Patient-derived HIV-1 isolates (n=47) with high-level INSTI resistance had a significantly lower mean fold-change for BIC (2.8-fold) vs DTG (5.8), RAL (>100), and EVG (>106)($p<0.04$ for BIC versus DTG); of those, 13 isolates exhibited ≥2-fold lower resistance to BIC than DTG and 34 isolates had similar BIC and DTG activity. 23 HIV isolates with G140S+Q148H ± other mutations in IN had mean phenotypic fold-change values of 3.6 for BIC, 8.1 for DTG, and >100 for EVG and RAL ($p<0.01$ for DTG vs BIC). The dissociation $t_{1/2}$ of INSTIs from WT IN/DNA complexes using the single exponential decay model was longer for BIC compared to DTG, EVG, and RAL (BIC 134 h; DTG 79 h; RAL 14 h; EVG 3.6 h; $p<0.001$). The equilibrium binding model resulted in overall shorter dissociation $t_{1/2}$ values that may be more physiologically relevant, but the BIC dissociation $t_{1/2}$ remained significantly longer than the other INSTIs (BIC 38 h; DTG 16 h; RAL 5.2 h; EVG 1.5 h; $p\leq0.017$). Dissociation $t_{1/2}$ values from G140S/Q148H mutant HIV IN/DNA complexes were shorter than wild-type but longer for BIC compared to DTG by both models (single exponential BIC 5.5 h; DTG 2 h; equilibrium binding model: BIC 2.5 h; DTG 0.45 h; both $p<0.01$). EVG and RAL had no measurable association, consistent with high-level resistance.
Conclusions: BIC displayed significantly higher antiviral activity in vitro relative to DTG, EVG, and RAL. BIC also has a longer dissociation $t_{1/2}$ than DTG, EVG, and RAL from wild-type and mutant IN/DNA complexes. Phase 3 studies with the once-daily unboosted BIC/emtricitabine/tenofovir alafenamide single tablet regimen are ongoing. These results support the study of BIC in a treatment-experienced, INSTI-resistant population.

P5

Case report: atazanavir associated cholelithiasis

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Background: While ATV-related nephrolithiasis is well reported, with an approximate incidence of 23.7 cases per 1000 patient years, Atazanavir (ATV)-related cholelithiasis is only recently described. We report the case of a 47 year old white-British male, presenting with cholangitis due to an ATV containing gallstone.
Methods: Following diagnosis in 1992, our patient started antiretroviral therapy in 1999. At presentation he had been on Truvada. ATV– Ritonavir for 6 years. His admission CD4 count was 443 cells/mm^3 (39%) with a non-detectable viral load (<20 copies/ml). The patient presented with right upper quadrant pain, fevers and jaundice and treated for biliary sepsis. Magnetic Resonance Cholangiopancreatogram (MRCP) confirmed gallstones and possible sludge in the distal common bile duct with duct dilatation. At Endoscopic Retrograde Pancreatogram (ERCP, despite sphincterotomy, the 5–8 mm common bile duct stone could not be removed and two 9–12 mm balloons burst on contact with the stone. After a third balloon impacted the stone, attempted stent insertion failed. At a second ERCP three days later the stone was successfully removed with a dormia basket. As a consequence of concerns regarding ATV gallstones, his medication was changed to Truvada, Darunavir-Ritonavir.
Results: The stone was sent for ATV drug level analysis using a validated HPLC-MS methodology. Macroscopically it was a single brown stone. It was dissolved in 4.5 mls of 0.9% normal saline before it could be weighed, based on size and estimated specific gravity, we estimate a weight range of 130–540 mg. Stone ATV concentrations were estimated at 125–520 μg/mg. In comparison, typical concentrations of ATV (300/100 mg formulation) in non-pregnant HIV+ patients at steady-state are reported as a geometric Cmin of 700–1500 ng/mL, and Cmax of 4000–5500 ng/mL.
Conclusions: Our case represents the first measurement of ATV stone concentration in a patient presenting with gallstones while still on long-term ATV, and suggests much higher stone concentrations of ATV than previously reported. From the gastroscopist's point of view, we would highlight the unusual feature that several balloons burst easily on contact with the stone. As patients remain on ATV for longer periods, vigilance for ATV associated cholelithiasis should be maintained, even after stopping the drug. ERCP operatives may find ATV containing bile duct stones better removed with Dormia baskets rather than balloons.

P6

Clinical outcomes of naive patients started on darunavir/cobicistat-based ART: experience from a clinical setting

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Background: A fixed dose combination pill containing darunavir and cobisistat marketed as Rezolsta® was approved for use in Welsh HIV clinics in August 2015. This offers a fixed dose protease inhibitor option and reduction in pill burden for patients. However, patients and providers may be concerned about efficacy, safety, tolerability and impact on measurement of renal function.
Methods: Patients started on first line antiretroviral (ARV) therapy containing Rezolsta® between June 2015 and November 2016 were identified from pharmacy records. Data was collected on demographics, baseline characteristics, ARV and other drug history. Data was also collected on clinical parameters along with renal function and patient reported side effects.
Results: 22 notes were identified as eligible for inclusion. Many patients were male (90%) and the median age was 32 years. Median time between diagnosis and start was 1 month (range 0–188) with a median nadir CD4 count of 280 cells/mm^3 (range 80–550). 2 patients (9%) had documented archived resistance prior to starting. All patients were commenced on a tenofovir containing backbone. An undetectable viral load was achieved by 24 weeks in 90% of patients (median 12 weeks). The median change in estimated GFR at 4 weeks was 0 ml/min. 8 patients (36%) reported side effects which included rash, nausea, vomiting, diarrhoea and headaches. However all resolved within 2 weeks and no patients switched/stopped treatment due to side-effects. 17 patients started a Rezolsta® based ART prior to resistance test results and once the result was known 2 patients switched therapies to reduce drug interaction and 1 switched for STR choice. 19/22 patients (86%) continued on their initial Rezolsta® based ART.
Conclusion: The majority of naïve patients using Rezolsta® achieved an undetectable viral load within 24 weeks. A switch in 3 patients suggests other regimens with different side effect profiles and pill burdens are an option but 86% continued on their Rezolsta® based ART. No patients who started prior to a resistance test result had to be switched due to transmitted drug resistance. The tolerability of the short lived side effects was widely observed. The absence of eGFR change seen in this patient cohort leads clinicians to have a low threshold of concern for monitoring renal function. This data supports the benefits of starting a simplified regimen such as Rezolsta®, and also offers a safe and financially viable option for healthcare providers.

P7

Clinical outcomes of patients switched to darunavir/cobicistat from boosted ritonavir-based antiretroviral therapy

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Background: A fixed dose combination pill containing darunavir and cobicistat marketed as Rezolsta was approved for use in Welsh HIV clinics in August 2015. For patients taking protease inhibitors boosted with ritonavir, switch offers a reduction in pill burden and for healthcare providers treatment costs are lower. Patients and providers may be concerned about safety, tolerability and impact on measurement of renal function.

Methods: Patients started on Rezolsta between 4 March 2015 and 24 November 2016 were identified from pharmacy records and the case notes reviewed. Data was collected on demographics, baseline characteristics, antiretroviral and other drug history and indications for switch. Data was also collected on clinical parameters after switch along with renal function and patient reported side effects.
Results: 77 notes were identified as eligible for inclusion. 54 patients were male (70%) and the median age was 44 years. 2 patients (3%) had documented archived resistance. 56 patients (73%) had a tenofovir-based backbone. Reasons to switch to Rezolsta varied with the majority of patients switching for simplification, n=57 (74%). 10 patients switched due to low level viraemia on previous regimen (13%), 8 patients switched due to side effects on previous regimen (10%) and 1 patient switched due to ritonavir allergy. Loss of virological control occurred in 1 patient. 17 patients had an improvement in their eGFR by an average of 6 mL/min. 18 patients had a decline in their eGFR of an average of 9 mL/min at first blood test. Side effects include on going diarrhoea, nausea and vomiting, rash, vivid dreams, sweats, dry mouth, headaches and muscle pain; however the majority being short-lived (2–4 weeks). 7 patients (9%) stopped taking Rezolsta due to nausea, size of tablet, muscle pain, hepatitis C interactions, personal preference for alternative regimen and poor memory/concentration.
Conclusion: Most patient's experience of switch to Rezolsta was uneventful but 5 returned to their previous regimen and 2 switched to another regimen. The tolerability of the drug and improved patient outcomes was widely observed. The minimal changes in eGFR seen in this patient cohort leads clinicians to have a low threshold of concern for monitoring renal function. This data supports the benefits of a simplified regimen such as Rezolsta, and also offers a safe and financially viable option for healthcare providers.

P8

Early UK and Ireland patient access to tenofovir alafenamide-based products through a compassionate use programme

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Background: Pre reimbursement access can benefit patients with unmet need. Following presentation of phase 3 clinical trial results for tenofovir alafenamide (TAF) based products, Gilead Sciences was approached for early access. Gilead made available 3 products elvitegravir/cobicistat/emtrictabine/TAF (Genvoya), emtricitabine/TAF (Descovy) & rilpivirine/emtrictabine/TAF (Odefsey) through a compassionate use programme (CUP). TAF products were studied in treatment naïve and switch adults, adolescents, and renally impairment (eGFR ≥30 mL/min) and measures of renal markers and bone mineral density showed improvement with TAF compared to tenofovir disoproxil fumarate (TDF) regimens.
Methods: Cases for CUP use were assessed on an individual basis, with internal clinical review. A database was established including gender, age, rationale for request, co-morbidities, co-medication, resistance, current viral load/CD4 count, HBV/HCV co-infection and recent laboratory results. This database has been scrutinised to review demographics of applicants and clinical rationale.
Results: 573 patients accessed TAF based products via the CUP, with the demographic breakdown, compared to the UK HIV population, in the table.

	>45 years old	>55 years old	>65 years old	Female
CUP users	73%	46%	23%	19%
UK HIV population	48%	15%	4%	33%

The most common clinical rationale for compassionate use were:
1. Declining renal function on tenofovir disoproxil fumarate (TDF) 51%
2. Pre-existing renal impairment such that TDF or other NRTIs cannot be continued: 41%
3. High CV risk or previous CV event where an ABC use not desired by HCP: 56%
4. HLA B*5701 positive (ABC contraindicated): 9%
5. Declining renal function HBV/HIV co-infection where HBV/HIV therapy is required and a TDF based regimen is not suitable: 21%
6. Osteopenia/osteoporosis patients: 9%

Conclusions: The large scale of the CUP demonstrates that TAF containing products address significant unmet medical needs. All 3 TAF containing drugs are now commissioned across the UK and Ireland. For patients with impaired renal function or reduced BMD, TAF offers a safer tenofovir-based treatment option. In the CUP, TAF based products seem to be of particular benefit in older patients in whom multiple co-morbidities are seen. Through a compassionate use programme, access is limited to those with significant unmet need; however clinical studies showed clinically relevant bone and renal advantages from adolescents through to older patients.

P9

HIV clinic cohort re-audit after QIP

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Background: Our department looks after >800 HIV positive outpatients in a high prevalence area with significant economic deprivation which has been shown to affect treatment outcomes.
After an audit in 2013 I initiated a quality improvement project to review and improve anti-retroviral regimens for suitable patients. I re-audited my cohort during 2016.
Methods: Prospective case note review and database completion on 308 HIV positive patients booked to attend their HIV physician during 2016. During that time 2 patients were lost to follow up, 2 died from non-HIV related causes (with a normal CD4, VL<40 copies/ml on HAART) and 4 transferred care (2 moved out of area, 2 transferred for specialist care). The non-attendance rate for this outpatient clinic was 11%.
68% of this cohort had been diagnosed late, 28% with AIDS defining illnesses (ADI) and 40% with baseline viral loads >100,000 copies/ml.
18% were diagnosed >15 years ago, 31%>10 years, 31%>5 years, 14% <5 years and 6% were newly diagnosed <1 year.
Results: 282/300 (94%) were on HAART (82% on Home Delivery). 6 patients have been strongly advised to take HAART for medical reasons but decline (but are still engaged in care), 12 are asymptomatic and not ready to start and 2 are elite controllers VL<40 without HAART.
282/282 (100%) on HAART have a VL<200 copies/ml, 279/282(99%) <100 copies/ml, 272/282(96%) <50 copies/ml and 262/282(93%) <40 copies/ml.
189/282 (67%) patients were on NNRTI/NRTI (157/282(56%) are on generically available NNRTIs).So far 100% of patients offered switch to generic NNRTI options have done so.
59/282 (21%) are on Protease inhibitors
42/282 (15%) are on Integrase inhibitors
4% patients are on novel HAART due to co-morbidities eg NNRTI,RAL,3TC.
Compared to a previous audit in 2013 the number of patients on HAART has increased from 88% to 94%. NNRTI use has decreased from 72% to 67% but is still the most commonly used ART class in our cohort. Protease inhibitor use has decreased from 26% to 21% and Integrase use has increased from 2% to 15%.
Conclusion: There was a high rate of retention in care and a low rate of non-attendance. Virological suppression remains very high in this cohort following prescribing changes with 82% on home delivery and the majority having generic options available.

P10

Mono/dual therapy regimen in real world: is 3 still the magic number?

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Background: The introduction of triple antiretroviral regimen has revolutionised the standard of care in HIV patients. Treatment simplification to mono/dual therapy has been studied and the potential benefits of reducing side effects and cost saving prove attractive alternatives.
Method: To evaluate the efficacy and safety of mono/dual therapy in real life setting patients attending an inner-city HIV clinic who had mono/dual therapy were identified. Data included demographics, reasons for changing treatment and virological response.

Results: 48 patients (8F; 40M) were identified. The median age was 47 (range 28–80). 30/48 were White British. 30 were on boosted-PI monotherapy, the rest were on dual therapy with a boosted PI. The median duration on treatment was 154 weeks.
32(67%) on mono/dual therapy maintained virological suppression. 7(15%) stopped due to detectable viraemia, in whom 2 developed new resistance. The rest reverted to triple therapy and achieved virological suppression. 1 moved from dual to monotherapy due to archived resistance. It was discontinued later due to persistent viraemia with no new resistance.
8 (17%) stopped due to adverse events – 3 lipodystrophy; 2 diarrhoea; 1 hyperlipidaemia; 1 drug interaction. 1 had neurocognitive impairment with detectable CSF viral load – symptoms resolved after changing back to triple therapy.
37 patients took mono/dual therapy for ≥48 weeks; 7 transferred into care and their baseline investigations are unavailable: 5/30 (17%) at least doubled and exceeded the normal limit for triglycerides by 48 weeks. 2/30 (7%) had ≥10% decline in eGFR at 48 weeks. There were no statistically significant differences in eGFR or triglycerides between the mono and dual therapy groups.
Conclusion: Mono/dual therapy with a boosted PI demonstrates comparable effectiveness and side effects within our cohort. It provides an alternative treatment strategy which simplifies treatment, avoids NRTI-related toxicities and reduces cost. Virological failure with new drug resistance remains a concern. Further long term data are required to support this in routine clinical practice.

P11

Randomised trial of bictegravir or dolutegravir with FTC/TAF for initial HIV therapy

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Background: Bictegravir (BIC, GS-9883) is a novel, unboosted, once-daily INSTI that demonstrated potent activity in a 10-day monotherapy study and has in vitro activity against most INSTI-resistant viruses.
Methods: Treatment naïve, HIV-infected adults were randomized 2:1 to receive blinded treatment once daily with BIC 75 mg or dolutegravir (DTG) 50 mg with open label emtricitabine 200 mg/tenofovir alafenamide 25 mg (FTC/TAF) for 48 weeks. The primary endpoint was the proportion with HIV RNA <50 c/mL at W24 using snapshot analysis. Noninferiority was assessed through 95% CI at W24 and W48. Safety was a secondary endpoint.
Results: Of 98 patients enrolled, 65 were randomized to BIC+FTC/TAF and 33 to DTG+FTC/TAF. Most subjects were male, had asymptomatic HIV infection, with median HIV-1 RNA 4.4-4.5 log10. Virologic success (HIV-1 RNA <50 c/mL) at W24 was 97% for the BIC arm and 94% for the DTG arm, and at W48 was 97% and 91%, respectively (Table). No viral resistance was detected in the BIC+FTC/TAF arm. There were no treatment-related serious adverse events and no deaths. One subject in the BIC arm discontinued due to urticaria following the W24 visit. Median changes in estimated glomerular filtration (GFRCG) at W48 were -7.0 mL/min for BIC and -11.3 mL/min for DTG with no discontinuations due to renal adverse events.
Conclusions: BIC+FTC/TAF and DTG+FTC/TAF both demonstrated high virologic response rates at W24 and W48. Both treatments were well tolerated and no significant safety signal was detected in either arm. Estimated GFRCG changes were consistent with known inhibition of tubular creatinine transport by BIC and DTG. Further evaluation of BIC for the treatment of HIV infection is warranted.

	Week 24[a]		Week 48[b]	
N (%)	BIC+FTC/TAF (n=65)	DTG+FTC/TAF (n=33)	BIC+FTC/TAF (n=65)	DTG+FTC/TAF (n=33)
HIV-1 RNA<50 copies/mL	63 (96.9)	31 (93.9)	63 (96.9)	30 (90.9)
HIV-1 RNA > 50 copies/mL	2 (3.1)	2 (6.1)	1 (1.5)	2 (6.1)

Continued.

	Week 24[a]		Week 48[b]	
N (%)	BIC+FTC/TAF (n=65)	DTG+FTC/TAF (n=33)	BIC+FTC/TAF (n=65)	DTG+FTC/TAF (n=33)
HIV-1 RNA ≥ 50 copies/mL	1 (1.5)	1 (3.0)	0	1 (3.0)
Discontinued due to lack of efficacy	0	0	0	0
Discontinued due to other reason and last HIV-1 RNA ≥ 50 copies/mL	1 (1.5)	1 (3.0)	1 (1.5)	1 (3.0)
No virologic data in window	0	0	1 (1.5)	1 (3.0)
Discontinued due to AE/death	0	0	1 (1.5)	0
Discontinued due to other reason and last HIV-1 RNA <50 copies/mL	0	0	0	1 (3.0)
Missing data in window but on drug	0	0	0	0

A) Difference in percentages (BIC+FTC/TAF vs DTG+FTC/TAF) at Week 24: 2.9% (-8.5% to 14.2%); p=0.50.
B) Difference in percentages (BIC+FTC/TAF vs DTG+FTC/TAF) at Week 48: 6.4% (-6.0% to 18.8%); p=0.17.

P12

Real-life experience of switching to protease inhibitor-based dual antiretroviral therapy (PIDAT)

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Background: Protease inhibitor-based dual antiretroviral therapy (PIDAT) in virologically suppressed patients has shown variable efficacy, depending partly on second ARV choice. We reviewed outcomes of PIDAT switches within two metropolitan HIV centres.
Methods: Retrospective analysis of patients switching to ritonavir-boosted PI plus an ARV from another class from 1/1/09 to 1/7/14 with follow-up at 48 and 96 weeks. We considered the percent achieving a viral load (VL) <50 copies/ml with switch accounted for in 3 ways: (i) Ignored (ITT analysis); (ii) switching from PIDAT considered as "failure" (switches within paradigm allowed); and (iii) any ARV change considered as "failure".
Results: Of 255 patients, 77% (196) had VL<50 at switch with median (IQR) CD4 632 (439–839) and nadir CD4 125 (32–207) cells/mm^3. 226 (89%) switched from PI-based ART. At week 48 and 96, 177/210 (84%) and 145/184 (79%) remained on any PIDAT regimen with VL<50. Although the percent with VL<50 was generally high at 48 and 96 weeks, there were statistically significant differences by choice of 2nd ARV, primarily driven by a higher rate of switches amongst those on INSTI-based regimens (Table). 19/239 (8%) and 42/226 (19%) discontinued PIDAT by week 48 and 96. 9/19 (47%) and 22/42 (52%) had VL>50 at discontinuation. Emergent resistance was observed in 2/255 by week 96 (Y181C on DRV/r/ETR at week 39; K103N, V106A on LPV/r/NVP at week 20). Nadir CD4 count was not associated with viral rebound.
Conclusion: Outcomes of PIDAT appear favourable in clinical practice. The utility of this paradigm in the advent of TAF and PI sparing regimens is unclear.

Table: Virological and Switch outcomes of PIDAT

		Week 48 (n=239)				Week 96 (n=226)			
2nd ARV	N	N[a]	ITT: VL<50[b] p=0.001	On PIDAT + VL<50[c] p=0.005	On same ARVs +VL<50[d] p=0.02	N[a]	ITT: VL<50[b] p=0.60	On PIDAT + VL<50[c] p=0.004	On same ARVs +VL<50[d] p=0.03
CCR5[1]	81	69	90%; 62	84%; 58	83%; 57	62	90%; 56	73%; 45	69%; 43
INSTI[2]	21	13	54%; 7	46%; 6	46%; 6	7	86%; 6	29%; 2	29%; 2
NNRTI[3]	103	94	95%; 89	89%; 84	85%; 80	82	94%; 77	87%; 71	79%; 65
NRTI[4]	50	34	88%; 30	85%; 29	85%; 29	33	91%; 30	82%; 27	76%; 25

[1]All MVC [2]All RAL [3]87/103 ETV [4]30/50 3TC or FTC; [a]under follow-up with available VL measurement; [b]ignoring ART changes; [c]% with VL<50 who remain on PIDAT strategy; [d]% with VL<50 who remain on original PIDAT regimen. p-values calculated using Fisher's Exact test

P13

Real-life experience with TAF: an audit of the use of tenofovir alafenamide against national commissioning policy

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Background: Tenofovir Alafenamide (TAF) is a novel prodrug of Tenofovir Disproxil Fumarate (TDF). Clinical trials have shown that TAF has equivalent antiviral potency to TDF but appears to demonstrate a lower risk of renal and bone side effects in the short term. A commissioning policy for the use of Genvoya® was introduced in September 2016 and was recently extended to include the use of other TAF-containing products. The policy states that use of such agents can be considered in individuals with an absolute or relative contraindication to TDF and that all cases should be discussed in a virtual clinic (VC). The aim of this audit was to evaluate compliance with this policy and also describe clinical outcomes in patients initiating TAF in our service.
Methods: A retrospective case note and pharmacy database review was performed for all patients who had initiated TAF between March and October 2016. We evaluated demographics; reasons for switch; rates of referral to the VC; clinical safety and virologic outcomes.
Results: 40 patients commenced TAF within the time period and were included in the audit. Of these individuals, the median age was 55.5 years (18–85); 23/40 (57.5%) were Caucasian and 27/40 (67.5%) were male. 4/40 (10%) patients were co-infected with hepatitis B or C. 21/40 (52.5%) had been on TDF for a mean period of 44.4 months pre-switch. 36/40 (90%) patients had a suppressed viral load before switching; one patient was newly diagnosed and treatment naïve and three had low level viraemia despite treatment. Reasons for switching included bone toxicity (osteopenia or osteoporosis) in 14/40 (35%); renal impairment in 17/40 (42.5%); 2/40 (5%) patients had both renal and bone co-morbidities. 6/40 (15%) initiated TAF for other reasons in accordance with local guidelines. VC referrals were indicated in 38 patients; these took place in 34/38 (89%). The median follow-up period from switch was 82 days (0–273). No patient experienced an adverse event resulting in discontinuation. Of the 19 patients with renal impairment prior to initiating TAF, 14/19 (73.6%) demonstrated a modest improvement in renal function.
Conclusion: All individuals initiating TAF met the clinical criteria outlined in the national commissioning policies, however 11% required retrospective VC discussion. TAF was well tolerated and modest improvements in renal function were observed in the majority of patients with prior renal impairment.

P14

Real-world comparative 48-week outcomes of switching to two nucleoside reverse transcriptase inhibitors and an integrase inhibitor

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Background: Switching to integrase inhibitor (INI) based ART can reduce toxicities and drug interactions. There is a lack of comparative data between the three current INIs to guide use.
Methods: Multicentre retrospective evaluation of patients on ART with HIV VL<50 c/mL switching to a dual-NRTI backbone with the INIs dolutegravir (DTG), cobicistat-boosted elvitegravir (EVG) or raltegravir (RAL) in the UK and Ireland from 1/1/15-31/8/15. The main outcome was 48-week viral suppression (VL<50 c/mL). Missing VL data and INI switches were accounted for in 3 ways: (i) those without a 48-week VL measure excluded (M=E; S=I); (ii) those without a VL measure considered to have VL>50 c/mL (M=F; S=I); (iii) those without a VL measure or who switched from INI considered to have VL>50 c/mL (M=F; S=F; NRTI changes ignored). Reasons for discontinuation and emergent resistance were also summarised.
Results: 12 centres provided data on 359 patients. 105 (29%) switched to RAL; 218 (61%) to DTG; and 36 (10%) to EVG. At switch, there were no significant differences in gender (male: RAL-70%, DTG-75%, EVG-72%), median age (46, 47, 48 years), white ethnicity (61%, 65%, 64%) or main HIV risk being sex between men (58%, 61%, 53%). There were differences in percent with CD4<200 cells/μl (0%, 6%, 3%; P=0.03). At 48 weeks, comparable proportions achieved VL<50 c/mL (table, INI switches ignored); however when considering INI switch and missing VL as failure there were significant observed differences (table, M=F; S=F). By 48 weeks, 25/105 (24%) had discontinued RAL, 27/218 (13%) DTG and 8/36 (22%) EVG (P=0.023; 3-way comparison). HIV VL was detectable at switch in 2/25 (8%) taking RAL, 2/27 (7%) DTG and 0/8 (0%) EVG. No genotypes or resistance development was reported for any patients discontinuing initial INI. Side effects/toxicity was the most common indication for stopping INI (37/60, 62%). Switch for simplification was common for RAL (9/25, 36%).
Conclusion: Those switching to INI+2NRTI had high rates of viral suppression, with discontinuations driven mainly by side effects/toxicity. Twice daily dosing of RAL seemed to prompt a small number to switch again for convenience

VL<50 c/mL at 48W n/N (%)	RAL n=105	DTG n=218	EVG n=36	P[b]
M=E, S=I	69/73 (95%)	159/162 (98%)	26/28 (93%)	0.19
M=F, S=I	69/105 (66%)	159/218 (73%)	26/36 (72%)	0.40
M=F, S=F[a]	51/105 (49%)	140/218 (64%)	23/36 (64%)	0.023

[a]on initial INI with VL<50. M=missing VL measurement, F=failure, S=switch, E=excluded, I=ignored. [b]chi-squared test

P15

Real-world comparative outcomes of integrase inhibitor-based first-line ART

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Background: Integrase inhibitor (INI) based first line ART is now recommended across HIV treatment guidelines. There is, however, a lack of comparative data between the three INIs to guide use.
Methods: Multicentre retrospective evaluation of ART naïve adults initiating 2 NRTIs with the INIs dolutegravir (DTG), cobicistat-boosted elvitegravir (EVG) or raltegravir (RAL) in the UK and Ireland from 1/1/15 till 31/8/15. The main outcome was 48-week viral suppression (VL<50 c/mL). Missing VL data and INI switches were accounted for in 3 ways: (i) those without a 48-week VL measure excluded (M=E; S=I); (ii) those without a VL measure considered to have VL>50 c/mL (M=F; S=I); (iii) those without a VL measure or who switched from INI considered to have VL>50 c/mL (M=F; S=F; NRTI changes ignored). Reasons for discontinuation and resistance were also summarised.
Results: 14 centres provided data on 429 patients. 245 (57%) started 2NRTI-RAL; 147 (34%) DTG; and 37 (8%) EVG. At start of ART, there were no significant differences in gender (male: RAL-91%, DTG-90%, EVG-92%), median age (36, 37, 36 years), main HIV risk being sex between men (81%, 74%, 81%), white ethnicity (70%, 74%, 73%), or proportion with CD4<200 cells/μl (17%, 15%, 8%) respectively. At 48 weeks, switch=failure analysis showed a significantly higher percentage with viral response for those on EVG. By 48 weeks 23% (57/245), 6% (9/147) and 5% (2/37) discontinued RAL, DTG and EVG respectively (p<.001 for 3-way comparison). 31/57 (57%) switched from RAL to simplify to a single tablet regimen with VL<50 c/ml. Of those discontinuing initial INI, HIV VL was detectable for 15/57 (26%; 7 switched after 8 weeks) taking RAL, 4/9 (44%; 2 switched after 8 weeks) DTG and 1/2 (50%; 0 switched after 8 weeks) EVG. Genotypes were available for 6/15, 2/4 and 0/1 of those who stopped RAL, DTG or EVG respectively with VL>50 c/mL; resistance associated mutations were observed for 2/6 on RAL and 1/2 taking DTG based ART.
Conclusion: INI-based ART for treatment naïve patients is associated with high rates of viral suppression. Discontinuation from RAL seems to be driven by patient/doctor choice for once daily ART

VL<50 c/mL at 48W n/N (%)	RAL n=245	DTG n=147	EVG n=37	P[b]
M=E, S=I	179/196 (91%)	100/114 (88%)	33/33 (100%)	0.074
M=F, S=I	179/245 (73%)	100/147 (68%)	33/37 (92%)	0.027
M=F, S=F[a]	136/245 (56%)	95/147 (65%)	32/37 (89%)	0.001

[a]on initial INI with VL<50. M=missing VL measurement, F=failure, S=switch, E=excluded, I-ignored; [b]chi-squared test

P16

Safety and efficacy of dolutegravir in treatment naive patients, 50 years and over: subgroup analysis of 48-week results from SPRING-2, SINGLE, FLAMINGO and ARIA

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Background: Due to benefits of antiretroviral treatment (ART) the HIV population is ageing. In the UK one in three people accessing HIV care is now 50 years or over. Dolutegravir (DTG) based regimens (DBRs) have been well tolerated in ART naïve adult studies and have shown superior efficacy versus darunavir/ritonavir (DRV/r) + 2NRTIs (FLAMINGO); the fixed dose combination tenofovir/emtricitabine/efavirenz (SINGLE); atazanavir/ritonavir (ATZ/r) + tenofovir/emtricitabine (TDF/FTC) (ARIA-women only study) and non-inferior efficacy versus raltegravir (RAL) + 2 NRTIs (SPRING-2). This analysis presents the safety and efficacy of DBRs in these phase III/IIIb studies by age group.
Methods: Data from the four studies were collated and examined. In SPRING-2 and FLAMINGO investigators were allowed to select NRTIs abacavir/lamivudine (ABC/3TC) or TDF/FTC, while in SINGLE and ARIA, DTG was used with ABC/3TC versus TDF/FTC with efavirenz (single tablet) and ATV/r respectively. Subjects assigned to DBRs were evaluated by age subgroup; under 50 years or older. Adverse events (AEs), response rates (by FDA Snapshot), co-morbidities and co-medications were summarised in each group.
Results: 1315 subjects were identified; 1157 = <50 (18-49) years vs. 158 = ≥50 (50-85) years. The high efficacy and low AE rates were consistent across both ≥50 and <50 subgroups (Table 1). Grade 2-4 nervous system (NS) and psychiatric AEs were uncommon. The rate of AEs leading to discontinuation remained low in subjects taking DBRs.
Conclusion: Analysis of these studies shows DTG once daily to be an effective and well tolerated treatment option in older patients ≥50 years which is consistent with overall studies result and in the majority patient group <50 years.

Table 1	DTG based regimens	
Subgroup (N)	<50 years (1157)	≥50 years (158)
Patients with co-morbidity n (%)	1024 (89)	152 (96)
Patients with ≥2 co-morbidities n (%)	882 (76)	140 (87)
Number of co-medications per patient, mean (SD)	7.2 (5.7)	9.8 (8.0)
Proportion reached primary endpoint with HIV-1 RNA <50 c/mL at Week 48 using the FDA snapshot (%)	1007 /1157 (87)	140/158 (89)
Reported grade 2–4 AEs (%)	123 (11)	16 (10)
Grade 2–4 AEs NS (%)	27 (2)	1 (<1)
Grade 2–4 AEs Psychiatric (%)	35 (3)	5 (3)
Discontinuation due to AEs (%)	32 (2.8)	2(1.3)

P17

Significant efficacy and long term safety difference with TAF-based STR in naive adults

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Background: Two randomized, controlled, double-blinded multinational Phase 3 trials compared tenofovir alafenamide (TAF) vs tenofovir disoproxil fumarate (TDF), each in single tablet regimens coformulated with elvitegravir/cobicistat/

emtricitabine (E/C/F). At Week (W) 48, E/C/F/TAF was statistically noninferior to E/C/F/TDF for the proportion of subjects with HIV-1 RNA <50 copies(c)/mL and had significant improvements in renal and bone safety endpoints. We now describe follow up of blinded data at W144.
Methods: ARV naïve participants randomized 1:1 to receive E/C/F/TAF(TAF) or E/C/F/TDF(TDF). W144 viral suppression by FDA snapshot analysis, pre-defined bone and renal safety and tolerability endpoints are reported.
Results: 1,733 HIV-infected adults were randomized and treated: 15% women, 43% non-white, 23% viral load >100,000 c/mL. At W144, TAF met prespecified criteria for both noninferiority and superiority to TDF by FDA snapshot algorithm (Table 1). Mean [SD] % decrease in BMD was significantly less in the TAF group for both lumbar spine and total hip (Table 1). Multiple measures of renal safety were significantly better for participants randomized to TAF. There were no cases of renal tubulopathy in the TAF arm vs 2 on TDF. No participants on TAF had renal-related discontinuations vs 12 on TDF ($p<0.001$).
Conclusion: At W144, participants on E/C/F/TAF had significantly higher rate of virologic suppression (<50 c/mL) than those on E/C/F/TDF, driven by fewer participants on E/C/F/TAF with no W144 data. E/C/F/TAF continued to have a statistically superior bone and renal safety profile compared to E/C/F/TDF, demonstrating significant safety advantages over E/C/F/TDF through 3 years of treatment.

Table 1. W144 Efficacy and Changes from Baseline in Renal and Parameters

Efficacy	E/C/F/TAF (n=866)	E/C/F/TDF (n=867)	
HIV-1 RNA<50 c/mL	729 (84.2%)	694 (80.0%)	p=0.021
HIV-1 RNA≥50 c/mL	40 (4.6%)	34 (3.9%)	—
No Virologic Data	97 (11.2%)	139 (16.0%)	—
Safety (Δ from BL)			
Renal			
eGFR, mL/min (CG)	-1.6	−7.7	All p<0.001
UPCR	-10.5%	25.2%	
β-2M/Cr	-25.7%	53.8%	
RBP/Cr	34.8%	111.0%	
Bone Density			
Lumbar Spine	-0.92% (4.12%)	−2.95% (4.29%)	Both p<0.001
Total Hip	-0.75% (4.45%)	−3.36% (4.33%)	

β-2M/Cr=urine beta-2-microglobulin to creatinine ratio; c/mL=copies/mL; eGFR=estimated glomerular filtration rate; UPCR=urine protein to creatinine ratio; RBP/Cr=urine retinol binding protein to creatinine ratio.

P18

START: how long does it take to start antiretroviral therapy (ART)?

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Background: In August 2015 British HIV Association (BHIVA) ART guidelines changed to recommend initiating ART for all people living with HIV, irrespective of CD4 count. We evaluated the time from a new HIV positive (HIV+) diagnosis to starting ART for those initiating treatment in the year after updated BHIVA guidelines publication.
Methods: A retrospective case-note review was performed. All patients receiving a new HIV+ test result for the first time between August 2015 and August 2016 were included. Patients who were already on ART at first HIV+ test or had an undetectable viral load at first HIV+ test were excluded. We evaluated time from first documented HIV+ test result to date of first ART prescription and virological response. We analysed demographics, HIV viral load (VL), CD4 count, ART regimen, hepatitis B (HBV) and C (HCV) status, recent infection testing algorithm (RITA) test/p24 antigen results, and reasons for non-initiation. We defined lost to follow up (LTFU) as no contact with the unit for >6 months despite >3 attempts to contact via email, text, telephone.
Results: There were 75 eligible patients in the study period, of these 64/75 (85%) were male and median age was 34(18–84 years). Of the 59 with CD4 count and HIV VL available, median CD4 count was 465 cells/cc^3(range 8-1550) and HIV VL was 23326 copies RNA/ml (range 120 - >10000000) at diagnosis. Of the 61 patients with RITA/p24 antigen tests available, 21/61 (34%) were recently infected and 8/21 enrolled into research studies. 2 patients were HBV co-infected and 4 were HCV co-infected.
25 patients (33%) did not start treatment during the study period; 4/25 declined treatment, 6/25 moved to other centres and 15/25 were LTFU.
The remaining 50 patients (67%) started ART in the study period. Median time from first HIV+ diagnosis to ART initiation was 31 days (range 10–215)**.** Analysed by quarter, both the proportion of new HIV+ patients initiating ART and the time from first HIV+ test to ART initiation showed no significant change over time. 33/50(66%) commenced an integrase inhibitor based regimen. 29/31(94%) patients with results available at 6-months post ART start had an undetectable VL.
Conclusion: In the first year after updated BHIVA guidance publication, we note rapid initiation of ART with excellent virological outcomes for newly diagnosed HIV+ individuals. However, over half of those not starting ART were LTFU, indicating a critical need for novel strategies to improve retention in care.

P19

Successful antiretroviral therapy in a non-urban HIV cohort

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Background: The British HIV Association (BHIVA) national HIV treatment guidelines 2016 state that the key objective of antiretroviral therapy is the prevention of the mortality and morbidity associated with chronic HIV Infection. In 2014, UNAIDS launched 90:90:90 targets, which included the goal of 90% of those receiving treatment to have a suppressed viral load, by 2020. Public Health England has published data demonstrating that in 2015 of those diagnosed with HIV, 96% were receiving HIV treatment and of those receiving treatment, 94% had a suppressed viral load.
Method: To be eligible for inclusion into this review an individual had to be under active follow-up and receiving combination antiretroviral therapy for at least 6 months by 31st December 2015 and have CD4 count and HIV viral load data collected during 2015. This was a retrospective review and data was retrieved from clinical case notes and laboratory reports and included data on demographics, current antiretroviral combination, whether the current antiretroviral combination was an individual's first combination or subsequent combination, CD4 cell count and viral load results during the study period.
Results: 437 individuals were eligible. 257 (59%) individuals were male and 180 (41%) were female. The median age of the cohort at last review was 46 years (range 19–83 years). 270 (62%) individuals in the cohort acquired their HIV infection via heterosexual contact. 404 (92%) individuals receiving combination antiretroviral therapy for more than 6 months had an undetectable HIV viral load. 281 (64%) were receiving an NNRTI based regimen, 116 (26%) a PI based regimen, and 43 (9%) an integrase based regimen.
Conclusion: Our analysis demonstrates the majority of individuals (92%) receiving antiretroviral therapy in our cohort had an undetectable HIV viral load. This review helps to demonstrate that individuals managed in a smaller non-urban HIV cohort continue to achieve successful treatment outcomes comparable to larger treatment centres and national data.

P20

Switching from efavirenz/emtricitabine/tenofovir (EFV/FTC/TDF) or rilpivirine/emtricitabine/tenofovir disoproxil fumarate (RPV/FTC/TDF) to rilpivirine/emtricitabine/tenofovir alafenamide (RPV/FTC/TAF): safety and efficacy through 48 weeks

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Background: The impact of switching from EFV/FTC/TDF 600/200/300 mg (GS-US-366-1160) or RPV/FTC/TDF 25/200/300 mg (GS-US-366-1216) was evaluated in two phase 3 clinical trials of RPV/FTC/TAF. Primary endpoint (W48) results are presented.
Methods: Two randomized (1:1), double-blind, active-controlled studies were conducted in virologically suppressed HIV-infected adults with estimated glomerular filtration rate (eGFR) ≥50 mL/min taking their baseline regimen for at least 6 months. Participants were randomized to switch to RPV/FTC/TAF or to continue their baseline regimen. Primary endpoint was virologic suppression (HIV-1 RNA <50 copies/mL) at W48 by FDA snapshot algorithm. Bone, renal and tolerability endpoints were evaluated.
Results: In Study 1160, 875 patients were enrolled (RPV/FTC/TAF 438 vs. EFV/FTC/TDF 437). At W48, switching to RPV/FTC/TAF was non-inferior to remaining on EFV/FTC/TDF (90% vs 92%; difference: −2.0%; 95% CI: −5.9% to +1.8%). In Study 1216, 630 patients were enrolled (RPV/FTC/TAF 316 vs. RPV/FTC/TDF 314). At W48, switching to RPV/FTC/TAF was non-inferior to RPV/FTC/TDF (94% vs 94%; difference: −0.3%; 95% CI: −4.2% to +3.7%). In both studies, safety was similar between the arms with low rates of adverse events leading to discontinuations.
In both studies, improvement in bone mineral density was observed in the RPV/FTC/TAF group compared to the baseline regimen group with higher mean percent changes from baseline: hip +1.28% RPV/FTC/TAF vs. −0.13% EFV/FTC/TDF (P<0.001) and spine +1.65% RPV/FTC/TAF vs. −0.05% EFV/FTC/TDF (P<0.001); hip +1.04% RPV/FTC/TAF vs −0.25% RPV/FTC/TDF (P<0.001) and spine +1.61% RPV/FTC/TAF vs +0.08% RPV/FTC/TDF (P<0.001).
In Study 1160, median eGFR decreased −4.1 mL/min for RPV/FTC/TAF and −0.6 mL/min for EFV/FTC/TDF (P<0.001); the decrease on RPV/FTC/TAF is consistent with known inhibition of creatinine secretion by RPV. In Study 1216, median eGFR increased +4.5 mL/min for RPV/FTC/TAF and +0.7 mL/min for RPV/FTC/TDF (P=0.002). Improvements in quantitative proteinuria, including tubular proteinuria, were seen in patients switching to RPV/FTC/TAF (P<0.001). No cases of Fanconi syndrome or proximal renal tubulopathy were reported in both studies.
Conclusion: Through 48 weeks, virologically suppressed patients switching to RPV/FTC/TAF maintained high rates of virologic suppression with improved markers of bone and renal safety compared to those remaining on EFV/FTC/TDF or RPV/FTC/TDF.

P21

Tenofovir alafenamide: real-life data from a large teaching hospital

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Background: Tenofovir alafenamide (TAF) is a novel tenofovir prodrug with 90% reduction in plasma tenofovir concentration. To date, several large Phase 3 studies have been conducted looking at TAF efficacy, tolerability and long-term effects on renal & bone parameters. We present data based on early experience of this drug in our HIV cohort.
Methods: All patients prescribed TAF containing regime were identified from pharmacy records. Data collected included demographics, reason for TAF, virological response, renal markers and patient reported side effects.
Results: 119 patients were prescribed TAF (91.6% TAF/FTC/ELV/c, 8.4% TAF/FTC + alternative 3rd agent). Of those 119, 103(86%) were male and 16(14%) female. Mean age was 43.2 years (21–73 years). 111(93.3%) patients were White British/European and 8(6.7%) Black African. 82(68.9%) were MSM. The mean time from diagnosis was 81.8 months. 105(88.2%) were treatment experienced and 14(11.8%) naive. Of the treatment experienced group (n = 105): Pre-switch backbone was TDF/FTC in 89(85%), ABC/3TC in 11(10%) and 5(5%) other. 56(53.3%) patients were switched from TDF/FTC/ELV/c due to procurement reasons, 16(15.2%) for renal issues, 13(12.4%) for treatment simplification, 11(10.5%) due to side effects, 5(4.8%) for bone health and 4 (3.8%) for other reasons. In terms of viral load, 101(96.2%) had VL BLQ at switch, with 103(98.1%) and 105(100%) being virologically suppressed at week 4 and week 12 reviews respectively. Of the treatment naïve group (n = 14): 14(100%) were commenced on TAF/FTV/ELV/c due to desire for single tablet regimen. The median VL in this group was 147775 copies/mL at week 0 and 219 copies/mL (BLQ_{q25}-340_{q75}) at week 4. All patients were fully suppressed by week 12. With regard to renal parameters: median creatinine at week 0 was 87 mmol/L (77_{q25}-102_{q75}) and 91 mmol/L (80_{q25}-99_{q75}) at week 24. uPCR at week 0 was 12 mg/mmol (9_{q25}–17_{q75}) and 13 mg/mmol (9_{q25}-18_{q75}) at week 24. 10/119(8.4%) patients reported side effects. These included 3 patients who reported GI symptoms, 2 rash, 1 sleep disturbance, 1 anxiety, 1 palpitations, 1 dizziness and 1 with eye irritation. Side effects led to discontinuation in 1 patient with rash which was directly attributed to TAF.
Conclusion: Results indicate that tenofovir alafenamide is well tolerated in our cohort with only 1 discontinuation reported. Virological control is satisfactory in both treatment naive and experienced patients and is comparable to that reported in Phase 3 studies.

P22

The ongoing problem of Cushing's syndrome as a result of drug–drug interactions between steroids and protease inhibitors: a retrospective case series and strategies for avoidance

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Background: Cushing's syndrome and secondary adrenal suppression has been widely reported in HIV positive patients due to the drug-drug interaction between ritonavir boosted protease inhibitors and corticosteroids, however such incidents and resulting harm to patients continues to occur.
Method: A retrospective case series was conducted in the HIV cohort of a London teaching hospital and strategies for future avoidance of such incidents considered and put into practice.
Results: We report on 10 cases (see table 1).
Discussion: A co-ordinated, multi-disciplinary approach involving HIV specialist pharmacists is required with collaboration across specialties to avoid these incidents and the resulting harm to patients.
Strategies we have implemented include:

1. Presentation at specialty departmental meetings and national conferences
2. Publication of trust guidelines available on intranet
3. Disseminating information via electronic safety bulletins
4. Patient safety cards given to all patients on ritonavir/cobicistat
5. Collaboration with specialties to include a question on antiretroviral therapy on the WHO surgical checklist prior to steroid injection

We also aim to include this is in trust induction for all new staff.

Table 1

Age Gender/ Ethnicity	Steroid/ Dose/ duration	Route	Indication	Clinical features	Cortisol (nmol/l)
52 F, White British	Triamcinolone x3 doses (40mg)	Intra-articular	Spinal stenosis	Moon face	40

Continued.

Age Gender/ Ethnicity	Steroid/ Dose/ duration	Route	Indication	Clinical features	Cortisol (nmol/l)
27F, Black African	Triamcinolone x5 doses (40mg)	Soft tissue	Bursitis	Moon face Insomnia, high glucose	14
59F, Black African	Triamcinolone x2 doses	Epidural	Back pain	Weight gain, hirsutism AVN femoral head	22
57M, White British	Triamcinolone x1 dose (80mg)	Epidural	Radiculo-pathy	Weight gain, proximal myopathy	31
44F, White other	Triamcinolone x2 doses	Intra-vitreal	Uveitis	Moon face, weight gain	6
47M, White other	Budesonide Years	Inh	Asthma	Central adiposity, striae	222
69M, White British	Fluticasone Years	Inh	Bronchi-ectasis/ COPD	Moon face, bruising crush fractures	4
43M, White other	Fluticasone 2 years	Inh	Asthma	Moon face, central adiposity, dorsal fat pad	<9
51M, White British	Fluticasone Years	Inh	Asthma	Central adiposity, Striae,	<9
51F, Black African	Fluticasone Years	Inh	Asthma	Moon face, weight gain Hypertension High lipids and glucose	651

P23

Who is not on ART?!

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Background: 2015 BHIVA guidelines recommend that people with HIV start ART regardless of CD4 count, if they can commit to taking it. Early initiation acts as "treatment as prevention", and reduces the relative risk of disease progression, as shown in HPTN-052 and START trials. NHSE only commission ART near CD4 of 350 and TasP at any CD4. In 2015, 96% of UK people diagnosed with HIV were receiving treatment, indicating widespread adoption of recommendations. We sought to understand which of our patients were not receiving treatment, and why.
Methods: We searched our local HIV and AIDS Reporting System for patients who seen within our service from January to December 2016 who did not have recorded ART. We then performed a retrospective case note review of these patients to understand the reasons they were not receiving treatment.
Results: We identified 41 patients (3% of cohort) who were reviewed in 2016, but not prescribed ART. Of these median age was 37, and 27 were male. Median time since diagnosis was 6 years, with a range of 0–21 years. Likely exposure was MSM in 21 cases, heterosexual in 18 cases, and unknown in 1 case. 12 patients had a CD4 count <350, 6 patients had a CD4 count from 350–500, and 23 had a CD4 count >500.
Clinician-defined slow progression of HIV was a contributing factor to not being on therapy in 15 cases. The median time since HIV diagnosis was 7 years (range 3–13). The CD4 count in these non-progressors was 457 to 1204, and 4 of the 15 had an undetectable viral load. In 5 of these cases, the reasons for not initiating therapy were not clearly documented on HARS. In the remainder, the main reason for not being on therapy was patient preference.
Severe psychological or social problems were a factor in 11 cases, including a comorbid mental health diagnosis (5) and substance misuse (5).
Intolerable side effects were a factor in 8 cases.
Recent interruptions to care, including transfers of care, were a factor in 10 cases. In 2 cases clinicians deferred ART to allow treatment of opportunistic infections, and in 1 case a patient chose to defer ART due to a recent myocardial infarction.
Conclusion: This single-centre study gives insight on why patients may not initiate ART which is generalizable to other UK centres. The limitations of this study are that it necessarily focuses on patients retained in care, and is limited to note review rather than interviewing patients directly.
Slow-progression of HIV is a key factor influencing a decision not to initiate ART within our cohort. Clinicians should ensure they inform patients of benefits and risks of commencing treatment, and document such discussions clearly.
When patients transfer care, clinicians should endeavour to provide continuity of care by detailed handover, including the details of such discussions and decisions regarding treatment.
Severe psychological or social problems remain an important factor, however the numbers remain small.

Basic Science: Immunology, Virology and Pathogenesis

P24

Disruption of HUSH is not sufficient to reactivate latent HIV

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The recently described Human Silencing Hub (HUSH) is a complex of three proteins, TASOR, MPP8 and Periphilin. It has been shown to supress transgene expression by recruiting the histone lysine methyltransferase SETDB1 leading to the deposition of repressive chromatin marks. The role of HUSH in HIV latency has not been defined. We have studied whether knock down of HUSH proteins causes reactivation from latency in a model system and whether this potentiates the action of anti-latency agents. We have also studied how HUSH protein levels respond to incoming virus
We utilised 6 clones of an established model of HIV latency (J-Lat) which express green fluorescent protein (GFP) on activation of the HIV LTR. Using shRNA expressing vectors we knocked down the components of HUSH and evaluated for an increase in GFP expression by flow cytometry. To explore whether disruption of the HUSH complex would synergise with known activators of HIV latency shRNA transduced J-Lat cells were treated with either the histone deacetylase inhibitor panobinostat or the bromodomain inhibitor JQ1. To examine whether the levels of HUSH components change in response to HIV infection Jurkat cells were transduced with a pseudotyped near full length HIV. Protein was harvested 72 hours after infection and expression levels assessed by Western blot.
No consistent pattern of activation was seen in any of the J-Lat clones evaluated. Some of the levels of activation reached statistical significance ($p<0.05$) when compared to a control shRNA however the size of the effect compared to maximal activation was very small (e.g. 0.2% vs 30%). No evidence of synergy with the latency activating agents panobinostat and JQ1 was observed. Western blot analysis demonstrated a 70% reduction in the level of TASOR ($p<0.001$) and a 52% reduction in the level of MPP8 ($p=0.018$). Our results demonstrate that disruption of the HUSH complex by is insufficient to cause a biologically significant activation of latent HIV and that HUSH knock down does not potentiate the actions of other latency reversing agents. Therefore HUSH is not likely to be a useful target for future therapies aimed at flushing out the latent reservoir. The fall in the level of MPP8 and TASOR upon HIV infection raises the possibility the HIV has evolved a mechanism to oppose silencing by HUSH. We are currently investigating whether this effect is specific to HIV.

P26

Parallel NextGen full length HIV proviral DNA sequence and integration site analysis

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Background: A small population of cells harbouring an integrated copy of HIV ('the latent reservoir') persist despite effective antiretroviral therapy (ART), and is the barrier to HIV cure. The rarity of these cells and absence of a unique cell-surface marker makes study of this population difficult. Additionally, proviral sequence analysis is complicated by the excess of human genomic material in the reaction. We present a novel HIV DNA capture assay which combined with Next Gen sequencing technology retrieves near full-length HIV sequences as well as integration sites from patient samples.
Method: The Agilent SureSelect XT protocol was modified to enrich for HIV proviral DNA. 44,000 unique biotinylated RNA baits homologous to HIV were hybridised to 3 μg CD4 T-cell DNA for 20 hours. Enrichment was achieved by positive selection using streptavidin-coated beads. To improve capture specificity, wash steps were performed at 71°C. Captured DNA was sequenced using the Illumina MiSeq platform and the reads mapped *de novo* to reconstruct the HIV genome. Integration site analysis was performed in two steps. First, reads were mapped to a HIV reference to profile the LTR. Any reads containing an LTR end motif then had the LTR sequence removed, the remaining human sequence was mapped to the hg19 genome using Novoalign to determine the integration locus.
Results: Near full-length sequence was obtained from mixes of uninfected and infected cell lines and then from 6 HIV infected patients with a range of total HIV DNA as measured by qPCR (1669–13186 copies per million CD4 Tcells). The depth of sequencing coverage achieved for each sample was positively correlated with HIV-DNA (p=0.013). The mean sequencing coverage for patient samples was 6×. Consistent with current literature, all primary cell integration sites mapped to intronic regions of the human genome.
Conclusions: We present the first Next Gen-based enrichment protocol which allows near full-length proviral HIV DNA sequence analysis from a broad range of HIV total DNA with integration site identification. The preliminary study of six patients supports the current understanding that a high frequency of deletions are present in the reservoir and that HIV preferentially integrates within intronic regions of highly expressed genes. The combination of a qualitative sequence-based correction of qPCR ("q²PCR") is likely to provide a more accurate reflection of the true reservoir size. Additionally, a comprehensive map of annotated integration sites could also help identify cells most likely to constitute the reservoir.
This worked was supported through a BHIVA Research Award to J. Frater

P27

The majority of re-activatable latent HIV proviruses are genetically distinct with no evidence of ongoing evolution

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Background: Two mechanisms have been proposed to contribute to the maintenance of the HIV latent reservoir: homeostatic proliferation of latently infected cells and low level viral replication in the lymphoid tissue. Here we studied the sequences of reactivatable latent viruses obtained from a stably treated patient to assess the importance of these mechanisms.
Methods: Resting CD4+ T cells were isolated at regular intervals from the patient, underwent limiting dilution, were activated and then co-cultured with SupT1-CCR5 cells for 21 days. The supernatant was harvested for viral RNA. Regions in gag and env were analysed by Sanger sequencing. To control for artefacts from culture and sequencing, SupT1-CCR5 cells were infected with NL4-3 and underwent the same limiting dilution, culture, and sequencing processes. Pairwise comparisons were performed to obtain p-distances. Each pair of patient derived viral sequences was considered distinct if the p-distance was higher than that of the corresponding region of the sequences from NL4-3 infected SupT1-CCR5 cells. To seek evidence of viral evolution, a consensus was created from the viral sequences obtained from the first sample and sequences from samples obtained subsequently were compared against this baseline consensus.
Results: We obtained 32 sequences of reactivated latent viruses from a single patient. 18 distinct sequences could be distinguished from the gag region. The remaining 14 sequences segregated into five groups. However, when the env regions of these 14 sequences were analysed, only one 'clonal' group of two sequences remained. 30/32 reactivated latent viruses were distinct. If the threshold p-distance for two sequences to be considered distinct was set at the maximal (rather than average) p-distance observed in the reference set, 26/32 of reactivated latent viruses would still be considered distinct. We have not observed any increase in p-distances over 28 weeks of sampling compared to the baseline samples to suggest of accumulation of mutations.
Conclusion: Our results show that the majority of reactivatable latent viruses are genetically distinct. Persistent viral evolution was not observed in the latent reservoir harboured in peripheral blood resting CD4+ T cells in this stably treated patient.
BHIVA Research Awards winner 2017: Hoi Ping Mok

Behaviour, Transmission and Prevention

P28

A systematic review of interventions to decrease the prevalence of 'chemsex' among HIV negative and HIV positive men who have sex with men (MSM)

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Background: 'Chemsex', the use of methamphetamine, mephadrone or GHB/GBL before or during sex to facilitate or enhance sex, has been associated with higher risk sexual behaviour and has been recognised as a UK public health priority, particularly in men who have sex with men. However there is no consensus on optimal interventions to decrease chemsex prevalence or the risks associated with chemsex in HIV positive and HIV negative men who have sex with men.
Method: We conducted a systematic review of biomedical and behavioural interventions for chemsex. Bibliographic databases and trial registers were searched for randomised, non-randomised and observational English language studies published between July 2006–2016. Outcomes included prevalence of chemsex, unprotected anal intercourse during chemsex and incidences of HIV, Hepatitis C and bacterial sexually transmitted infections
Results: Of 6967 papers identified, five met the inclusion criteria, including two randomised control trials. Four studies demonstrated a reduction in chemsex prevalence; the remaining study did not have any episodes of chemsex reported at baseline or follow up. Only one study described small reductions in risky insertive and receptive anal sex while using chemsex drugs. No studies investigated biological outcomes.
Conclusion: This review was unable to establish an optimal biomedical intervention for chemsex, due to the limited number of studies, their heterogeneity and reduced internal and external validity. Further work is needed to develop and assess biomedical interventions that may result in decreased prevalence and/or risks associated with chemsex.

P29

Diagnosis of primary HIV infection with rapid ART in the HEATHER cohort: towards zero infections

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Background: Amongst certain key populations onward HIV transmission continues. Individuals with primary HIV infection (PHI), often with high viral load and unaware of their changed HIV status contribute to onward viral transmission. Missed PHI diagnosis and consequent delays in antiretroviral initiation, will impede reaching zero new transmissions, whilst offer of rapid ART at PHI diagnosis could significantly further limit transmission. We present

data on factors associated with VL suppression and CD4 recovery in a cohort of treated seroconverters.
Methods: Using data from HEATHER, a cohort of treated seroconverters enrolled 2013–2016, we examined factors associated with time to VL<50 & time to CD4 > 900 using time-to-event methods and Cox models. Factors examined were age, risk group, ART regimen, baseline CD4, VL, and CD4/CD8 ratio. PHI was defined by one of the following: (i) HIV+ Ab test within 6 months of HIV-Ab (ii) HIV-Ab with p24 Ag+ or (iii) Incident recent infection test algorithm (RITA). All individuals commenced ART within 3 months from confirmed PHI. VL and CD4 sampling was performed as per routine clinical care.
Results: For 241 individuals treated in PHI, median (IQR) time from HIV diagnosis to ART start was 25 (16, 41) days; 98% were male, 95% were MSM, and median age was 33 (27, 42) years. 12.9% had ART exposure before testing HIV positive (PEP). Initial ART regimens included tenofovir (90%), with an NNRTI (25%), boosted PI (50.5%) or integrase inhibitor (20%). Median baseline VL was 5.3 Log cpm. Median baseline CD4 and CD4:8 were 514 (387, 660) and 0.52 (0.33, 0.86) respectively.
Median time to VL suppression was 133 (91,209) days. Higher baseline VL was associated with a longer time to viral suppression (β=0.72, p=0.02); initial ART regimen was not. 33% (48/146) achieved a CD4 > 900 at median time of 195 (92,355) days. Longer time from HIV diagnosis to ART initiation was associated with a lower likelihood of achieving a CD4 > 900 (β=0.98, p=0.03).
Conclusion: These data support the acceptability, feasibility and sustainability of routine use of rapid ART initiation amongst individuals presenting with PHI. Exploring same day ART start could further enhance viral control and limit onward transmission.

P30

Highly invisible, highly infectious and high risk: the hidden problem of trans* people living with HIV

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Background: The number of trans* people living with HIV (tplwHIV) in the UK is unknown; as is the overall number of trans* identified people. In 2013, a meta-analysis reported that the estimated HIV prevalence among transgender women was 19.1% worldwide although the UK was not included, likely due to paucity of information in the UK.
Studies in the USA and Canada indicate that trans* people experience multiple barriers to healthcare resulting in late diagnosis of HIV and lower rates of virological suppression than cisgender people. We are seeing increasing numbers of trans* people living with HIV presenting to our service and believe they are affected by the same issues.
Method: Trans* individuals attending for care were identified by their treatment team at 3 central London GUM clinics up to January 2017 and added to a database. A retrospective case note review was undertaken in order to collate demographic information, clinical data and additional risk behaviours.
Results: 32 trans* people were identified as HIV positive, all trans* female. 70% came from BAME backgrounds, 50% were actively or had previously engaged in sex work, 41% reported using recreational drugs and 16% disclosed a history of sexual assault.
A large number of patients transferred their care from other services, likely due to our specialist trans*-clinic, meaning they have access to specialist services, trans*-competent care and peer/community support.
19% had been diagnosed with an AIDS defining illness and 22% had a CD4 count of less than 200 at diagnosis (where known). 91% had been prescribed ART and 78% currently have an undetectable viral load. Worryingly 28% have had at least one interruption in therapy.
Conclusion: Data on trans* identities is often not recorded, Additionally trans* people face significant barriers to all aspects of healthcare including access to HIV testing, treatment and care. Trans* women specifically are a high risk group for HIV acquisition. Poor rates of viral suppression and poor adherence to treatment in addition to high risk behaviours pose a risk for onward transmission of HIV between trans* people and their partners. Awareness of PEP and PrEP is generally poor. With outreach programmes incorporating HIV testing and education we are addressing this issue. To improve outcomes for trans* PLWHIV, health services must take an intersectional, trans*-competent approach to the care continuum and be able to manage multiple risk factors.

P31

Insights into the dynamics of HIV-1 transmission using whole genome deep sequencing

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Background: Phylogenetic studies are more informative if the direction of transmission is known, but this is not always possible to determine from clinical data. We investigated whether HIV whole genome deep sequencing (WGS) could reveal transmission direction.
Methods: WGS data were generated from 4 "positive control pairs" who had each self-declared as a transmission pair and in whom the direction was known from clinical data, e.g. concurrent positive/negative HIV tests, and 170 men who have sex with men, part of a UK cohort analysed by a previous phylogenetic study. Maximum likelihood phylogenetic reconstruction was used to identify possible transmission pairs (pol genetic distance □1.5%; bootstrap support >99%). Genetic diversity within each pair of sequences, A and B, was used to infer transmission direction. The number of homogeneous nucleotide positions in sequence B that were present in nucleotide mixtures at the corresponding positions in sequence A, was divided by the number of homogeneous positions in A present in mixtures in B. This ratio was log transformed so a positive value was considered consistent with direct transmission from A to B, a negative value B to A, and values close to 0 were not suggestive of recent direct transmission.
Results: In 3 of the positive control pairs the direction inferred by WGS was consistent with the known direction. The direction could not be ascertained in pair 4 due to a weak molecular signal, which may have decayed over time. Five possible transmission pairs were identified from the 170 cohort individuals. The WGS-inferred direction was consistent with the clinical data soon after transmission (pairs 5 and 6). The lack of signal in pairs 7 and 8 did not support direct transmission and suggests missing links, which may be revealed by increasing the sampling density. In pair 9, A was sampled during acute infection, several years before possible transmission to B, which may confound this method.
Conclusion: WGS may improve our understanding of the factors associated with transmission by indicating the direction of recent transmissions, which could inform public health strategies. Such methods require cautious interpretation in conjunction with clinical data.

Pairs	Direction (clinical)	Time[i] (years)	$\log_2$(B in A/A in B)	Direction (WGS)
Positive controls pairs				
1	A→B	1.25	3.5	A→B
2	A→B	1.5–2	1	A→B
3	A→B	4.5–9	1.2	A→B
4	A→B	5.25	−0.2	?
Cohort pairs				
5	A→B	0–1	1.5	A→B
6	A→B	0–1.5	1.5	A→B
7	A→B	1	0.1	?
8	?	>1	0.1	?
9	A→B	3.75	−2	B→A

[i]Time from transmission to sampling

BHIVA Research Awards winner 2017: Kate El Bouzidi

P32

InterPrEP (II): internet-based pre-exposure prophylaxis (PrEP) with generic tenofovir DF/emtricitabine (TDF/FTC) in London: analysis of safety and outcomes

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Background: PrEP is unavailable on the National Health Service (NHS) in England, forcing people to purchase generic TDF/FTC online [1], which is legal under UK import laws. TDF/FTC as PrEP reduced HIV incidence by 86% in the PROUD and IPERGAY trials. HIV diagnoses have fallen by 40% at this London GUM clinic from 2015 to 2016, in parallel with generic PrEP becoming available. However, concerns remain about the quality of generic PrEP and the risk of sexually transmitted infections (STI). In February 2016, we established a monitoring service for people buying generic PrEP online to test regularly for HIV, hepatitis B/C and STIs and to monitor renal function and antiretroviral drug concentrations.

Methods: HIV-negative individuals attending from February-November 2016 who reported purchasing generic PrEP online were given risk reduction advice and evaluated for HIV, hepatitis B and C, renal function and STIs (gonorrhoea, chlamydia and syphilis) at first visit and offered 3-monthly follow-up. Plasma Therapeutic Drug Monitoring for TFV and FTC was also offered. Drug concentrations were measured by ultra-performance liquid chromatography coupled with UV detection, with a linear range of 25–10,000 ng/mL.

Results: Median time on PrEP in 398 individuals was 8 months (total 243 patient-years of follow up): >99% were Male, 88% were White, 87.5% took PrEP daily and 12.5% event-driven; 97% (253/261) were on generic TDF/FTC from Cipla Ltd.

Adequate drug levels were seen in 94% of patients; drug concentrations were adequate in all repeat samples. Baseline eGFR (>60 ml/min) and/or urinalysis was normal in 99% (318/320) of individuals. Renal function deteriorated in 2% (3/150) individuals seen at follow-up; 42% of patients (112/265) reported using "chems" in the 12 months before starting PrEP, and 25% (67/268) reported this whilst taking PrEP. During follow-up on PrEP, 36% of patients were diagnosed with an STI. In 243 person-years of follow up, there were no cases of HIV infection (0%, 95% C.I.: 0 - 1.5%). There were no new cases of hepatitis B and one new case of hepatitis C.

Conclusion: Despite 36% being diagnosed with an STI, there were no new cases of HIV in 398 individuals on PrEP for median 8 months. Concentrations of TFV and FTC were similar to those in individuals on branded Truvada from Gilead.

Strategies to reduce STIs remain crucial.

Reference: 1. I Want PrEP Now [cited 2017 January 10] Available from: http://www.iwantprepnow.co.uk

P33

Patients treated for prevention of transmission (TasP) maintain high rates of virological suppression and engagement in care

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Background: There are two main concerns about the behaviour of patients who are treated to prevent transmission (TasP); that engagement in care and adherence may be poor due to the perceived absence of clinical need and a possible increase in high risk sexual behaviour. This study aims to examine these issues by comparing patients starting antiretroviral therapy (ART) for TasP to those starting for clinical need.

Methods: A retrospective cohort study of patients starting ART with a CD4 count >400 between 2007 and 2015. 400 was used as previous BHIVA guidelines recommended ART at CD4 counts of 350 or approaching 350 and so to exclude people starting for this reason. Data collected included: reason for starting ART, virological trends as a surrogate for adherence, whether patients disengaged and STI diagnoses.

Results: 103 patients were identified. 38 (37%) started for TasP and 65(63%) for clinical reasons; these included symptomatic HIV and hepatitis co-infection.

		All (n=103)	TasP (n=38)	Clinical (n=65)	P-value
Age years	Mean (SD)	36.9 (9.9)	35.7 (10.2)	39.9 (10.5)	0.05
Sex n (%)	Female	22 (21)	5 (13)	17 (26)	0.12
	Male	81 (679)	33 (87)	48 (74)	
Ethnicity n (%)	Black African/ Caribbean/ British	41 (40)	12 (32)	29 (45)	0.125
	White	549 (48)	18 (47)	31 (48)	
	Asian/other	10 (10)	7 (18)	3 (5)	
	Unknown	3 (3)	1 (3)	2 (3)	
Time on ART (years)	Median (IQR)	2.54 (1.25, 5.39)	2.1 (1.4, 5.5)	2.8 (1.4, 5.5)	0.09
CD4 at ART	Median (IQR)	542 (472, 708)	560 (492,715)	540 (457, 662)	0.24

Ever achieving an undetectable viral load was high in both TasP and clinical need groups (100% vs 93% p=0.11). There was a trend towards higher rates of virological failure, as defined by BHIVA, in the clinical group (23% vs 11%) p=0.24. Those starting ART for clinical need were more likely to disengage from care (defined as not attending clinic for 12 months) compared to those starting for TASP (14% vs 0% p=0.05). The number of STIs in the TasP group was higher compared to the clinical group in the 12 months before and 12 months after ART (39% vs 23% p=0.08 and 16% vs 6% p=0.09 respectively). However, there was a fall in the number of STIs in the TasP group in the year following ART compared to the year prior (8% vs 25% p=0.012).

Conclusion: In this cohort patients who started ART for TasP maintained high levels of virological suppression and were less likely to disengage than those starting for clinical need. There was a fall in the incidence of STIs after ART in this group. These findings suggest that concerns about TasP are unfounded.

P34

Real-time partner notification feedback

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Background: At least a fifth of partners of newly diagnosed HIV positive patients will be infected and for other sexually transmitted infections (STIs) up to two thirds will have an STI. Partner notification (PN) has been shown to be an effective public health strategy and when it is done effectively reduces the cost to diagnose infections. A new tool was developed to support PN delivery and capture patient reported outcomes for STI clinics; however, it had not been tested in an HIV clinic. We therefore introduced the service into an HIV clinic to test its utility to deliver PN and report outcomes.

Methods: Analysis was performed following 25 weeks of usage of the PN tool with a focus on the number of index patients, total partners, contactable contacts, the number of partners told and tested either reported by the patient or captured via healthcare worker (HCW) verification using the PN tool. The key performance indicator (KPI) target for STIs has been set as 60 partners seen and tested within four weeks for every 100 index patients (i.e. 0.60), and this was used as a benchmark.

Results: PN data was captured for 100 index patients [19 Female all heterosexual (10 Black, 9 White or mixed ethnicity), 58 MSM (49 White or mixed, 5 Asian, 4 Black ethnicity), 16 Heterosexual males (10 Black, 5 White, 1 Asian ethnicity) and nine patients where no demographics were captured] for nine different infections (64 HIV, 21 Syphilis,14 Chlamydia, 11 Gonorrhoea, 5 Hepatitis C, 3 Trichomonas vaginalis, 3 Lymphogranuloma venereum, 1 Hepatitis B, 1 Shigella). Two or more infections were diagnosed in 21 (22%) index patients. There were a total number of 228 partners and 138 (60%) were contactable. Of the contactable contacts 111 (80%) were told and 57 (41%) were seen and tested [19 via PN tool (14 at clinic, 5 reported by the partner), 38 reported by patient]. The shortest time from a partner being told to HCW verification was

78 minutes and the largest distance between the index patient and partner testing clinics was 260 km. The KPI overall since the launch of the tool is 0.57 and at the time of writing it was 0.64 for the last four weeks.
Conclusion: The PN tool signed off one third of partners as seen and tested as well as supported the HIV clinic to report its outcomes and achieve the KPI for nine different infections. More work is required to roll out the PN tool, optimize the number of contacts told and support these high public health value partners to be seen and tested.

P35

The effect of binge drinking and recreational drug use on viral non-suppression among people with HIV on antiretroviral treatment in the UK

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Background: Viral suppression among people with HIV is vital for individual and public health. Despite excellent quality of care and high rates of viral suppression in the UK, there remains a fraction of people on antiretroviral therapy (ART) that are not virally suppressed. Heavy alcohol use and recreational drug use are known to influence ART adherence, but their downstream effect on viral non-suppression is unclear. We examine the effect of binge drinking and drug use on viral non-suppression in a nationally weighted sample of people accessing HIV care.
Methods: Cross-sectional survey data from the Positive Voices pilot (May-November 2014) were linked to clinical data from the 2014 national HIV cohort of persons accessing care. Odds ratios (ORs) for the associations of binge drinking (≥8 drinks for men or ≥6 for women on one occasion at least monthly) and drug use (use of recreational drugs in the past year) with viral non-suppression (≥1 HIV RNA test result ≥50 copies/ml in the past year) were calculated using logistic regression before and after adjusting for self-reported adherence. Analyses were restricted to persons on ART for ≥3 months.
Results: Of 611 survey respondents included; 424 (65.7%) were men who have sex with men (MSM), 75 (11.8%) heterosexual men and 112 (17.6%) women. Population-prevalence of binge drinking was 20.9% and drug use 27.8%; with highest prevalence in MSM (33.6% and 54%, respectively). Prevalence of viral non-suppression was 11.6%. Viral non-suppression was higher in binge drinkers compared to non-binge drinkers (15.8% vs 8.9%, p=0.03). After adjusting for drug use, age, HIV risk group and employment status, binge drinkers had double the odds of viral non-suppression compared to non-binge drinkers (aOR=2.22, 95% CI 1.16–4.27, p=0.02). Drug users also had a significantly higher prevalence of viral non-suppression than non-drug users (14.6% vs 8.5%, p=0.015). However after adjustment, no evidence of an association with viral non-suppression was found (aOR=1.17, 95% CI 0.60–2.28, p=0.64). Adjustment for ART adherence did not change the results.
Conclusion: Monthly or more frequent binge drinking is associated with viral non-suppression among those on ART, and this association was not fully explained by the postulated mechanism of ART adherence. Screening for lifestyle behaviours that may impact health including alcohol consumption forms an important part of HIV care. Further research is needed to explore the causal mechanisms.

Children and Pregnancy

P36

4M 'my health, my choice, my child, my life': developing a national network of 'Mentor Mothers' to support women living with HIV through pregnancy

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Background: Approximately 1200 pregnancies are reported annually in the United Kingdom (UK) in women diagnosed with HIV. Women living with HIV (WLHIV) may encounter significant psychosocial challenges in their journey to motherhood, even though the UK rate of vertical transmission is currently <0.5%. Peer-support has been shown to have a beneficial impact on the wellbeing of pregnant WLHIV. Building on a London-based 'Mentor Mother' programme, we describe its expansion across the UK and present our preliminary evaluation.
Methods: In collaboration with HIV-specific third-sector organisations, we aimed to train 40 WLHIV across the UK as Mentor Mothers (MMs). Our innovative 2-day training package was facilitated by two experienced trainers, one a MM herself. It comprised coaching on clinical and psychosocial aspects of pregnancy and HIV in combination with creative writing workshops to encourage trainees to reflect upon their own pregnancy journeys.
Results: Between April and October 2016, the 4M project trained 46 women living with HIV to be MMs, in eight UK regions. The median age of women completing training was 40.5 years (range 22–67); 40% were of Black African ethnicity. Overall feedback from MMs who participated in the project was very positive, with all rating the different components of the training as either good or excellent. Nearly 90% of 'Mentor Mothers' reported that both their knowledge about HIV and pregnancy and confidence in action planning had improved.
A key challenge was achieving the planned number of participants for each workshop; reasons for non-attendance include childcare commitments, and concerns about confidentiality. We reviewed our approach throughout the project in an attempt to mitigate these issues for subsequent sessions.
Conclusion: By the end of 2016, we had trained 46 peer Mentor Mothers who were each ready to provide support to at least five other WLHIV. Longer term evaluation is ongoing. This network of Mentor Mothers are an invaluable resource, complementing the clinical care of the management of HIV and pregnancy across the UK.

P37

Adherence and cost saving with the use of Pill Glide in antiretroviral therapy

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Background: Transition from liquid to tablet preparations can be difficult for young children and liquid formulations are expensive and bulky. Additionally, adolescents often struggle with pill swallowing impacting on adherence. Pill Glide® is a lubricating fruit flavoured spray that facilitates tablet swallowing. We audited the pilot use of Pill Glide® in a cohort of perinatally infected children (PaHIV) on antiretroviral therapy (ART).
Methods: Retrospective case note and pharmacy dispensing review of PaHIV children under 18 years on ART prescribed Pill Glide® from June-Dec 2016. Data collected included; demographics, ART, adherence, reason for Pill Glide® use and outcomes. Cost saving analysis was performed; Pill Glide® costed at £5.90 per bottle for 200 doses, recommended 2–4 sprays per pill.
Results: 7 children, 86% female, 57% black African, median age 10 (range 6–16) years received Pill Glide® all with successful transition to tablets/improved adherence/tolerability.

Age (yrs) Sex	CD4 count cells/uL	Viral load c/ml	Reason for Pill Glide®	Outcome formulation VL
7F	898	<20	Liquids to tablets	Tablets <20
6F	873	<20	Liquids to tablets	Tablets < 20
14F	799	<40	Liquids to tablets (previously failed)	Tablets <50
7F	1232	<20	Difficulty larger pills -nevirapine	<20
16M	148	56,118	Autism, adherence issues	<50
10F	1626	<20	Difficulty swallowing pills	<20
14F	1943	<20	Difficulty swallowing pills	<20

In patients switching from liquids to tablets, average annual cost saving was £182 per patient. Predicted to rise to £1003 with a switch from Kivexa® to generic abacavir/lamivudine in 2017.

Conclusion: Pill Glide® assisted in the transition from liquids to tablets in this small cohort, with cost saving. Further exploration in nonadherent adolescents reporting swallowing difficulties is warranted. Subsequently, Pill Glide® is being used in paediatric TB, rheumatology and bone marrow transplant services within the trust.

P38

Complexities of establishing antiretroviral therapy in a female of childbearing age with subsequent successful use of maraviroc in pregnancy

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Background: Significant advances in antiretroviral therapy (ART) such as new drug classes, greater choice of drugs in-class and new treatment combinations/single tablet regimes have meant that it is less common in clinical practice to experience difficulty constructing a suitable regime, particularly in the absence of drug resistance or complex comorbidities. We present a case outlining the complexity of treating a 30 year female with significant side effects/toxicities across a number of ARV classes who subsequently became pregnant.
Case Report: 30 year old Caucasian female diagnosed with HIV-1 infection following routine GUM screen in 2012. Nadir CD4 count 250 $\times$ 10^6/L (33%) and HIV-1 RNA viral load at diagnosis 28,586 copies/mL. Resistance profile showed wild type virus with no major mutations. HLA-B5701 was negative. Patient had history of depression and ongoing issues with bulimia. She struggled with diagnosis and significant input was required by psychology before she agreed in April 2014 to commence treatment with TDF/FTC/DRV/r. Within 7 days she developed widespread erythrodermic rash necessitating hospital admission. ARVs were stopped and she was treated with oral steroids and antihistamines. Reluctantly she agreed to re-commence ARV's with ABC/3TC/Dolutegravir in July 2014. Three months later she presented with generalised anxiety disorder and reported difficulty coping with everyday tasks and social withdrawal. These symptoms were attributed to dolutegravir and settled soon after switching to ABC/3TC/ATZ/r. At review 1 week later, she had widespread maculopapular rash and hyperbilirubinaemia (bilirubin 100 μmol/L). ATZ/r was switched to raltegravir alongside ABC/3TC backbone. Within 4 weeks she reported palpitations, panic attacks and anxiety. Alternative agents were excluded–rilpivirine was unsuitable due to food requirement in context of bulimia and etravirine associated with 10% risk rash. She was CCR5 tropic and was prescribed maraviroc 300 mg BD with ABC/3TC. This was well tolerated with no side effects. One year later she presented to clinic 11 weeks pregnant. She opted to stay on maraviroc despite limited safety data in pregnancy and went on to deliver healthy baby boy at full-term.
Conclusion: Even in the context of a wide choice of available ARV regimes, complexities can still arise constructing an effective, well-tolerated regime especially in context of pregnancy where limited safety data exists for newer drugs.

P39

Complicated triplet pregnancy in a poorly compliant HIV-positive woman: a case report

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Introduction: The rate of HIV mother-to-child-transmission in the UK has improved dramatically from 25.6% in 2003 to 0.57% in 2011, due to a combination of successful maternal antiretroviral (ARV) therapy, planned delivery and formula-feeding. Unfortunately, chaotic lifestyles may prevent women from adhering to therapy, increasing risk of vertical transmission. To date, there are few documented cases of successful seronegative multiple pregnancies in poorly compliant HIV-positive women. We present a case of trizygotic triplet pregnancy in a poorly-compliant HIV-positive patient.
Case report: X, a 32-year old HIV positive woman with known poor ARV adherence, variable engagement with services and recent admission with pneumocystis jiroveci pneumonia presented to clinic four weeks pregnant. At this point, she was a single mother with two children (including one child with special needs), a university student and a part-time employee. She had poorly controlled HIV (CD4 72 cells/μl, VL 272528 copies/ml) but was keen to re-engage with services. X resumed her once daily regime of Truvada and boosted Darunavir but had difficulty with treatment adherence and engagement, partly due to confidentiality concerns. With multi-disciplinary team support (including community volunteer input), treatment was intensified to twice daily boosted darunavir with addition of raltegravir, but her viral load remained detectable (above 200 copies/ml). Her pregnancy was complicated by loss of one triplet in the first trimester, one admission with possible spontaneous rupture of membranes (SROM) at 33 weeks, and breech presentation of both twins (although twin B performed spontaneous cephalic version). X improved adherence closer to delivery and viral load at 36 weeks gestation was 63 copies/ml. She delivered two healthy babies via elective caesarean section at 37 weeks gestation. Both twins had negative HIV DNA PCR levels at birth, 6 weeks and 12 weeks of age. The twins received zidovudine prophylaxis for four weeks and are currently developing well on formula feed.
Conclusion: This case highlights the importance of a multi-disciplinary team approach in managing adherence, contraception, confidentiality, psycho-social, obstetric and paediatric challenges in multiple pregnancies amongst poorly adherent HIV-positive women. HIV clinics should improve collaborations with the community voluntary sector to optimise patient care.

P40

Dolutegravir in pregnancy: a retrospective case review

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Background: Data on dolutegravir use in pregnancy are limited and the manufacturer advises avoiding exposure unless risks outweigh benefits. BHIVA guidelines suggest that more established options should ideally be used.
Methods: A retrospective case review of all HIV-1 positive pregnant women prescribed dolutegravir or Triumeq® (abacavir/lamivudine/dolutegravir) was conducted between April 2015 and January 2017 in a London teaching hospital. Demographics, data on efficacy, tolerability and maternal and infant outcomes were collected.
Results: 16 pregnant women were prescribed dolutegravir. (13 women have delivered to date; the 3 remaining pregnancies are in the third trimester). Outcomes for 7 of these women were presented at BHIVA 2016.
Median age was 29 (range 18–41). 88% (14/16) were of Black-African ethnicity. 15 women were prescribed Triumeq® and one dolutegravir in combination with Truvada, Darunavir and Ritonavir. 2 women conceived on dolutegravir, the remaining women were started or switched at a median gestational age of 16 weeks (range 8–32 weeks). Reasons for use included previous poor adherence, need for rapid virological suppression and gastrointestinal side effects with other regimens.
Median baseline HIV viral load was 3918 copies/ml (range 19–64364). All 16 (100%) women achieved full virological suppression. Median time to suppression was 28 days (range 13–62). All 13 women who have delivered to date had an HIV viral load <20 copies/ml at delivery and the remaining 3 women had a viral load <100 when last measured.
Dolutegravir was well tolerated with no discontinuations.
54% (7/13) had vaginal deliveries, 2 (15%) planned caesarean sections and the remaining 4 emergency caesarean sections for obstetric reasons. Median gestational age at delivery was 39 + 4 weeks (range 28 + 2–41 + 5). There was one pre-term delivery at 28 + 2 weeks; this patient had an emergency caesarean for foetal distress with uncontrolled maternal hypertension which pre-existed her pregnancy. Median birth-weight was 3300 g (range 810–4025 g). There were no foetal abnormalities noted. 100% (12/12) of babies born in the UK were HIV DNA PCR negative.
Conclusion: This small case series suggests that the use of dolutegravir in pregnancy is effective, well tolerated and appears safe. However additional data from cohort studies, clinical trials and the antiretroviral pregnancy registry are required.

P41

Four year follow-up of HIV infected children and adolescents requiring measles, rubella and chickenpox vaccination

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Background: HIV-infected children and adolescents are at increased risk of morbidity and mortality from infectious diseases including vaccine-preventable conditions. Recent measles outbreaks in the UK highlight the importance of vaccination in susceptible cohorts. We reviewed the requirement for vaccination against measles, rubella and chickenpox in HIV

positive children and adolescents, and assessed eligibility based on CD4 criteria and vaccine uptake after 4 years.
Methods: Patients attending the paediatric and adolescent transition HIV clinic were tested for measles, rubella and varicella zoster virus IgG in 2012 and advised to contact their GP if eligible for vaccination. A case note review was performed in December 2016 to evaluate uptake of vaccination in non-immune patients. Data collected included GP awareness of HIV status, uptake of vaccination, and reasons for not vaccinating, if applicable.
Results: Of 68 patients attending in 2012, 34 (50%) were male, median age was 15 years (range 4–21 years), 66 (97%) acquired through vertical transmission, 60 (88%) Black African, 40 (59%) born in the UK. Median CD4 count 559 cells/μL (IQR 414–874). Measles virus IgG was negative or indeterminate in 42 (62%), rubella virus IgG negative or indeterminate in 29 (43%); overall 48 (71%) required MMR vaccination. 24 patients (35%) were negative for VZV IgG requiring VZV vaccination. In total, 53 (78%) of patients required at least one vaccination and 19 (27%) required both vaccinations.
On review in 2016, only 7/48 patients were documented to have received MMR and 3/24 had received VZV vaccination. Clinical VZV had occurred in 2 susceptible patients, one requiring hospitalisation. Factors contributing to delayed or absent vaccination included: ineligibility based on CD4<200 cells/μl (7 patients in 2012, 5 patients in 2016); parent refused (1), recent hospitalisation (2), no consent to contact GP (10), transfer of care (5), other reported clinical and socioeconomic factors (3). Overall, 35 eligible patients continue to require one or more vaccinations, of whom 34/35 had a documented discussion in their notes and 19/35 had a letter sent to their GP regarding vaccination.
Conclusion: High levels of susceptibility to measles, rubella and VZV were seen in HIV positive children and adolescents, yet uptake of vaccination is low. Urgent measures are needed to develop clear and effective pathways to encourage vaccination of this complex cohort.

P42

HIV-1-positive pregnancies demonstrate altered IFNγ and IL-10 responses to flu and CMV and disrupted DC, NK and T-cell profiles

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Background: Pregnancy induces alterations in immune cell function and phenotype to support the developing fetus while protecting against pathogens. HIV-1 disrupts immune function, is associated with higher rates of viral co-infection, and increased incidence of pregnancy complications. This study aims to investigate the impact of HIV-1 on antiviral responses and peripheral blood mononuclear cell (PBMC) profiles during pregnancy.
Methods: HIV-1$^-$ non-pregnant (n=22), pregnant (n=21) and HIV-1$^+$ pregnant women on antiretroviral therapy (ART) (n=11) were recruited, their PBMC isolated, and IFNγ and IL-10 ELISpot assays performed. Gag and Nef responses were tested in HIV-1$^+$ individuals only. Flow cytometric analysis of PBMC was undertaken to determine the expression of activation, differentiation and exhaustion markers of dendritic cells (DC), natural killer cells (NK) and T cells. Statistical analysis was carried out using Prism version 7.0. Intergroup variation was assessed by Mann-Whitney tests and statistical significance defined as $p = <0.05$.
Results: There was an increase in HIV-1$^+$ pregnant IFNγ response compared to both HIV-1$^-$ non-pregnant and pregnant groups against Flu (p=0.0607 and p=0.0148 respectively), and CMV (p=0.0176, p=0.0219). IL-10 response was lower in the HIV-1$^-$ pregnant group than non-pregnant against Flu and CMV (p=0.0015, p=0.0440); the HIV-1$^+$ group showed reduced IL-10 responses compared to the pregnant group to both antigens (p=0.0704, p=0.0198). Eighty per cent (8/10) of HIV-1$^+$ women were IFNγ responders to Gag, and 70% (7/10) were Nef responders. Phenotypic comparison of pregnant groups showed increased frequency of exhausted (PD-1$^+$) CD4 and CD8 T cells in HIV-1$^+$ women (p=0.0048, p=0.0346), reduced anergic NK CD56$^-$CD16$^+$CD11b$^+$CD27$^-$ and CD56$^-$CD16$^+$NKp30$^+$NKG2A$^+$ populations (p=0.0247, p=0.0064), and raised plasmacytoid DC to myeloid DC 1 and 2 ratio (p=0.0159).
Conclusion: Despite ART HIV-1 persists, as shown by Gag and Nef responses. Group differences observed reflect prolonged immune activation and disrupted functional regulation. Furthermore, similar PBMC profiles have been previously associated with HIV-1$^-$ pregnancy complications. These findings demonstrate the impact of viral persistence on innate and acquired immunity, implicating HIV-1 as a confounding factor for complications in treated pregnancies, and warranting more in depth functional analysis in this cohort.

P43

Maternal carriage of Group B streptococcus in HIV-positive women, and subsequent neonatal infection

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Background: Group B streptococcus (GBS) is the leading cause of neonatal sepsis. Early onset GBS disease occurs within 7 days of age and is linked to intrapartum GBS exposure. Nationally, early onset GBS disease occurs in 2.3/1000 neonates, with GBS carriage rates in pregnancy of 21%. Infection after 7 days of age (late onset disease) is not thought to be related to intrapartum transmission. Unlike the USA and Canada, there is no UK GBS screening programme.
Studies suggest increased GBS carriage in HIV-infected women and increased GBS disease in HIV-exposed uninfected neonates. The audit assessed GBS carriage in HIV-infected women and GBS disease in HIV-exposed uninfected neonates to guide antenatal management.
Methods: Retrospective audit of 254 HIV-infected pregnant women delivering at St Mary's Hospital, Manchester (March 2008–November 2015). Maternal information was reviewed including GBS carriage on high vaginal swab or mid-stream urine samples, and intrapartum antibiotic prophylaxis. Neonatal records were reviewed for GBS status including CSF and blood cultures.
Results: 37 women (15%) had HIV diagnosed in pregnancy. 147 women (58%) were on treatment prior to conception. 100 women (39%) were tested for GBS in pregnancy with a carriage rate of 16% on high vaginal swab. Women diagnosed with HIV in pregnancy did not have higher GBS carriage. There was no difference in baseline viral load or CD4 count in pregnancy between the whole cohort and those carrying GBS. There was also no observed reduction in GBS carriage in those on anti-retrovirals prior to conception. Intrapartum antibiotic prophylaxis was used appropriately in all cases. No baby tested positive for GBS in either early or late onset disease investigations (40 blood cultures and 4 CSF cultures <7 days, and 9 blood cultures and 2 CSF cultures >7 days).
Conclusion: The cohort GBS carriage rate was 17% which is comparable to national figures. Viral load, CD4, and being on treatment prior to conception did not affect GBS carriage rates. There were no cases of early or late onset GBS disease. This supports the current UK practice of no routine screening for GBS carriage, and contradicts studies suggesting increased GBS carriage in HIV-infected women and increased GBS disease in HIV-exposed uninfected neonates.

P44

Predicting future cardiovascular risk in adolescents with perinatally acquired HIV

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Background: Early data suggests that perinatally HIV-infected (PaHIV) young people may have an increased risk of cardiovascular (CVS) disease in adulthood, attributed to both the prolonged exposure to HIV and antiretroviral therapy (ART). Whilst CVS risk algorithms are commonly used in adults, comparable tools for young people are less developed. The Pathobiological Determinants of Atherosclerosis in Youth (PDAY) coronary arteries (CA) and abdominal aorta (AA) risk scores are a weighted aggregate of modifiable risk factors: dyslipidaemia, cigarette smoking, hypertension, obesity, and hyperglycaemia, and have been validated in US adolescent populations but with minimal data in PaHIV cohorts.
Methods: PDAY scores were calculated for adolescents aged 15–19 years on ART using retrospective observational cohort data from electronic records between November 2015 and January 2017. PDAY score >1 is strongly associated with the presence and intensity of subclinical coronary and abdominal atherosclerosis at autopsy 25 years later. A baseline PDAY risk score of $\geq$2 in adolescence is associated with an increased risk of atherosclerosis in middle age.

Results: Of 42 PaHIV adolescents; median age 17 years (IQR 16–18), 60% were female, 66% black African, median CD4 count 716 cells/μl (IQR 528–954) and 86% had a viral load <50 c/ml. 7% had a BMI >30, 26% were hypertensive (>95th centile for age/height) and 14% were current smokers. 14% had a total cholesterol >5 mmols/L, median HDL was 1.3 mmol/l (IQR 1.1–1.6) with a median non HDL of 2.8 mmol/l (IQR 2.3–3.1).
81% and 45% had AA and CA PDAY scores ≥ 1, 48% and 43% had AA and CA PDAY scores ≥2 and 26% and 12% had AA and CA PDAY scores ≥5 with the highest CA score of 10. The mean AA score was 2.5 (95% CI 1.8–3.1) with a median of 1 and a mean CA score of 1.4 (95% CI 0.5–2.2) with median CA of 0.
Conclusion: PDAY scores in this cohort suggest a considerable increase in the burden of atherosclerotic cardiovascular risk factors in UK PaHIV adolescents and were twice that of US PaHIV populations. PDAY scores may be valuable in identifying individuals at highest risk of developing atherosclerotic lesions, for whom therapies may be targeted and management modified to reduce their risk factor burden and risk of cardiovascular disease in later adulthood.

P45

Referral to Community Adolescent Mental Health Services (CAMHS) in a perinatally infected adolescent cohort

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Background: Early data suggests an increase in mental health diagnoses in both perinatally infected adolescents and their uninfected siblings when compared to their peers. This study aims to characterise the different mental health (MH) presentations in the paediatric setting and elucidate the clinical and psychosocial features seen.
Methods: A retrospective case note audit of all referrals to mental health services of adolescents aged between 13 and 17 years between 2012 and 2016.
Results: 17 adolescents were referred to mental health services at a median age of 17 years (IQR 15–17) of whom 82% were female, 100% black African ethnicity, 35% with known learning disabilities (LD), 10 (59%) had experienced parental separation due to death (5), divorce (3) and migration (2). Ten (59%) were known to social services of whom 2 were looked after children (LAC). Annual incidence of new mental health referrals within the adolescents cohort (13–17 years); mean 4.8%, range 0–11.8%, highest in 2016.
Primary reason for CAMHS referral: psychosis (3), suicide (1), autism with conduct disorder (1), mood disorder (12) (76%) consisting: depression (7), anxiety (2), mixed (3) with five having a history of self-harm. At referral 14 (82%) had VL <20 copies/ml, with a median CD4 count 568 cells/μL (IQR 356–729).
5 required acute admission (table 1 Admissions); 4 under MHA section; 2 to psychiatric services and 3 to paediatric wards, the latter all with first psychotic episode requiring assessment for organic causes.

Age/ sex	MH Diagnosis	Drugs	CD4 VL	Risk factors/ comorbidities	Management
17M	HIV Psychosis	nil	16 17470	Family history, parental loss	ART
14F	Thyrotoxicosis with psychosis	Nevirapine Kivexa Thyroxine	1423<20	Pseudohy-poparathyroidism Severe LD	Stop thyroxine
17F	First psychotic episode	Atripla	826<20	HBV co-infection Family History (FH)	Respiridone Raltegravir + Truvada
17F	Suicide	Triumeq	356 1140	FH, LAC, orphaned	Declined antidepressants Stopped Triumeq
17M	Depression	Darunavir/r Kivexa	661<20	Epilepsy, FH	Escitalopram

Only three of 12 (25%) outpatients ever engaged with CAMHS, and the remainder received psychology support in the paediatric HIV service.

Conclusion: Despite good virological control, new mental health presentations peaked at 17 years with multiple known risk factors and poor subsequent engagement with CAMHS. Carefully planned transition to adult services is required for this highly vulnerable complex population.

P46

Testing children of HIV-positive parents: don't forget the fathers

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Background: 'Don't forget the children' (2009) stated ' 'The HIV status of all the children of known HIV-positive adults in the UK should be known as a matter of clinical urgency'
Methods: Analysis of all HIV positive mothers and fathers seen at an HIV outpatient clinic by their consultant was carried out during 2016. This HIV cohort is predominantly black-african and 51% are female. All existing case notes were reviewed and confirmation of children's details and HIV status verified from IT systems and other notes where possible.
Results: Mothers: 264 children were born to 107 HIV positive mothers.120 are adults (33 of whom were reported as being HIV negative) with 144 children still under the age of 18 years in 2016. 24 children did not need testing as their mother was verified HIV negative after their birthdate.
107 children were verified as HIV negative, 10 were verified as HIV positive. 117/120(97%) verified as tested. 2 were still under active health advisor (HA) follow-up and 1 was reported as negative but living abroad.
Fathers: There were 187 children of 68 HIV positive fathers. 61 are adults.
72 children did not need testing as their mothers were verified HIV negative after their birthdate.
38 children were verified as HIV negative, 2 verified as HIV positive. 40/54 (74%) verified as tested. 1 child has been referred for testing by provider referral. 7 children were reported as negative but could not be confirmed as they are living abroad. 6 children were reported as not being in contact with their fathers.
Overall: There were 175 HIV positive parents with 270 children under the age of 18 years. 157/174(90%) children that required testing were verified as tested (12/174(7%) verified positive), 3 are under active follow-up of testing, 8 are reported as negative but living abroad and 6 children are reported as having no contact with their fathers.
Conclusion: The overall rate of verified testing of children was high (90%) but testing and tracing the children of HIV positive fathers was more challenging and the rate of verified testing was much lower (74%).

P47

The utility of antiretroviral drug levels and the effects on HIV viral load and clinical outcomes in pregnancy

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Background: BHIVA pregnancy guidelines consider, but do not recommend, therapeutic drug monitoring (TDM) for patients on protease inhibitors (PIs), particularly if combining tenofovir and atazanavir. Data on the pharmacokinetics of antiretrovirals (ARVs) in pregnancy is scanty and the evidence for TDM improving outcomes is conflicting. We therefore evaluated TDM results in pregnancy to assess their utility.
Aims: To identify the rate of sub-therapeutic drug levels and any associated factors.
To assess the effect on viral load (VL) and clinical outcomes.
Method: Retrospective case-note review of all TDM performed from 01/01/2012 to 31/12/2015 in pregnant women.
Results: TDM was performed in 47 out of 150 pregnancies over the 4 years. Median gestation of TDM was 28 weeks (range 23–34 weeks).
92% were diagnosed with HIV pre-pregnancy, 69% conceived on ART, 62% had baseline VL <20.
23% (11) had sub-therapeutic drug levels. All were diagnosed with HIV pre-pregnancy and 7/11 conceived on ART.

47% (22) on atazanavir, 37% (8/22) were sub-therapeutic
32% (15) on atazanavir and tenofovir, 40% (6/15) were sub-therapeutic
15% (7) on atazanavir but not tenofovir, 29% (2/7) were sub-therapeutic
28% (13) on darunavir; 15% (2/13) were sub-therapeutic
19% (9) on neviripine MR; 11% (1/11) was sub-therapeutic

Comparing sub-therapeutic drug levels on atazanavir versus other third agents p=0.08. No other factors were associated with sub-therapeutic drug levels. 8/11 had ART dose change made and 1 had a formulation change to aid compliance. 1 had TDM performed near the start of treatment so repeat was arranged. 1 was a poor attender so no adjustments were possible before delivery.
The effects of the TDM levels on VL and clinical outcomes are shown in table 1.

Table 1. Viral load result and pregnancy outcomes in relation to TDM levels

	VL <50 at time of TDM if on ARV ≥12/52	VL<50 at 36/40	Mode of delivery different from 36/40 plan	Live birth	Child HIV Ab negative at 18/12
Therapeutic TDM n=36	85% n=20	85% n=27	25% n=35	100%	100% n=26
Sub-therapeutic TDM n=11	100% n=7	80% n=10	27% n=11	100%	100% n=9

Conclusion: High rates of sub-therapeutic drug levels were identified with atazanavir particularly when combined with tenofovir. There was no association between sub-therapeutic levels and detectable VL at TDM, at 36/40 or with clinical outcomes. However ART adjustments had been made in most with sub-therapeutic levels. As alternatives are available we no longer initiate atazanvir/tenofovir containing regimens in pregnancy.

P48

Trends and practices in early infant diagnosis of HIV infection

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Background: Early Infant Diagnosis (EID) of HIV in exposed infants aims to provide the earliest opportunity for diagnosis, tracking elimination of mother to child transmission of HIV (eMTCT) and subsequent enrolment of infants found PCR-positive into available antiretroviral therapy (ART). The implementation of Ugandan National HIV Prevention Strategies includes EID. We assessed the trends in EID in Eastren Uganda before and after the NHPS.
Methods: This was a 6-year (2011–2016) study on EID incorporating both retrospective quantitative and prospective qualitative studies. Qualitative studies were done through focus group discussions (FGD) and Key informant interviews (KII) at inception (November 2011) and after the implementation (June 2016) of NHPS. Qualitative data were captured on source documents, written narratives and voice recorders. Retrospective data was abstracted from the EID registers for the year 2010 and 2015 corresponding to before and the end of NHPS respectively. Ethical permission to conduct this study was obtained.
Results: There was high level of knowledge and support from the policy makers and healthcare providers before and after the implementation of NHPS. Health workers supported modified breast-feeding, HAART for the mother and newborn. Knowledge on EID among pregnant and postnatal mothers was low in the beginning but markedly increased at the end of NHPS period. In 2010, there were 9/69(13.0%) and in 2015 14/336(4.2%) newborn HIV infections respectively.
Conclusion: The marked support for NHPS from policy makers and healthcare providers right from the beginning and through its implementation, together with increase in knowledge of EID among mothers attending antenatal care could have contributed to the marked fall in MTCT during the period.

Comorbidities, Co-infections and HIV/ART Complications

P49

A case of posterior reversible encephalopathy syndrome (PRES) in an HIV-positive male

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Background: Posterior reversible encephalopathy syndrome (PRES) presents acutely with features such as confusion, seizures, visual disturbance and encephalopathy. The pathology is poorly understood but is associated with malignant hypertension. Cerebral oedema is commonly seen on imaging.
Case: A 34 year old man with renal failure and HIV developed PRES**.** Diagnosed in 2007, nadir CD4 270 cells/mm^3 on antiretroviral therapy (ABC/3TC/DAR/RTV). Past medical history included focal segmental glomerulosclerosis (FSGS), which progressed to require haemodialysis in May 2016, non-epileptiform attack disorder, depression, asthma and recently treated syphilis. In September 2016 he was admitted from dialysis after becoming unresponsive and hypertensive (220/150 mmHg); he suffered a single self-terminating seizure. CT head showed deep white matter hypodensities but no haemorrhage or infarct. Blood pressure (BP) was extremely labile, GTN and labetalol infusions were commenced but on-going seizure activity warranted intubation. MRI brain showed extensive ischaemic changes within the cerebral and cerebellar hemispheres: consistent with PRES and watershed infarcts. Lumbar puncture: opening pressure 33 cm H_2O, protein 1162 mg/L, glucose 4.2 mmol/L, WBC and RBC <1, microscopy and culture, virology and syphilis serology negative. He had a prolonged period of ventilation; BP control remained difficult, he received methylprednisolone and IV immunoglobulin to cover vasculitis as a differential diagnosis; although imaging and serology did not suggest this. A hypertension screen was negative and syphilis serology confirmed response to recent treatment. Eventually his clinical condition improved and he returned to the ward. Despite 4 oral antihypertensive agents episodes of hypertension >200/120 mmHg resulted in sudden cortical blindness with increased T2 signal within the right medial, parietal and occipital lobes on MRI: again consistent with PRES. Up-titration of oral antihypertensives with regular ultrafiltration and fluid restriction facilitated BP control and, in correlation with the natural history of PRES, his vision completely returned. He was discharged after 69 days.
Conclusion: PRES is a rare condition of which the aetiology remains unclear and is infrequently reported in HIV, with fewer than 15 cases reported over the last 20 years. Hypertension is one of the most well documented causes for which treatment includes maintenance of normotension, as demonstrated in this case.

P50

A case of tuberculosis-associated immune reconstitution inflammatory syndrome (IRIS) managed with an interleukin-1 receptor antagonist

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Background: Treatment of co-infection with Mycobacterium tuberculosis (TB) and HIV is a relatively common phenomenon within an infectious diseases setting. Within this cohort of patients, there is an increased risk of IRIS upon initiation of highly active antiretroviral therapy (HAART). However in cases where steroids are either not effective or have to be used for long periods the treatment options are less clear but may include immune modulating therapies.
Case Study: A 33-year-old Ethiopian female patient, presented with fever, night sweats and weight loss with associated wide spread lymphadenopathy. At the time of presentation she had been living in the UK for a year with no reported medical problems. She was diagnosed with HIV and disseminated TB with baseline CD4 count of 60. During her initial presentation, her condition worsened and MRI brain imaging showed widespread lesions, with cerebral TB confirmed by cerebrospinal fluid examination. The patient was commenced on antiretrovirals and anti-tuberculosis treatment to which she initially responded well. She then developed IRIS with massive cervical and intra-abdominal lymphadenopathy. The IRIS was responsive to steroids, however due to ongoing inflammatory response she required a protracted course. The

patient subsequently developed secondary renal amyloidosis as a result of the underlying inflammatory process. The patient received 12 months of anti-TB therapy to good effect. After onset of IRIS, steroids were used to reduce inflammation and control renal amyloid to good effect. Unfortunately steroids were unable to be weaned due to recurrence of symptoms associated with IRIS and also due to steroid-associated side effects. Montelukast was used to try to attempt suppression of IRIS, but to very limited effect. The IRIS itself was an unusual manifestation due to the protracted length, lasting around 5 years. Anakinra, an interleukin-1 receptor antagonist was subsequently used to switch off the pro-inflammatory process. The patient's viral load was eventually undetectable 6 years after first diagnosis despite good compliance with medication due to several resistance mutations.
Conclusion: IRIS can be a difficult to manage in the context of a patient with complex morbidity as a result of HIV infection. The case described here highlights the use of immune therapies in the management of IRIS in order to control the inflammatory process and avoidance of long-term steroids.

P51

A review of renal histology in HIV-1 infected individuals on tenofovir disoproxil fumarate (TDF), could there be glomerular involvement?

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Background: Although the deterioration of renal function is multifactorial, according to our knowledge, patients receiving a TDF containing regimen have an increased risk of renal impairment. It's a particular concern as TDF especially is now more widely used for PrEP and PEP. There is data to suggest that TDF targets proximal tubular mitochondria, however, the exact mechanism of TDF nephrotoxicity is still not clear. Histopathologically, it is characterized by proximal renal tubular injury and dysmorphic mitochondria. We present an analysis of renal biopsies in individuals receiving TDF containing regimens with an aim of improving our understanding of nephrotoxicity in HIV.
Methods: We identified all HIV-1 infected individuals who had renal biopsy performed over the past 10 years at the Western General Hospital. We included those individuals who were on TDF containing regimen at the time of renal biopsy. Data were retrospectively collated through electronic patient records and pathology records. Descriptive statistics were performed.
Results: Of the 23 individuals who had renal biopsy, we included 10 (3 female) who were on TDF containing regimen. Median age was 48 years (41-57) and 6 were diagnosed with HIV in pre-ART era. 7 individuals had renal biopsy due to renal impairment and proteinuria, 3 individuals had it due to proteinuria only. 60% individuals had biopsy-proven TDF nephrotoxicity also had interstitial nephritis, 20% had mild mesangioproliferative glomerulonephritis, 10% had HIV-associated immune complex glomerulonephritis and 10% had lupus like glomerulonephritis. Of the 6 individuals with TDF related toxicity, 4 individuals had both proteinuria and haematuria at the time of renal biopsy. Histopathology of those with TDF related toxicity was consistent with tubular injury and 2 had eosinophilic inclusions which were positive on trichome stain. 2 of those had tubular mitochondrial injury confirmed by electron microscopy (EM), 4 had non-diagnostic EM. All except one had complete resolution of proteinuria and renal impairment after discontinuation of TDF. One individual required haemodialysis which eventually resolved and one individual has CKD.
Conclusion: Although TDF toxicity is described as tubular injury, in our cohort 4 out of 6 individuals also had haematuria which then resolved after discontinuation of TDF. Haematuria would be in consistent with glomerular injury however this was not previously reported in TDF related renal toxicity.

P52

A review of the introduction of an acute kidney injury (AKI) alert into HIV care

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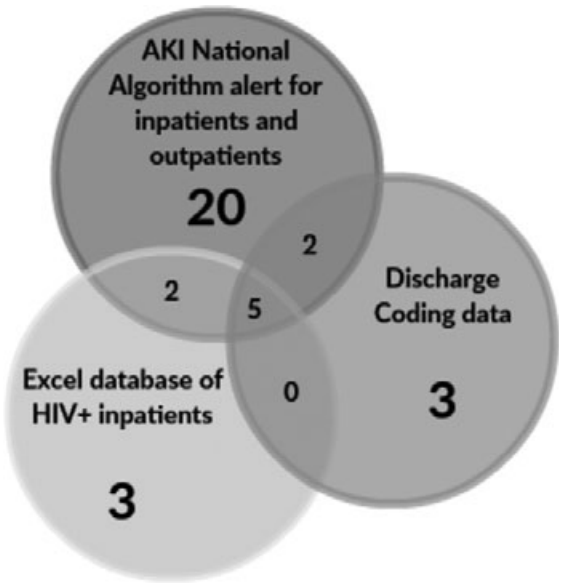
Background: Human immunodeficiency virus (HIV) leaves patients at risk of both acute kidney injury (AKI) and chronic kidney disease (CKD), with a bidirectional relationship.
In western settings, the kidney problems in this population are more heavily attributed to medication nephrotoxicities than to HIV-related kidney disease. Co-infection with Hepatitis B and C, low CD4 counts and high viral loads can contribute to a patient's risk of renal disease. AKI susceptibility increases with age, and with co-morbid co-infection, hypertension, diabetes and cardiovascular disease. Up to 20% of acute hospital admissions will have AKI. Prompt identification of AKI is likely to favourably influence short-term outcomes and sequelae.
Objectives: We sought to investigate the epidemiology of AKI in a centre with a tertiary HIV practice and a regional renal unit. To describe the population of HIV+ve patients developing AKI since the introduction of the ICE pathology AKI alert system.
Methods: This was a retrospective analysis of AKI in a centre serving 2400 patients with HIV in a large teaching hospital. AKI cases were ascertained by 3 means a) the national AKI detection algorithm run in local middleware software (ICE-Sunquest) b) Review of all coding data searching for cases with an AKI code (N179) and a consultant caring for HIV+ve in-patients and c) an Excel database of HIV+ve in-patients. Data was collected between December 2015 and Nov 2016. Medical notes were reviewed to cross-reference for clinical diagnoses of AKI.
Conclusion: AKI is an unusual event in our experience. The different methods of identifying AKI episodes had limited overlap. The national AKI algorithm requires comparison of old and current results. It is possible that storage of results under different identities has led to an underestimate of the prevalence of AKI. Further work is underway to identify causes of AKI and outcomes in this cohort.
The Venn diagram illustrates the distribution of where cases of patients with AKI were identified from in this retrospective study.



P53

A review of thrombotic disease in the HAART era

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Background: HIV infection is a recognised pro-thrombotic state. The prevalence of venous thromboembolisms (VTE) among HIV infected patients range from 0.19% to 7.63% per year. There is a two to tenfold increased risk of venous thrombosis in comparison with a general population of the same age. Many aspects of VTE and HIV infection have described in detail in the literature. However, there has been little information on hepatic vein thrombosis (HVT) in the HIV infected population. The objectives of this case series are 1. Review the proportion of people with VTE who had HVT in our cohort. 2. Emphasize the need for prevention and 3. Recognize the need for vigorous treatment of this complication.
Method: A retrospective review of HIV positive patients diagnosed with thrombotic disease in the last 6 years was conducted. Analysis included demographic data, associated co-morbidities, risk factors for thrombotic disease, anti-retroviral therapy, CD4 count and viral load.

Results: In a cohort of 1000 patients 12 had thrombotic disease in the study period of 6 years. 7 females (58%) and 5 (42%) males, age 36–76 years. 50% had a nadir CD4 count less than 200 but at the time of the thrombotic event the CD4 counts were all greater than 200 with undetectable viral loads. 9 (75%) patients had a diagnosis of HIV for more than 10 years. 11 (92%) patients apart were on anti-retrovirals (ARVs) prior to a VTE for at least 6 years. 5 (42%) patients were on a protease (PI) based regimen and 7 (58%) non-PI based regimens. In 5 (42%) cases there were no risk factors for VTE. In the other 7 (58%) risk factors included recent surgery, antiphospholipid syndrome, combined oral contraception use, immobility, liver abscess and nephrotic syndrome. The types of VTE included hepatic vein thrombosis 5 (42%), 2 (16%) deep vein thrombosis (DVT) and 5 (42%) combined DVTs and pulmonary embolisms (PE). All patients were commenced on warfarin. Those without risk factors were investigated thoroughly and no underlying cause found. 11 (92%) patients were found to have multiple co-morbidities.
Conclusion: The prevalence of thrombotic disease in our HIV cohort was 1.2% over a 6 year period, with HVT seen frequently at 42% compared to DVTs or PEs. Patients who developed HVT were virologically suppressed with no apparent predisposing factors and had prolonged PI use. Physicians caring for HIV positive patients should be able to recognise and treat VTE as complications of treated chronic HIV infection.

P54

An audit of the care and monitoring of patients co-infected with HIV and hepatitis C in GUM in Edinburgh: need for better documentation identified

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Background: Hepatitis C co-infection in HIV patients increases the risk of liver cirrhosis and hepatocellular carcinoma (HCC). Hence it is important that co-infected patients are screened and monitored appropriately. We present an audit for this from the GUM department in Edinburgh.
Methods: We used the BHIVA guidelines on management of HIV and Hepatitis C co-infection to formulate our data fields; aiming to audit how well we are complying with these guidelines. We used the information from the 4 different IT systems used locally and paper notes. We looked back over the last 5 years of documentation. Our data fields include; age, gender, date of HCV diagnosis, date of HIV diagnosis, is the GP aware of HIV and HCV diagnosis, mode of transmission, latest CD4 count, current ARV regimen, date ARV started, CD4 when ARV started, was HCV diagnosed when ARV started, has HCV been treated, type and length of treatment, why treatment was stopped, if acute HCV was treatment started within 6–12 months, has there been speciality input, referral to drug and alcohol services, referral to mental health, HEV screening, HAV serology and vaccine, HBV serology and vaccine, fibroscan, LFTs, liver biopsy, has risk reduction been discussed, if cirrhotic when was their last liver ultrasound and AFP, have they had an endoscopy, have they been referred for liver transplant, if they have had no HCV treatment do they have an annual fibrosis assessment.
Results: Number of patients identified to be co-infected with HIV and HCV under the care of GUM=16

Patients referred to speciality	12/16
Patients treated	6/16
Mode of transmission documented	2/16
Discussion of risk of transmission documented	1/16
Patients with cirrhosis	3/16
Ever had fibroscan	5/16
Cirrhotic patients (3/16)	
AFP in last year	2/3
OGD documented	2/3
Has HCV been treated	2/3
Non-treated patients (10)	
Annual fibrosis assessment	0/10

Conclusion: In our HIV patients documentation of Hepatitis C care is spread over 4 different IT systems and paper notes. The collation of data to ensure each patient is receiving appropriate care and monitoring is therefore time-consuming and unwieldy. The results of this audit shows there needs to be a more cohesive way of documenting results and plans for these patients to ensure safe clinical care and effective handover to other clinicians. This will be addressed and the aim is to introduce a better system of documentation as a result of this audit.

P55

An unusual cause of isolated secondary ovarian failure due to cerebral toxoplasmosis in an African woman with AIDS

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Abstract: Primary ovarian failure is common but isolated secondary ovarian failure due to gonadotrophin deficiency is rare. A few cases of isolated gonadotrophin deficiency due to congenital cerebral toxoplasmosis have been described in children. We report a case of 34 year old HIV positive African woman who developed secondary amenorrhoea following the successful treatment of cerebral toxoplasmosis. Investigations revealed that she developed an isolated gonodotropin deficiency due to pituitary lesion. The rest of the pituitary function dynamic tests were normal. To the best of our knowledge, no similar case had been reported in an adult with cerebral toxoplasmosis.
Case report: She was admitted with a three week history of fever, headache and rigors in February 2010. Examination revealed she was pyrexial at 39.0°C. She was alert with the GCS score of 15/15. HIV test was positive with CD4 counts of 54 cells/mm^3 (4%), HIV RNA level was 1.2 million copies/ml, HIV genotype was subtype C with no mutations. Serological test for toxoplasma revealed that ELISA IgM – negative, Dye test – 4000 IU/ml, Toxoplasma IgM (ISAGA) – negative, Toxoplasma Ig G – positive. MRI scan showed a focal ring enhancing lesion in keeping with an underlying abscess. She was empirically treated for cerebral toxoplasmosis. Her headaches subsided and remained afebrile a week later. She then developed secondary amenorrhea a month after her initial presentation. Her pregnancy test was negative. She had regular periods prior to her current illness and had two healthy children. Endocrine tests showed low oestradiol due to isolated gonadotrophin deficiency.
Discussion: Our patient presented with symptoms of raised intracranial pressure without any focal neurological signs. A high toxoplasma antibody titre along with a focal ring enhancing lesion in the brain was highly suggestive of cerebral toxoplasmosis. The response to anti toxoplasma therapy confirmed the diagnosis of cerebral toxoplasmosis. The complication of cerebral toxoplasmosis depends on the site of brain lesions. Our patient developed secondary amenorrhoea a month after development of cerebral toxoplasmosis.
Conclusion: Clinicians should be made aware of this potential complication of pituitary dysfunction in patients with cerebral toxoplasmosis or any other central nervous system complications of HIV infection such as primary brain lymphoma or progressive multifocal leucoencephalopathy.

P56

An update on hepatitis B vaccinations in newly diagnosed HIV individuals following the 2015 BHIVA guidelines

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Background: People living with HIV (PLHIV) face a higher risk of infection with the Hepatitis B virus (HBV) as well as increased chronicity of infection. BHIVA guidelines were updated in 2015 to recommend all non-immune PLHIV be offered the HBV vaccination. These recommendations were implemented in our local departmental guidelines in March 2016. We audited the adherence to the vaccination guidelines in all newly diagnosed HIV positive individuals and the impact of the updated guidelines on the uptake of the vaccines.
Methods: All electronic notes and prescriptions of new HIV diagnoses, between July 2015 to November 2016, in an inner London teaching hospital, were audited against the previous and updated local guidelines. Outcomes measured were HBV vaccination if indicated, number of doses, and adherence to the guidelines. Hepatitis B surface antibody (HBsAb) levels documented at baseline, and post vaccination.

Results: 209 patients had a new HIV diagnosis and followed up during the audit period. 95%(199/209) had a HBsAb result at the baseline visit. 5%(10/209) were diagnosed with chronic HBV infection. Vaccination was indicated in 61%(128/209). 4-dose vaccine regimes (0,1,2,6 months) were indicated in 59%(75/128), booster doses in 36%(46/128), and ultra-rapid courses were given in 5%(7/128). 47%(60/128) received at least one vaccine dose within 6 months of HIV diagnosis. 23%(30/128) had completed the appropriate vaccine course during the audit period according to local guidelines. Of those requiring the 4-dose vaccine only 1%(1/75) completed 4 doses during the audit period, with 80% receiving 2 or less doses of the 4-dose vaccine regime. After introducing the guidelines update, there was a significant improvement in the uptake of high dose 4-dose vaccine regime compared to the low dose 4-dose regime (54% vs 17%, p=0.0063). 50%(15/30) of patients who completed their vaccine course had their HBsAb results tested post-vaccine.
Conclusion: With the implementation of the new guidelines, uptake of HBV vaccination had significantly improved, due to the consultation, education and presentation of the new guidelines, and introduction of a new HBV vaccination proforma. There is a low rate of HBV vaccine completion especially the 4-dose vaccine regimes in our population of newly diagnosed HIV individuals. A vaccination pathway and reminders to schedule HBV vaccination appointments may improve rates of HBV vaccination completion.

P57

Anal intraepithelial neoplasia (AIN) in a cohort of HIV-positive individuals: a retrospective data analysis

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Background: Men who have sex with men (MSM) living with HIV are at increased risk of human papillomavirus (HPV) associated cancers including anal squamous cell cancer (SCC). Diagnosis of anal intraepithelial neoplasia (AIN) presents an opportunity to initiate monitoring and curative treatment. The characteristics of patients diagnosed with AIN are poorly understood, as are the factors associated with progression from AIN to SCC. This project aimed to describe the cases of AIN in a large urban cohort of people living with HIV in the UK.
Methods: We identified all cases of AIN among patients attending a single HIV outpatient care centre. We reviewed case notes and histopathology.
Results: 23 cases of AIN diagnosed between 2002 and 2016 were identified: all white MSM. Median age 45 years (range 27-59), nadir CD4 434 cells/mm^3 (4-1312), median months since diagnosis 173 (24-339) and 100% on antiretroviral therapy (ART). 16/23 (70%%) had previous anorectal STIs, of those 15/23 (65%) had HPV, 5/23 (22%) had gonorrhoea, 4/23 (17%) had HSV and 2/23 (9%) had chlamydia. Where documented, 74% were current smokers. Most patients (83%) presented with an anal lump and the majority (83%) were AIN III. 13/23 (57%) were treated with imiquimod, 7/23 (30%) with surgical excision and imiquimod, 2/23 (9%) with electrocautery and imiquimod, and one patient with AIN I with surveillance. 11 patients had repeat histology: 5/11 (45%) progressed to SCC, 2/11 (18%) improved from AIN III to II and received additional imiquimod and 4/11 had resolved entirely. Patients who progressed from AIN to SCC did so over a range of one to nine years, had comparable age (median 52, range 39–72) and nadir CD4 (385 cells/mm^3, 4-1312) to the broader cohort but were diagnosed with HIV further in the past (210 months, 159–226).
Conclusion: AIN is an emerging issue for MSM living with HIV on effective ART. A large proportion of patients have had anal STIs before AIN diagnosis. In this small cohort 45% of patients progressed from AIN to SCC. Further research is needed to clarify which patients are most at risk of developing SCC.

P58

Anal squamous cell carcinoma (SCC) in a large urban cohort of HIV-positive individuals living in the UK: a retrospective data analysis

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Background: HIV infection is associated with a 30-fold increased lifetime risk of Squamous Cell Carcinoma (SCC) and a 4-fold increase in 5-year mortality. HIV infection and receptive anal intercourse are strong risk factors for anal SCC thus the highest incidence is found in HIV-positive men who have sex with men (MSM) with anal human papillomavirus (HPV) the underlying cause in roughly 80% of cases. We aimed to describe cases of SCC in a large urban cohort of people living with HIV in the UK.
Methods: We identified all cases of anal SCC amongst patients attending a single UK HIV outpatient clinic in spite of where they were diagnosed and treated. We reviewed case notes and histopathology.
Results: 28 SCC cases were identified between 2001–2016 with a general increase in diagnoses each year: all were white MSM, median age 52 years (range 40–73), nadir CD4 310 cells/mm^3 (4–1312), average time of 14.8 years since HIV diagnosis and 25/28 (89%) on antiretroviral therapy (ART). 24/28 (86%) had documented sexually transmitted infection (STI) history, of those 21/24 (88%) had previously diagnosed anorectal STIs: 16/21 (76%) had HPV, 5/21 (24%) gonorrhoea, 4/21 (19%) chlamydia and 4/21 (19%) had herpes simplex virus. Common presenting symptoms were anal lump (75%), pain (21%), and rectal bleeding (17%). 25/28 (89%) had local disease, 3/28 (11%) had local nodes and there was no metastatic disease. 4/28 (14%) had previous diagnoses of AIN. Of those treated at our centre 8/13 (62%) were treated with chemoradiotherapy, 2/13 (15%) with radiotherapy alone, and 3/12 (23%) with surgery. 2/13 (15%) patients needed surgery after unsuccessful chemoradiotherapy. 2/14 (14%) were diagnosed with further AIN after successful SCC treatment. 5/28 (18%) patients have died, with two deaths attributable to SCC.
Conclusion: Anal SCC is an emerging issue in MSM living with HIV on effective ART. We found that a large proportion of patients had anorectal HPV diagnosed before anal SCC but only a minority had previously diagnosed AIN. Research and experience to establish the impact of anal cancer screening on the reduction of anal SCC in this population is urgently needed. We intend to further analyse the histopathology samples at our centre and consider annual digital rectal examinations as a screening tool.

P59

Atypical Guillain–Barré syndrome? Consider HIV

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Background: Guillain–Barré Syndrome (GBS) is an acute immune mediated illness causing a rapidly progressive polyneuropathy with weakness. GBS can be an uncommon manifestation of HIV. We describe two cases where patients were diagnosed and treated for GBS before being found to have acute HIV.
Cases: A 57 year old female presented with a 3 week history of lethargy, difficulty mobilising, bilateral leg weakness and altered sensation in her right leg and both hands. Examination revealed reduced power, altered sensation and arreflexia in lower and upper limbs. MRI was normal and neurophysiology tests revealed sensory motor polyneuropathy with no demyelination. CSF showed raised protein and pleocytosis. Subsequently an HIV test was positive. A 64 year old man presented with a 3 week history of pain behind his knees, lower limb weakness, recurrent falls and altered sensation in his feet. 6 weeks previously he reported night sweats, weight loss and lethargy. Examination revealed lower leg weakness (3/5), impaired sensation and absent knee and ankle reflexes. MRI spine was normal. CSF revealed a high protein and nerve conduction studies showed sensory and motor abnormalities without demyelinating features. Further investigation revealed a positive HIV test.
In both cases CD4 count was high, indicating preservation of immune function. Treatment with IVIG showed minimal clinical improvement, but improvement was noted after initiation of antiretroviral therapy.
Discussion: These patients presented with possible GBS; progressive symmetrical muscle weakness, arreflexia and high CSF protein level. Unexpected findings of pleocytosis and unusual nerve conduction results led to suspicion of HIV.
HIV can present with neuropathy as a first presentation but distal sensory polyneuropathy or toxic neuropathy is more common. There is an association between HIV and GBS but the incidence of this is low. The incidence of GBS in the HIV population is similar to the non-HIV population. GBS typically occurs early in the course of HIV infection or at seroconversion while CD4 counts are high. The presentation, course and management of GBS in HIV seropositive and seronegative patients is similar but there is evidence of improvement with antiretroviral therapy in HIV positive patients.

Conclusion: HIV is a possible cause for GBS and this can be the first presentation of HIV. These cases highlight the importance of testing for HIV in GBS especially with atypical features.

P60

Audit of quality of HIV care among TB co-infected persons diagnosed in the UK, 2010–2014

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Background: HIV-associated TB contributes substantially to the burden of TB-associated morbidity and mortality. Survival is improved with early antiretroviral therapy (ART), following initiation of TB therapy. We investigate the quality of HIV care among individuals diagnosed simultaneously with TB and HIV.
Methods: Comprehensive cohort data on adults (15 + years) diagnosed with HIV in the UK between 2010 and 2014 were linked to the national Enhanced TB surveillance system with follow-up to end of 2015. Individuals were considered simultaneously diagnosed ('co-infected') if they had a TB and HIV diagnosis within three months. Time lags from HIV diagnosis to first CD4 test date (as proxy for link to care), ARV initiation and first viral load (VL) <200 copies/mL were calculated.
Results: Between 2010 and 2014, 20,548 adults were diagnosed with HIV and subsequently linked to HIV care and of these 523 (2.5%) were co-infected with TB. Median time from HIV diagnosis to HIV care among co-infected persons was 5 days [IQR 1–18.5] with 85% linked to care within 1 month. These figures were similar to without a TB diagnosis (6 days [0–20] and 81% linkage). No difference by CD4 count was observed.
Median time to ART initiation was 27 days [15–53] and 41 days [20–81] for co-infected persons with a CD4<100 and 100–349, respectively, and similar to that of those without a TB in diagnosis in the same CD4 strata. Among those with a CD4>350, co-infected adults started ART sooner than their counterparts without TB (median 77 days [41–281] vs 388 days [70–967]). Among those diagnosed with a CD4<100, 57% started ART within 14 days of TB diagnosis and 74% within 30 days.
Following ART initiation and where VL was available, 95% of TB-HIV adults achieved viral suppression within 9 months [range 3–15 months] regardless of CD4-cell count, similar to HIV-diagnosed adults without TB. Assuming missing VL=failure, these figures dropped to 74% and 85% respectively (missing values are more likely to reflect poor data quality than viral failure).
Conclusion: Linkage to HIV care following HIV diagnosis is prompt regardless of TB coinfection. Differences in ART initiation by CD4 strata reflect guidelines and uptake is overall more prompt among co-infected persons. Viral suppression following ART initiation is high for all. Observed differences in time to ART initiation will continue to reduce with the 2015 'test and treat' guidelines for both co-infected and those diagnosed only with HIV.

P61

Auditing mortality among HIV patients in Coventry

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Background: Accuracy in reporting vital statistics is crucial. It is a legal requirement for all deaths to be reported to the national death register. Our aims were to assess the accuracy of death reporting, mortality among HIV patients and the impact of late diagnosis on mortality.
Methods: Retrospective case notes review of deaths in HIV patients (Jan. 2005 to Dec. 2012). Death data were obtained from Public Health England (PHE) which receives death reports from clinicians and through the death register. PHE data were compared to death data obtained from the Trust's electronic patient records and hospital paper notes.
Results: There were 46 deaths reported to death register from our hospital. Two patients died in Coventry but were resident outside Coventry and one was aged <15. There were 42 deaths reported to PHE. One patient was reported dead by a clinic outside Coventry (2009) but noted attending clinic in Coventry in 2014. Two deaths were not reported to PHE. Six patients had errors in reporting to PHE, with different dates of death.

	Compliance		
Standard	Findings	Comment	Action plan
All deaths among HIV patients should be reported to PHE	41/43=95%	One patient excluded as noted alive	PHE informed of discrepancies
All death reporting should be accurate	36/41=87%	Date of death different	Clerk in the death registration office informed
All deaths should be reported promptly	41/43=95%	Two patients were reported late	Reporting system reviewed

Of 41 patients who were reported from our hospital to PHE, 60% were male, heterosexual (80%) and of black African ethnicity (57%). The median age of death was 40 (range: 22–71) years. The median CD4 count was 100 (range: 0–540) cells/dl, with 31(75%) patients diagnosed late, 14 (34%) dying within 31 days of diagnosis, 5 (12%) within 7 days. Twenty one (51%) patients were on ART at time of death; 19 (45%) had AIDS defining illness. The proportion of patients who died declined from 2005 to 2012 (10/323, 3.1% vs 4/587, 0.7%, p=0.01). The life span of HIV patients was shorter than the general population.

Conclusion: This audit has highlighted serious errors in death reporting and registration can occur. We developed an action plan which was successfully implemented to ensure accurate death reporting and registration of HIV patients. A further audit, planned for 2017–18, will complete the audit cycle. Further work is needed to improve the life expectancy of people with HIV and reduce late diagnosis, which contributed to a number of deaths.

P62

Auditing the surveillance of hepatocellular carcinoma (HCC) in high-risk individuals living with HIV

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Background: BHIVA recommends HCC screening for high risk patients with 6 monthly hepatic ultrasound (US) and alpha-fetoprotein (AFP). Conversely, EASL recommends screening with US alone due to minimal additional benefit of AFP & concern for false positive results. We audited local HCC surveillance practices against these guidelines.
Method: This was a retrospective notes review at a HIV centre of 2450 patients, all of whom had HBV serology performed at first registration. Patients with cirrhosis and/or HBV-infection were identified by searching Fibroscan, imaging & pathology databases. US & AFP results were reviewed over a year
Results: Seventy five (3%) patients had a positive HbsAg test in the 10 years prior to the period of interest for HCC surveillance, of which 36 had data available. Twenty-one patients (not HBV-infected) had cirrhosis. Therefore, 57 patients were included. Median age was 50 years (range 26–72), 53 (93%) were male; median CD4 cell count was 628 cells/mm^3 (range 27–1359); 47 (82%) had an undetectable HIV VL. For HBV-infected patients, 32(88.8%) were receiving a Tenofovir containing ARV regimen; 3 patients were on non-tenofovir containing regimens; of these 2 were on Entecavir and 1 was on Lamivudine alone, as the anti-HBV therapy .One was not on therapy. Twenty-eight (77.7%) had an undetectable HBV VL. Of the 21 patients with cirrhosis, six (29%) were HCV-infected and 15 had another cause for cirrhosis including alcohol. Forty-two patients (74%) had at least 1 liver scan, 39 US and 3 CT; two scans showed an HCC. Forty-two (74%) patients had an AFP level, which was elevated in 8 (19%) patients. Thirty-six (63%) patients had both an AFP and a scan (33 US, 3 CT).Twenty (95%) cirrhotic patients & 22 (61%) HBV coinfected patients were scanned. Of the cirrhotic patients 6 (30%) had elevated AFP readings ranging from 6.7–21.7kμ/L. Of the HBV co-infected patients 2 (9%) had elevated AFP readings (6.1 and7.7 kμ/L). Both HBV co-infected patients had normal US results, & of the 6 cirrhotic patients with abnormal AFP levels, 1 patient (17%) had a likely HCC diagnosis on US.

Conclusion: Most eligible patients were appropriately screened for HCC using US, although this was lower for non-cirrhotic HBV-infected than cirrhotic individuals. AFP did not identify any lesions not also identified on US & was falsely positive in 7(17%) patients tested. Clinicians should focus efforts on improving surveillance with US especially for HBV-infected patients.

P63

Bone density measurements amongst young adults with perinatally acquired HIV infection in routine care

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Background: Antiretroviral therapy (ART) enables young people living with perinatally-acquired HIV (PaHIV) to reach adulthood, with increasing focus on long-term complications of HIV and ART. Factors impacting bone mineral density (BMD) include: HIV viraemia; ART-tenofovir (TDF); steroid/depot contraceptive; failure to thrive (FTT); and HIV encephalopathy with hypertonic diplegia. We describe routine BMD scans in a cohort of PaHIV+ young adults.
Methods: A retrospective case-note review of BMD scans in a PaHIV+ cohort between May 2014 – October 2016. Outcomes for analysis were: BMD results; months on TDF; vitamin D level at time of scan; and indication for the BMD scan.
Results: Of 162 PaHIV+ young adults under follow up, median age 22 (IQR 19–24) years, 18 BMD scans were performed on 16 patients – 9 female, 14 black African – showing: osteoporosis (2), osteopenia (6) and normal (8).

Age (yrs) Sex	BMD (Z-score)	TDF months	Vit D (nmol/L)	BMD scan indication
22M	Osteoporosis Tscore −3.8	102	57.4	Lymphoma; Steroids; Hypertonic Diplegia
19M	Osteoporosis (-3.1)	80	72.8	Severe FTT (35kg, BMI 15)
26F	Osteopenia (-1.1)	0	19.3	Nephrotic Syndrome
25M	Osteopenia (-1.8)	84	109	Hypertonic Diplegia
22F	Osteopenia (-1.8)	96	58.4	Multi-Site Avascular Necrosis
22M	Osteopenia (-1.3)	144	15.1	Hepatitis B Virus (HBV) Coinfection
19F	Osteopenia (-1.8)	60	25.7	Hypertonic Diplegia
27F	Osteopenia (-1.7)	0	56.1	Depo-Provera (5 years)
27F	Normal	32	N/A	Depo-Provera; Metabolic Syndrome
26F	Normal	95	N/A	TDF
22F	Normal	101	72.3	Metabolic Syndrome; BMI 17
22M	Normal	168	44.4	TDF; prior osteomalacia; HBV coinfection
21M	Normal	0	18.6	Clinical Trial
23M	Normal	48	21.3	Bilateral Bone Degeneration in Knees
20F	Normal	103	34.6	TDF Exposure; Lipoatrophy
18F	Normal	56	34.5	Fracture & Knee Pain

Conclusion: In this cohort of PaHIV+ young adults, 50% of those scanned for clinical indicators had significant reduction in BMD, three quarters with suboptimal vitamin D. Peak bone density occurs around 20 years of age, highlighting the need for maximising bone health during adolescence in perinatal cohorts.

P64

Cardiovascular disease burden in HIV-positive patients: an analysis of the rate of increase of CT coronary calcium scores after a five-year interval

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Background: HIV positive patients have an increased risk of cardiovascular disease (CVD). CT coronary calcium scoring assesses the degree of stable, calcified atherosclerotic plaque in the coronary arteries. Coronary calcium (CorCa) scores can help clinicians to risk-stratify patients and influence primary prevention strategies. The AHA advises that patients with CorCa scores >100 should be considered for statin therapy, aspirin and possibly ACE-I. The aim of this study was to assess the burden of CVD in HIV positive patients, by an analysis of the rate of increase of CorCa scores after a five year interval. Particular interest was in the effect of ARV's on the rate of acceleration.
Method: 1976 individual CorCa scores for HIV positive patients were recorded on PACS from 2007 to 2016. Of these, 47 patients had readings five years apart. Data on smoking status, cholesterol levels, triglyceride levels, diabetes status, statin therapy and ARV regimen were acquired from medical records. A multi-variate analysis was carried out on the data.
Key results: CorCa scores ranged from 0 to 916 Agatstons. Twenty two patients had a coronary calcium score of zero at year 1 with 16 (73%) retaining a score of zero at year 5. Twenty-nine patients had an increase in their CorCa scores with the largest increase being 454 Agatstons. Using the Rumberger model, 20 patients at year 1 and 29 patients at year 5 were identified as having moderate to extensive atherosclerotic disease. Twenty-three of these patients were taking a statin. Multi-variate analysis showed strong evidence that the baseline CorCa score was the single most important predictor of the 5-year CorCa score. No evidence was found of a significant association between a specific ARV or pair of treatments, and increased CorCa score, although the analysis was limited by the large number of ARV drugs and combinations combined with the small sample size. For patients on statin therapy, a unit increase in baseline value corresponded to an increase in 5-year value of 1.86. There was no evidence of a significant effect of smoking status on CorCa increase.
Conclusion: Although the dataset is small, typical members of this HIV positive population seem to be at significant risk of increases in coronary calcium and therefore of CVD. Baseline CorCa score was the greatest predictor of 5 year CorCa score among these 47 HIV positive patients. ARV choice does not appear to affect the rate of increase of CorCa score.

P65

CD8+ encephalitis in a patient not on antiretroviral therapy who had a CD4 count over 500

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Background: CD8+ encephalitis/myelitis is rare, occurring in severely immunocompromised patients in the context of an IRIS. Rare cases are described in patients not on HAART. We present one such case.
Methods: 40 year old ARV-naïve Black Caribbean male diagnosed HIV+ 13 years ago, CD4 543 × 10^6/L (29%), HIV VL 21,359 copies/ml, presented with 3 weeks of morning headache, intermittent photophobia and confusion, cognitive decline, left leg weakness on a longer history of post voiding abdominal pain, anorexia, weight loss and night sweats.
Results: Hb 88 g/L; WCC/ differential normal; CRP 3 mg/l; globulins 108 g/L; CT chest/abdomen/pelvis showed widespread lymphadenopathy, an area of thickening in the descending colon/upper sigmoid, upper abdominal organs normal. Right axillary lymph node biopsy showed a reactive process with no evidence of lymphoma. Recent syphilis/toxoplasma serology were negative. CT brain normal; MRI brain showed extensive diffuse hazy signal change in both frontal lobes mainly involving the deep frontal white matter. CSF analysis: 17 lymphocytes, protein 1.35 g/l, glucose and lactate normal. Gram Stain/CRAG negative. PCRs for Enterovirus, Parechovirus, HSV, EBV, CMV, VZV, JC and measles virus were negative and RPR was negative. Insufficient sample for HIV VL. Treated with meropenem /acyclovir / corticosteroids. He deteriorated becoming more drowsy /confused and was transferred to neurosurgical unit for a brain biopsy. He then developed abdominal distension and faeculant vomiting, requiring urgent Hartmann's procedure for a perforated diverticular abscess. Post-operatively he neurologically deteriorated. EEG showed non-specific encephalopathy. He developed fixed dilated pupils; CT brain showed marked cerebral oedema with imminent brainstem herniation. He was palliated and died the next day. Post-mortem showed bronchopneumonia and an encephalitis primarily affecting the white matter with a diffuse T cell infiltration, predominantly CD8 + T lymphocytes, that looked morphologically normal. Ki67 index was low and brain tissue was negative for HIV (VL and P24), CMV, EBV, HSV, HHV6 & 7, JC and SV40.

Conclusion: CD8+ encephalitis usually occurs in HIV+ patients, in the context of an IRIS. It occasionally presents in antiretroviral naïve patients with good CD4 counts. In this case, it occurred at the time of an abdominal infection which may have been the trigger; similar to a case of CD8 + transverse myelitis following *Shigella* gastroenteritis.

P66

Characteristics of HIV-associated lung cancer and the use of novel receptor tyrosine kinase inhibitors

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Background: HIV-associated lung cancer is a common non-AIDS-defining malignancy that clinicians are likely to encounter with increasing frequency in people living with HIV (PLWH). The introduction of receptor tyrosine kinase inhibitors that target mutant epidermal growth factor receptor (EGFR) have shown benefit in non-small cell lung cancer harboring these mutations.
Method: A retrospective analysis was performed of prospectively collected data on all patients with lung cancer referred to Chelsea and Westminster Hospital between 1993 and 2016. The management and outcome of PLWH with EGFR mutant lung cancers were further studied.
Results: 286 patients with lung cancer were identified including 51 PLWH. The mean age at lung cancer diagnosis was lower in PLWH (mean 53 vs. 67 years, $p<0.001$) and more were male (88% vs. 63%, $p<0.001$). There were no differences in tumour stage at diagnosis or histological subtypes. At lung cancer diagnosis the mean CD4 cell count was 413/mm^3, 76% had an undetectable HIV viral load and the mean interval since HIV diagnosis was 11.8 years. Since routine EGFR mutation testing became available in 2009, 3/10 eligible HIV+ patients had tumours with an EGFR mutation (one exon 21 L858R mutation, two exon 19 deletions). All three received first-line RTKI (2 erlotinib, 1 gefitinib) and 2 had objective responses of 26 and 33 months with the third as yet not assessed. Both patients who progressed on 1st line EGFR TKIs demonstrated *de novo* T790M mutation at repeat biopsy. Of these, one was eligible for osimertinib, resulting in a second partial response (treatment ongoing at 6 months).
Conclusions: Except for age and gender, baseline characteristics appear similar between patients with and without HIV infection. In most patients, HIV infection is well controlled at presentation, with undetectable viral loads. Within the limits of a small sample size, EGFR mutations appear to occur at a similar frequency to the non-HIV population and there appear to be similar clinical responses and resistance mechanisms to EGFR TKIs. Clinicians need to be vigilant regarding potential drug interactions with protease inhibitor antiretrovirals and the first generation EGFR tyrosine kinase inhibitors (TKIs).

P67

Characteristics of people living with HIV infection accessing mental health services in South London

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Background: The prevalence of HIV among people living with serious mental illness (SMI) is higher than in the general population. HIV is associated with high rates of depression. South London has a high prevalence of SMI and HIV. CASCAID was a specialist community mental health (MH) service for people with HIV. It operated from 1993 to 2016 as part of the South London and Maudsley NHS Foundation Trust (SLaM) which provides mental MH services for people living in Lambeth, Southwark, Croydon and Lewisham.
Aim: Compare the characteristics of people with HIV accessing CASCAID to those accessing general secondary and tertiary MH services (non-CASCAID).
Method: Retrospective cohort study of data obtained from the SLaM Biomedical Research Centre Case Register using the Clinical Record Interactive Search Application (CRIS). CRIS provides researchers access to anonymised information extracted from over 250,000 SLaM electronic clinical records using natural language processing to extract structured data from open-text fields. The TextHunter software programme was used to develop 'apps' for HIV and HIV treatment to identify HIV positive patients within the case register. Both 'apps' had good rates of exactness and completeness in relation to identifying patients with HIV and/or taking HIV treatment. The CASCAID cohort was identified by 'team episode'. The study period was 2007–15. Chi squared tests were used to compare distributions between CASCAID and non CASCAID users and logistic and linear regression was used to examine associations between MH outcome and user group.
Results: 5573 people with HIV accessed MH services during the study period. 1312 (24%) were seen by CASCAID. CASCAID users were more likely to be male (OR=1.36, 95%CI=1.1.5–1.60), African (OR=2.14, 95%CI=1.75–2.61) and between 34 and 44 years old (OR=2.38, 95% CI=1.78–3.18). Compared to SMI the following MH diagnoses were more common in CASCAID users: Organic brain disease (OR=21.09, 95%CI=14.1–31.5); common mental disorder (OR=20.3 95% CI=14.1–31.4); substance misuse (OR=20.3, 95%CI=1.31–2.91); personality disorder (OR=2.77, 95%CI=1.31–5.86); no MH (OR=5.75, 95%CI=4.07–8.13).
Conclusions: Sociodemographic factors were strongly associated with whether patients accessed CASCAID or non CASCAID MH services. Compared to those with SMI, patients with other diagnostic MH groups were likely to access CASCAID.

P68

CSF inflammatory markers after adding maraviroc to MONotherapy darunavir/ritonavir: the CINAMMON Study

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Background: Alternative ART strategies such as protease inhibitor monotherapy have raised concerns about CNS penetration. CINAMMON is a phase IV, open-label, single-arm, pilot study to assess the role of maraviroc (MVC) addition to darunavir/ritonavir monotherapy (mono-DRV/r) in virologically suppressed patients.
Methods: Subjects on mono-DRV/r with VL<40 in London and Barcelona were recruited if showing a CCR5 tropic results and remained on mono-DRV/r for 12w before adding MVC. Lumbar puncture (LP) and neurocognitive (NC) function (Cogstate) examinations were performed at baseline, w12 and following 24w of MVC (w36). CSF and plasma DRV/r concentrations were measured at w12 and w36, and MVC at w36. The primary study endpoint was week (w) 12 to w36 CSF inflammatory markers changes (*neopterin, S100b, neurofilament heavy chain (NFH), CSF ferritin)* following MVC 150 mg qd addition to mono-DRV/r 800/100 mg qd for 24w. Secondary endpoints included changes in neurocognitive function (Cogstate), and CSF drug levels, following addition of MVC.
Results: Nineteen patients were recruited and 15 completed the study (17M, 2F). Drop outs were for headache (2), knee problem meaning could not attend (1), and personal reasons (1). Mean age (range) was 45.4 years (27.2–65.1), 13/19 were white and 10/19 MSM. No changes in S100b, NfH, CSF ferritin, neopterin were seen between w12 and w36. Overall NC function improved between w12 and w36 following MVC addition: total age adjusted z score improved by 0.27 (weighted paired t-test; p=0.11). Looking at tests for executive function only, in this group age adjusted z score improved by 0.54 (weighted paired t-test; p=0.03). This compared to tests for other (non-executive) cognitive function where the age adjusted z score showed no significant change between w12 and w36 (weighted paired t-test; p=0.25).
Darunavir plasma:CSF concentration ratio did not change between w12 (132) and w36 (112; p=0.577, Wilcoxon signed rank). Maraviroc plasma:CSF concentration ratio was 35 at w36.
Conclusions: No change in neuroinflammatory markers were observed. Whilst a learning effect cannot be entirely excluded, in this small study the addition of 24 weeks of MVC 150 mg to stable DRV/r monotherapy showed a tendency to improvement in overall NC function overall at w36, and a significant improvement in executive function. The mechanism of this improvement should be further evaluated.

P69

Desensitisation to emtricitabine and tenofovir in an outpatient setting for a patient with presumed allergic reaction: a case report

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Background: A 30 year old woman diagnosed HIV positive with a CD4 count of 319 commenced treatment in 2011 with darunavir/ritonavir 800/100 mg OD and Truvada 1 tab OD. Three weeks after initiation she developed a severe maculopapular rash over trunk and limbs with no systemic features or mucosal involvement. Treatment was stopped and systemic steroids initiated. Symptoms resolved and the combination of efavirenz and Truvada was commenced. Symptoms recurred and emtricitabine (FTC) or tenofovir disoproxil fumarate (TDF) were suspected as likely causes. The regimen was switched again to raltegravir 400 mg BD and darunavir/ritonavir 800 mg/100 mg OD. She remained on this regimen without adverse effects until 2016. In 2016 she asked if there were options to simplify her regimen due to multiple lifestyle factors. Rechallenge with a desensitising titration of FTC and TDF was discussed with the patient and subsequently arranged.
Methods: Darunavir/ritonavir and raltegravir were continued. The patient had frequent pharmacist reviews and a personalised care plan addressing what to do in case of adverse effects.
FTC 10 mg/ml suspension was prescribed in the following regimen; 10 mg for 2 days then increasing by 10 mg every 2 days over 47 days to maximum dose of 240 mg (equivalent to 200 mg of FTC capsules). One month FTC wash out was agreed before attempting TDF desensitisation. TDF was titrated using 33 mg/g/scoop granules over a 36 day period starting at 16.5 mg for 4 days, increasing by 16.5 mg every 4 days until 66 mg when the dose was then increased by 33 mg every four days to 231 mg.
Results: Both titrations were completed uneventfully.
Conclusion: Both FTC and TDF rechallenge were successful. This case highlights the immense potential value of this management option in increasing the range of antivirals available to patients.

P70

Direct-acting antiviral therapy in HIV/HCV co-infected patients can significantly reduce liver fibrosis: a prospective cohort study

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Background: HIV/hepatitis C (HCV) coinfection is associated with higher rates of mortality and morbidity than HCV monoinfection. Issues include more rapid progression of fibrosis, excess inflammation and reduced CD4 response to highly active antiretroviral treatment (HAART).
Methods: All patients with HIV/HCV coinfection and fibrosis treated with direct-acting antiviral (DAA) therapy had a routine Fibroscan and markers of immune response to HAART pre and post therapy.
Results: Between October 2015 and October 2016, 35 patients with HCV/HIV coinfection and a Fibroscan consistent with fibrosis received DAA therapy. 31 were male and mean age was 51. All were receiving HAART, 33 of which had a viral load less than 50 copies/ml and all had a viral load less than 200 copies/ml. Mean CD4 count prior to DAA therapy was 615.9 (range 75–1333) cells/μl and CD4% was 28.1 (range 6.0–50.4). Mean/median Fibroscan score was 15.6 kPa/13.9 kPa. Mean/median METAVIR score was 3.2/4 and was within the cirrhotic range in 57 percent of patients.
DAA therapy was 12 weeks of Harvoni plus ribavirin (RBV) (23 patients), 12 weeks Abbvie 3D plus RBV (6 patients), 12 weeks sofosbuvir plus peginterferon plus RBV (3 patients), 8 weeks Harvoni (2 patients), 12 weeks sofosbuvir plus daclatasvir plus RBV (1 patient). All but one patient achieved SVR. Mean CD4 count at a mean of 6.6 weeks post therapy was 613.7 cells/μl and mean CD4% was 29.8. There was a mean decrease in CD4 count of 2.2 cells/μl ($p=0.95$) and mean increase in CD4% of 1.7 ($p=0.016$).
Mean/median Fibroscan score at a mean of 25.1 weeks post therapy was 11.2 kPa/8.6 kPa with a mean decrease of 4.4 kPa ($p<0.001$).
7 individuals remained with a cirrhotic reading.
Conclusion: Successful DAA therapy is possible in a HCV/HIV coinfected population with significant improvement in markers of liver fibrosis but no significant change in CD4 count and CD4%.

P71

Efavirenz: where are we now?

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Background: Efavirenz has shown reduced tolerability compared to newer agents driven by CNS toxicity and was downgraded from a preferred to an alternative third agent in the 2015 BHIVA guidelines. It is also associated with an adverse effect on lipids and would not be considered a preferred option in patients with hypercholesterolaemia or increased cardiovascular risk.
We reviewed current use of efavirenz in our cohort against the most recent guidance.
Methods: We performed a retrospective case note review of 200 patients currently taking efavirenz, collecting data on demographics, time on efavirenz, co-morbidities, virological suppression and discussions regarding side effects and switch options if applicable.
Results: 141 (70.5%) male, 59 (29.5%) female. Age range: 25–76 years. Patients aged 25–34=24 (12.0%), 35–44=74 (37.0%), 45–54=65 (32.5%), 55–64=24 (12.0%), 65–76=13 (6.5%). Ethnicity: 112 (56.0%) British, 77 (38.5%) African, 11 (5.5%) other ethnic origin. The majority of patients were taking Atripla=122 (61.0%), followed by efavirenz with Kivexa=60 (30%), efavirenz with Truvada=11 (5.5%), other regimes=7 (3.5%). Duration of time on efavirenz ranged from 2 months – 20 years. <5 years=41 (20.5%), 5–10 years=109 (54.5%), 11–15 years=41 (20.5%), 16–20 years=9 (4.5%). 195/200 (97.5%) patients virologically supressed. CD4 count range 182–1736 (median 570). Comorbidities: depression=10 (5.0%), hyperlipidaemia=100 (50.0%), hypertension=43 (21.5%), type 2 diabetes=9 (4.5%), type 1 diabetes=2 (1.0%), cardiovascular disease (previous MI or stroke)=4 (2.0%). In 22 (11.0%) of cases a switch away from efavirenz in view of side effects had been discussed but declined by the patient. 2 (1.0%) of cases a switch was trialled but the patient returned to an efavirenz based regime. 2 (1.0%) patients a switch is currently planned for memory problems and metabolic derangement. 174 (87.0%) no discussion documented.
Conclusions: Patients on efavirenz tend to be aged over 35 and taking an efavirenz based regime for at least 5 years. As expected, rates of virological suppression are high. However, a high proportion of patients have comorbidities which may benefit from a switch to an alternative third agent. Whilst some patients will decline or not tolerate a switch it is important to consider alternatives, particularly as the cohort ages.

P72

Effect of low-dose oral vitamin D on bone mineral density changes in HIV patients

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Background: High prevalence of vitamin-D deficiency and abnormal bone mineral density (BMD) has been reported in HIV patients. We aimed to find out the effect of low dose oral vitamin-D replacement on vitamin-D level, parathyroid hormone (PTH) level and BMD of spine and hip in HIV patients who has vitamin-D deficiency.
Methods: We compared the effect of low dose vitamin-D (800 IU) as a daily tablet in HIV-infected patients with vitamin-D deficiency. We collected information about demography, viral load, CD-4 count, risk factors for fracture, treatment history and measured 25(OH) D, PTH (intact PTH), inorganic phosphate, corrected calcium, Alkaline phosphatase (ALP) and BMD of spine and hip at baseline, 12 months and 36 months. Statistical analysis done by one-way ANOVA followed by Dunn's multiple comparison tests.
Results: Total 86 patients with mean age 42.8 (+/-7.7) years, 64 (74%) black African, 48 (55%) females, CD-4 count 440.7 (+/-180.8) cells/dL, plasma VL 1.6 log (+/-2.3) copies/mL, duration of illness 56.9 (+/-34.1), exposure to antiretroviral 41.2 (+/-27.9) months were included in the analysis. Patients on tenofovir had higher PTH (0.001), on efavirenz lower vitamin-D (0.03), but no difference in BMD of spine or hip. After 36 months of follow up patients on vitamin D replacement (n=44) had significant increase in vitamin-D level (14.6+/-9.7 vs 83.3+/−44.2 p=0.0001), reduction in PTH (7.9+/-7.5 vs. 5.1+/-1.9 p=0.01) alkaline phosphatase (106+/-73.71 vs. 93.9 + /-50.4 p=0.038) and increase in corrected calcium (2.1 + /-0.1 vs. 2.2 + /-0.09 p=0.001) and BMD of hip (0.981 + /-0.19 vs. 1.005 + /-0.12, p=0.05), but not BMD of spine (0.986 + /−0.21 vs. 1.014 + /-0.12, p=0.06). In patients not on vitamin-D

replacement (n=42), there was increase in vitamin-D 16.0 + /−9.9 vs. 44.3 + /−12.2 p=0.01) and corrected calcium (2.12 + /−0.09 vs. 2.16 + /−0.08 p=0.02) level, but PTH, ALP and BMD of hip and spine did not change. In multivariate analysis that included all significant variables, vitamin-D replacement independently was associated with increase in vitamin-D level (OR 2.08, CI 1.03, 4.12, p=0.005), decrease in PTH level (OR 0.53, CI 0.35, 0.82, p=0.04), but not with change in corrected calcium, alkaline phosphatase, BMD of hip or spine.
Conclusion: After 36 months of follow up, replacement of low dose once daily oral vitamin-D in treatment experienced HIV patients with vitamin-D deficiency can increase vitamin-D level, reduce PTH level with no changes in BMD of hip and spine.

P73

Following evidence: is there a consistent approach to managing elite controllers after the START study

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Background: Recent studies have demonstrated the benefits of earlier initiation of antiretroviral therapy (ART) in chronic HIV infection regardless of CD4 count. Elite control of HIV infection has been defined as spontaneous and sustained maintenance of HIV RNA to <50 copies/mL in the absence of ART. Data regarding benefits of earlier initiation of ART in elite controllers (EC) is less robust although studies have demonstrated ongoing immune activation, raised cardiovascular risk and possibly more hospitalisation of EC compared to individuals on ART. We wanted to investigate current management of EC and low level viraemic (LLV) patients within our cohort.
Methods: Our database was interrogated to identify any EC or LLV patients (defined here as VL<200 copies/ml) seen in the year Dec 2015 to Dec 2016. Case notes were then examined to identify any discussion/advice about starting ART with respect to contemporary data.
Results: 33 patients were seen in the allotted time frame (23 EC and 10 LLV). Three elite controllers were seen only once on diagnosis and not seen again, leaving 30 patients for analysis. The median time from diagnosis in EC was 39 months; in the LLV patients it was 24 months. Median CD4 percentage was 35% (20–44%), the median CD4:CD8 ratio was 0.9 (0.3–1.3) of whom 5 had a ratio ≤0.5. Of the ECs, 8 (40%) had a documented discussion regarding rationale for starting treatment in the last year; all had declined. Of the patients with LLV, 5 (50%) had a documented discussion regarding starting ART in the last year. Four declined and one is currently considering it. There was no association between the CD4% and CD4:CD8 ratio as to whether the patient was offered treatment.
Conclusion: In line with current guidelines, amongst our cohort there is no clear consensus on treating people with well controlled HIV not receiving ART, and there are some discrepancies in whether discussion takes place about treatment between physicians. We suggest, as a minimum, a documented discussion about treatment with all patients off treatment at least once a year, and that treatment is recommended at CD4:CD8 ratio of ≤0.5 as indicated by the START data. Perhaps predictably, there is a certain amount of reticence amongst ECs towards starting treatment, which may warrant further exploration.

P74

Hepatitis B exposure, immunity and infection in newly diagnosed HIV infected men who have sex with men: a 10-year analysis

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Background: In the UK, men who have sex with men (MSM) should be immunised against hepatitis B virus (HBV) infection. NICE guidelines (PH43) recommend screening for and immunisation against HBV infection in a wide range of settings. Notwithstanding the recommendations, data show that the rates of exposure and chronic infection among MSM may still be high. The aim of the present study was to investigate the longitudinal rates of exposure to HBV infection, chronic HBV, and immunity to HBV infection in newly diagnosed HIV infected MSM.
Methods: All newly diagnosed patients routinely undergo screening for hepatitis B serology; hepatitis B surface antigen (HBsAg), hepatitis B core antibody (HBcAb), and hepatitis B surface antibody (HBsAb). Baseline hepatitis B serology results of all MSM diagnosed between January 2007 and January 2017 were included. Kendall's Tau was used to compare the proportions over the study decade.
Results: 435 MSM were diagnosed with HIV infection in the study period. Of those 77 (18%) were HBcAb positive and considered exposed to HBV. The rate of exposure declined from 22% in 2007 to 9% in 2016, a statistically significant decline on Kendall's Tau, p=0.005. The decline was more marked between 2010 (29%) and 2011 (11%). Among the 358 MSM with negative HBcAb, 209 (58%) were immune (HBsAb>10 IU/L). The immune state of 16 patients was unknown. Over the study period, the rate of immunity to HBV increased from 47% in 2007 to 63% in 2016. The difference was not significant (p=0.056 on Kendall's Tau). Chronic HBV infection was identified in 9 (2%) MSM over the study period. The rate of chronic infection remained low and stable over the time; 2% in 2007–2009, and 2% in the 2013–2016 period (p=0.937, Kendall's Tau).
Conclusion: During the 10 year observation in the cohort, the rate of chronic HBV infection has remained low in MSM newly diagnosed with HIV. The rate of exposure to HBV infection has declined significantly. This reduction cannot be accounted for by improved immunisation of MSM against HBV.

P75

HIV and the QT: how long is too long?

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Background: Significant prolongation of the QT interval on the electrocardiogram (ECG) can cause sudden cardiac death. A number of antiretroviral (ARV) drugs have been shown to prolong the QT interval, a particular concern when used in combination with other QT prolonging medications. A manual calculation of the QT interval, corrected for heart rate (QTc), is recommended when evaluating the risk of these medications. We evaluated the knowledge of ARV prescribers regarding QT prolonging medications and their ability to calculate the QTc.
Methods: Using convenience sampling, delegates at Autumn BHIVA 2016 were asked to complete an anonymous questionnaire. This included the calculation of a QTc interval using Bazett's formula. The American Heart Association definition of a normal QTc was used (women <460 ms, men <450 ms). The "gold standard" or correct QTc was calculated using the "teach the tangent" method.
Results: Thirty-three clinicians completed the questionnaire: 2 professors, 27 consultants and 2 registrars. Only 6 (18%) were able to correctly define a normal QTc. 15 (45%) underestimated the values, 2 (6%) overestimated the values, 8 (27%) stated they had no idea and 1 (3%) stated they would check google. Review of product characteristics identified 6 ARVs where a QTc prolonging effect had been seen. Efavirenz was correctly identified by 12 (36%), rilpivirine 19 (58%), atazanavir 13 (39%), darunavir 14 (42%), saquinavir 16 (48%) and ritonavir 14 (42%). Only 4 (12%) clinicians correctly identified all 6 agents and only 2 (6%) identified the 6 agents without including additional agents in their answer. 19 (58%) included a drug with no known QTc prolonging effect in their selection. Cobicistat was the agent most frequently incorrectly identified as causing QTc prolongation 14 (42%). 26 (79%) clinicians calculated a QTc from the sample ECG. The average answer was 402 ms but answers ranged widely (130–460 ms). Only 3 (9%) gave the "gold standard" answer of 459 ms with a further 5 (15%) within 10 ms.
Conclusion: Significant variation was seen between HIV clinicians when manually calculating the QTc consistent with findings reported elsewhere (including among cardiologists). Our cohort generally underestimated the QTc which has implications for patient safety. Poor knowledge on which ARVs do and do not cause QTc prolongation may also be impacting on choice of ARV regimen.

P76

HIV: where are we going with PIs?

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Background: Cardiovascular disease, diabetes, and renal disease are important causes of mortality and morbidity in patients with HIV infection

in the UK. The British HIV Association 2015 Audit identified low rates of monitoring of cardiovascular risk. Observational data has implicated protease inhibitors with increased cardiovascular and renal risk, but evidence is mixed. There is little UK data on prevalence of cardiovascular risk in those people living with HIV who take protease inhibitors. We aimed to describe the burden of risk in our cohort.
Methods: We conducted a point prevalence audit of 149 HIV positive patients on protease inhibitor therapy from a cohort of 1200 on ART. We extracted data from our database, and local laboratory data. We used this to calculate Edinburgh CVS risk, BMI as a proxy for metabolic syndrome, and D:A:D renal risk.
Results: Baseline demographics are similar to our wider cohort: 68% of the population were male, 62% were of white ethnic origin and 33% of Black ethnic origin; 45% of cases were acquired by sex between men, 47% via heterosexual sex; the mean age was 44. A resistant virus was the reason for PI use in 40%. 55% had a nadir CD4 of less than 200/mm3. In 72% of patients, ritonavir-boosted darunavir was the protease inhibitor used; 67% of patients were on a tenofovir containing regimen. 35% were current smokers. The prevalence of a recorded diagnosis of comorbidity included 20% with hypertension, 10% with chronic kidney disease, 3% with diabetes, and 1% with prior cardiovascular disease. 23% of patients had a 10-year cardiovascular risk of greater than 10%. The mean BMI was 27; 58% of patients had a BMI greater than 25. The mean D:A:D renal score in those without chronic kidney disease was 4.2%.
Conclusion: The limitations are the lack of validated tools for cardiovascular risk (the QRISK is favoured by GPs and BHIVA) in HIV patients. We did not study end events such as myocardial infarctions. We did not compare against patients on other "third agents": the increased risk we observed may reflect a population trend within those on protease inhibitor therapy. This 'real world' audit of UK patients receiving protease inhibitors indicates a high burden of cardiovascular and renal risk. In addition, the BMI as proxy for metabolic syndrome is significant. This highlights an urgent need to improve monitoring and management and re-evaluate PI use in patients with wildtype virus.

P77

HIV-associated hepatocellular carcinoma: validation of the albumin–bilirubin (ALBI) grade as a prognostic indicator in 387 patients

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Background: Hepatocellular carcinoma (HCC) is a leading cause of liver-related mortality in people living with HIV, where co-infection with hepatotropic viruses accelerates the course of chronic liver disease. The ALBI grade is a novel biomarker of liver dysfunction in HCC, however its prognostic significance has not yet been evaluated in patients co-infected with HIV.
Methods: Using uni- and multivariable analyses, we studied the ALBI grade as a predictor of overall survival (OS) in a large, multi-centre cohort of patients with HIV-associated HCC recruited from 39 centres in 9 countries within the Liver Cancer in HIV study group.
Results: A total of 387 patients, predominantly HCV co-infected (78%) with balanced representation of all Barcelona Clinic Liver Cancer (BCLC) stages (A=33%, B=18%, C=37%, D=12%) were recruited. At HCC diagnosis, 84% had been on anti-retroviral therapy, for a median duration of 8.8 years. The ALBI grade stratified patients into 3 groups with significantly different overall survival. Grade 1: median survival 97 months (95%CI 13–180), grade 2: 17 months (95% CI 11–22) and grade 3: 6 months (95%CI 4–9), $p<0.001$. A more advanced ALBI grade also correlated with lower CD4 counts and higher HIV viraemia ($p<0.001$).
Conclusions: In this large, multi-centre retrospective study, we validated the ALBI grade as a biomarker of survival in HIV-associated HCC. The relationship between ALBI and HIV-correlated immune-suppression unveils progressive liver dysfunction as an important pathophysiologic mechanism justifying the more aggressive course observed in HIV-associated HCC.

P79

Lowest acquisition drug cost directly acting antiviral (DAA) treatment for hepatitis C (HCV): high cure rates in a difficult to treat HIV/HCV population

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Background: In RCTs of DAAs, those with HIV/HCV co-infection have equivalent sustained virological response (SVR) rates to HCV alone. Recent data suggest that outside trials, patients with HIV/HCV may experience lower SVR rates.
Methods: Data were gathered on all patients with HIV/HCV undergoing treatment (Rx) with DAAs from 1.7.14–1.12.16 at 2 centres in S. London. All were discussed by a multidisciplinary team (MDT) who decided Rx type, duration, use of ribavirin (RBV). Options were sofosbuvir/ledipasvir (SOF/LDP), paritaprevir/ritonavir/ombitasvir (PrO) plus dasabuvir (ProD), sofosbuvir/daclatasvir (SOF/DAC) or SOF with RBV or pegylated interferon (PEG-IFN) according to NHSE genotype based guidelines. Continuous variables are expressed at median (IQR).
Results: 107 patients started DAA Rx, 70 have reached the SVR 12 time-point. Demographics see table. Of the total group, all were on ART, 21 (30%) had to alter regimen prior to DAAs due to drug-drug interactions (DDIs). Of the group who reached 12 weeks post Rx SVR, 33 (47%) were cirrhotic, including 7 (10%) with decompensation. 5 were post OLT. All had undetectable HIV RNA. 22 (31%) were previous null responders to PEG-IFN. 8 (11%) were HCV reinfections having been successfully treated before with PEG-IFN. 55 received ribavirin (RBV); RBV level 2.2 mg/L (1.6, 2.6). Baseline HCV RNA in table. 69/70 (98.5%) achieved a 12 week post Rx SVR. The one relapse was a young woman, non-cirrhotic, treated with 8 weeks SOF/LED with no RBV.
Conclusions: These data demonstrate that patients with HIV/HCV and advanced liver disease achieve excellent SVR rates. Joint management by both HIV and liver physicians is essential to consider Rx duration, use of RBV and optimise DDIs.

		Total started DAAs (n=107)	Completed DAAS (n=70)
Age		50 (43, 54)	50 (44, 54)
Gender	Male	94	62
Ethnicity	White Brit, Black, Med	74, 9, 11,	53, 8, 3,
Genotype	1a, 1b, 1, 3, 4	68, 10, 2, 1, 9, 17	44, 7, 1, 0, 6, 12
HCV RNA	(IU/ml)	1.3×10^6 (4×10^5, 5×10^6)	1.7×10^6 (5×10^5, 4×10^6)
Cirrhotic		41	33
HCV drugs	SOF/LDP 8 /12 weeks	9, 32	9, 28
	PrOD 12 /24 weeks	42, 4	16, 3
	PrO	10	8
	SOF/DAC	6	4
	SOF/RBV	2	1
	SOF/PEG-IFN	2	1

P80

Managing hypertension in HIV patients: how are we doing?

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Background: Patients living with HIV are at increased risk of cardiovascular disease (CVD). Hypertension is a modifiable risk factor for CVD and optimum control of blood pressure is needed to reduce morbidity and mortality. NICE guidelines recommend antihypertensive treatment (AHT) above a blood pressure of 140/90. The management of hypertensive patients in an HIV cohort of 1200 patients was reviewed. All AHT in our cohort are prescribed by GPs with DDI advice from our clinic letters, 15% of our cohort does not allow communication with GPs.
Method: HIV patients with hypertension in their past medical history or with high blood pressure >140 systolic or >90 diastolic at clinic attendance were included. Data on patient demographics, cardiovascular risk factors, current

antihypertensive and ARV medication were collected. Drug interactions were coded according to the Liverpool Drug Interactions classification. 2016 NICE guidelines for the management of hypertension were used as a benchmark.
Results: 179 patients had a diagnosis of hypertension. Of those patients on AHT, 120/179 (67%) were on treatment. NICE AHT treatments for age and ethnicity were followed in 70/179 (39%). 78/179 (44%) patients had controlled hypertension and of these 22/78 (28%) were controlled without any medication. NICE stepwise AHT were followed in 68/78 (87%) of these patients. 101/179 (56%) had uncontrolled hypertension. Of these 42/101 (42%) had not been started on any medication. Of the 59/101 (58%) patients on medication, 45/59 (76%) were started on the correct 1st step AHT. However only 2/59 (3%) were moved through the correct AHT to optimise their treatment. Of those patients on AHT, none had a contraindicated interaction with their ARVs. 56/179 (31%) patients with hypertension were on abacavir, 50/179 (28%) on protease inhibitors.
Conclusion: In our HIV cohort 67% of patients with hypertension were on AHT. Only 42% of patients with uncontrolled hypertension were on optimal treatment as per NICE guidelines. Increased awareness of hypertension guidelines among HIV clinicians and better communication with GPs will ensure patients are started and maintained on the correct AHT. Limitations of our study include not having access to GP notes and using a single blood pressure reading from the HIV clinic. Validation with a 24 hour ambulatory BP is needed to accurately identify who needs to be on AHT. ART optimisation should be considered in patients with high CVD risk.

P81

Managing isolated hypophosphataemia in a local HIV clinic: experience with Genvoya

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Background: Hypophosphataemia in HIV patients (incidence ≥1/100 to <1/10) may result from various causes, including renal dysfunction associated with HIV itself or antiretroviral therapy (ART), particularly tenofovir disoproxil fumarate (TDF). Hypophosphataemia is often considered a low priority due to difficulties in paired blood–urine testing and limited treatment options: ie, phosphate supplements, high-phosphate diet and switching ART in those on TDF.
Methods: The Integrated Sexual Health clinic manages about 650 HIV patients. The location of the clinic relative to laboratory services makes paired blood–urine sampling difficult, so clinical decisions are based on serum phosphate alone. The pharmacy system was used to identify patients who had been prescribed phosphate supplements for isolated hypophosphataemia since TDF was licensed in 2002.
Results: 24 (3.7%) patients with no signs of renal tubular damage other than low serum phosphate (<0.6 mmol/l) started phosphate supplements. One was on an abacavir (ABC)-based and 23 on a TDF-based regimen. The patient on ABC and three on TDF had only transient hypophosphataemia and continued their regimens. 14 switched to alternative (ABC-based or, if this was not suitable, nucleotide -sparing) regimens, and phosphate levels stabilised in all after the switch. Six remained on their TDF-based regimen and phosphate supplements; four of these later switched to Genvoya – a tenofovir alafenamide fumarate (TAF)-based regimen. The other two were eligible for TAF but had not switched at the time of the review. One of these was HLA-B5701-positive; he will be offered Genvoya at his next appointment. One had a complex treatment history with numerous ARTs and did not wish to switch to a non-standard regimen; Genvoya was not appropriate but he was recently switched to Descovy. Preliminary results in the patients who switched to Genvoya indicate that such a switch may stabilise phosphate levels, even after supplements are withdrawn (mean serum phosphate improved by 33%).
Conclusions: TAF offers a simple strategy to manage hypophosphataemia associated with TDF-related renal dysfunction. Clinicians should be more vigilant about monitoring phosphate to allow them to identify changes associated with kidney dysfunction early and take action while patients are still asymptomatic, renal dysfunction is still reversible and its consequences are not too advanced.

P82

Markers of subclinical atherosclerotic disease in HIV infected patients

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Background: Wider access to Antiretroviral Treatment (ART) has resulted in a decline in the number of people dying due to AIDS related causes but with accelerated rates of cardiovascular and atherosclerotic diseases. We hypothesized that atherosclerotic cardiovascular diseases is more in HIV/AIDS patients as compared to normal population. Thus we aimed to study the predictors of subclinical atherosclerotic disease in HIV infected patients.
Methods: 168 HIV positive patients <45 years of age (study group) [124 (73.08%) on Anti Retroviral Treatment (ART) & 44 (26.2%) ART naïve] along with 150 age & sex matched healthy controls were recruited for this cross sectional observational study. Carotid intimal medial thickness (CIMT), (a surrogate marker of atherosclerosis) was assessed by carotid colour doppler ultrasound. CIMT was correlated with the age of the patients, duration of disease, duration and type of ART and the level of immunodeficiency (CD4 counts) along with conventional cardiac risk markers. Data was analyzed using IBM SPSS software for windows version 20 and P values≤0.05 were considered significant.
Results: The mean CD4 counts of the study group were 332.41 ± 87.1/mm^3. The mean CIMT of all HIV positive patients was 0.712 ± 0.039 mm as compared to 0.616 ± 0.023 mm in HIV negative individuals (P<0.001) reflecting the direct effect of HIV and AIDS on CIMT. CIMT in HIV positive individuals on ART was 0.722 ± 0.034 mm as compared to 0.682 ± 0.038 mm in HIV positive patients not on ART (P<0.05) reflecting the direct detrimental effect of ART on CIMT of these patients. Similarly CIMT in ART naïve HIV infected patients was significantly higher (**P < 0.05**) than the control group showing the direct effect of HIV per se on atherosclerotic process. On multivariate regression analysis low CD4 counts, longer duration of HIV infection, exposure to ART, longer duration of ART and low HDL levels were found to be independent predictors of a higher CIMT in HIV positive subjects whereas age, diastolic blood pressure, high LDL and high BMI were predictors of high CIMT in controls.
Conclusions: Patients with HIV infection (whether on ART or ART naïve) have higher atherosclerotic disease as compared to HIV negative individuals. Virus itself per se along with HAART (even NRTI/NNRTI and not PI which is conventionally thought to be atherogenic) overshadow the conventional cardiac risk markers and are the strongest predictors of higher atherosclerotic burden in these patients.

P83

Medicalising normality? Using a simulated dataset to assess the performance of different diagnostic criteria of cognitive impairment

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Background and Objectives: The reported prevalence of cognitive impairment remains similar to that from the pre-antiretroviral therapy era. This may be partially artefactual due to the methods used to diagnose impairment. We evaluated the diagnostic performance of two commonly used methods for quantifying the prevalence of cognitive impairment, the HIV-associated neurocognitive disorder (Frascati criteria) and global deficit score (GDS) methods, in comparison to a new, multivariate method of diagnosis.
Methods: Using a simulated 'normative' dataset informed by real-world cognitive data from the Pharmacokinetic and Clinical Observations in PeoPle Over fiftY (POPPY) study, we evaluated the apparent prevalence of cognitive impairment using the Frascati and GDS definitions, as well as a multivariate method based on the Mahalanobis distance. We then quantified the diagnostic properties of each method in a 'test' dataset to which a pre-defined proportion of 'impaired' individuals had been added, using bootstrapping with 10,000 replicates. Simulations were performed using R v3.2.4 (*R* Foundation for Statistical Computing, Vienna, Austria) with the 'MASS' package v7.3-45.
Results: The simulated normative dataset demonstrated that up to 26% of a normally distributed control population would be diagnosed with cognitive impairment with the Frascati criteria, 20% with the GDS but only 5% with the multivariate Mahalanobis distance method. Using the test dataset, diagnostic accuracy and positive predictive value (PPV) was best for the multivariate

method vs. Frascati and GDS (accuracy [95% confidence interval]: 92.8% [90.3–95.2%], 76.1% [72.1–80.0%] and 80.6% [76.6–84.5%] respectively; PPV: 61.2% [48.3–72.2%], 29.4% [22.2–36.8%] and 33.9% [25.6–42.3%]).
Conclusion: The commonly used diagnostic criteria of HIV-associated cognitive impairment label a significant proportion of any population as cognitively impaired, with a substantial over-estimate of the true proportion. These findings have important implications for clinical research regarding cognitive health. More accurate methods of diagnosis should be implemented, with multivariate techniques offering a promising solution.

P84

Mediterranean diet can improve cardiovascular risk in HIV dyslipidaemia: a randomised controlled dietary intervention trial

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Background: The risk of cardiovascular disease is increased in the HIV population, potentially due to the additional burdens of infection, inflammation and antiretroviral treatment (ART). The effects of dietary intervention on cardiovascular risk (CVR) in HIV have not been well defined. We aim to examine the effect of two dietary interventions on CVR in HIV dyslipidaemia.
Methods: Sixty adults with stable HIV infection on ART and LDL-cholesterol >3 mmol/l were recruited from three UK HIV centres. Participants were randomised (1: 1) to receive dietary advice to reduce saturated fat intake to <10% of energy intake (Diet1), or to adopt the Mediterranean Portfolio Diet (Diet2) with additional cholesterol-lowering foods (nuts, stanols, soya, oats, beans) for 12 months. Measurements of food intake, body composition, arterial stiffness, inflammation, CVR and fasting blood lipids were conducted at baseline, month 6 and 12. Between-group changes of CV risk factors were assessed using ANCOVA, with adjustments for baseline values of the dependent variables. Analysis was by intention to treat. Ethical approval was granted (13/WM/0225).
Results: Baseline characteristics of the groups were comparable for age (mean 42 $\pm$ 7 years), gender (50% female), smoking status (65% non-smokers) ethnicity (50% black African, 40% white European) and lipid profile (mean LDL 3.9 $\pm$ 0.6 mmol/l). Adherence to Portfolio components of Diet2 varied from 11 to 100% (mean 59 $\pm$ 21%). At 6 months, Diet2 participants (n=29) showed a greater increase in Mediterranean Diet Score (3.3 points, 95%CI 2.0 to 4.7, p<0.001), reduction in LDL-cholesterol (−0.4 mmol/l, 95%CI −0.7 to −0.1, p=0.01), cholesterol to HDL ratio (−0.3 95%CI −0.6 to −0.1, p=0.01), and systolic blood pressure (7.2 mm Hg, 95%CI 1.6 to 12.8, p<0.001) than those in Diet1 (n=31). Arterial stiffness, body mass index, waist circumference, levels of physical activity and high sensitivity C-reactive protein were not significantly different between groups. No adverse effects were observed in plasma levels of vitamin A, gut function, health related quality of life, or health and wellbeing.
Conclusion: Dietetic advice to follow a Mediterranean diet containing plant stanols, nuts, oats, beans and soya protein produced greater improvement in diet quality, CVR, and a 10% greater reduction in LDL-cholesterol than standard guidelines to reduce saturated fat intake. Reduction in LDL-cholesterol of this magnitude would translate to a 10% reduction in major vascular events.

P85

Monitoring the fracture risk and bone mineral density of HIV-positive individuals: a single-centre audit

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Background: As HIV-positive individuals in the UK get older it is increasingly important to monitor bone health. Reduced bone mineral density (BMD) is associated with chronic HIV infection, antiretroviral therapy (ART) and traditional risk factors. BHIVA recommend assessment via FRAX score at diagnosis, prior to starting ART and every three years thereafter. FRAX has not been validated in HIV and it is unclear if HIV should be considered a cause of secondary osteoporosis. Dual energy x-ray absorptiometry (DXA) scan is recommended for those at increased risk, all women >65 and men >70 years. The BHIVA National Audit 2015 highlighted poor performance nationally.
Methods: We reviewed case notes of patients over 40 attending a single HIV clinic in October 2016 and compared with a local audit in 2014. We recorded risk factors for low BMD, when FRAX scores were calculated, and DXA results. We calculated FRAX scores with and without HIV included as a cause of secondary osteoporosis.
Results: 74 cases were included (47% female, mean age 52, range 40–82), mean duration of infection 178 months (2–380). 78% had a CD4>350 cells/mm^3 (41–1292), 99% on ART, 75% of whom had ever taken TDF. 85% had a viral load <40 c/mL. Where documented, the most common risk factors were white ethnicity (68%), age ≥50 (64%), smoking (32%), and alcohol intake >3 μ/day (20%). Two patients had previous fractures, one of whom was on osteoporosis treatment. Bone health was discussed in 36% of cases. FRAX scores were calculated at diagnosis in 1%, on starting ART in 3% and in 9% of patients in the last 3 years. 13% had previous DXA scans. On calculating FRAX scores without HIV as a cause of secondary osteoporosis, risk was low in 82% and intermediate in 18% with DXA recommended in 18%. Including HIV as a cause of secondary osteoporosis increased risk (low 47%, intermediate 51%, high 3%) DXA was recommended in 52%.
Conclusion: These findings are similar to BHIVA National Audit figures but were significantly improved from local figures in 2014 when 1% of patients had bone health discussed. There is however huge room for improvement. Clinicians need to discuss bone health regularly and calculate FRAX scores as per BHIVA guidelines. We have launched a specialist women clinic which focuses on bone health, amongst other issues. We will work with the multidisciplinary team to further integrate bone health into our care.

P86

Multi-drug resistant TB (MDR-TB) and HIV: patient characteristics and outcomes in resources limited settings

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Background: Multidrug-resistant tuberculosis (MDR-TB) is a growing public health problem, but there is a paucity of data in resource-limited settings. Many countries adopted capacity building towards improved MDR-TB detection in the hospitals since 2010. These strategies included training of health workers, introduction of the GeneXpert MTB/RIF – a molecular test for TB for early diagnosis of TB and infrastructural adjustments. We studied MDR-TB on HIV+ and HIV-patients to describe patient characteristics in these settings.
Method: We assessed records of patients managed for drug resistant TB for the period June 2013 to November 2016. Through an audit, we obtained data on patient demographics, HIV status, previous history of TB, resistance type, time to culture conversion, regimen, duration of treatment and outcomes. We used basic statics to analyse these data.
Results: In total 62 patients had complete records, children <14 years were 5 (8%) adults >15 years were 51(92%). The majority were males 40 (65%), HIV was positive in 26(42%). Most patients with MDR-TB 49(79%) had history of previous TB. Drug resistance was mainly to Rifampicin 34(55%), followed by Rifampicin and Isoniazid 24(39%). We noted poly resistance in 4(6.5%). During this period 18(29%) were cured, 8(13%) died and the rest were still on treatment.
Conclusion: Poor treatment for initial TB infection and HIV infections were predisposing factor to MDR-TB.

P87

NAFLD in HIV is associated with age and metabolic factors but not HIV-specific parameters in a prospectively characterised cohort

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Introduction: Non alcoholic fatty liver disease (NAFLD) is the most common liver disease worldwide with a prevalence of about 25%, and is associated

with the metabolic syndrome. NAFLD is a recognised co-morbidity of HIV, but little is known about the interaction between chronic HIV infection and NAFLD. We aim to characterise our cohort with NAFLD and HIV mono-infection to identify risk factors associated with the disease.
Methods: A prospective pilot study was performed to collect comprehensive clinical data from consecutive patients referred to dedicated clinics at two centres from March-December 2016. All patients underwent liver ultrasound and transient elastography. All patients with liver stiffness (LS)>7.1 kPa were invited for biopsy. NAFLD was defined as steatosis on ultrasound scan and/or controlled attenuation parameter ≥250 db/m, in the absence of excess alcohol or other causes of chronic liver disease. Univariate analysis of continuous (median (IQR), Mann–Whitney) and discrete (Chi-Squared and Fishers Exact Test) variables was performed compared to age and sex matched controls with no liver disease. Factors associated with significant fibrosis (liver stiffness ≥7.1 kPa and/or biopsy confirmation) were also explored.
Results: Of 117 patients seen, 86 (74%) with hepatic steatosis were seen. After excluding secondary causes of steatosis (alcohol n=16, HCV n=2, testosterone supplements n=2), and HBV co-infection (n=1), 65 patients were enrolled. The population characteristics were: 95% male, age 44 years (40–52), BMI 28 (26–32), waist circumference 98 cm (91–110), 9% diabetic, duration of HIV infection 10 years (3–14), NRTI exposure 63 months (35–148), exposure to d-drugs 18%, CD4 nadir 295 (173–431), CD4 720 (547–923), undetectable viral load 92%.
17 (26%) had significant fibrosis defined by liver stiffness>7.1 kPa. Liver biopsy (n=5) showed NASH in 4/5 and fibrosis in 4/5 (F1 n=2, F3 n=2).
Compared to controls (n=14), NAFLD was associated with increased BMI ($p<0.001$), waist circumference ($p<0.001$) and hyperlipidaemia ($p=0.006$). There was no association with drug exposure (including d-drugs), CD4 nadir, CD4 count or duration of infection. Age ($p=0.039$), BMI ($p=0.026$), ferritin ($p=0.007$) and GGT ($p=0.018$) were associated with significant fibrosis.
Conclusions: Aging and obesity are key players in the development of NAFLD-related fibrosis in HIV mono-infected patients independently of HIV-related parameters.

P88

Observations and lessons learned from a newly implemented inter-trust joint HIV-endocrinology multi-disciplinary team meeting

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Background: Non-AIDS comorbidities are increasingly recognised in an ageing, well controlled, HIV-infected population. Chronic immune activation, earlier ART initiation, co-infections and drug interactions are recognised contributory factors.
Our HIV service provides care for a cohort of 600 out-patients. Due to commissioning changes, our Sexual Health/HIV service was relocated under a community NHS Trust provider, resulting in a geographical separation with the acute Trust.
Aim: A service gap was identified with regards to specialist input for issues of a metabolic/endocrinology nature, which we aimed to bridge by creating cross-Trust working.
Methods: In April 2015, a joint HIV-Endocrinology MDT meeting was convened. Cases requiring specialist input are identified from the weekly departmental HIV/Infectious Diseases MDT meeting. An Endocrinologist of the acute Trust attends our service on a quarterly basis where patient records are reviewed jointly with an HIV physician.
Results: Fifty-five patients have been discussed to date (age range 25–69 years). All are taking ART. 53/55 (96%) have a CD4 count >200 cells/mm^3 (range 54–1200 cells/mm^3) and 52/55 (95%) have an undetectable HIV viral load. The most frequently raised issue for discussion is dyslipidaemia, in 33/55 (60%) patients. 10/55 (18%) are known diabetics and were discussed due to sub-optimal diabetes control, diabetic dyslipidaemia and/or potential ART-diabetes drug interactions. The HBA1c range in this group is 39–103 mmol/mol. New diagnoses of diabetes, pre-diabetes and possible reactive hypoglycaemia were identified in a further 3/55 (5%) patients.
3/55 (5%) were diagnosed with Cushing's syndrome/adrenal suppression secondary to inhaled Fluticasone – Ritonavir interaction. Other diagnoses include sub-clinical hypothyroidism and hypogonadism.
Conclusion: We have observed important patterns in the presentation of metabolic/endocrinology co-morbidities. Endocrinology input has proved of great benefit particularly in the management of more complex and risk-associated presentations including adrenal suppression and erratic diabetes control. This joint working also allows a consistent link with the acute Trust for in-patient consultations. Furthermore, wider learning opportunities and increased awareness amongst non-HIV specialist colleagues in the acute Trust are promoted, particularly with regards to opportunities for HIV testing.

P89

Parkinson's disease in HIV-positive individuals: a case series from a single UK centre

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Background: HIV-positive individuals are now reaching a normal lifespan and will increasingly encounter diseases associated with ageing, including Parkinson's Disease (PD). Little is known about PD in the context of HIV; one report of 15 individuals from France showed no change in PD incidence or clinical course, but individuals reported specific hallucinations and increased impulsive behaviours. Four individuals experienced unusual motor deterioration. No interactions between antiretroviral therapy (ART) and PD treatment were found. There is no published data from the UK. We aimed to describe all cases diagnosed at a single HIV outpatient clinic in the UK.
Cases: Four males with PD were identified from a total 4652 patients who had ever accessed a single HIV clinic. Two had Parkinson's Plus syndromes; one had Progressive Supranuclear Palsy and one had Lewy Body Dementia. Age at PD presentation ranged from 65–77 years. Time of HIV diagnosis to PD diagnosis ranged from 0–25 years. All individuals were diagnosed by a neurologist and had normal MR imaging of the brain bar mild ventricular prominence in one case. Differential diagnosis included HIV dementia. Three individuals experienced postural hypotension, in two cases preceding diagnosis, which has previously been linked to HIV Parkinsonism. One individual had a DaTSCAN and lumbar puncture due to diagnostic uncertainty, which showed significant changes in the basal ganglia indicative of PD and minimal CSF viral escape (91 copies/mL).
Management of chronic HIV was impacted by the PD diagnosis. In one individual confusion was exacerbated by dolutegravir. Three individuals had swallowing difficulties impacting drug administration. The individual with CSF viral escape had his ART intensified to increase CNS penetration. As individuals experienced progressive disease, issues such as Power of Attorney and Next of Kin became important and with this, disclosure of HIV status.
Conclusions: Similar to the previous case series, the onset of PD in these four men living with HIV occurred at a prevalence similar to that of the general population, with no clear link with HIV infection. No increase in hallucinations, impulsions, or motor deteriorations were found. While we also found that ART and dopamine treatment did not interact in our patients, challenges of managing HIV and PD included neuropsychiatric side effects of ART, swallowing difficulties and issues surrounding capacity.

P90

Predictors of HBeAg loss in HBeAg-positive patients with chronic hepatitis B during treatment with tenofovir alafenamide or tenofovir disoproxil fumarate

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Background: Elevated pre-treatment serum alanine aminotransferase (ALT) and active histologic disease have been associated with HBeAg loss during oral antiviral therapy for chronic hepatitis B (CHB). Our objective was to evaluate factors associated with HBeAg loss during treatment with tenofovir alafenamide (TAF) or tenofovir disoproxil fumarate (TDF).

Methods: The study included adults with HBeAg-positive CHB enrolled in a Phase 3 trial (Study GS-US-320-0110) comparing TAF 25 mg QD vs. TDF 300 mg QD. The associations between HBeAg loss at Week 48 with host, viral, and treatment-related factors, including on-treatment virologic suppression (Roche COBAS Taqman; lower limit of detection 29 IU/mL), were determined using logistic regression analyses.
Results: Among 850 included patients, the median age was 36 yrs, 82% were Asian, and median baseline (BL) ALT and HBV DNA were 86 U/L (IQR 60–139) and 8.0 log10 IU/mL (IQR 7.0–8.6), respectively. 112 patients (13.2%) lost HBeAg and 81 patients (9.5%) had HBeAg seroconversion at Week 48. HBeAg loss was similar between the TAF and TDF treatment groups (13.8% vs. 11.9%; $P = 0.519$). Compared with subjects with persistent HBeAg-positivity, those with HBeAg loss were older (median age, 35 vs. 40 yrs), and had higher median BL ALT (84 vs. 115 U/L), a higher prevalence of presumed cirrhosis (Fibro- Test ≥0.75: 6.8% vs. 15.9%), and lower median BL serum HBV DNA (8.0 vs. 7.6 log10 IU/mL) (all $P < 0.005$). Patients with HBeAg loss had greater median decline in HBV DNA at Week 12 (4.6 vs. 4.3 log10 IU/mL; $P = 0.009$), but not Week 48 (6.1 vs. 6.2 log10 IU/mL; $P = 0.573$). In multivariate analysis, independent predictors of HBeAg loss included older age (OR per yr: 1.03 [95% CI 1.01–1.05]; $P = 0.002$), higher BL ALT (OR per U/L: 1.005 [1.003–1.008]; $P < 0.001$), and lower HBV DNA (OR per log10 IU/mL: 0.74 [0.64–0.87]; $P < 0.001$).
HBV DNA suppression at Week 12 was not significant.
Conclusions: A minority of subjects treated with TAF or TDF experience HBeAg loss with 48 weeks of treatment. Older age, higher BL serum ALT, and lower HBV DNA are associated with higher rates of response.

P91

Prevalence of cardiovascular risk factors in women ageing with HIV: an analysis of data from the POPPY study (pharmacokinetic and clinical observations in people over fifty)

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Background: Increasing numbers of older women are accessing HIV services in the UK. For postmenopausal HIV+ women, the combined effects of oestrogen depletion and HIV may place them at particular risk of cardiovascular disease (CVD). We describe the prevalence of CVD risk factors in women aged ≥50 participating in the POPPY study, exploring the effects of HIV and menopausal status.
Methods: This analysis is based on data from 86 HIV+ women aged ≥50 and 109 similarly-aged HIV-women. Women reporting that they had stopped menstruating were defined as postmenopausal. Chi-square tests compared the proportions with a CVD risk in each group.
Results: Median (range) age of HIV+ and HIV-women was 54 (50–74) and 57 (50–86) years, respectively. Among HIV+ women, median CD4 count was 664 (58–2460) cells/μL and most (n=84) were on antiretroviral therapy. There were no significant differences in the prevalence of key CVD risk factors according to HIV status either overall, or in women who were postmenopausal (n=161, 83% of total, Table). Only 12 (16.9%) and 11 (12.1%) of postmenopausal HIV+ and HIV-women were receiving lipid-lowering drugs (LLDs, $p = 0.52$), with 20 (28.2%) and 16 (17.6%) receiving anti-hypertensives ($p = 0.13$). Among HIV+ women there were an additional 42 and 19 women who met established criteria for LLDs or anti-hypertensives (11 and 16 of HIV-women, respectively) but were not receiving either class of drug, with no significant between-group differences.

	All women ≥50 years			Postmenopausal women		
	HIV+ n (%)	HIV− n (%)	*p*-value	HIV+ n (%)	HIV− n (%)	*p*-value
N	86	109		71	91	
Body mass index ≥ 30	32 (37.2)	28 (25.7)	0.12	27 (38.0)	25 (27.5)	0.21
Systolic blood pressure>140	26 (30.2)	29 (26.6)	0.69	22 (31.0)	26 (28.6)	0.87
Total cholesterol (TD)>6	16 (18.6)	31 (38.4)	0.15	15 (21.1)	26 (28.6)	0.37
TC: HDL>5	6 (7.0)	9 (8.3)	0.95	5 (7.0)	8 (8.8)	0.91
Glucose>5.5	11 (12.8)	18 (16.5)	0.60	11 (15.5)	14 (15.4)	1.00
10 year CVD risk ≥ 10%	21 (24.4)	23 (21.1)	0.71	21 (29.6)	22 (24.2)	0.55

Conclusions: Within this small cohort, we report similar CVD risk factors among HIV+ and age-matched HIV-women. However, a substantial number of women with high CVD risk and/or hypertension were not receiving medication for these conditions. Clinicians should be aware of CVD risk in women ageing with HIV, and ensure they are treated in accordance with BHIVA guidelines.

P92

Prevalence of HIV associated neurocognitive disorder in an unselected cohort in East and South London

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A varying prevalence of neurocognitive impairment (NCI) has been reported among people living with HIV including those with systemically well controlled infection. Cohort studies in Europe have shown levels of NCI ranging from 20–85%. Studies in the UK to date have shown low levels of NCI, but these have been in selected cohorts such as only men who have sex with men, or neuro-asymptomatic patients on antiretroviral therapy. This is the first cohort study of NCI in an unselected diverse cohort in London.
Aims: This cross-sectional study was conducted to determine the extent of neurocognitive disorder in a cohort of HIV infected patients in the UK, and to establish any linkage with other medical factors, comorbidities, and antiretroviral CNS penetration effectiveness score.
Methods: 786 HIV+ participants aged 18 and over were recruited from 4 HIV clinics in East and South London. Participation involved one visit where past medical history, ARV history, drug and alcohol use and demographic data were collected; and mental state and neurocognitive function was assessed. Computerised assessment of neurocognitive function was undergone using the following Cogstate tests: detection (psychomotor function), identification (attention), Groton maze learning test (executive function), one card learning (visual learning), and one back (working memory). Participants were determined to have impairment if they were >1 standard deviation (SD) outside of the population mean.
Results: The median age of the participants was 46 (IQR 39–52), 510 (65%) were Caucasian. 81% had HIV VL <100. Median CD4 count was 566 (IQR 412, 741). Median CD4 nadir was 206 (IQR 89, 311). 26% were current smokers. Of the 710 who completed the Cogstate tests 84% were men. 37.2% had 2 or more tests with a score >1 SD below the population mean. The frequency of impairment for each of the tests is illustrated in Fig 1.

	Frequency of impairment (%)
Detection (psychomotor function)	197 (27.7)
Identification (attention)	199 (28.0)
Groton maze learning test (executive function)	136 (19.2)
One card learning (visual learning)	179 (25.2)
One back working (memory)	177 (24.9)

Fig. 1 Number and proportion of participants who scored >1 SD below the population mean for each test.

Conclusion: NCI was observed in 37.2% of this cohort. The unselected nature of the cohort may make this an accurate real life approximation.

P93

Prevalence of low-level transaminitis in a cohort of HIV infected individuals

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Background: Abnormal liver function tests are common in HIV positive patients. This may be due to antiretroviral therapy, hepatitis B or C co-infection. Non-alcoholic fatty liver disease (NAFLD) is increasingly diagnosed in these patients. Previous studies have shown the prevalence of NAFLD to be higher than that of the normal population. NAFLD can co-exist with viral hepatitis, and could cause a faster progression to fibrosis. This study investigated the prevalence of persistently raised ALTs and characteristics associated with these in a HIV positive cohort.
Methods: Patients with persistently raised ALTs were identified and the causes for these were investigated. Demographics and laboratory parameters were collected to identify factors associated with NAFLD. HIV mono-infected and HBV/HCV co-infected patients were included. Ultrasonography and transient elastography were used to identify NAFLD and liver fibrosis.
Results: 4.3% (n=44) of HIV positive patients were found to have persistently raised ALTs. 11 patients were excluded from further investigation due to alcohol excess (n=8), autoimmune liver disease (n=1), out of area (n=2) or deceased (n=2). Out of the 31 remaining patients, 71% had a BMI over 25, and 12 classified as obese. 48.4% (n=15) of the patients met the criteria for metabolic syndrome. A small proportion of patients had undergone investigations of raised ALTs by their clinician. Data on patients who underwent investigations for liver disease are presented: 12 out of the 13 patients who underwent liver ultrasound had findings suggestive of some degree of NAFLD. 10 out of 12 of these patients had a BMI>25, and 11 had some amount of dyslipidemia. 6 out of 11 patients who underwent transient elastography had liver stiffness values indicating significant liver stiffness. Further data will be available in the next couple of months.
Conclusion: There was a surprisingly low prevalence of transaminitis in this cohort compared to previous studies. This study found that transaminitis was frequently inadequately investigated by clinicians. More research is required into the prevalence of NAFLD within the HIV population, especially within the UK. These patients need long term follow up in order to evaluate the prognosis of NAFLD/NASH within the HIV population.

P94

Prostate cancer in people living with HIV: outcomes in the era of HAART

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Objectives: To examine the treatment and outcomes of prostate cancer in a UK cohort of patients living with HIV (PLWH) from the national centre for HIV oncology.
Methods: From a large prospectively maintained database of 633 patients diagnosed in the era of combination antiretroviral therapy (cART) with non-AIDS defining cancer, we identified 34 patients (median age 64 years, range: 46–84) with a diagnosis of prostatic cancer.
Results: At the time of cancer diagnosis, the median CD4 cell count was 616 mm^3, 33 (97%) were on cART of whom 31 (94%) had an undetectable HIV viral load. All patients presented with symptoms as there is no national PSA screening programme. The median serum PSA at presentation was 10 ng/mL and the Gleason score at biopsy ranged from 6 to 10. There was no correlation between histological grade of the tumour and CD4 cell count at cancer diagnosis (p=0.21).Three patients had metastatic disease at diagnosis whilst 31 patients had localised disease. Nineteen patients (61%) with localised disease were treated with radical therapy with curative intent, 11 with radical prostatectomy and 8 with external beam radiotherapy (of whom 3 required subsequent salvage surgery). Twelve patients (39%) with localised disease did not receive radical therapy and were monitored with close surveillance, in 10 cases this was because the localised tumour was low grade (Gleason 6). The median follow-up is only 2 years (maximum 11 years) but the 5 year overall survival is 94% (95%CI: 88–99%) and only one patient who presented with metastatic disease, has died.
Conclusions: Outcomes for the treatment of localised prostate cancer in PLWH is excellent. We would strongly suggest that PLWH with localised prostate cancer are offered the same treatment strategies as patients who are HIV seronegative, including access to radical prostatectomy. In the metastatic setting, given myriad and complex drug interactions and susceptibility to opportunistic infection, we recommend PLWH needing chemotherapy are managed by clinicians with an interest in this field.

P95

Real-world assessment of renal safety among patients with HIV infection exposed to tenofovir alafenamide

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Background: Triple therapy comprising NRTI backbone and choice of 3rd agent remains the standard of care for treating HIV. Choosing an NRTI backbone has often involved balancing potential for renal and bone toxicity with that of increased cardiovascular (CV) risk. Where these risks are unacceptable a complex nucleoside sparing regime has been the alternative. Studies have shown tenofovir alafenamide (TAF) to be less detrimental to renal and bone health than tenofovir disoproxil fumarate (TDF) and would be an ideal choice in this situation. We present data of early clinical experience with TAF in patients with abnormal renal parameters or risk factors.
Methods: Patients prescribed TAF between May–November 2016 for a renal indication were identified from clinic records. A retrospective chart review was conducted and data collected included relevant risk factors, previous ARV therapy and renal markers at intervals post TAF initiation.
Results: 16 patients were prescribed a TAF based regime for a renal indication. Mean age 55 years (range 46–72). 15 Caucasian and 1 Black African. All patients were treatment experienced and switched from TDF/FTC backbone in 13 (81%), ABV/3TC backbone in 2 (13%) and NRTI sparing regimen 1 (6%). Post -switch TAF regimen was TAF/FTC/ELV/c in 10 (63%) and TAF/FTC + 3rd agent in 6 (37%) patients. Regarding comorbidities, 4 had hypertension, 3 known CV disease and 2 increased CV risk. Reason for initiation of TAF was identified as elevated uPCR in 8 (50%) patients and increased creatinine in 7 (44%) patients. Noteably 1 patient had previous renal toxicity with TDF in addition to high CV risk. Renal parameters were recorded at week 0, 12 and 24: Median creatinine clearance (CrCl) was 79.4 mL/min, 87.5 mL/min and 90.85 mL/min respectively. Median uPCR was 26 mg/mmol, 16 mg/mmol and 14 mg/mmol respectively. 1 patient with previous TDF toxicity had a CrCl of 92.6 mL/min at week 0 and 87.5 mL/min at week 12. All patients were virologically suppressed at week 24.
Conclusion: Early clinical experience of TAF in mild-moderate renal impairment is similar to outcomes of large Phase III trials. Our data suggests an improvement in both CrCl and uPCR in patients with identified renal risk. Whilst it appears an ideal choice of NRTI backbone in older patients with underlying renal dysfunction or comorbidities (e.g. diabetes) more data is needed to establish its place in the treatment of those with tenofovir related tubulopathy or Fanconi's syndrome.

P96

Reflections on a specialist HIV menopause service

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Background: 1 in 3 women living with HIV (WLWH) in the UK are aged 45–56. Data suggest that WLWH may undergo earlier menopause and suffer more associated ill-health than women without HIV [1]. Moreover, the potential for interactions between antiretrovirals and hormone replacement therapy (HRT) underscores the need to develop experience in managing this growing cohort of women.
In 2015 we established a monthly HIV menopause service overseen by a gynaecologist and an HIV physician. We describe here the characteristics of WLWH attending the clinic.
Methods: Retrospective case note review of WLWH attending from 1 January 2015 to 5 December 2016.

Results: 24 WLHIV attended. Median age at first attendance was 49; 79% were referred by their HIV clinician. 58% were Black. Mean year of HIV diagnosis was 2002 (range 1986–2015); median baseline CD4 count was 177 cells/μL. 25% had a previous AIDS defining illness. All were on antiretroviral therapy (ART); median last CD4 count was 654 cells/μL; 88% had viral load <50 copies/mL.
Commonest symptoms were hot flushes (92%), menstrual irregularity (33%), labile mood/depression (33%) and vaginal dryness (25%). Median duration of symptoms before clinic attendance was 18 months. In 2 patients alternative diagnoses were sought before the diagnosis of menopause was made.
21% had early menopause (onset<45 years) or premature ovarian insufficiency (menopause onset<40 years). 50% of women who had a DEXA scan had osteopenia or osteoporosis. 83% initiated HRT or were already on HRT with the exception of 4 patients who either expressed concerns about HRT risk or no longer had symptoms at time of clinic attendance. Transdermal oestrogen with oral progesterone was the most frequently used HRT regimen. 85% of women seen at follow up described improvement in symptoms. Median time on HRT was 12.5 months. There were no HRT associated complications and no instances of ART modification.
Conclusion: Menopausal women were likely to have a low nadir CD4 reflecting the number of years since HIV diagnosis and to be of African descent. Commonest presentation was vasomotor symptoms and a high proportion had osteopenia or osteoporosis. The long delay from onset of menopause symptoms to offer of treatment may be due to misdiagnosis or attribution of symptoms to HIV. Uptake of HRT was high.
Reference: 1. Tariq S, et al. The impact of the menopause transition on the health and wellbeing of women living with HIV: A narrative review. *Maturitas* 2016; **8**: 76–83.

P97

Respiratory viral pathogens and associated hospital admissions in HIV-positive adults and patients with obstructive lung disease

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Background: The epidemiology and outcomes of non-opportunistic respiratory viral infections in people living with HIV (PLWH) are poorly defined.
Methods: Retrospective analysis of people living with HIV or obstructive lung disease (OLD) aged ≥18 years who had a nasopharyngeal sample tested for respiratory viral pathogens between January 2010–August 2016. The multiplex PCR identifies: a*denovirus, coronavirus, enterovirus, human metapneumovirus, influenza, parainfluenza, respiratory syncytial virus* and *rhinovirus.*
Results: Of 2024 samples identified, 1667 were PLWH and 357 had OLD. The HIV group was predominantly male (72%) and Caucasian (54%) with a median age of 45, and CD4 count of 453 cells/mm^3 (HIV load undetectable in 68%). The OLD group was predominantly female (55%) and Caucasian (70%) with a median age of 64. The proportion of samples with a respiratory viral pathogen detected did not differ significantly between the PLWH and OLD groups (558/1667 (33%) vs 134/357 (38%), p=0.13). This remained true when the analysis was restricted to those hospitalised with symptoms consistent with a viral respiratory illness (105/295 (32%) vs 89/281 (36%), p=0.32). Within the 692 positive samples, *rhinovirus (overall 40%)* was the most frequently isolated virus in both populations followed by *influenza A* (15%), *influenza B* (11%) and *parainfluenza* (8%). *Influenza A* (24% vs 13%, p=0.002) and *parainfluenza 3* (10% vs 4%, p=0.005) were more frequently detected in the OLD group. In PLWH who had positive samples, a multivariate analysis showed age (OR 1.25 for each 10 years, 95%CI 1.02–1.52), female gender (1.42, 1.05–2.81) and low CD4 count (0.76 for each 100 cells/mm^3 increase, 0.70–0.84) were significantly associated with hospitalisation. In hospitalised patients with a positive sample (n=249), PLWH were more likely to have an abnormal CXR (47/120 vs 35/128, p=0.048) but less likely to be admitted to ICU (3/121 vs 14/128, p=0.008). The median length of admission was 5 days (range 0–50) in the OLD group and 6 days (0–82) in the HIV group (p=0.25).
Conclusion: In our single centre study PLWH were less likely than OLD patients to have influenza A and parainfluenza detected. Our data suggest that this may reflect in part differences in age between the two populations. In PLWH low blood CD4 count was associated with hospitalisation – highlighting the importance of effective antiretroviral therapy being continued over the long-term as this population ages.

P98

Retinal vascular calibres in HIV-positive men over 50 years compared to similar aged HIV-negative and younger HIV-positive controls

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Background: People living with HIV may be at increased risk of cerebral small vessel disease (CSVD). We determined the association between HIV status and retinal vascular measurements, using retinal vascular photography, a non-invasive method of measuring CSVD.
Methods: White, non-diabetic men in the multicentre POPPY cohort, comprising three demographically matched groups (HIV-positive [HIV+] aged ≥50 years; HIV+ <50 years; HIV-negative [HIV-] ≥50 years) were recruited into this ophthalmic substudy. HIV+ participants were all virologically suppressed. Optic disc centred 45° colour fundus photographs were used to calculate central retinal arterial (CRAE) and venous (CRVE) calibre as well as the arterio-venous ratio (AVR). Measurements from one randomly-chosen eye per participant were compared between groups using ANOVA. The association between HIV status and AVR was estimated using a multivariable linear regression model, adjusted for age and factors associated with AVR from bivariate models (p<0.2).
Results: Included were 120 HIV+ ≥50 years (median age 59 [interquartile range 54–65]), 39 HIV+ <50 years (44 [41–48]) and 52 HIV- ≥50 years (60 [55–65]). CD4 count in HIV+ was median 607 (474–780). Ten-year risk of cardiovascular disease (Framingham) was 7.4%, 2.8% and 7.6% in HIV+ ≥50 years, HIV+ <50 years and HIV- ≥50 years, respectively. There were no significant differences in blood pressure (BP), body mass index or lipids. Seven (5.8%) HIV+ ≥50 years had a self-reported history of stroke/TIA compared to 0 in the other groups (p=0.07). Smoking was most prevalent in HIV+ <50 years (18%, 33% and 15%, respectively, p=0.08). There were no differences between groups on any retinal vascular measure (Table). In a multivariable model incorporating age, systolic BP, stroke and syphilis history, and recreational drug use, HIV status was associated with a 0.005 increase in AVR (95% confidence interval −0.02, 0.03).
Table: Retinal measurements comparing 3 groups, expressed as mean (standard deviation). Lower CRAE and AVR, and higher CRVE, indicate increasing degrees of vasculopathy.

	OHIV+ (n=120)	YHIV+ (n=39)	OHIV− (n=52)	p (3-way ANOVA)
CRAE	142.0 (20.2)	142.9 (20.3)	138.6 (20.4)	0.51
CRVE	199.1 (29.1)	195.6 (27.7)	193.4 (26.1)	0.46
AVR	0.72 (0.06)	0.74 (0.09)	0.72 (0.07)	0.32

Conclusions: We found no difference in retinal vascular indices between white HIV-positive men with moderate cardiovascular risk aged over 50 years and either HIV-negative or younger HIV-positive controls.

P99

Sex hormone profile in HIV-infected males and its correlation with CD4 cell counts

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Background: Hypogonadism is a common endocrinological abnormality in human immunodeficiency virus (HIV) infected men. Most cases of hypogonadism are due to the effects of virus itself or opportunistic infections (OI) or antiretroviral treatment (ART). This study was planned to

look for prevalence of hypogonadism and sex hormone deficiency in HIV infected males and their correlation with the level of immunodeficiency.
Methods: 100 HIV-infected male patients were thoroughly evaluated as per the standard protocol of history including that for hypogonadism and underwent routine baseline investigations and CD4 counts. Free testosterone and dehydroepiandrosterone (DHEAS) (by ELISA) and LH, FSH and prolactin by enhanced chemiluminescence technique were measured. The analysis was carried on Microsoft Excel 2007, SPSS version-20 and P values ≤0.05 were considered significant.
Results: Overall prevalence of hypogonadism was found to be 66%. Secondary hypogonadism was more common, observed in 63.6% of these 66 patients and primary hypogonadism was found in 36.3% reflecting the effect of HIV/AIDS on hypothalamic pituitary gonadal (HPG) axis as well as direct testicular injury. 40% patients were symptomatic historically for hypogonadism. Statistically significant association (p=0.027) between hypogonadism and the level of immunodeficiency was found with an increase in prevalence and severity of hypogonadism as the CD4 counts decrease. Significantly lower levels of free testosterone and DHEAS were found in cases of severe immunosuppression and a direct correlation between CD4 counts and the levels of free testosterone as well as DHEAS was found indirectly reflecting the negative impact of high viral load on testicular as well as adrenal androgens. Anaemia was also found to be significantly more in patients with hypogonadism. LH/FSH/Prolactin levels were higher in patients with marked immunodeficiency but their association with CD4 counts was not significant. Mean testosterone and FSH levels were significantly higher in patients on ART but the similar association with other hormones could not be ascertained.
Conclusion: Hypogonadism (primary as well as secondary) is a very common endocrinological disorder in HIV-infected male population with delayed initiation of ART and low CD4 counts being the major determinants for that.

P100

Sociodemographic features and treatment outcomes of patients with HIV and hepatitis C co-infection: a descriptive study

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Background: HCV/HIV coinfection leads to increased morbidity and mortality. Directly acting antivirals (DAAs) have high rates of cure even for HIV/HCV co-infected patients but complex drug-drug interactions must be managed. We examined poverty levels and treatment outcomes of HCV mono- and HCV/HIV co-infected patients in our cohort.
Methods: A retrospective study of patients who started DAAs from 25/11/2015–24/12/2016. Sociodemographic and health data were collected including sustained virological response at 12 weeks after end of treatment.
Results: Of 227 patients, 212 (93%) were HCV mono-infected and 15 (6.6%) HCV/HIV co-infected. 65 patients had documented treatment outcome at the time of writing. Patients were predominantly male (77%) and white (89%). Mean age was 49 years. 63% of patients with mono-infection were from the most deprived quintile versus 20% for HIV/HCV co-infected. Cirrhosis was present in 32% of mono-infected and 23% of co-infected patients. Genotypes 1 and 3 were the predominant genotypes in mono-infected (67% and 28%) and co-infected (73% and 20%) patients. All HCV/HIV co-infected patients were treatment naive whilst 24% of HCV mono-infected patients had previous treatment. All HCV/HIV co-infected patients received DAAs including PROD, Harvoni (8 weeks if HCV viral load <6000 iu/mL), and Sof/Riba as per NHS England guidance at the time and their outcomes are shown in the Table.
Conclusions: Our findings show: HCV mono-infected and HCV/HIV co-infected patients had different socioeconomic status; and there were high rates of cure in both HCV mono-infected and HCV/HIV co-infected patients using DAAs.

	HCV (n=60)	HCV/HIV (n=5)
Treatment outcome (n=65); n (%)		
12-week sustained virological response	53 (88)	5 (100)
Treatment failure	2 (3)	0 (0)
Treatment stopped	4 (7)	0 (0)
Died	1 (2)	0 (0)

P101

Switching from Atripla (TDF/FTC/EFV) to Eviplera (TDF/FTC/RPV) in virologically suppressed HIV-positive individuals without perceived neuropsychiatric complaints improves sleep associated symptoms

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Background: Central nervous system (CNS) toxicity is common with combination antiretroviral therapy and with efavirenz (EFV) use. Concerns exist regarding overt CNS toxicities that are not directly recognized by people with HIV (PWH) on EFV or clinicians, which could have an impact on quality of life. The aim of this study was to determine whether CNS symptoms improve in PWH without overt complains of CNS toxicities when switching off EFV.
Methods: PWH receiving Atripla for at least 12 weeks with HIV RNA of <40 copies/mL, and no self-reported CNS symptoms associated with EFV were enrolled in a prospective study of switching to Eviplera. Neuropsychiatric and CNS toxicities were evaluated using CNS and sleep questionnaires. The median CNS score derived from the sum of toxicity of all grades collected in the CNS questionnaires for 10 CNS side effects (Table), and the median Sleep score were calculated at baseline, and weeks 4 (primary endpoint), and 12 after switching to Eviplera. Cognitive function was assessed at baseline and week 4 using a comprehensive battery.
Results: 41 patients (median age 47 y; interquartile range [IQR] 31, 68), predominantly male (92%) and of white ethnicity (80%) were recruited in this 4, and 12 weeks' analysis. A significant reduction in total CNS score was observed at 4 weeks (p=0.028) with a trend towards improvement at 12 weeks (p=0.064). Table summarises the changes in CNS side effects at week 4. Significant improvements in sleep scores at week 4 (p=0.005), and week 12 (p=0.002) were also observed. There were no significant changes in cognitive function at 4 weeks (p=>0.1). HIV-RNA remained undetectable in all patients and there were no clinically significant abnormalities in laboratory parameters throughout the study period.
Conclusion: Switching from Atripla to Eviplera in virologically supressed PWH without perceived CNS symptoms, was well tolerated and improved overall CNS score and sleep associated symptoms.

CNS side effect n (%)	Baseline n=41	4 weeks n=40	P value
Dizziness	10 (24)	2 (5)	0.005
Depression/Low mood	14 (34)	14 (35)	0.65
Insomnia	23 (56)	15 (37)	0.05
Anxiety	14 (34)	12 (30)	0.31
Confusion	3 (7%)	7 (17)	0.20
Impaired concentration	14 (34)	15 (37)	0.52
Somnolence	9 (22)	16 (40)	0.02
Aggressive mood	9 (22)	7 (17)	0.65
Abnormal dreams	22 (53)	12 (30)	0.003
Headache	12 (29)	7 (17)	0.04

P102

The completion rate and response rate of immunisation against hepatitis B virus infection in HIV infected patients

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Background: Vaccination against hepatitis B virus (HBV) infection produces immune response in over 95% of the healthy general population. The data on the immunological response to vaccination against HBV infection in HIV infected individuals have not been consistent. Randomised controlled trials report immunological response rates of between 34% and 88.6%. Results of observational studies have also been discrepant; reporting an immune

response in between 34 and 47% of patients. The aim of the study was to investigate the immune response to hepatitis B vaccination in a cohort of HIV infected patients.
Methods: All newly diagnosed HIV infected patients underwent routine screening for HBV infection at their baseline clinic visit. All non-immune patients are routinely offered immunisation against HBV infection. The vaccination course comprises Engerix® 2 mL administered intramuscularly at zero, month one, and month six. All immunised patients undergo annual screening of hepatitis B surface antibody. In the present analysis patients with negative hepatitis B surface antigen and hepatitis B surface antibody and hepatitis B core antibody were included in the study. Data on newly diagnosed patients attending the clinic between January 1st 2007 and January 1st 2017 were reviewed. Serological information of patients who completed their vaccinations course was included in the study. Immune response to vaccination was defined as presence of hepatitis B surface antibody titre of equal to or greater than 10 IU/mL 12 months after the first dose of Engerix®.
Results: 415 newly HIV infected patients met the study inclusion criteria. This included 164 men who have sex with men (MSM), 239 heterosexual individuals, six intravenous drug users (IVDU), and six individuals infected through mother to child transmission of HIV. Of those patients, 354 (85.3%) received the first dose of hepatitis B vaccine. The second and third doses of vaccines were administered to 312 (88%) and 269 (76%) patients respectively. One year after the start of the vaccination course, 244 patients (91%) of those who received the planned three doses of vaccines had immunity against hepatitis B.
Conclusion: In this cohort, HIV infected individuals post vaccination immunity against HBV was comparable with that of healthy individuals without HIV infection. Double dose of hepatitis B vaccine administered in the standard schedule should be offered to HIV infected patients.

P103

The effectiveness of individualised diet and exercise advice in reducing type 2 diabetes risk in people living with HIV: a pilot investigation

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Background: The burden of diabetes is increasing in people living with HIV (PLWH). Historic diet and exercise interventions aimed to mitigate risk of cardiovascular disease (CVD) in PLWH treated with antiretrovirals (ARVs), demonstrating little effect on insulin resistance. This study recruiting HIV patients with prediabetes aimed to investigate the effect of a new diet and exercise intervention on diabetes risk.
Methods: Patients attending urban HIV clinics stable on ARVs and with impaired fasting glucose (6.0-6.9 mmol/l) were invited to take part. Over 6 months at 4-weekly appointments participants were advised to change their diet and exercise in order to meet 10 goals based on the Mediterranean diet and diabetes prevention trials. Advice was individualised to meet cultural and socioeconomic needs. Pre and post intervention, diabetes risk was measured using a 3-hour frequently-sampled liquid meal tolerance test. A range of secondary outcomes was measured. Data was analysed using SPSS; t-tests estimated effectiveness.
Results: Of 33 participants recruited 28 completed the intervention, achieving a median of 5 goals. There were statistically significant improvements in mean 6-month change in glucose and insulin for both fasting levels (5.5% and 23.6% reductions respectively) and postprandial 3-hour incremental area under the curve (17.6%, and 31.4% reductions, p=0.023 and 0.017 respectively). There were significant reductions in mean values for weight (4.7%), waist (6.2%), systolic blood pressure (7.7%) fasting triglycerides (36.2%) and 10-year CVD risk (13.5%), and a significant increase in mean HDL (12.6%) and life satisfaction score (17.6%). There was no significant change in LDL, frailty or gut symptoms.
Conclusion: Despite the potential for HIV infection and ARVs to increase diabetes risk, diet and exercise change can significantly reduce this risk. Additionally the intervention significantly reduced central obesity, hypertension, triglycerides, and CVD risk, but given the cohort was heavily treated with statins the absence of an effect on LDL was not surprising. The variability in achievement of goals warrants investigation of facilitators and barriers to behaviour change. Given the effectiveness of this intervention in PLWH and financial pressures facing the NHS, a future randomised controlled trial might investigate less expensive methods of intervention delivery.

P104

The results of the implementation of real-time PCR method for diagnostics of opportunistic infections in HIV-infected persons in Kiev regional centre for prevention and control of AIDS

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Objective: Improvement of laboratory diagnostics of opportunistic and HIV-associated infections in HIV-infected patients who are under medical supervision at the in Kiev Regional Centre for Prevention and Control of AIDS.
Materials and Methods: Real-time PCR method for testing blood samples and body fluids. Research carried out of real-time PCR equipment (Rotor-Gene 6000) and test-kits of AmpliSense (Russia).
Results and Discussion: Kiev city is one of the most affected by HIV epidemy region of Ukraine. On 01.01.2017 under medical supervision at Kiev Regional Centre for Prevention and Control of AIDS were 11 786 patients. With the rapid spread of the epidemic increases the reach of HIV-infected patients with antiretroviral therapy. Antiretroviral therapy in Kiev regional centre for prevention and control of AIDS is used by 6693 adults. The presence of opportunistic and HIV-associated patients leads to complications and reduce the effectiveness of ARV therapy (immunological and clinical inefficiency). With the presence of these diseases in patients is not always possible to determine the conventional laboratory methods. Therefore, laboratory diagnosis of opportunistic and HIV-associated infections by real-time PCR method allows assigning a necessary treatment in time and increasing the effectiveness of ARV therapy.
PCR department of clinical laboratory at Kiev Regional Centre for Prevention and Control of AIDS by 2016 tested 2535 samples from patients to identify pathogens of opportunistic and HIV-associated infections. Among them: EBV – 352 tests/90 positive, CMV – 500 tests/57 positive, herpes simplex – 260 tests/positive 0, Toxoplasma – 238 tests/32 positive, tuberculosis – 245 tests/6 positive, hepatitis B virus – 327 tests/positive 76, hepatitis C – 613 tests/positive 207.
For the study samples of blood and other body fluids (cerebrospinal fluid, saliva, urine, tissue samples, etc.) were used.
Research conducted for both hospital patients and for patients of the ambulance department.
Conclusions: Among patients Kiev Regional AIDS centre the most common diseases are viral hepatitis (B and C). Implementation real-time PCR method into practice of laboratories of AIDS centres in Ukraine allows to assign a necessary treatment in time and significantly improve the quality of care for HIV-infected patients.

P105

Treatment outcomes in a cohort of HIV co-infected patients with chronic hepatitis C in the semi-rural community of Worcestershire

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Background: The HIV service hosts a semi-rural cohort of 260 patients, of which 26 have been HCV PCR positive (10%).
Methods: Using a well-developed database patients treated in the Infectious Diseases (ID) service in Worcestershire were reviewed between 2006 and 2016.
Results: 26 co-infected patients were identified with 32 distinct infections (6 re-infections (19%)) (15 genotype (G) 1a, 2 G1b, 11 G3, 4 G4), 3 cirrhotic, 22/26 male with 15/22 MSM and 11/26 likely IVDU acquired. 15 patients treated locally using 27 treatment episodes. 18 infections received pegylated interferon (IFN)/ribavirin with SVR12 in 10 (56%). Subsequent regimens were: 1 IFN/ribavirin/simeprevir, 1 IFN/ribavirin/sofosbuvir, 2 AbbVie 3D®, 1 AbbVie 2D®, 5 Harvoni® +/– ribavirin with SVR 12 in 10/10 (100%). Hence, of the 16 patients treated to date SVR12 was achieved in 14/16 (87.5%). Of the remaining 12 infected patients: 2 are scheduled to commence treatment imminently, 4 G3 await funded IFN-sparing therapy, 2 treated elsewhere, 2 left region and only 2 poorly engaged with services. Side effects with IFN-containing regimens were numerous with only one occasion when therapy was discontinued in a non-cirrhotic G3 patient who stopped interferon after 2 weeks to remain on sofosbuvir/ribavirin to completion at 12 weeks (SVR12

negative). Dose reduction of ribavirin was undertaken according to levels of haemolysis to preserve haemoglobin. One patient developed antibody positive auto-immune myositis at cessation of treatment, probably precipitated by IFN. Antiretroviral therapy (ART) was commenced prior to hepatitis C treatment in 25/27 (93%) cases with care taken to avoid drug interactions (DI). All treated with direct acting antivirals (DAA) were discussed in a hub MDT as per commissioning arrangements. 2 patients required transient switch in ART to avoid DI whilst allowing for lowest cost acquisition hepatitis C therapy. 3 had had ART tailored to avoid DI in preparation for DAA therapy, highlighting the advantages of an integrated Infectious Diseases service.
Conclusion: Our cohort demonstrates remarkable efficacy in real world data with SVR12 of 100% in patients treated with DAA therapy. The transformation in outcome in recent years is well demonstrated along with the ability to effectively manage complex co-infection in a DGH setting through an ID-led service with excellent patient engagement, few side effects and no major drug interactions. A high re-infection rate in this cohort was observed.

P106

Weight gain in patients using integrase inhibitors: an emerging class side effect

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Background: The HIV service hosts a semi urban cohort of 260 patients. 69 patients are using integrase inhibitors (INSTI) as part of their antiretroviral regime. Some patients have complained of weight gain on this regime. We explore this observation further across this class of drugs.
Methods: Case notes of patients using an INSTI were scrutinised for evidence of weight gain. We identified 5 patients where there was evidence of significant weight gain.
Results: Case 1: 58 year old Caucasian female with co-morbidity of rheumatoid arthritis (RA) switched from Atripla to Stribild. After 12 months exposure to Elvitegravir 9 kg weight gain was noted. After switching to Dolutegravir/Truvada, the weight increased a further 9 kg in 6 months. The CD4 remained stable with viral load suppression and no additional steroid requirement for RA. The patient was switched from Dolutegravir to Evotaz with weight reduction of 7 kg in 2 months. Case 2: 42 year old Black African male commenced Atripla but switched to Triumeq due to worsening renal function. His weight increased 16 kg in 9 months with a stable CD4 count 369/mm^3 and viral suppression. Case 3: 53 year old Caucasian male commenced Truvada/Darunavir/Ritonavir. Later Darunavir was switched to Dolutegravir with weight gain of 13 kg in 1 year with a stable CD4 and viral suppression. Dolutegravir was switched to Nevirapine with complete reversal of weight gain. Case 4: 56 year old Caucasian male, diagnosed with CD4 35/mm^3 on Truvada/Raltegravir, switched to Triumeq/Darunavir owing to resistance with weight gain of 5 kg after 2 months when CD4 stable and viral load suppressed**.** Case 5: 37 year old Caucasian male diagnosed with CD4 34/mm^3, viral load 1.5 m copies/ml. Commenced Truvada/Darunavir but switched to Triumeq for simplification. 4 months later weight gain of 13 kg was noted but CD4 had increased to 279/mm^3 with viral suppression.
Conclusion: In this case series of 5 patients we describe an association between weight gain and INSTI exposure across 3 different INSTI. In 2 cases we have demonstrated reversal on switching off INSTI. An ACTG study highlighted the effect of Raltegravir exposure and weight gain which persisted despite adjusting for immune status. In two of our cases weight gain may have been further compounded by late diagnosis and immune reconstitution but overall this data supports the recent literature for INSTI exposure and weight gain, and furthermore suggests a possible class effect of weight gain on INSTI.

HIV Testing, Epidemiology and Surveillance

P107

90–90–90 is achievable

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Background: The UNAIDS calls for the following goals to be reached by 2020: 90% of people living with HIV are diagnosed; 90% of those diagnosed are on antiretroviral (ART); 90% of individuals on treatment virologically suppressed. We examined the outcomes of individuals diagnosed at a central London clinic in 2015 for fulfilment of these goals.
Methods: Case-note review of all new HIV diagnoses at a central London clinic between 1st May and 30th September 2015 followed up to 31st December 2016.
Results: There were 214 new HIV diagnoses: 97% (207/214) male, all were men who have sex with (MSM). Median age was 30 years. 93% (200/214) attended the first medical appointment with a doctor after a median 16 days (IQR 14–21 days) following HIV diagnosis. 88% (189/214) subsequently started anti-retroviral therapy (ART) in a median 26 days (IQR 16–55 days) following diagnosis. Up to 31st December 2016, 85% (182/214) had achieved viral load <200 copies/mL after a median 93 days (IQR 56–157 days) following HIV diagnosis.
Of those who attended medical follow-up following HIV diagnosis, 95% (189/200) started ART. Following ART initiation, 5 transferred their HIV care elsewhere and we have no further information; up to 31st December 2016, 99% (182/184) of those on ART who are in follow-up have achieved viral load <200 copies/mL.
Conclusion: At our service, most of those newly diagnosed with HIV who initiate ART do so within 4 weeks of HIV diagnosis. Despite this central London clinic's highly transient population, we have achieved the UNAIDS goals for those starting ART and reaching viral suppression.

P108

A review of patients diagnosed with late HIV infection in two inner city HIV cohorts

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Background: Late HIV infection is associated with poorer clinical outcomes and increased care costs. Despite clear BHIVA guidance around HIV testing many patients are still being diagnosed late – 39% in 2015. This project aimed to review the demographics of these patients, the reasons for late presentation and the obstacles to timely diagnosis, and suggest improvements to primary, secondary and tertiary care services to reduce rates of late diagnosis.
Methods: Retrospective analysis of case notes for adult patients diagnosed with late HIV between 1st June 2014 and 1st June 2016. All patients had a baseline CD4 count of 350 cells/mm^3 or below and were selected from a GUM clinic and infectious diseases unit in the same city.
Results: 38 sets of notes were identified across two sites that met the criteria but 4 were not available, giving a final cohort of 34 patients. Baseline CD4 counts ranged from 0–350 cells/mm^3 and had a median of 205 cells/mm^3. 16/34 (47%) patients identified as men who have sex with men (MSM), 16/34 (47%) as heterosexual and 2/34 (6%) as bisexual. 16/34 (47%) were tested due to being symptomatic or unwell. Of those cases where route of transmission was clearly documented (32/34, 94%), being an MSM was the suspected route of transmission in 18/34 (53%) cases and heterosexual in 12/34 (35%). 14/34 (41%) had a test indicator condition at diagnosis including sexually transmitted infections such as chlamydia, cervical intra-epithelial neoplasia stage III, and mononucleosis-like syndromes. 4/34 (12%) had an AIDs defining condition including Kaposi's sarcoma, pneumocystis pneumonia and HIV encephalopathy.
Conclusions: Both MSM and heterosexual populations are at risk of late diagnosis, as well as those from outside of the UK. A significant proportion of patients presented with severe AIDs defining conditions, suggesting missed HIV testing opportunities in other health services. We suggest that earlier testing would have led to fewer late diagnoses and less HIV-related morbidity; further local evaluation is required. Methods of expediting HIV testing include promotion and provision of home HIV testing, improved access to HIV testing for at-risk groups and education of healthcare professionals around HIV risk, sexual history taking and awareness of HIV indicator conditions. (Optimal use of other HIV prevention strategies, such as partner notification and pre/post exposure prophylaxis may also contribute to a reduction in late diagnoses).

P109

AIDS in Edinburgh: a case series on ongoing diagnostic challenges

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Background: In the year 2015 at the Regional Infectious Diseases Unit of Edinburgh (RIDU) there were four deaths due to AIDS. We present a review of these patients.
Methods: Case note review.
Results: Multiple risk factors for delayed diagnosis were identified i.e.: Men who have Sex with Men (MSM); movement between health boards within and out-with the UK. All 4 patients presented with non-specific symptoms which were initially misdiagnosed as common presentations.
Summaries:

1. 63 year old male. Presented to GP 2013 with dyspnoea – referred to respiratory medicine team who diagnosed as asthma. Further presentations with cellulitis, DVT and atypical pneumonia during 2014. Acute respiratory failure in March 2015 – diagnosed with HIV. PCP diagnosed and subsequently MAC, aspergillus, Kaposi's sarcoma, CMV. Deteriorated, admitted to ITU and died June 2015.
2. 52 year old male. Presented to GP early 2015 with diarrhoea and dyspnoea. Referred for endoscopy. Presented to hospital with cough, rigors and rectal bleeding. CT showed lymphadenopathy and HIV diagnosed after. Developed respiratory failure. PCP negative. Diagnosed with Multicentric Castleman's disease. Deteriorated, admitted to ITU and died November 2015.
3. 39 year old male. Presented to hospital July 2015 with cough, dyspnoea, weight loss. HIV test positive. Deteriorated with respiratory failure, admitted to ITU and died August 2015.
4. 27 year old male. Presented to hospital November 2015 with cough, dyspnoea. HIV test positive. Treated for PCP. Deteriorated, admitted to ITU where PCP confirmed. Died December 2015.

Conclusion: Patients continue to present with indicators for HIV testing yet diagnosis is often delayed, worsening outcomes. Initial presentation of AIDS is commonly with non-specific common symptoms. As such it is vital to maintain a high degree of suspicion. The lack of a sexual health history as part of the routine medical clerk-in can contribute to a delay in HIV diagnosis as risk factors will not be identified. It remains vital to educate clinicians to recognise features suggestive of HIV/AIDS, and to increase awareness of the BHIVA guidelines on testing.

P110

Barriers to HIV testing in patients with confirmed oesophageal candidiasis

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Background: Earlier HIV diagnosis is associated with improved health outcomes, reduced admissions and health costs, and reduced rates of transmission. The BHIVA, BASHH, BIS 2008 testing guidance recommends testing for patients with oesophageal candidiasis, which occurs more frequently in HIV positive individuals at lower CD4 counts. The aim was to find out how many patients with oesophageal candida on gastroscopy (OGD) were tested for HIV and to identify possible barriers to testing.
Methods: Data from the hospital endoscopy unit for the first 6 months of 2016 was reviewed for cases of candida on OGD. Patients were included based on endoscopy findings or histology. Lab results and case notes were checked looking for evidence of HIV testing within three months of the OGD, or discussions offering testing after OGD. After results were collected, a brief survey was conducted within the gastroenterology team regarding barriers to testing.
Results: 78 patients were identified with candida, 6 excluded due to negative histology. Equal split men and women. 14 (19%) had HIV tests. Only one OGD report recommended HIV testing. No surgical patients were tested, 7% GP referrals, 40% AMU, 36% general medicine, 13% gastroenterology referrals tested. Some patients who were not tested also had symptoms of unexplained anaemia, weight loss or Hepatitis B or C all of which are listed as indicator conditions in the 2008 UK National Guideline for HIV testing. Patients were more likely to receive an HIV test if under 50 yrs old. Oesophageal candidiasis was often attributed to inhalers when no other cause could be found and patients with an active malignancy were less likely to be tested. Of note, many malignancies are more common in HIV positive individuals. Barriers to testing included lack of knowledge of the guideline and its recommendations, concerns regarding cost of testing and requirement of specialist test counseling for patients including time constraints and appropriate follow up.
Conclusion: Only 19% of patients with confirmed oesophageal candida were tested for HIV highlighting missed opportunities for diagnosis. Many healthcare professionals are not aware of the National Guidelines for HIV testing and the indicator conditions for which testing is recommended. This highlights the need for increased and regular staff education across hospital specialties and General Practice to raise awareness of the guidelines and promote HIV testing as part of routine practice.

P111

Cause of death among HIV-positive patients in London 2015: a retrospective audit

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Background: To better understand causes of death in HIV-positive people in the UK and ultimately reduce avoidable mortality and improve end of life care, we reviewed the reported causes of death in HIV patients dying in London in 2015.
Methods: Deaths among HIV patients occurring in 2015 were reported by London HIV care centres. Data were collected on demographics, diagnosis information, cause and place of death, most recent CD4/viral load (VL), ART status and reported adherence. Clinicians were asked whether each death was expected, defined as patients who were expected to die (eg. those receiving planned end of life care or with a terminal condition), or unexpected (eg. late presenters admitted at diagnosis and not responsive to treatment). Deaths were categorised using the CoDe Protocol.
Results: 170 deaths were reported among HIV patients from 15/18 care sites, 70% were among men. The median age at death was 52 years for men and 47 for women. Most people died in hospital (60%; 36/157) or at home (23%; 36). Over 90% (141/156) of people were on ART and adherent (85% 121) at their last clinic visit. Of those not on ART, 79% (11/14) had a CD4<350 cells/mm^3 and 92% (12/13) a VL $\geq$200 copies/ml. Over half of deaths (53%; 77/146) were unexpected. Of expected deaths, 57% (39/68) died in hospital.
Median time from diagnosis to death was 9 years, with 30 (18%; 30/166) people dying within a year. Cause of death among everyone, those dying within one year and unexpected deaths can be seen in the table below. Where cause was known, the majority of deaths were from AIDS (31%; 45) and non-AIDS cancers (21%; 31). AIDS-defining illness accounted for 70% of deaths occurring within one year of diagnosis and 30% (20/77) of unexpected deaths.

Table

	All deaths		Deaths within one year of diagnosis		Unexpected deaths	
Cause of death	n	%	n	%	n	%
AIDS	45	31	19	70	20	30
Non-AIDS cancers	31	21	5	19	2	3
CVD/stroke	20	14	2	7	2	3
Non-AIDS infections	15	10	0	0	12	18
Other	10	7	0	0	1	1
Liver disease	12	8	0	0	5	7
Respiratory disease	7	5	0	0	16	24
Accident/suicide	4	1	1	4	5	7
Substance misuse	2	1	0	0	4	6
Unknown	24	-	3	-	10	-
Total	170	100	30	100	77	100

P112

Characteristics of those with newly diagnosed HIV at a central London clinic

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Background: The profile of those newly diagnosed with HIV is useful for targeting HIV-negative individuals who would benefit most from intensive risk reduction strategies including PrEP.
Methods: Case-note review of all newly diagnosed HIV positive individuals at a central London clinic between 1st May and 30th September 2015.
Results: There were 214 new HIV diagnoses: 97% (207/214) male, all MSM. Median age was 30 y. In the previous 3 months, median number of sexual partners was 5 and 87% (109/125) disclosed condomless anal sex. In the previous month, 47% (91/191) had chemsex and 12% (22/188) slamsex. 53% (113/213) had previously attended our service.
At diagnosis 28% (59/214) had symptoms of acute HIV infection. Median CD4 was 526 cells/mm^3 and viral load was 79,318 copies per ml. 22% presented with a CD4 count <350 copies per mL. 24% (49/208) had major mutation to PI, NNRTI or NRTI on baseline resistance testing. 51% (100/198) tested positive on the recent infection testing algorithm (RITA), suggesting HIV acquisition within 4 months.
At diagnosis, 3 patients had active Hepatitis C: 2 acute and 1 known chronic; 28 syphilis, 57 gonorrhoea (of which 46 rectal) and 32 chlamydia (of which 22 rectal). 25 had previously taken PEP.
78% (168/215) fulfilled at least one of the five following criteria: disclosed condomless anal sex; had previous PEP; had a rectal bacterial STI or syphilis at HIV diagnosis; reported chemsex in the previous month.
Conclusion: Over three-quarters of those newly diagnosed with HIV at our service fulfil one of five characteristics which could be used to target HIV-negative MSM for intensive HIV risk reduction strategies including PrEP to reduce HIV incidence.

P113

Factors associated with admissions in HIV-1-infected individuals in the era of multiple HIV interventions

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Background: A 30% increase in HIV diagnoses was reported in Ireland between 2014 and 2015. A 2011 audit of admissions in HIV-1 infected individuals in this hospital showed that of 403 admission episodes in 241 HIV+ patients, only 30.8% of episodes were attributable to symptomatic HIV infection. Our primary aim was to identify patient factors associated with admissions of HIV positive individuals over 3 time periods from 2014 to 2016. Our secondary aims were to examine trends of rates of opportunistic infection in those presenting over time and to compare demographics associated with opportunistic infection [OI], HIV-related illness, and HIV-unrelated illness.
Methods: This was a single centre retrospective cohort study. All HIV-1 infected patients discharged over April to June 2014 to 2016 were identified. Data was collected via electronic chart records and statistical analysis was performed using SPSS version 24. Engagement in care was defined as at least one HIV care visit over one year preceding date of hospital discharge.
Results: 168 patients with HIV infection were admitted over the time periods, 52 in 2016, 52 in 2015 and 63 in 2014. 85 [51%] were male. Age range was 24 to 75, median [IQR] 41 [36,48] years.14 [8%] presented as a new diagnosis. 23 [14%] patients were readmitted within 1 month of discharge. In total, 62 [37%] patients presented with an OI, 38 [23%] presented with a HIV related illness & 67 [40%] presented with a HIV unrelated illness. Median [IQR] length of stay was 7 [3,14] bed days.
The percentage of HIV-positive patients presenting with an OI is decreasing over time(48% in 2014 vs 27% in 2016), while the proportion of those admitted with non-HIV associated illness is increasing (27% in 2014 vs 54% in 2016, p: 0.078).
Those who presented with an OI had a significantly lower CD4 count (p: 0.001), higher HIV-1 viral load (p: 0.009) and were less likely to be engaged in care (p: <0.001). IVDU mode of acquisition and HCV co-infected individuals were more likely to be admitted for a non-HIV related illness (76%, p: 0.016 and 51%, p: <0.001 respectively) while the heterosexual risk group were more likely to present with OI (31% OI vs 26% non OI, p: 0.016).
Discussion: An improved care package for the IVDU, HCV co-infected cohort needs to be developed to optimise patient care and prevent hospital admissions and healthcare costs. There is also a need for improved screening and immediate ART given the on-going rates of OIs seen in our cohort.

P114

Factors associated with delayed linkage to care following HIV diagnosis in Western Europe

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Background: Swift entry into care following HIV diagnosis is critical for immediate access to ART, ensuring optimal patient outcomes. Little data are available on linkage to care in Europe. We use routinely collected surveillance data to describe linkage to care following diagnosis across Western Europe and to identify factors associated with delayed linkage using first CD4 count as a proxy for care.
Methods: We analysed data of adults (aged ≥ 15) newly diagnosed with HIV from 2010-2014 in 14 Western European countries and reported to the European Centre for Disease Prevention and Control. Individuals were excluded if they had been previously diagnosed or in care, died within 3 months of diagnosis, had no CD4 count reported or were missing diagnosis or CD4 date information. Linkage to care was calculated using the time between the HIV diagnosis date and the date of first CD4 count. Linkage was considered delayed if the CD4 count was taken more than 3 months (91 days) after diagnosis. Logistic regression was used to determine factors for delayed linkage.
Results: Of the 87569 adults diagnosed in Western Europe from 2010-2014, 4340 people were previously diagnosed or in care, 478 had died within 3 months of diagnosis, 25404 people were missing CD4 counts and 4776 were missing diagnosis/CD4 date information. Among the 52571 adults included in these analyses, prompt linkage to care within 3 months was 96%. This figure dropped to 64% if those missing a CD4 count were considered not linked. In multivariable analysis, delayed linkage to care was associated with: being infected by injecting drug use (IDU) (adjOR 1.43; 95%CI 1.07-1.90), heterosexual transmission (1.22; 1.04-1.43) and having a first CD4 count >200 cells/mm^3 (200-349: 1.40, 1.18-1.67; 350-499: 1.58, 1.33-1.88; ≥500: 1.88, 1.61-2.21). In contrast, older age at diagnosis (age 55-64: 0.71, 0.54–0.94; age ≥65: 0.46, 0.26–0.79) and being diagnosed in 2012 (0.82; 0.70-0.97) or 2013 (0.66; 0.55–0.79) were associated with faster linkage to care. Sex and region of origin were not associated with delays accessing care.
Conclusion: Overall, linkage to care in Western Europe is prompt, though estimates may be lower than reported due to incomplete CD4 data submitted by some countries. Our findings show improvements are needed in linking for people infected through heterosexual contact and IDU to care promptly, though encouragingly there were no differences in timeliness of linkage among men and women or migrants.

P115

Factors associated with rapid ART initiation after HIV diagnosis

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Background: The 2015 BHIVA guidelines recommend immediate initiation of antiretroviral therapy (ART) irrespective of CD4 count. This is based primarily on the outcome of START and TEMPRANO trials, which showed a significant relative risk reduction in disease progression. Early ART initiation reduces the duration that an individual is infectious. We present time taken from HIV diagnosis to initiation of ART and factors associated with rapid ART initiation.
Methods: A retrospective case-note review of all individuals diagnosed with HIV between August 2015 and August 2016 at St Thomas' Hospital was carried out. The primary outcome was percentage of patients starting ART within 28 days of diagnosis. Exclusion criteria included lost to follow-up and transfer of care. Univariate analysis investigated factors associated with ART initiation: baseline CD4, baseline HIV viral load (VL), gender, age, ethnicity, primary HIV infection (defined as p24 Ag positive) and Hepatitis B or C co-infection. Rapid ART initiation was defined as starting ART within 28 days of HIV diagnosis.

Results: 148 individuals were included in analysis. There were 120 (81%) men and 14 women. The mean baseline CD4 was 452 cells/μL (range 8–1079) and mean HIV VL was 398201 copies/ml (range 19–9999999).The median time from HIV diagnosis to ART initiation was 28 days (IQR 16.8–45.5). 51% of individuals started ART within 28 days and 90% within 3 months. Rapid ART initiation was associated with lower baseline CD4 (p=0.009; 95% CI: -173 to -25), high baseline viral load (p=0.015; 95% CI: 109497-993518) and primary HIV infection diagnosis (p=0.027).The mean time to ART for an individual diagnosed with primary HIV was 18 days (range 0-45). Rapid ART initiation was not associated with age, gender, ethnicity or co-infection with Hepatitis B or C.
Conclusion: Over half of individuals started ART within 28 days of HIV diagnosis. Factors associated with rapid ART initiation included low CD4, high VL and primary HIV infection. Further investigation into delayed ART initiation is underway.

P117

HIV partner notification: an audit against BASHH standards

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Background: BASHH HIV Partner notification (PN) standards recommend 2 primary outcome standards.

Outcome 1: Number of contacts tested per index case HCP verified (HCPv) should be >0.6 Index reported (IR) or HCPv >0.8.

Outcome 2: Proportion(%) of contactable partners tested HCP verified (HCPv) should be >65% Index reported (IR) or HCPv >85%.

Methods: Prospective case note review of all patients attending an HIV outpatient clinic over a 8 month period. Contact details from their time of HIV diagnosis and follow up results of contacts were verified with GUM notes and results systems. Cohort date of diagnosis ranged from 1988–2016. Demographics 65% black-African, 50% female, 25% MSM.
Results: Female Index cases: 126 with a total of 190 live contacts at the time of diagnosis (20 deceased). 64 were un-contactable (Sexual assailant 6, CMP 16, exRMP 43). 126/190 (66%) were contactable. 94/126 (75%) had a verified HIV test result documented (HCPv). 116/126 (92%) IR or HCPv (10 contacts were documented as aware but 4 refused to test, 2 provider referrals had been actioned (result of PN unknown) and in 4 cases it was not known if they had tested). 43/126 (34%) of contacts were verified HIV positive with a further 3 reported positive. 51 contacts were verified HIV negative with 13 reported HIV negative.6 were reported as tested but their result was unknown.
Male Index cases: 124 with a total of 237 live contacts (147 female, 90 male) at diagnosis (3 deceased). 102 were un-contactable. 47 male (40 CMP, 3 male sexual assailants, 4 exRMPs) 55 female (35 exRFPs, 19 CFPs and 1 CSW). 135/237 (57%) contacts were contactable. 109/135 (81%) had a verified HIV test result documented (HCPv). 130/135 (96%) IR or HCPv. (1 contact was verified as aware but refused to test and in 4 cases the partner notification was on-going). 49/135 (36%) contacts were verified as HIV positive with a further 1 reported positive. 60 contacts were verified HIV negative with 12 reported negative. 8 were reported as tested but their result was unknown.
Overall there were 250 HIV positive Index cases. 261/427 (61%) contacts were contactable. Outcome 1 HCPv 0.8 IR or HCPv 0.9. Outcome 2 HCPv 78% IR or HCPv 94%.
Conclusion: Effective HIV partner notification by the HIV and the health advisor teams with a high rate of verified testing of contacts with 92 verified positive for 250 index cases.

P118

HIV point of care testing (POCT)

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Background: HIV diagnosis and care is improving, however it is still a growing epidemic. To reduce this several approaches need to be taken including increasing HIV testing rates. It is estimated 13,500 people living with HIV in the UK are unaware of their infection and risk of transmission is higher when people are not on highly active retroviral therapy (HAART). It is also important to identify those who may already be HIV positive before starting them on HIV post exposure prophylaxis (PEP) to reduce risk of inducing resistance to antiretroviral therapy. HIV POCTs can provide faster results than standard serology testing and may be more acceptable to patients who suffer with needle phobia or who are anxious awaiting results. Therefore they can be used prior to prescribing PEP and it is anticipated they will increase HIV testing.
Methods: To ascertain the utility and performance of the Alere HIV POCT it was piloted at a local sexual health department between 09/10/15–15/01/16. A HIV POCT was performed for those who were starting PEP, needle phobic, too anxious to await standard serology results or for another significant reason. A proforma was completed for each HIV POCT and a logbook completed.
Results: In total 39 patients had a HIV POCT. There were several risk factors for HIV transmission including MSM (33%), HIV positive partner (37%) and partner from high prevalence area (3%). The most common reasons for HIV POCT were pre PEP (59%), anxiety awaiting standard serology (13%) and other significant reasons (13%). 95% of the HIV POCT results were negative and 5% were antibody positive. 92% were confirmed by standard serology HIV testing, 3% were not confirmed and 5% did not have confirmatory serology taken.
Conclusion: All of the HIV POCTs where confirmatory serology was taken were confirmed apart from just 1 which accounted for the 3% not confirmed. That 1 test was performed by an untrained staff member. In future all HIV POCTs would only be performed by trained staff. The 5% of HIV POCTs where confirmatory serology was not taken was due to needle phobia. From the results it would appear the Alere HIV POCT is a sensitive and specific test. Introducing the Alere HIV POCT would decrease clinical risk, may increase up take of HIV testing as they may be more acceptable for patients with needle phobia and may be cost effective by reducing follow-up attendances for results in high risk patients.

P119

HIV testing in the emergency department: an important and distinct target population

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Background: The incidence of HIV diagnoses has been decreasing in sexual healthcare clinic settings, but increasing in other settings. In May 2015 enhanced HIV screening was introduced in an inner London Teaching hospital ED.
Aims: To compare the characteristics of newly diagnosed HIV individuals between those diagnosed in an ED setting or elsewhere.
Methods: Retrospective data was reviewed from hospital electronic records of all patients who newly diagnosed with HIV between July 2015 to November 2016. Outcomes measured include clinical setting of HIV diagnoses, baseline demographics of the newly diagnosed HIV patients, risk factors for HIV transmission, and laboratory results. Statistical analysis was done in SPSS.
Results: 261 patients had a new diagnosis of HIV between 1st July 2015 to 30 November 2016. Clinical settings of diagnoses were 40% (104/261) ED, 25% (66/261) Sexual Health clinics, 5% (13/261) community care clinics, 13% (35/261) GP, 10% (26/261) in secondary care, and 6.5% (17/261) were diagnosed through partner notification. The ED population had more heterosexuals than the non-ED population (75% vs 59%, p=0.022). There was no significant difference in gender or ethnicity in both groups. In the ED population, 23% (24/104) were seroconverters.
The median CD4 count not significantly different between the two groups (377 vs 381, p=0.25) but 55% 57/104) were admitted as inpatients following their presentation to ED. 16% (17/104) had one or more presentations to ED within 12 months prior to being diagnosed. 64% (67/104) of the ED population were linked to see a clinician within 2 weeks of HIV diagnosis.
Conclusions: This analysis confirms the importance of targeting the ED population for HIV testing. The ED population has a larger proportion of heterosexual males, which is a traditionally a hard to reach group for HIV screening. High rates of primary infection continue to be found in this population.

P120

HIV testing of patients with indicator CNS infections in a large teaching hospital in England

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Background: Late diagnosis of HIV infection remains an important public health challenge in the UK, with approximately 40% of individuals in 2014

diagnosed late despite a variety of indicator illnesses. UK and European HIV testing guidelines include a list of indicator conditions for HIV testing, including AIDS defining neurological conditions. Testing is also recommended for patients with aseptic meningitis or encephalitis and all those with invasive pneumococcal infections. The aim of this study was to review HIV testing of patients with aseptic meningitis or encephalitis as well as with specified organisms causing meningitis, as per guidelines.
Methods: Clinical and laboratory data were collected between December 2012 and June 2016 for patients with encephalitis and meningitis in a single teaching hospital which also has a tertiary referral infectious disease unit. Patients were recruited prospectively according to predefined definitions for meningitis and encephalitis and stratified according to aetiologies. Data were reviewed to ascertain whether HIV tests had been performed and their outcomes.
Results: 63 patients were recruited of whom 42 met the inclusion criteria. Of these 26 had aseptic meningitis or encephalitis and 16 patients had other infections including 6 pneumococcal, 7 varicella zoster, 1 JC virus, 1 *Mycobacterium tuberculosis* and 1 *Cryptococcus neoformans*. Overall, 24/42 (57%) had a HIV test performed of which 3 were positive (12.5%). When a specific organism was identified 11/16 (68.8%) were HIV tested. In the aseptic group, 5/7 (71%) with encephalitis and 8/19 (42%) with meningitis were tested. In 26 patients for whom location was identified, HIV tests were performed in 8/10 (80%) of patients under infectious diseases, 3/3 (100%) in intensive care and 3/8 (37.5%) under general medical teams.
Conclusions: Modern guidelines recommend HIV testing for all patients with aseptic meningitis or encephalitis or with defined CNS infections. In this single teaching centre only 37.5% of patients are tested on general wards compared to 80% on specialist wards. At best, 68.8% of patients with proven CNS infections were tested, and only 50% of those with aseptic meningitis or encephalitis were tested. Further work is needed to promote HIV testing in general medical and emergency room settings.

P121

How can we use phylogenetics to facilitate clinical case finding and partner notification in HIV? Lessons from a systematic review of its use in stigmatised infectious diseases

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Background: Phylogenetic information provides new horizons for clinical case finding in HIV, but raises issues of acceptability, privacy and even criminalisation. We reviewed studies describing the use of phylogenetics to directly inform case finding of undiagnosed contacts in community acquired stigmatised infectious diseases.
Methods: A search in MEDLINE, Embase, CINAHL and PsychINFO for articles where phylogenetics have been used to facilitate case finding in sexually transmitted infections, TB, HBV or HCV, published until July 2016 in English.
Results: 26 of 6042 papers screened met the inclusion criteria; 17 TB, 9 HIV. An additional 18 studies reported using phylogenetics to investigate discrete HIV outbreaks and trace sources but did not explicitly report its role in case finding.
Case finding strategies included confirming the source of an outbreak to prompt wider investigation (HIV); contact tracing of phylogenetically clustered cases (TB, HIV); combined cluster and geographical information to target screening (TB); screening informed by discrepancies between genotypic and epidemiological data (TB); phylogenetic characterisation to inform a screening intervention (HIV); using linked epidemiological data to identify of a source (HIV); and contact tracing with genotype matching to a case with rapidly progressive disease (HIV).
Facilitators included sharing molecular surveillance data to establish community support in targeted TB screening. Barriers included delayed results, time lapse between cases and refusal of access to premises for screening, however patient barriers were rarely reported. Ethical issues included media coverage of an HIV sources identity.
Conclusion: Phylogenetics-informed approaches to case finding are feasible in stigmatised infections. However studies reporting their use in clinical and public health practice provide limited information on patient related barriers, acceptability, or on ethical challenges such as identification of "core" transmitters or criminalisation.
Research into patient views on acceptability, risks and preferred approaches to using phylogenetic information for case finding in HIV is needed to inform future interventions.

P122

Innovative HIV testing in the workplace

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Background: Funded by Public Health England this project provided HIV tests as part of a series of health/wellbeing events at workplaces along the M1 distribution corridor, targeting low waged workers on shifts with long hours. Although many UK organisations offer employee health checks, they do not include HIV testing. It was one of the first initiatives in the country to include HIV within employee health checks. The project was delivered in the East Midlands by 5 voluntary sector organisations and took place over a 9 month period. It aimed to reach men in the workplace (particularly migrant men from sub-Saharan Africa and Eastern Europe), and had an initial target of undertaking 300 HIV tests. Employees attending the health events were also able to receive a series of 15 additional text messages providing further information about HIV, Prep, Hep C, safer sex, general health and wellbeing and GP referral.
Evaluation Method: The evaluation explored the feasibility, acceptability and potential sustainability of workplace HIV/wellbeing interventions, from multiple stakeholder perspectives (employees, companies and project partners). It adopted a mixed methods design using questionnaires, interviews, text messages and project monitoring data.
Results: 776 employees from 50 different countries attended 20 workplace health events held in 11 different companies; one third of attendees were migrant workers. 52% of attendees undertook an HIV test. 75% of attendees had never had an HIV test before. 96% considered HIV testing to be an acceptable element of workplace health check and 79% felt they had learnt something new about their health. 465 (60%) of attendees signed up to receive the follow up text messages and 21 of these reported seeking an HIV test after the event.
Conclusion: HIV testing in the workplace is highly acceptable. The events were able to reach a diverse group of employees, including those who had not previously tested. The project also suggests that mobile phone text messaging is an acceptable and well-received adjunctive method of motivating people to test and take action. National policies and guidance on workplace health should include HIV testing. This would also provide strong support and credibility to any local initiatives that aim to undertake HIV testing in the context of workplace health initiatives. There is a need for more research to explore different models of incorporating HIV testing into workplace health and wellbeing initiatives.

P123

Is it acceptable to ignore national testing guidelines? Current testing practice in Lothian 8 years after BHIVA national testing guidelines were published

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Background: In the UK, almost 90% of patients diagnosed with HIV had initiated ART, with 93% of those on ART having a suppressed viral load. However approximately one-fourth of all HIV infections in adults still remain undiagnosed and one-fourth of newly diagnosed individuals are late presenters. We aim to assess the newly diagnosed individuals in Lothian where prevalence is over 0.2% with no agreed policy to screen for HIV in order to understand current testing practice.
Methods: Using our dedicated HIV database we included all new presenters to our services between April 2015 and April 2016. Data were retrospectively collated through electronic patient records. Descriptive statistics were performed to examine demographics, baseline characteristics and treatments.
Results: We identified 51 individuals (3 female) who were newly diagnosed with HIV. Median age was 35 years (20-73) with 3 individuals >65years. 17 individuals were diagnosed in GUM clinic, 14 in GP practice, 10 in secondary care, 6 through outreach services and 3 using self-testing kit. 21 individuals diagnosed through routine screening, 5 contact tracing and 24 individuals presented with clinical symptoms. Median nadir CD4 cell count was 326 cells/mL. However, we observed significant differences in those diagnosed in various settings (Table 1). Individuals diagnosed in secondary care and those who used

home testing kit had significantly lower median CD4 counts, 81 and 114 cells/mL, respectively. More than half of our cohort (28) had CD4 count <350 cells/mL, 10 (36%) of those presented with AIDS defining illness and 11 individuals (39%) presented to a health care facility in the past year before the diagnosis with a clinical indicator of HIV infection. Overall 13 (25%) individuals had CD4<200 cells/mL, 4 (8%) out of those died within 3 months after diagnosis due to an AIDS defining illness.

	Outreach	GUM	GP	Home test	Secondary care	Total
Median Age (Year)	35 (27 - 47)	28 (22-50)	36 (25-73)	31 (26-46)	45 (20-64)	35 (20-73)
MSM:HSM	5:1	17:0	9:2	3:0	11:0	45:3
Female	0	0	3	0	0	3
Median CD4 count (cells/mL)	490 (275 - 659)	386 (234-1166)	385 (40-885)	114 (68-659)	81 (6-570)	326 (6-1166)
CD4 <350 (n)	2	8	7	3	8	28 (55%)
CD4 <200 (n)	0	0	2	3	8	13 (25%)
Survival at 1 year	100%	100%	100%	100%	63%	92.00%
Total	**6 (12%)**	**17 (33%)**	**14 (27%)**	**3 (6%)**	**11 (22%)**	**51 (100%)**

Conclusion: Early diagnosis is critical to improve morbidity and mortality, and also for the prevention of onward transmission. Late diagnosis has been associated with longer hospital stay and increased cost to healthcare services. In this cohort one-fourth of patients had CD4 count <200 cells/mL and more than half had CD4<350 cells/mL. 39% of late presenters had contact with health care prior to HIV diagnosis representing missed opportunities for earlier diagnosis. We believe routine testing in all relevant settings should be offered as per National guidelines in order to reduce undiagnosed HIV infection at late diagnosis.

P124

Late presenters with HIV in Newcastle: a 10-year audit of newly diagnosed HIV (2007–2016)

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Background: This audit aims to identify late presenters and missed opportunities for earlier HIV testing over 10 years, and whether the UK 2008 testing guidelines has had an impact on early diagnosis.
Method: This 2016 study is a retrospective case note audit of 32 patients newly diagnosed with HIV that have presented as compared with previous years since 2007. Patients with an initial CD4+ count of <350 were classed as late presenters. CD4+ counts of <200, or AIDS, were classed as advanced disease.
Results: In 2016, there were 17 newly-diagnosed patients in the ID department and 15 in GUM. Of the patients who presented to ID, 76% presented late and 47% had advanced disease – 6 had previous identifier disease. At GUM 27% presented late – there were no patients with advanced disease or previous indicator disease.
Conclusion: Late HIV presenters remain a challenge in Newcastle. The UK 2008 HIV testing Guidelines do not appear to have made any impact over the past 10 years as a significant number of newly diagnosed late patients (76%) especially in the ID department had missed opportunities for earlier HIV testing and were not offered.

P127

Over half of people in HIV care in the United Kingdom by 2028 will be aged 50 years or above

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Background: To better plan future delivery of HIV care, we present age-and-sex-specific projections of people in HIV care in the UK to 2028.
Methods: Age-and-sex specific populations were extrapolated from the national cohort of people accessing HIV care between 2004–2013 and adjusted for expected retention and death rates (source: UK civil registration). The expected numbers of new HIV diagnoses by 5-year-age band were based on the previous 10-year-trends and added to the projected population.
Results: The actual number of persons in HIV care steadily increased from 41,200 in 2004 to 81,500 in 2013, with high rates of 5-year-retention (>85% of people in care between 2004–2008, stable for all groups) and a slow decline in death rates across all groups (on average 4% among men; 2% among women). An estimated 84,500 persons will be diagnosed in 2014–2028 (67,300 men, 17,200 women) and in 2028, an estimated 112,700 people will access HIV care: 54% (60,500) aged ≥50, (29% 50-59; 18% 60–69 and 6.2% ≥70 yrs). The number of men in HIV care is expected to increase by 53% (55,200 in 2013 to 84,700 in 2028) with those aged ≥50 increasing from 31% to 56%. The number of women is expected to remain relatively stable (26,300 in 2013, 28,000 in 2028), with those ≥50 increasing: 9% (2,400) to 47% (13,100).
Conclusion: Management of an aging HIV population with co-morbidities will require effective liaison between HIV, primary care and other healthcare services.

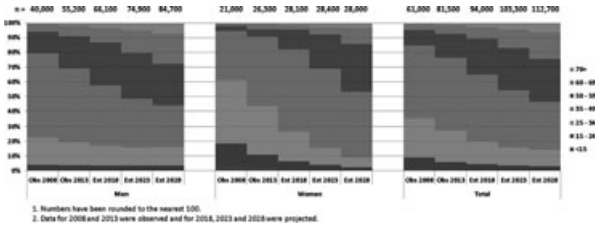

Chart. Projected age distribution of people in HIV care[1,2]: UK.

Year	2016		2015		2014		2013		2012		2011		2010		2009		2008		2007	
Source	ID	GUM	ID	GUM	ID	GUM	ID	GUM	ID	GUM	ID	GUM	ID	GUM	ID	GUM	ID	GUM	ID	GUM
No. Newly diagnosed with HIV	17	15	18	25	12	20	14	17	18	34	38	20	42	22	32	11	46	14	35	26
Late Presenters (n, %)	13, 76%	4, 27%	12, 67%	12, 48%	9, 75%	10, 50%	7, 50%	6, 35%	13, 72%	7, 21%	28, 74%	5, 25%	34, 81%	8, 36%	24, 75%	6, 55%	31, 67%	5, 36%	27, 77%	10, 28%
Presenters with advanced disease (n, %)	8, 47%	0, 0%	4, 22%	4, 16%	7, 58%	4, 20%	5, 36%	1, 6%	7, 39%	5, 15%	19, 50%	1, 5%	22, 52%	1, 5%	17, 53%	3, 27%	27, 59%	3, 21%	22, 63%	8, 31%
Gender M: F (%)	71: 29	93: 7	67: 33	100: 0	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 (%)	59	93	56	80	17	70	43	76	17	82	42	80	12	68	38	91	35	79	17	54
White British (%)	71	73	55	76	42	55	57	88	71	94	61	75	64	17	59	82	54	79	37	65
Black African (%)	18	7	22	4	17	20	7	12	29	3	21	15	31	4	34	18	43	14	49	15
Median CD4 on diagnosis (cells/μL)	201	438	292	426	223	469	316	459	246	506	187	501	195	389	188	347	169	419	159	388
CD4 range on diagnosis (cells/μL)	7–963	207–971	0–1442	62–975	10–809	45–1180	0–572	134–885	11–900	39–979	0–955	15–894	0–1145	162–851	0–833	109–1019	4–1072	38–953	0–671	61–809
Previous Indicator Disease (n, %)	6, 35%	0, 0%	4, 22%	4, 16%	4, 33%	7, 35%	5, 36%	5, 29%	6, 33%	13, 38%	22, 58%	11, 55%	21, 50%	5, 23%	17, 53%	1, 9%	16, 35%	4, 29%	16, 46%	13, 50%
AIDS at diagnosis (n, %)	6, 29%	0, 0%	3, 17%	0, 0%	3, 25%	0, 0%	1, 7%	0, 0%	4, 22%	0, 0%	11, 29%	0, 0%	11, 26%	0, 0%	8, 25%	0, 0%	13, 28%	0, 0%	11, 31%	0, 0%

P128

Sexual health service utilisation prior to an HIV diagnosis in older people living with HIV

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Background: The number of people aged ≥50 years living with HIV in the UK is increasing. Older people living with HIV (OPLWH) are more likely to have been diagnosed late (with a CD4 count of ≤350cells/mm^3 or with an AIDS defining illness within three months of their diagnosis). Information about sexual health service utilisation of OPLWH prior to HIV diagnosis is limited. This study aims to assess sexual health service utilisation of people living with HIV (PLWH) aged <50 y compared to ≥50 y prior to an HIV diagnosis.
Methods: The study was conducted at a single HIV outpatient centre in the UK. PLWH who had been diagnosed within the 5 years prior to August 2016 were identified from the clinical database. Demographic and HIV clinical variables, including baseline CD4 count, date and place of HIV diagnosis, and number of visits at a local sexual health clinic were gathered from the clinical database. Statistical tests were carried out on this data to determine differences between those ≥50y and <50y. Significance is defined as P=≤0.05.
Results: 576 PLWH were included. 78 (13.5%) were ≥50 y, and the remaining 498 (86.5%) were <50 y. PLWH ≥50 y had a significantly lower number of episodes treated in sexual health per person in the 5 years prior to HIV diagnosis than the younger group (P=0.016). Late diagnosis was seen in 53.8% of those ≥50 y compared to 26.1% of those <50 y (P=0.001). Table 1 shows the facility of HIV diagnosis for both groups of PLWH, where this information was available. PLWH ≥50 y were significantly more likely to receive a diagnosis in primary or secondary care, whereas those <50 y were significantly more likely to be diagnosed in sexual health.

	≥50 (%)	<50 (%)	P value
Primary Care	15 (19.2%)	43 (8.6%)	0.004
Secondary Care	26 (33.3%)	78 (15.7%)	0.001
Sexual Health	21 (26.9%)	215 (43.2%)	0.007
Outreach/Community	4 (5.1%)	60 (12%)	0.071
Home testing	0 (0%)	15 (3%)	0.120

Table 1: This table shows place of diagnosis for each study group.

Conclusion: These results suggest that current sexual health services may not meet the sexual health needs of those OPLWH. Further research is needed to explore strategies for HIV testing and sexual health advice in this group to help prevent late diagnosis of HIV.

P129

The mortality meeting: preventable HIV deaths?

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Background: In the UK, mortality PLWH has fallen from 10.2 per 1,000 in 2006 to 5.7 per 1,000 in 2015. Nationally, late diagnosis (CD4<350) is seen in 39%, compared to 62% locally. We aimed to understand cause of death in our cohort and assess contribution of late diagnosis.
Methods: We used a pro-forma to review all deaths from April 2013 to September 2016 (since introduction of our HARS database, comparing to national and local data from the BHIVA audit (2005-2006).
Results: 41 deaths occurred over 4000 person years of follow up. Median age at death was 52. Table 1 presents the demography compared to the previous BHIVA audit:

Demography	2005–2006: National		2005–2006: Local		2013–2016: Local	
Sex	(n)	(%)	(n)	(%)	(n)	(%)
Male	287	74	4	57	36	88
Female	91	24	3	43	5	12
Not stated	9	2				
Ethnicity						
White	220	57	3	43	35	85
Black African	128	33	3	43	4	10
Other/unknown	39	10	1	14	2	5
Age at death						
<50	279	72	4	57	15	37
>50	104	27	3	43	26	63
Not stated	4	1				
CD4 count						
<100	169	44	5	71	10	24
100–350	130	34	2	29	13	32
>350	50	13			14	34
Not known	38	10			4	10
HIV related						
Yes	231	60	6	86	18	44
No	123	32			22	54
Unknown	33	9	1	14	1	2
Total	387	100	7	100	41	100

We ascertained immediate cause of death in 40 of the 41 cases. Of the 40,18 deaths were directly related to HIV, and 22 were not. Of the 22 deaths not directly related to HIV, the most common immediate causes were malignancy (9), suicide (3), and sepsis (3).

Within the 18 HIV related deaths, the most common immediate causes were multi-organ end-stage HIV disease (4), lymphoma (4), and sepsis (4). Of these, 7 patients were under care but had an untreatable complication, 4 were under care but had chosen not receive treatment, 1 was known to have HIV but re-presented too late, and 6 were diagnosed too late for effective treatment. Thus, 6 of 41 deaths (15%) were directly related to late diagnosis; this compares to 24% nationally in the previous audit. Overall, 8 (20%) patients were diagnosed <3 months before death; compared to 23% across all centres in the 2005–2006 audit.

Conclusion: Compared to the 2005–2006 audit period, patients are dying at more advanced ages, with higher CD4 counts, and more frequently of causes not-directly related to HIV. Non-HIV associated malignancy has become a leading cause of death in our cohort. Late diagnosis remains an important contributing factor to mortality, indicating that there are still preventable deaths. We recommend that mortality should be reviewed at network level meetings and changes made to reduce preventable deaths.

P130

Trends in prompt ART initiation among gay and bisexual men diagnosed at high CD4>350 cells

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Background: In the UK, antiretroviral therapy (ART) coverage is 96%. ART at diagnosis is now considered best practice for public health as well as clinical purposes. In 2015, 75% of gay/bisexual men starting ART had CD4>350 compared to 50% among heterosexuals. This suggests gay/bisexual men are more likely to start ART for treatment as prevention (TasP). We present demographic trends in ART initiation among gay, bisexual and other men who have sex with men ("men" hereafter) with CD4>350.
Methods: The UK has a comprehensive national open cohort of people with HIV from the point of diagnosis, with clinical updates from all sites. We analysed data on men starting ART (20,877) between 2010–2015 where both ART start dates and CD4 counts prior to ART start were available (66%: demographics similar to all men).
We described trends in ART uptake and identify predictors for prompt initiation (<6 months from diagnosis) among those starting ART with CD4>350. Men diagnosed in the latter half of 2015 were excluded from multivariate analyses due to short follow up time.
Results: The (adjusted) number and proportion of men starting ART with CD4>350 rose from 41% (942/2,298) in 2010 to 75% (2,930/3,906) in 2015

(equivalent figures for CD4>500 were 17% and 48%, respectively). Overall, 8,073 men starting ART were included in the study: 38% (3,405/8,073) with a CD4>350 CD4 started ART within 6 months and 25% (2,012) within 6 weeks of diagnosis, with improvement in more recent years (Figure).
The factors associated with prompt initiation among those with CD4>350 included: recent year (2015 [51%] Adjusted Odds Ratio (aOR): 2.22 (95%CI 1.84–2.68) ref: 2010 [26%]); high CD4 (>500 [46%] aOR: 1.81 (1.65–1.95) ref: 350–499 [31%]); young age (15–24 [56%] aOR 2.50 (2.10–2.98) ref: 35–49 [34%]); geography(London [44%] aOR 1.39 [1.22–1.99]) ref: outside London [50%]) and weak association with ethnicity (Asian [47%] aOR 1.29 (1.03–1.61), black [35%] aOR 0.77 (0.62–0.96) ref: white [38%]).
Conclusions: Trends in CD4 at ART start reflect the evolution of national treatment guidelines. The impact of TasP will be maximised with prompt ART initiation following diagnosis. The variation in prompt initiation at diagnosis by region and other demographic factors requires further investigation to ensure equitable access to ART for public health purposes

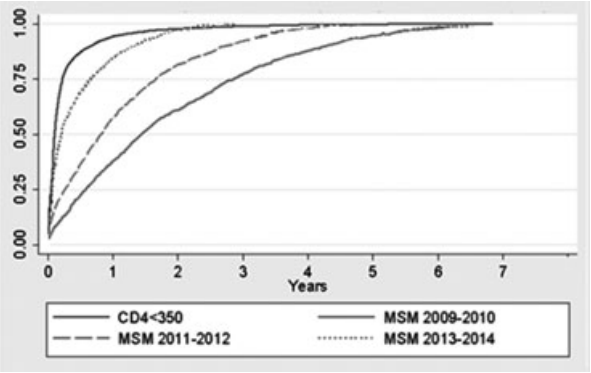

Figure: Kaplein Meier: time from diagnosis to ART start among men with CD4>350, by year of initiation, compared to all men with CD4<350: 2009–2014.

P131

Using technology to diagnose HIV earlier: how often do patients have blood tests in the years prior to diagnosis?

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Background: As significant proportion of people living with HIV remain undiagnosed, and studies suggest many patients who presented late had missed opportunities for testing in the years prior to diagnosis. One method of potentially testing such patients earlier is using software applications embedded in Order-Comms systems to identify patients at higher risk of HIV: when such patients attend clinics, surgeries or hospitals, the application prompts clinicians to add HIV tests to other tests ordered. However such applications will only be effective if patients with undiagnosed HIV attend medical facilities and undergo blood tests. This project aimed to determine if this was the case for a stable and local population presenting with HIV to a clinic in northern England.
Methods: All new diagnoses of HIV presenting to our clinic (2012–2016) were reviewed. Patients who'd moved to the area within the last 5 years were excluded. Episodes of engagement with care resulting in blood tests were assessed within the WebICE (Order-Comm) system >3 months and up to 5 years before diagnosis. Reasons for ordering blood tests were reviewed to determine if indicator conditions were potentially present, and (in a subgroup with evaluable results) whether neutro/lymphopaenia, thrombocytopaenia or raised globulin were present.
Results: 42 patients were reviewed (median age 44, median CD4 count at diagnosis 281, 90% male, 60% MSM). Overall 80% had blood tests ordered up to 5 years before diagnosis, 24% had a clear indicator condition and there was a median 1 year (per patient) when blood tests were done in the previous 5 years. Of these episode 65% occurred in primary care, 26% in hospital clinics and 9% in A&E or hospital inpatient episodes. In the late presenting group (CD4<350, n=25, median CD4 91) 84% had prior blood tests, there were a median of 2 years when blood tests were done and 38% had indicator conditions. In the subgroup analysed, 22/33 (67%) had blood dyscrasias or raised globulin (21/26, 81%, in the late presenters).
Conclusion: A high proportion of patients with new diagnoses of HIV have had blood tests in the 5 years prior to diagnosis, with a significant proportion of the tests indicating blood dyscrasias or raised globulin. Technologies designed to prompt HIV testing using algorithms to detect previous abnormal blood tests amongst other risk factors, when other blood tests are ordered, are likely to be effective in enabling earlier diagnosis.

Psychosocial Issues and Quality of Life

P132

A comparison of experiences of HIV stigma and discrimination between heterosexual men and men who have sex with men (MSM), and the influence of chemsex: findings from the People Living with HIV Stigma Survey UK 2015

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Background: 13% of men who have sex with men (MSM) living with HIV in the UK are unaware of their HIV status. HIV stigma remains a barrier to testing, treatment adherence, and is associated with sexual risk behaviours. We compare stigma experienced between heterosexual men and MSM, and investigate the influence of MSM engaging in chemsex has on HIV stigma.
Methods: The *People Living with HIV* Stigma Survey 2015 was co-designed by people living with HIV and an advisory group of national experts. People were recruited from over 120 cross sector community organisations and 47 NHS HIV clinics to complete an online survey about their experience of living with HIV. Responses were anonymised, stored securely, and analysed with engagement from community members.
Results: 1,162 men completed the survey, 969 (83%) identified as MSM, 243 (25%) of which reported engaging in chemsex in the past 12 months. 82% of MSM were white British or Irish compared to 32% of heterosexual men. MSM were less likely to report being in a relationship than heterosexual men (50% and 69% respectively). A multivariable analysis of social discrimination variables found that MSM were over twice as likely to report sexual rejection in the past 12 months compared to heterosexual men (AOR 2.40 [95%CI 1.37–4.20]). 36% of MSM reported sexual rejection in the past 12 months compared to 14% of heterosexual men. There was no difference in attributing this rejection to their HIV status, but was high for both groups (MSM *Mean*=70.2 *SE*=2.02; heterosexual men *M* = 74.5 *SE*=7.47). MSM who engaged in chemsex in the past 12 months were more likely to report sexual rejection compared to MSM who did not report engaging in chemsex (AOR 1.71 [95%CI 1.17–2.52]).
Conclusion: MSM living with HIV in the UK experienced greater stigma and discrimination in terms of sexual rejection compared to heterosexual men, and this effect was exaggerated for MSM who had engaged in chemsex. Where sexual discrimination had been experienced, all groups were likely to attribute this rejection to their HIV status.

P133

A new service for people living with HIV with mental health problems

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Background: Mental health problems (MH(P)) are highly prevalent amongst people living with HIV (PLWH). We audited access to MH services according to British Psychological Society guidelines and responded to the findings.
Methods: 1. A retrospective notes review and phone consultations were undertaken for PLWH recently discharged from hospital. 2. A new service was established in response to findings and characteristics of service users are described for an 8 month period. Statistical analysis of factors associated with MHP was with Chi-squared or Fisher's tests.
Results: 1. For n=73, 86% (63) were male, median age was 43 (29–66) years; HIV VL was undetectable for 78% (57); 26% (19) reported alcohol excess, 10% (7) recreational and 4% (3) injection drug use; 32% (23) reported current MHP and 38% (28) previous MHP. Recreational drug use was associated with current MHP (p=0.01). For 33 individuals with current and/or past MHP, 45% (15) participated in phone interviews, with 11 deemed unsuitable for a call and 7 uncontactable; 40% (6) felt health care professionals (HCP) had not given them sufficient opportunity to discuss their MHP and 40% (6) experienced stigma. 2. A weekly pilot joint HIV-psychiatry clinic was set up, with 11 patients discussed virtually, and 36 face to face appointments involving 14 patients; 14/14 were male; for 12/14 (86%), VL was undetectable. Diagnoses were: depressive (n=6) and/or anxiety disorders (5), personality disorder/trait (6) and other (4). A new psychiatric drug was started (4) or dose changed (1); for 8 individuals, an onward referral was made to psychological or other talking therapies. Median waiting time for an appointment was 35 days versus 60 days for conventional MH services. Seventy-one per cent (n=10) individuals completed feedback questionnaires; 9 were very satisfied or satisfied with the nature and timeliness of the information they received prior to attending, and that the appointment was beneficial for their current problem; 10 were very satisfied or satisfied with the appointment location.
Conclusions: PLWH who were recent inpatients had a high prevalence of MHP; a significant minority felt they had not had sufficient opportunities to discuss their MHP. A new service led to reduced waiting times and a corresponding high level of satisfaction. HIV centres should consider auditing provision of MH services to PLWH and expanding access where indicated.

P134

A review of patients who fail to disclose their HIV status to the GP: is care compromised?

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Background: As more and more HIV positive people are living long and healthy lives, it is important they have access to general practitioners (GPs) who have experience in treating a wide range of day to day health conditions. BHIVA recommend that patients are encouraged to register with a GP, if not already registered, and that the HIV service regularly communicates with the GP about their patient, including the creation of a care plan if appropriate. The objective of this review was to determine how many patients within our HIV service fail to disclose their status to the GP and to explore the reasons.
Method: A retrospective review of the electronic patient records (EPR) was conducted and all patients whose clinic letters were not sent to the GP and those where the GP was not aware of status were selected. The following were recorded: demographics, duration of diagnosis, CD4 count, viral load, antiretroviral therapy and reasons for failing to disclose.
Results: Overall, of the 1000 patients across two sites, only 32 patients failed to disclose to their GP. 19 (59%) males and 13 (40%) females.17 (53%) heterosexual, 13 (40%) homosexual and 3 (9%) bisexual. The majority 13 (30%) were between ages 45–55 with origins from Sub-Saharan Africa. Almost 60% of patients were diagnosed within the last five years, 4 (12%) between 5–10 years and 9 (28%) greater than 10 years. 29 (90%) were well established on anti-retrovirals (ARVs) of which 18 (62%) had utilized one to three regimens. The average CD4 count was greater than 400 and viral load fully suppressed.
As anticipated most patients were first diagnosed in the GUM clinic, 21 (65%) and the remaining 11 (35%) in other specialities. Only 12 (37%) were registered with a GP at the time of diagnosis. 15 (47%) patients had co-morbidities which included hypertension 2 (13%), diabetes 1 (7%), asthma 1 (7%) and mental health illness 3 (20%), obesity 4 (26%) and others 4 (26%).The reasons for lack of disclosure was not always clearly documented however, anxiety around confidentially, immigration issues and inability to find a suitable GP were commonly cited.
Conclusion: Overall the majority of patients disclosed to their GP, however the review highlights the need for further work to encourage all patients to disclose. For patients with mental health issues care is compromised as they struggle with adherence and drug use which can be better managed with at the primary care level.

P135

Enablers and barriers to diet and exercise behaviour change in people living with HIV: a qualitative investigation

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Background: People living with HIV (PLWH) may experience particular enablers and barriers to lifestyle change; some have been reported to be HIV-specific. This qualitative investigation aimed to characterise these enablers and barriers.
Methods: HIV patients with prediabetes attending urban outpatient clinics were invited to participate in a 6-month diet and exercise intervention. Those who completed, dropped out or declined to take part in the intervention were invited to participate in research interviews. Participants were purposively sampled to ensure maximum diversity. A topic guide was used, however participants were encouraged to speak freely. Interviews were digitally recorded and transcribed. Thematic analysis was conducted by the lead researcher using Framework aided by NVIVO software, and checked by collaborators to ensure rigour.
Results: From 55 potential participants 23 consented to be interviewed, 19 who took part in the intervention, and 4 who declined. Analysis of interviews identified the key theme of fear of disclosure of HIV status. Participants felt happy to disclose development of diabetes but not HIV. Those who declined participation or achieved fewer intervention goals exhibited an external health locus of control, blaming diabetes risk on HIV medicines, and believing behaviour change futile. Those who achieved more goals considered prediabetes treatable, finding practical ways to surmount barriers. Enablers included a desire to avoid adding to pill or disease burden, and a strong support network. Deliberate weight loss leading to loss of cultural identity and disclosure of HIV status were significant barriers. Valorisation of overweight was a barrier to some from the African communities. Weight loss presented as a loss of identity for gay men who self-identify as bears (a sub-section of gay men who reject normative idealised lean muscularity, and are more likely to be hairier and heavier).
Conclusion: The fear of disclosure of HIV should not be underestimated; it appears to affect desire or ability to change behaviour. It is not known if fear of loss of identity among gay men identifying as bears is specific to those living with HIV. Interventions to treat metabolic conditions in PLWH should take account of enablers and barriers to change, some of which are HIV-specific. Patients with an external health locus of control may benefit from psychology referral.

P136

Experiences of stigma and discrimination among women living with HIV in the UK: findings from the *People Living with HIV Stigma Survey UK 2015*

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Background: The *People Living with HIV* Stigma Survey UK 2015 is a collaborative cross sector community-led initiative that captures the feelings

and experiences of living with HIV in a variety of settings with a specific focus on the previous year. We examine the lived experiences of women who took part in the survey.
Methods: An advisory group of community members and experts help design the survey. People recruited from >120 community organisations and 47 HIV clinics completed an anonymous online survey. Responses stored securely were analysed at PHE with community engagement. Univariate and multivariate analyses were performed.
Results: 378 (24%) women took part. Both women and men reported relatively high levels of worry, avoidance and exclusion of social settings in the last year and over half of participants had a low self-image in relation to HIV. Overall fewer women reported rejection by a sexual partner (18% vs 33%, p<0.001). More trans women reported worrying about verbal harassment (50%, 9/18 vs 21%, 74/346) and exclusion from family gatherings (39%, 7/18 vs 17%, 60/342) than other women. Despite similar levels of disclosure levels in primary care, women reported less control over the disclosure of their status (aOR 1.65, *CI 1.05, 2.59*) and lower levels of support following disclosure (aOR 1.99, *CI 1.23, 3.21*) compared to men after adjustment for demographics. 53% (8/15) of trans women reported being treated differently to other patients at their GP (53%, 8/15) cf 15% (49/318) of other women; almost half (7/16) reported hearing negative comments from a healthcare worker about their HIV status or people with HIV compared to 17% (54/324) of other women.
Conclusion: Women feel less control and support in primary care with regard to disclosure of their HIV and trans women experience disproportionate high levels of discrimination. Interventions to increase sensitivity and support within the healthcare are required.

P137

Experiences of stigma and discrimination in healthcare settings for trans people living with HIV in the UK: findings from the *People Living with HIV Stigma Survey UK 2015*

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Background: Trans is an umbrella term used to refer to people who do not identify with the gender they were assigned at birth (as opposed to cisgender). Research into the experiences of trans people living with HIV is lacking. We compare experiences of the stigma and discrimination in healthcare settings reported by trans people living with HIV in the UK with those of cisgender people.
Methods: The *People Living with HIV* Stigma Survey 2015 was co-designed by people living with HIV and an advisory group of national experts. People were recruited from over 120 cross sector community organisations and 47 NHS HIV clinics to complete an anonymous online survey. Responses were stored securely and analysed with community engagement. Trans and cisgender participants were identified via 2 specific questions on current gender identity and assigned gender at birth.
Results: 29 (2%) out of 1,528 participants identified as trans: 18 trans female, 4 trans male, 2 gender queer/non-binary, and 5 other. In the past 12 months, compared with cisgender participants, trans people were significantly more likely to report disclosure of their HIV status without their consent by a health care worker to a health care colleague (38% vs. 16%), or to a member of the public (21% vs. 7%) (p<0.01). Furthermore, in multivariate analyses trans people were significantly more likely to report worrying about being treated differently when seeking health care (48% vs. 30%, AOR 2.61 [95%CI 1.06-6.42]) and report delayed or refused treatment (41% vs 16%, AOR 4.32 [95%CI 1.71–10.93]) in the past year after controlling for other demographic and social factors. In 2015, almost half (45%) of trans people living with HIV had avoided health care when needed, compared with 28% of cisgender people living with HIV.
Conclusion: Despite excellent health outcomes, people living with HIV in the UK, and especially trans people, continue to report high levels of stigma and discrimination in the health care setting. Avoidance of health care due to HIV status has potential leading consequences on health and wellbeing. These findings call for increased trans-specific awareness and education within healthcare settings and greater support of trans people living with HIV who seek health care through the NHS.

P138

Investigating the intersection of substance use and high-risk sexual behaviours, and their associations with mental health, in people living with HIV

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Background: A high prevalence of smoking, alcohol and recreational drug use is reported in people living with HIV, in addition to higher risk sexual behaviour. We investigated the association between these risk behaviours, and assessed whether the presence of multiple risks is associated with measures of mental health among HIV-positive participants in the POPPY Study.
Methods: Substance use was assessed via a detailed patient questionnaire and high-risk sexual behaviour was inferred from a sexually transmitted disease (STD) diagnosis in the last year. Mental health was assessed through 1) patient reported history of mental health conditions; 2) any current depressive symptoms (Patient Health Questionnaire [PHQ-9] ≥5); and 3) current significant depressive symptoms (Center for Epidemiologic Studies Depression [CES-D] ≥16). Associations between the presence of multiple risk behaviours and measures of mental health in men having sex with men (MSM) were investigated via logistic regression after adjustment for demographic factors.
Results: Of the 1072 HIV-positive POPPY participants (85% male, 76% MSM, mean (range) age 52 (20–82) years), 25% were current smokers, 14% reported drinking >21 units alcohol/week, 29% recent (<6 months) drug use and 62% a recent STD; 152 (14%) reported ≥3 of these behaviours and were defined as exhibiting a 'high-risk' phenotype. The prevalence of this phenotype declined with age (odds ratio (OR)/10 years older 0.73 [95%CI 0.61–0.96], p<0.001) but was seen in all age groups. 144/152 with a high-risk phenotype were MSM; after adjustment for age, MSM were 7.1 times more likely to report a high-risk phenotype than heterosexuals (OR 7.1 [3.44–14.81], p<0.001) but no other predictive factors were identified. Among MSM, 320 (39.1%) reported a mental health condition, 320 (39.1%) had PHQ-9 ≥ 5 and 355 (43.4%) had CES-D ≥ 16. MSM reporting a high-risk phenotype had an increased risk of all three measures of mental health status (Table).

Factor:	Mental health condition OR (95% CI) p-value	PHQ-9 ≥5 OR (95% CI) p-value	CES-D≥16 OR (95% CI) p-value
High risk phenotype (unadjusted)	1.31 (0.91, 1.88) p=0.14	1.50 (1.02, 2.21) p=0.04	1.61 (1.08, 2.39) p=0.018
High risk phenotype (adjusted for age)	1.30 (0.90, 1.87) p=0.16	1.49 (1.01, 2.20) p=0.05	1.66 (1.11, 2.47) p=0.014

Conclusion: A subgroup of participants reporting multiple risky behaviours was identified, which was strongly associated with being MSM. In MSM, this phenotype was generally associated with all measures of mental health.

P139

Modifying stable antiretroviral therapy: what do patients think?

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Background: The development of newer fixed-dose ART combinations, adjustment to drug pricing by commercial tendering processes and the increasing availability of generic antiretrovirals offer an opportunity to reduce toxicity, decrease pill burden and manage the cost of HIV treatment. Clinicians and patients are comfortable with changes to treatment in response to virological failure or unacceptable side-effects. However, adapting otherwise stable treatment on the basis of cost requires a different type of conversation and may be challenging for clinicians and could provoke patient anxiety. We sought to establish the attitudes towards changing ART in a range of different scenarios amongst stable, virologically-suppressed patients.
Methods: A self-completed questionnaire was offered to all stable patients (on ART >6 months, undetectable HIV viral load and no plans for treatment change) over a four week period in December 2016. It elicited the patient's

level of satisfaction with current medication and their level of agreement (rated on a 5-point scale with "strongly agree"=5, "strongly disagree"=1) with changes in treatment in several different situations.
Results: The questionnaire was completed by 50 patients. 64% of respondents were male and 46% were black-African. 47/50 (94%) agreed or strongly agreed with the statement "I am happy with my current medications" (mean score 4.6). Patients were most amenable to change their medications for a novel medication (score=4.32), to reduce side effects (4.19) and to take fewer tablets (4.07).Patients were more ambivalent to change medication if for a change to a generic form (3.95) and if recommended by a physician (3.98). Patients were more resistant to changing therapy based on cost improvement (3.40) with 48% agreeing/strongly agreeing with this, falling to 38% if the patient was made aware of the magnitude of the saving.
Conclusions: Patients were happy with their current medications and were generally resistant to treatment change. Circumstances in which changes were viewed more positively involved those associated with a direct benefit to the individual. Patients were more adverse to changing medications if cost was the primary driver for change and awareness of the size of saving appeared unlikely to influence this. We plan to explore attitudes and knowledge around treatment change and generic therapy in a larger qualitative project.

P140

Recreational drug use amongst young people with HIV: survey in a dedicated young adult clinic

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Background: Young people with HIV are a vulnerable group who have distinct needs. HIV may have been diagnosed at a time of huge transition in their lives. A desire to 'fit in' and avoid further stigma may increase the influences of peer pressure and risk taking behaviour. The use of drugs may increase sexual risk taking and compromise ability to adhere to ART. This increases risk of HIV transmission. There is little data about drug use in young adults with HIV. Our aim was to assess the use of recreational drugs among young people with HIV attending a dedicated young adult HIV service, in a large inner city HIV clinic.
Methods: A questionnaire was designed and local ethics approval attained. All patients attending the young adult HIV service between June and Dec 2014 were provided with an anonymous questionnaire which they filled in privately and then posted into a secure box. The questionnaires were retrieved at the end of the study and data analysed.
Results: 99 young people aged 17-26 completed the survey. Median age 22. 73/99 (74%) were male. 51/99 (52%) MSM, 40/99 (40%) heterosexual, 8/99 (8%) bisexual. 39%, 18% and 57% reported smoking currently, previously and never respectively. Respondents reported using the following drugs regularly: 50/99 cannabis, 31/99 cocaine, 19/99 MDMA, 29/99 Mephedrone, 15/99 Ketamine, 22/99 Viagra, 18/99 GHB/GBL. All drug use was more common among MSM compared with heterosexuals: 38/51 MSM reported regular or occasional drug use compared to 15/40 heterosexuals $p<0.005$. 5/8 Bisexuals reported drug use. 9/99 reported injecting drugs at least once. Only 8/99 felt their drug use was a problem for them, with 7/99 seeking help for their drug or alcohol problems. 24% reported unprotected sex because they were high on drugs. 66% of respondents were on ART; 16% reported missing ART as a result of drug use, and 12% had missed appointments in the HIV clinic. When asked about drug interactions, only 7% were aware that recreational drugs might interact with their ART.
Conclusions: These data show that drug use is common among the young people attending our service, particularly MSM. Drug use lead to unprotected sex and missed ART in some cases, and could be an important factor in onward HIV transmission. Support for young people in using recreational drugs less and more safely, and limiting drug-drug interactions, is key in keeping this vulnerable cohort safe and aware of risk.

P141

The impact of resilience upon experiences of stigma: findings from the *People Living with HIV Stigma Survey UK 2015*

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Background: Psychological resilience is a measure of the ability to appropriately adapt to stress and adversity, with low resilience linked to clinical depression and anxiety. We investigate the usefulness of a validated resilience scale when applied to experiences reported by people living with HIV.
Methods: The People Living with HIV Stigma Survey UK 2015 was co-designed by community members and HIV experts. 1,576 people recruited from 120 community organisations and 47 HIV clinics throughout the UK completed an anonymous online survey. Responses were stored securely and analysed at PHE with active community engagement. The validated Connor-Davidson Resilience Scale (CD-RISC 10) was included in the survey. Scores of participants who answered >7/10 questions were calculated and the mean of all completed responses used to impute missing responses. Participants were classified as having low, medium, or high resilience using cluster analyses. Experiences of stigma and discrimination were compared for those with low and high resilience.
Results: The majority of 1,568 participants responded positively to resilience questions: 64% often or nearly always were able to adapt to change and 63% to bounce back after hardship [mean resilience score 26.5/40 (SD 8.2)]. 429 (27%) had low, 611 (39%) medium, and 528 (34%) high resilience. In the past year those with low resilience were more likely than those with high resilience to have been diagnosed with depression (71% vs 22%) and experienced social discrimination (verbal/physical abuse and exclusion) (46% vs 23%), anxiety (53% vs 24%) and/or avoided social/sexual experiences (54% vs 32%) (all $p<0.001$); furthermore, avoidance was more likely to be attributed to their HIV than other factors (34% vs 19%, $p=0.001$).
No significant correlation was observed between resilience and age, gender, sexuality or ethnicity. Thematic analysis of participants' experiences of living with HIV identified that those with low resilience most commonly reported "social isolation" and "negative experiences" whereas those with high resilience focused on "adopting healthier behaviour" and "empowering experiences".
Conclusion: A resilience scale may be a non-intrusive way of assessing negative experiences of living with HIV, including stigma and discrimination, and could therefore be used as a screening tool in HIV clinics for referral to counselling, peer support and other support services.

P142

Uncharted territory: a report into the first generation growing older with HIV

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Background: Due to an incredible advancement in treatment over the past 30 years we are now seeing the first group of people growing older with HIV. This research explores what growing older with HIV means for people in the UK. This includes those who have been long term diagnosed and those in the growing cohort of people being diagnosed in their 50s and older.
Methods: This project was designed as a peer led piece of research. We recruited 12 peer researchers all of whom were aged 50 or older and living with HIV. The peer team assisted in the design, implementation and interpretation of the research. Participants from across Great Britain were recruited to complete a comprehensive survey, take part in an in-depth interview or group workshop.
Results: 307 individuals were included through to analysis, via 246 survey responses, 30 interviews and 6 workshops. Ages ranged from 50 to 83 with a median age of 55, 22% of participants were women. A wide range of experiences, requirements and concerns were observed. Factors such as being

diagnosed before effective treatment was available, being aged 50–60 and being a woman were connected with higher levels of self stigma, benefit reliance, lower self-reported wellbeing and greater concern for the future. 58% of survey participants were living on or below the poverty line. 58% of respondents reported moderate to high HIV self stigma, and 82% reported moderate to high levels of loneliness. Future care was a key concern for participants. Survey respondents had on average 3 times more health conditions (in addition to HIV) than the general population of the same age and only 12% have made financial preparations for future care provision. Satisfaction with the quality of care received at HIV clinics was consistently high, although there was frustration that clinics are no longer a one-stop-shop for all health care needs. Quality of care received at GP surgeries was more variable mainly due to inconsistent knowledge around HIV.
Conclusion: There is huge diversity in the experiences of this cohort spanning from the beginning of the epidemic though to very recent diagnoses. Many people will need little support as they grow older with HIV. However for others who experience complex health and care needs, poverty, and poor emotional wellbeing, additional services and support is needed. Well equipped and informed primary healthcare and social care sector, supported by third sector organisations will be vital.

P143

Using feminist and participatory methods to explore the experiences of ageing with HIV for women in London

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Background: Ageing with HIV is a growing issue, which is only relatively recently gaining the attention of researchers. Much is unknown, around both the clinical and social challenges of negotiating older age with HIV. For women ageing with HIV, there are additional challenges around relative invisibility, a lack of understanding and evidence for gendered needs and experiences and coping with HIV alongside other ageing experiences such as menopause.
Methods: Three participatory, creative workshops were held with women aged over 50 and living with HIV in London. Each workshop was supported and hosted by a third sector organisation, NAZ, Food Chain and AHPN. 18 women participated in total. Each workshop lasted for about two hours. They were all recorded, transcribed and anonymised. In addition to the recordings, creative outputs were collected. The workshop was structured flexibly, with core activities and additional discussion points, used depending on group dynamic and flow of discussion, so each workshop varied slightly. The key creative activity was body mapping, adapted for use as a research technique to support women to explore and share their experiences through creative means, with the intention that this facilitates greater sharing and offers an alternative to discussion, for those participants who prefer it.
Results: Isolation emerged as major theme in all the workshops. Participants described loneliness and physical isolation, with a lack of social support, and family and friendship networks as well as lack of access to support services, and described fears of this increasing as they grew older. In addition, participants described the impact of physical challenges of ageing, menopause, managing HIV treatment and side effects, and stigma and discrimination associated with age and HIV separately and in combination. Disclosure and social relationships were particularly challenging. In the body mapping exercise, participants described fear and uncertainty about the future, and dependence on formal sources of support, particularly peer support. Such support was identified as key concern in the context of diminishing resources and cuts to services.
Conclusion: The workshops demonstrated that women value the opportunity and space to share their experiences, challenges, fears and hopes around ageing. The use of innovative participatory, creative and assets-based methods including and body-mapping, enabled greater sharing and participation.

Service Development, Education and Training

P144

A description of the changing needs of inpatient care for HIV patients in the modern antiretroviral therapy era

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Aim: To assess the reasons for inpatient admissions at a tertiary HIV care centre and the impact on the need for consultant specialization to deliver optimal care.
Methods: A retrospective review of in-patient admissions under the care of the HIV team between January 1st 2016 and December 31st 2016 was carried out. Using electronic patient records, data were collected on reason for admission, length of admission, and level of immunosuppression. All admissions were categorised as related or unrelated to HIV by two independent physicians. Where there was disagreement a third clinician assessed and adjudicated.
Results: During the study period there were 255 in-patient episodes (relating to 168 patients). 132 admissions were classified as not HIV-related and 123 as HIV-related. Of the HIV-related admissions, 63 were oncological (46 were AIDS defining malignancies), 43 for opportunistic infections, 10 for investigation of symptoms in patients with CD4 count <350 c/μL, 3 for antiretroviral toxicity, 3 for investigation of symptoms in patients with advanced HIV, and 1 for antiretroviral management. Of the admissions not related to HIV, 38 were for infections,12 for respiratory conditions, 10 for hepatic problems, 9 were oncological, 9 related to substance abuse, 6 were neurological, 5 were renal, 4 were gastrointestinal, 4 were orthopaedic, 4 were haematological, 4 for mental health, 3 were urological, 3 were dermatological, 2 for geriatric related problems, 1 was rheumatologic, 1 was general surgical, 1 for social needs, and 16 for other medical reasons.
Table 1. Summary of data of 2016 inpatient admissions to HIV tertiary care centre

Number (%) or Median (range)	HIV related	HIV related-oncological	Not HIV related
Admissions	123 (48%)	63 (25%)	132 (52%)
Male gender	78%	83%	84%
Median age (years)	48 (27–84)	46 (31–84)	54 (19–78)
Median duration of stay (days)	7 (1–313)	10 (1–313)	7 (1–282)
Median CD4 count (c/μL)	143 (0–1908)	221 (9–993)	384 (14–1769)
Percentage with undetectable viral load	58%	78%	71%

Conclusion: For patients living with HIV, the majority of hospital admissions are now with conditions not related to HIV infection. Staffing of specialist HIV inpatient units should reflect this with new consultants appointed having a breadth of general medical knowledge with specialist input from HIV and oncological colleagues as required.

P145

A literature review of the effectiveness of programmes delivering antiretroviral therapy in non-facility based settings in sub-Saharan Africa

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Background: In order to meet the increasing demand for sustained programmatic population-wide antiretroviral therapy (ART), alternative models for treatment delivery are necessary. We review the current literature reporting outcomes comparing facility-based with non-facility based ART programmes in sub-Saharan Africa.
Methods: This systematic review and meta-analysis searched Medline, Embase and Global Health databases from 2010 onwards. UNAIDS reports, WHO guidelines and abstracts from conferences were reviewed. All studies measuring at least one of the following outcomes; viral suppression, loss-to-

follow up (LTFU) and mortality, were included. Data was extracted, and qualitative and quantitative analysis were performed. Risk-ratios were calculated and forest plots were created for major clinical outcomes using RStudio to apply a random effects model.
Results: Of 1,861 non-duplicate reports screened, eleven articles and three abstracts were included, reporting on 38,994 patients across four community ART models in sub-Saharan Africa. This included adherence clubs (n=5), community ART groups (n=4), community ART distribution points (n=2) and home delivery (n=3). Qualitative analysis in community cohorts showed virological suppression ranges of 64.9%–97.2%, LTFU ranges of 0.2%–13%, and mortality ranges of 0%–17.3%.
Six studies comprising 19,077 patients compared non-facility based models against facility-based care. Risk in the non-facility based cohort of virological suppression was 1.28 [95% CI 0.69–2.39, p-value <0.0001, I^2 of 99.9%], risk of LTFU was 0.34 [95% CI 0.17–0.67, p-value <0.0001, I^2 of 90%], risk of mortality was 0.53 [95% CI 0.18–1.58, p-value <0.0001, I^2 of 90.2%], and combined risk of LTFU or mortality was 0.40 [95% CI 0.19–0.81, p-value<0.0001, I^2 of 94.8%].
Conclusion: Review of current literature identifies comparable outcomes between facility and non-facility based ART delivery programmes. Learning from sub-Saharan Africa may be pertinent to a UK setting, where consideration of alternative ART dispensing models are required for the delivery of lifelong ART for all HIV positive individuals within resource constraints.

P146

A visual antiretroviral regimen based tool to support cost-effective prescribing in treatment-naive individuals: defining the baseline

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Background: Responding to the evolving climate of antiretroviral (ARV) prescribing and cost pressures, the Midlands & East of England ARV Writing Group have devised a prescribing strategy, framed around an innovative visual ARV regimen banding tool. This considers whole regimen costs per month in a clinical context, whilst remaining commercially sensitive. NHS England commissioning statements, national guidelines and tender prices were taken into account. Average banding values are; 1a = £240, 1b = £350, 2a = £445, 2b = £495, 3a = £505, 3b = £615, 4 = £870. As band costs increase, greater levels of team/MDT discussion are required. We look to ascertain the real world feasibility of this regional strategy.
Methods: The new tool went live on 01/09/16, and the timeframe we observed was from 01/09/16–30/11/16. Centres submitted data captured in the regional audit form within this timeframe. The anonymised data was collated and analysed.
Results: 17 centres provided data, (56%, West Mids, 35%, East Mids, & 9%, East of England), giving 88 datasets. 65% were male, 57% had CD4 counts ≤350 cells/mm^3, and 37% had HIV viral loads of >100,000 c/ml. The regional estimated cost for a regimen per month was £476. The regional banding use and the percentage of the total expense each band represents can be seen below.

Band	Proportion of Use, %*	Proportion of Total Expense, %	Expense to Use Ratio
1a	9	4.6	0.5
1b	5	3.4	0.7
2a	47	44.1	0.9
2b	6	6.0	1.0
3a	9	9.8	1.1
3b	18	23.8	1.3
4	5	8.4	1.7

*1 data set excluded.

The prescribing strategy was correctly implemented in 80% of cases. The most popular band was 2a. Although band 4 regimens only made up 5% of cases, they accounted for 8.4% of the total expense.

Overall 37% of patients were started on a band 3 or 4 regimen, this rises to 50% when reviewing the group which did not follow the strategy. It was observed that 41% of all regimens were single tablets.

Conclusion: Centres contributing data demonstrated high levels of adherence to the regional strategy. The data provides a useful baseline for future analysis.

The ARV banding tool is a simple method to allow clinicians to view data in the same format as they prescribe. Stratifying this further into cost bands allows for comparison of similar regimens with significantly different prices.

This regional strategy is a feasible and flexible way to translate prescribing initiatives into a format that is clinically relevant, whilst remaining cost-effective and responsive to changes in drug pricing.

P147

Attitudes to shared electronic patient record systems in a Surrey HIV clinic

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Background: Electronic patient record (EPR) systems are becoming commonplace in many parts of the NHS. This transition prompts us to consider whether shared EPRs between GUM/HIV services and other NHS services are acceptable to our patients and staff.
Methods: We conducted a 10-question paper survey of patients attending a routine HIV clinic appointment between June and September 2016. Furthermore, we conducted an electronic staff survey concurrently.
Results: We received 51 patient and 50 staff responses to our surveys. A majority of patients (67%) were accepting of their GP having access to their HIV clinic notes, while just less than half (47%) agreed with a shared EPR system between GPs, GUM/HIV and other hospital services. 56% of staff surveyed felt that healthcare providers outside the GUM/HIV department should have access to these notes. Many concerns around shared EPRs stemmed from fear of stigmatisation, although confidentiality, effects on the patient-physician relationship and implications for travel were also cited. The staff responding recognised many benefits of shared EPRs as well as the potential limitations and disadvantages.
Conclusion: We have shown that there is considerable acceptance for the principal of sharing EPRs between HIV and primary care services. This study shows that sharing of data with secondary/tertiary services is less readily accepted, but strategies to mitigate concerns regarding this may be possible.

P148

Baseline investigations of patients new to HIV clinic: are they worth it?

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Background: BIHVA guidelines recommend a set of investigations at the first clinical visit of all newly diagnosed patients. These include liver and renal function tests, haematology, cholesterol and lipid profiles. We aimed to

investigate the prevalence of abnormal results of baseline investigations in patients attending an HIV outpatient service.
Methods: All infected patients attending the HIV department between 1st January and 20th October 2016 were included in the study. The cohort included HIV infected patients transferring their care to the department and attending the clinic for the first time during the study period. The results of the first measurements of haematology, renal, liver and cholesterol/lipid profiles of those patients were reviewed. We used ACTG grading to identify abnormal results.
Results: A total of 134 patients attended the clinic for the first time during the study interval. This included 123 newly diagnosed HIV infected patients and 11 patients who transferred their HIV care to our centre. Of the newly diagnosed patients, 17 (14%) had an avidity index consistent with recent HIV infection. At the first investigation, six patients had grade 3 renal failure. In three cases, renal function normalised to an e GFR >90 ml/min within four weeks of starting combination antiretroviral treatment (cART). Two patients had hypertension. Grade 1 transaminitis was detected in 17 (12.7%) patients. Of those, hepatitis C infection and non-alcoholic fatty liver disease were each diagnosed in four patents. Total cholesterol to HDL ratio of equal to or more than 5 was detected in 24 (18%) patients. Haemoglobin electrophoresis of patients with ethnicities other than Northern European identified sickle cell trait and G6PD deficiency in six and four patients respectively.
Conclusion: The majority of newly diagnosed patients had a normal screening for general physiology. Baseline investigations provide a good measurement of patients' general physiology that may be beneficial in longitudinal observations.

P149

Capacity building for senior clinicians improves health care in a resource-poor setting

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Background: In 2005, a UK physician undertook a survey of HIV services in the Eastern Region of Uganda and became aware of a lack of appropriate postgraduate training in HIV for senior clinicians, and that they were not supported in carrying out training with other grades of health workers. The clinical resources which were available, including antiretroviral therapy, were not being used effectively because of this, and some patients were denied treatment which was available in their clinic because of lack of knowledge amongst the clinical staff.
Method: In 2006 a small UK charity funded a postgraduate course for senior clinicians with update sessions in HIV, developed entirely in partnership with local clinicians. From this an annual conference developed, which has occurred each year, the 12th is being planned for 2017. Participants had presentations lectures and workshops on clinical HIV updates, and improving skills in modern adult education techniques, making presentations, audit and research. Increasingly they studied area of their own work and made presentations about them during the conference. Local guidelines were developed during conference sessions. Participants also could apply for funding to undertake a small research project or audit, or to take a training session to staff from a remote area with no educational facilities.
Results: In the last 11 years the following were achieved:

- 400 individual encounters with senior clinicians.
- 9 annual conferences for senior nurses
- Local clinicians rsn 4 or more large mentorship workshops annually
- Health care in rural areas improved through training workshops for staff
- Each senior clinician made an HIV presentation at their work place
- Clinicians have conducted four HIV studies for publication.
- Before the national guidelines or WHO guidelines were rolled out for eMTCT, local guidelines were in place and implemented
- Guidelines on Post Exposure Prophylaxis developed locally were used in planning National Guidelines.
- Clinicians set up HIV clinics in three rural settings
- Overall care of HIV patients has improved.

Conclusions: In a resource–limited setting, empowering local clinicians through regular training brought about important changes at every level of health care.

P150

Evaluation of BeYou+ an mHealth application to support self-management strategies for people living with HIV

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Background: BeYou+ is a newly developed app designed to provide users with reliable information about their body, mind and life. It is the only known mobile health (mHealth) app to support self-management strategies for people living with HIV. The app gives users the ability to set goals, achieve rewards, input health information and set calendar reminders.
Methods: Between July and December 2016, usability and usefulness of BeYou+ (version1.1.1) was evaluated by; (a) expert heuristic evaluation (b) expert review against existing research publications relating to systems designed for use by people living with HIV (c) feedback from potential users (d) feedback from current users and (e) end-user evaluators who had not used or downloaded BeYou+. Feedback from users was obtained via anonymous online questionnaire, with end-user evaluation including BeYou+ screenshots and omitting questions on self-management, quality of life and well-being. Participants were recruited online via social media platforms or push notifications within BeYou+ app. One interview was conducted for more in-depth understanding of perspectives.
Results: Total 28 recommendations were made from expert reviews. Overall the app has good usability. The app design could be improved even more by attending to issues in structuring information, consistency and clearer labelling. Informational content is perceived as useful but the added value of having this information on a paid-for app needs clarification. Tracking lab results is appreciated and extending this to other health data eg: symptoms is suggested. Medication adherence and potential interactions is of great importance to respondents and this aspect could be improved in the app. While setting goals is important, users wanted more flexibility in the frequency of goals and how they are notified.
Conclusion: BeYou+ has been designed very well and presents a few usability issues relating to structuring of information, consistency and clearer labelling that could be addressed quickly in an updated version. BeYou+ is considered useful by people living with HIV, but there are several avenues for improvement including; clarifying added value, expanding health information tracking, medication adherence support and more flexibility in goal frequency & notification.

P151

Exploring online peer support for people living with HIV

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Background: We live in a digital age and increasingly live our lives online or via digital devices. We report on why people with HIV access online peer support and what outcomes can be achieved.
Methods: Active users of an online peer-led forum were invited to take part in a small-scale survey regarding online peer support. Data collection was undertaken 24 November to 12 December 2016. Secondary service data was reviewed for the period 1 April to 30 September 2016.
Results: Sample size was 31. 80% of respondents advised they joined the service to talk to other people with HIV, 70% to find out information about HIV. Two respondents advised there were no local services in their area. Four said services in their area did not meet their needs. Regarding access to online peer support and volunteers with lived experience of HIV: 69% agreed/strongly agreed it increased their mental wellbeing compared to 55% in relation to physical wellbeing; 76% agreed/strongly agreed it increased their confidence to self-manage their diagnosis; 76% agreed/strongly agreed it reduced their need to contact their GP or health care workers in a primary care setting; 79% agreed/strongly agreed it increased their confidence in having discussions with their consultant or specialist nurse; 83% agreed/strongly agreed it increased their knowledge of their own HIV treatment and care. Whilst 83% agreed/strongly agreed it increased their confidence in talking about HIV to other people with the condition, only 66% agreed/strongly agreed it reduced their feelings of social isolation, 57% that it reduced their feelings of loneliness and 59% that it increased my sense of self-worth. Analysis found respondents 50 and over (n=10) and those living

in a rural location (n=7) reported less positive outcomes. Those diagnosed in 2016 (n=10) and gay and bisexual men (n=19) reported more positive outcomes. During the six month period from April 2016, 311 hours of support were delivered by volunteers resulting in 438 interventions, the chief categories being: Living with HIV (137); Recently diagnosed (109); Treatment basic information (69); Emotional support (56) and Accessing services (15).
Conclusion: Despite the absence of face-to-face contact and with challenges of digital communication, users reported good outcomes in this small-scale study. Online peer support provides people with confidence to self-manage their HIV and increases confidence in their own knowledge of the condition.

P152

Frequent stable attenders: is HARS missing the true complexity of stable patients?

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Background: HARS, introduced in 2013 categorises HIV patients into 3 groups: Complex (c 10%), New (c10%) and Stable (c80%). Collected in real time HARS may be used as an HIV commissioning tool therefore it is important to assess its accuracy. When first piloted concerns were raised that HARS subcategories were too specific & would not capture all the complexities of all HIV attendances. BHIVA guidelines recommend that Stable patients are followed up every 6 months. We reviewed our appointment activity & identified many of our Stable patients were seen more frequently therefore we performed a pilot study to investigate the reasons for increased attendance within the Stable patient category.
Methods: Stable patients seen Aug 2015-Aug 2016 were identified from our HIV database and divided into Group A: <4 mths & Group B: 4–6 mths between appointments. Patients were electronically randomly selected. Electronic & paper notes were used to collect patient demographic data, CD4 + , HIV VL, duration of HIV infection. Reason for attendance was categorised as mental health issues, alcohol related, drugs/chems related, STI, domestic abuse/social needs, new symptoms, recent hospital admissions, complex comorbidities & attendance at virtual/joint clinics.
Results:

DEMOGRAPHICS	Group A (n=25)	Group B (n=25)
Mean age yrs (range)	53 (27–72)	47 (29–65)
Male	23 (92%)	22 (88%)
Mean duration of HIV diagnosis yrs (range)	13 (1–17)	15 (1–32)
Mean CD4 (cells/mm^3)	569	703
HIV VL <40 c/ml	24/25 (96%)	24/25 (96%)
On cART	25 (100%)	24 (96%)
REASON FOR ATTENDANCE		
Mental health issues	15 (60%)	11 (44%)
New symptoms under investigation	15 (60%)	5 (20%)
Recreational drugs	10 (40%)	4 (16%)
Previous AIDS Defining Illness	9 (36%)	6 (24%)
Complex comorbidities	9 (36%)	2 (8%)
Recent hospital admission	9 (36%)	2 (8%)
Chem sex & STIs	9 (36%)	0 (0%)
Alcohol related	6 (24%)	4 (16%)
Virtual/Joint clinic	5 (20%)	1 (4%)
Domestic abuse/social needs	3/25 (12%)	6/25 (24%)

Discussion: The higher attendance in Group A seems to be associated with higher rates of mental health issues, substance misuse & new symptoms. Additional visits for HIV related issues were required to support & maintain patients to remain within the Stable category. HARS does not capture this complexity .and will thus underestimate commissioning needs. Failure to address this will potentially threaten continuing high quality HIV care in the UK. We are continuing to collect data and will have higher numbers to present.

P153

Going above and beyond cost saving CQUINs: financial savings and challenges encountered with leaner etravirine prescribing

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Background: As part of NHS England's commissioning for value programme HIV services are encouraged to consider switching to less costly antiretrovirals where they are available. Several HIV services in England opted for "CQUIN" (Commissioning for Quality and Innovation) goals incentivising cost-driven switches. The CQUIN recommends changing drug formulations or converting from branded to generic drugs. Our service reviewed additional cost saving solutions including a review of all prescribing of Etravirine (ETR). ETR is a NNRTI used particularly in patients with drug resistance and, for a period of time, used as a first line switch option at some centres for patients with side effects on other NNRTIs. As drug options and costs have evolved other regimens may now be more appropriate, both for convenience and cost.
Our quality improvement project aimed to measure savings made by encouraging clinicians to switch patients from ETR to alternatives, where appropriate.
Method: All patients receiving ETR in our service June 2015-April 2016 were identified from pharmacy records. Notes were reviewed to estimate the largest potential saving from viable switch options. Annual savings were calculated based on April 2016 drug prices (inc. tax) in North London. A file note was made advising the clinician to consider switching ETR to an alternative drug including discussion of options at our multidisciplinary team (MDT) meeting if appropriate. If there was any known or suspected HIV resistance, MDT referral was mandatory.
Table 1 Reasons for not swapping off ETR affer 6 months

24 of 44 patients (54.5%) did not swap off ETR
1 Deemed unable to swap on initial notes review
2 Not seen in 6 month period
3 MDT discussion deems swapping ETR inappropriate
2 ETR kept for other pragmatic reasons on discussion with patient
5 patient declines swap
9 Pending re-discussion with patient or a planned future change
2 Swapped off Etravirine but had side effects so put back on ETR

Results: At baseline, 46 patients were taking ETR. Where HIV resistance information was available individuals on ETR demonstrated resistance to a median 2.4 drug classes. Initial review suggested that only one patient unquestionably needed ETR in their regimen. Most cases required further information or an MDT review to determine whether a cost saving switch was appropriate. Had all individuals been switched from ETR to alternatives recommended by the project leads mean savings of £1655.17 per patient p.a. or £76,138 p.a. across the service would have been realised.
20/46 had stopped (2 pts) or switched from (18 pts) ETR at six months, 12 after MDT discussion. Reasons for remaining on ETR are outlined in Table 1. 23 patients were discussed at MDT. Viral suppression was maintained in all bar one individual with transient viraemia of 680 cp/ml at day 13; HIV-RNA was undetectable at week 4. Two patients ran out of their new medications and experienced viral rebound but did not report tolerability problems with their new regimens. The mean costs saved per patient across the whole group was £862 p.a. and the overall costs saved was £37,969 p.a.
Conclusion: This project demonstrated that targeted review of individuals on ETR yielded significant cost savings, despite small numbers and 54.5% remaining on ETR. The fact that more than half of individuals remained on ETR after 6 months was driven mainly by reasons other than clear clinical indication.

P154

Growing research in an HIV clinic: the patient perspective

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Background: Clinical research is core NHS business and can be delivered in most healthcare settings. Evidence suggests that taking part in research drives

up standards of care and helps achieve better outcomes for patients. We are a research-active department and have offered opportunities to participate in a range of interventional and observational studies over the last ten years with a high level of engagement from our patients. We sought to judge the current level of interest in research amongst our clinic cohort and to determine the types of research our patients would be happy to participate in to inform our future strategy.
Methods: A self-administered questionnaire was offered to all individuals attending for care over a four-week period in August 2016. This consisted of 5 questions designed to determine our patients' interest in different types of research and their preferences for accessing information about research opportunities.
Results: 95 patients completed this questionnaire of whom 51% were female, 65% Black-African and with a median age of 46 years. 97% of patients were currently on ART. 17% had previously taken part in a clinical trial and 85% of all patients agreed to be contacted by the clinic should a suitable research opportunity arise. 44% of patients were interested in trials that involved changing treatment to a new drug, and 39% would consider changing to a novel or more experimental new type of treatment, such as an injected therapy. 54% of patients were interested in trials involving simply taking an extra blood test, or using blood results/ routine health information for research. In general, men appeared more inclined to participate in trials. There did not appear to be any significant difference in attitudes towards research participation with regards to the age or ethnicity of the patients. Only 21% reported using the clinic website as a source of information.
Conclusion: Our snapshot demonstrated a high level of interest in clinical research with surprising support for participation in drug trials, although observational studies and qualitative research also attracted support. We continue to collect this information and it will help inform our future choice of studies to open and allow us to develop a database of patients who would consider clinical trial participation. We are currently evaluating the use of SMS to direct patients to the research page of our website as a means of improving recruitment to studies.

P155

Healthcare professionals questionnaire evaluation of an education intervention to strengthen their HIV testing in high HIV prevalence general practices in a city within the southwest of England

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Background: To encourage appropriate HIV testing, a city council commissioned an education intervention in GP-practices with high HIV prevalence within a city in Southwest England. We report on a questionnaire administered to obtain feedback on the appropriateness and usefulness of the training from participant healthcare professionals' (HCPs).
Methods: Education sessions (~1-hour) based on the MEDFASH 'HIV testing in practice' online educational tool were delivered as a stepped-wedge randomised controlled trial in 19 GP-practices with a high HIV practice population prevalence (>2/1000). Feedback on the training was via paper-based evaluation questionnaires completed immediately after the training. Mean scores for seven statements were calculated using a 4 point scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree).
Results: Training sessions were attended by 169 HCPs of whom 93 were GPs, 53 nurses and 23 'others' (e.g. practice manager). 127 (75%) of evaluation questionnaires were completed.
Mean scores were above 3 for the following statements: '*I can apply the information gained from the training in my practice setting* 'and '*The trainer actively involved me in the learning process*' scored the highest (mean score 3.7). Statements that participants were '*more aware of the BHIVA and NICE guidelines on HIV testing*' scored the lowest (mean score 3.4). Three statements '*The training met my professional educational needs*' and '*As a result of the training I feel more confident in my ability to discuss HIV testing with a patient'* and '*More confident in my ability to conduct HIV testing*' all received a mean score of 3.6. When participants were asked: *What do you feel were the strengths of the training?* Examples of free-text responses included: *"Interactive", summarised risk factors, who to test, how to refer"* and "*Raising awareness, information about prevalence and presenting symptoms to be aware of*". When asked: *Would you do anything differently in your practice setting as a result of this training?* Responses included "*Yes offer testing to more patients, be more aware of those needing testing"* and *"Yes more likely to offer as part of routine tests"*.
Conclusion: The delivery of the HIV training was received positively by the majority of HCPs, who gained more awareness of BHIVA and NICE HIV testing guidelines. HCPs reported feeling more confident around discussing and conducting an HIV test immediately post training.

P156

HIV and primary care from 2010 to 2016: so what's changed?

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Background: In 2010 Positively UK published the study GPs *Primary Care Access: How General Practice Can Better Respond to the Needs of People Living with HIV.* In 2016 we reviewed this to identify how the situation had changed.
Methods: An online survey was undertaken by 173 people living with HIV (plhiv) from across England respondents were predominantly gay men, ages ranged from 26 to 72 years old, with a median of 15 years of living with HIV. A focus group was held at Positively UK in London with 13 participants; 10 women and three men, all aged over 50.
Results: Communication between GPs and HIV Clinics: In our 2010 report GPs and HIV clinicians identified communication as unsatisfactory. In 2016 75% of plhiv stated the HIV clinic communicated with their GP, but only 35% that the GP communicated with their HIV clinic.
Clinical Governance: In 2010 we found "Many patients currently do not have confidence in GP's knowledge of HIV". In 2016 41% stated their GP was able to manage their health and 38% that the GP had a good understanding of HIV issues. Often patients did not know what was HIV related and what was not, nor 'where to draw the line' leading to confusion as to who should manage aspects of their care.
Confidentiality: Today, 75% of respondents felt their information was held confidentially by their GP. This is an improvement from 2010 when perceptions and fear of confidentiality breaches were common amongst plhiv.
Sexual Health: Only 45% of survey respondents perceived their GP as being comfortable talking about sexual health. This has implications as to how sexual health is managed for plhiv in primary care and also poses a greater risk for early identification, diagnosis and treatment.
Models of Care: In 2010 the majority of plhiv wanted a GP situated within the HIV clinic and this was mirrored in the 2016 study, with a smaller cohort wanting to access their GP locally. However, the over-riding issue for all was one of knowledge and education of GPs.
Conclusion: In the six years between studies there has been some progress in terms of how GPs support plhiv notably in managing confidentiality.
However, because of poor communication and knowledge the burden is on the patient to manage their care and ensure all aspects are joined up. Much work is still needed to improve care for people living with HIV and promote supported self-management for all.

P157

HIV testing practices in local genitourinary cancer services: a quality improvement project

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Background: BHIVA guidance promotes HIV testing in presenting cervical intraepithelial neoplasia (CIN), vulval intraepithelial neoplasm (VIN) and anal intraepithelial neoplasm (AIN).
From March 2014 to April 2015 the total number of CIN II+ diagnosed within the North West region was 6002; the total number of cervical cancers diagnosed was 135. This represents a significant population that should be screened for HIV infection.
Methods: In January 2017 we undertook a qualitative study into HIV testing practices in early squamous genital neoplastic diagnoses. Our aim was to

evaluation current practices throughout Cheshire and Merseyside regarding offering HIV test when early neoplastic lesions are diagnosed. We used a non-validated questionnaire via telephone interview with nursing staff offering colposcopy services within the region, the gynaecology specialist nurses and the tertiary cancer centre. These consisted of average five minute discussions with colposcopy nurse specialists at each centre, and the gynaecology and colorectal cancer nurse specialists to clarify whether they were testing for HIV routinely, whether they were offering tests at all, and whether they were aware of any guidelines regarding this.
Results: We surveyed 10 hospitals across the region including the cancer centre.

CIN 0/8 (0%)
VIN 0/8 (0%)
AIN 0/8 (0%)

None of the hospitals surveyed currently offer HIV testing to new CIN, VIN or AIN diagnoses. One hospital reported that they were aware of the guidance for CIN and VIN and were considering changing their pathways to reflect this.
Conclusions and further directions: Despite guidance from BHIVA, no local service routinely offers HIV testing to individuals with a new squamous genital neoplastic diagnosis. Only one hospital within the region was aware of the BHIVA guidelines. Our actions going forward from this evaluation will include exploration of perceived barriers and education of departments locally and setting up pathways for referral. We aim to develop a patient information leaflet to support and encourage both patients and staff.

P158

Improving HIV care in a large prison cluster

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Background: We have provided a comprehensive in-reach service for HIV to a large prison cluster since 2015 having previously provided a similar service 2002-2011. We highlight some changes in the prison HIV population and describe the improvements we have made to their management.
Methods: We obtained information from the prison healthcare electronic patient record (EPR) system on HIV positive prisoners seen in our service between April 2015 and December 2016.
Results: Our previous experience (2002-2011) involved a relatively small heterosexual population with modest levels of IVDU. Between 2011 and 2015 patients were transported them to their previous treating centres for HIV care with some ad hoc care given by a sessional HIV physician. 40% were on ART and 70% had been seen in an HIV service in the preceding six months (generally prior to detention). 40% had some information regarding their HIV care on the prison healthcare EPR and the majority had experienced treatment interruptions. To date we have provided care to 93 HIV+ people. 4 individuals were diagnosed HIV positive whilst in prison. The majority of patients are held in the category "B" prison with smaller numbers in the category "A" prison and YOI. 37% are MSM and 29% are known to be HCV co-infected. 25 have been in prison more than once in the last 18 months. In the MSM, 65% of offending behaviour is associated with drug misuse. 74% of patients are on ART and of those 65% have an undetectable VL. 53% reported unscheduled treatment interruptions, usually around the time of coming into prison. 7 patients have refused or opted to defer treatment. We have obtained clinical summaries for 44 patients and have made this available on EPR to facilitate the care of prisoners who move within the prison system. All patients who have left prison have done so with a supply of ART and we identified services for ongoing care in the majority.
Conclusion: The number of HIV positive prisoners has increased and a significant number are MSM with offending behaviour associated with drug use. The majority of patients were aware of their HIV status prior to arrival in prison. We have improved prisoner engagement with HIV care and uptake of ART and have made a number of interventions to minimise the risk of unscheduled treatment interruptions. We have streamlined the care of patients moving between prisons, and their engagement with HIV services on release as a key part of offender resettlement.

P159

Intervention to improve the management of hepatitis C infection in a sexual health clinic

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Background: Hepatitis C infection (HCV) is increasing in men who have sex with men (MSM), particularly in the HIV-infected population. In early 2014 a clinic proforma was designed to improve the management of patients with acute HCV infection. It included risk assessment, investigations, partner notification, health advice and onward referral.
Methods: Retrospective case note review of patients attending our clinic between 2010–Sept 2016 with acute HCV infection. Data were collected and compared between pre-intervention (2010–2013) and post-intervention (2014 onward).
Results: 87 patients were included – 40 pre-intervention and 47 post-intervention.

	Pre-intervention (%), n=40	Post-intervention (%), n=47
Median age (range)	37 (20–55)	37 (23–61)
HIV positive	39 (97.5)	42 (89)
Baseline investigations	40 (100)	47 (100)
4 weekly HCV PCR monitoring	35 (87.5)	47 (100)
Risk assessment		
Condomless anal SI	36 (90)	47 (100)
Drug use	39 (97.5)	47 (100)
Fisting	35 (87.5)	47 (100)
Group sex	34 (85)	47 (100)
Sharing paraphernalia	37 (92.5)	47 (100)
Partner notification	37 (92.5)	44 (94) – 3 incomplete
Advice		
Alcohol	39 (97.5)	47 (100)
Disclosure	38 (95)	47 (100)
Drug use	35 (87.5)	47 (100)
Safer sex	39 (97.5)	47 (100)
PHE notification	37 (92.5)	41 (87)

All patients were seen by the hepatologists within 3 months of diagnoses and offered treatment.

Conclusion: The implementation of the clinic proforma improved the documentation and management of patients with acute HCV infection. Completion of the PHE notification form and partner notification in HIV negative individuals were identified as areas for improvement. We have now implemented this proforma in our electronic patient records. Timely management of these patients can improve the outcome and prevent onward transmission.

P160

Peer mentoring: the impact of Positively UK's Project 100 training programme

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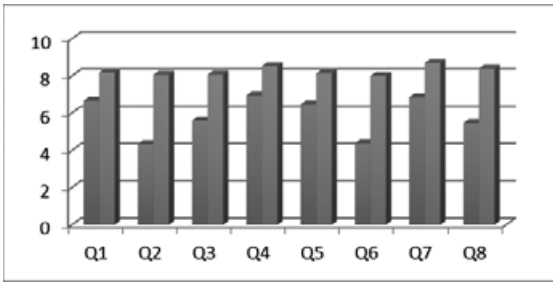
Background: This review highlights the outcomes from Positively UK's Project 100 Peer Mentor training programme. The project aims to train 1,000 people across the UK, providing 100% coverage for peer mentoring in HIV services and clinical settings. All peer mentors are people living with HIV.
Training covers skills, safeguarding, treatment and transmission of HIV, action planning and goal setting over three days with participants then able to complete an NVQ Level 2 in Peer Mentoring. The evaluation has taken place to demonstrate the impact of training (and providing support) for mentors.
Methods: The data covers 9 training sessions; 5 London-based and 4 outside of London, over 6 months. The data collection uses a 10-point Likert scale. The aim was to identify the effectiveness of the training delivery, and the potential outcomes for individuals who will be moving forward into Peer Mentoring. This

cohort contains 85 individual participants; 53 males and 32 females. The age range is from 21 to 72 years of age, with an almost even split between heterosexual and gay/MSM/lesbian. All participants completed a form containing 8 questions around various aspects of peer mentoring – pre-training and post-training.
Q1 – Knowledge of HIV and Related Issues; Q2 – Understanding of How to Use Wellbeing Measurement; Q3 – Ability to Use Action Planning and Problem Solving; Q4 – Ability to Use Active Listening; Q5 – Understanding of Own Attitudes, Values; Q6 – Understanding Stages of the Mentoring Relationship; Q7 – Understanding of Boundaries, Policies and Confidentiality; Q8 – Knowledge of When to Refer On in a Mentoring Relationship
Results: The data has shown increases in all eight areas. The biggest increase (3.62 points) in an area directly applicable to peer mentoring was the 'understanding of Boundaries, Policies and Confidentiality in the role'. With the 'Ability to use Action Planning and Problem Solving' increasing by 2.47 points from pre-training to post-training. The increase of all measured areas shows a favourable set of outcomes from the training itself.



P161

Qualitative evaluation of an education intervention for healthcare professionals on appropriate HIV testing in higher prevalence general practices in a city in the southwest of England

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Introduction: Approximately 25% of people infected with HIV are undiagnosed. Late diagnosis occurs in up to 50% and has negative consequences for patients, public health and the NHS. To encourage appropriate HIV testing, a City Council commissioned an education intervention in GP-practices. This qualitative study examined healthcare professionals' (HCPs) experiences and perceived impacts of the education intervention on HIV testing.
Methods: Education sessions (~1-hour) based on the MEDFASH 'HIV testing in practice' online educational tool were delivered as a stepped-wedge randomised controlled trial in 19 GP-practices with a high HIV practice population prevalence (>2/1000). Semi-structured interviews were conducted with HCPs who attended the training approximately 3-months post-training, and the sexual health clinician that delivered the training. Interviews explored pre-training HIV testing practices, factors influencing testing, views of the training, impact on knowledge, confidence and testing practices. GP-practices were reimbursed £40 per interview. Interviews were audio recorded, transcribed verbatim and analysed thematically.
Results: 27 interviews (lasting 30 minutes on average) were conducted across 13 practices with 16 GPs, 10 nurses and the sexual health clinician. Participants appreciated the opportunity to update their HIV knowledge through a tailored, interactive session, delivered by a knowledgeable sexual-health clinician. Post-training, HCPs increased: awareness of HIV indicator conditions; confidence/self-efficacy to offer HIV tests efficiently; and consideration of HIV tests. Whilst some felt they had increased HIV testing others did not. Continued barriers to testing include perceived lack of opportunity to test and not considering HIV during consultations. To optimise intervention impact, follow-up sessions were recommended.
Discussion: The findings suggest the HIV training was experienced positively and improved perceived awareness, confidence, and consideration of HIV testing whilst perceptions of testing rates were mixed. This study highlights that HIV education is perceived as valuable for increasing awareness of HIV testing opportunities but repetition may be needed to sustain its impact.

P162

Re-audit of antiretroviral drug wastage in a teaching hospital's sexual health and infectious diseases clinics

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Background: A 2013–14 audit in the HIV clinics of a large city centre teaching hospital showed antiretroviral (ARV) drug wastage, in both patients stable on ART, and those who switched to new regimens (BHIVA Conference 2015). We identified strategies to reduce wastage, including: 1) Limiting ART supply at time of starting or switching ART to one month, 2) Limiting prescriptions outside routine clinic visits to one month, 3) Encouraging remaining ARVs to be used before non-urgent regimen switches, 4) Enhanced adherence support by community nurses in poorly adherent patients. We re-audited to assess their impact.
Methods: Pharmacy records over an 18-month period were screened for: a) patients stable on one ARV regimen b) patients who had switched therapy. The electronic HIV database was also interrogated. Case notes were reviewed to determine reasons for switch and confirm overprescribing of ARVs.
Pharmacy data were used to confirm amount of wastage, and corresponding cost, over a one-year period.
Results: A total of 1186 patients were prescribed ARVs in 2015–16. On initial screening, 90 stable patients appeared to have had >3 months excess; on review, 4 had hepatitis B (not HIV) infection, 37 had appropriate total dispensation, and 3 had insufficient data recorded. For 46 overprescribed patients, the annual total wastage was 133 months of ARVs, at a cost of £65,447. Of 334 patients screened, 166 switched therapy. Common reasons were simplification (28%), tolerability (26%) and toxicity (17%), with interactions (7%), failure (7%), and adherence (5%) less frequent. Wastage was demonstrated in 59/156 (38%; 10 cases unclear), totalling £40,569. New ARVs were prescribed for >1 month on 39 occasions (23%). Quantities and costs were calculated by at least two assessors; inter- and intra-observer agreement was 100% when tested on three switch patients.
Conclusion: Compared with the previous audit, excess stable ARV prescription remained similar, despite an increase in cohort size, while the wastage at switch decreased significantly. Reduction in quantity of new regimen prescribed may be responsible for reductions in wastage, following the simple clinician feedback interventions. However, significant annual wastage was still observed: £106,016.
Subsequently, an electronic prescribing system has been integrated into the HIV database, to support requirement-based prescribing.

P163

Screening HIV patients for cardiovascular disease. Can we coordinate better with primary care?

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Background: BHIVA guidelines recommend screening and monitoring for age related conditions such as cardiovascular health. There is considerable overlap between the recommendations in HIV guidelines and the screening undertaken in primary care. This project aimed to determine whether duplication occurs in the monitoring of the cardiovascular health of our HIV patients and whether our service is achieving BHIVA audit standards.
Methods: The GP Quality and Outcomes Framework (QOF) was cross-referenced with BHIVA monitoring guidelines to identify areas recommended in both primary care and HIV settings. We contacted local GPs with HIV patients aged 50+ who are both under our care and registered with them. Data were only collected on patients who had disclosed to their GP and agreed to third party information sharing. A retrospective case note review was conducted from EMIS, the GP electronic database, and our clinical records. Data were collected in three areas: assessment of smoking status and onward referral, blood pressure (BP) monitoring and cardiovascular disease (CVD) risk assessment. We also looked at whether the HIV service accurately recorded co-morbidities and medication.

Results: Data were initially collected for 38 patients. Mean age was 58 (52-70) and 29 (76%) were male. All patients were on antiretrovirals; 92% had an undetectable viral load. There were high co-morbidity rates: 47% (18/38) were hypertensive and 18% (7/38) were diabetic. 47% (18/38) had ever smoked and 6 (16%) were current smokers. Of these only two had been given cessation advice. Two patients were recorded as being hypertensive by their GP and not by us. 44% (17/38) were on anti-hypertensives and 37% (14/38) were on lipid lowering therapy. In 5 patients we had no record of these medications.

Parameter	General practice	HIV clinic
BP checked in last year	29/38 (76%)	34/38 (89.5%)
Lipids checked	19 (56%)	34 (89.5%)
HbA1C or blood sugar checked in the last year	16/38 (42%)	8/38 (21%)
Smoking status checked in past two years	29/38 (76%)	26/38 (68%)
CVD risk score	23/38 (61%)	6/38 (16%)

Conclusion: There is considerable duplication of work between GPs and HIV services. GPs were better at screening for diabetes; addressing smoking status and recording CVD risk score. The HIV service had incomplete records of medication and comorbidities and failed to achieve BHIVA standards. More work is needed to understand how better integration, improved IT and communication with primary care could address this.

P164

Silenced voices: experiences of women living with HIV in the UK who have experienced domestic abuse

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Background: This research explores the intersectional experiences of domestic abuse and HIV. There is increasing evidence that women living with HIV (WLWH) in the UK experience high levels of domestic abuse. Studies reviewed at the intersection show an incidence of reported abuse of between 52% and 89%, compared to 27% for all women. There is no in depth qualitative research directly with WLWH who have experienced domestic abuse.

The aims & objectives are::

1. To explore what the significance of an HIV diagnosis might be in the experience of domestic abuse.
2. To explore the impact of disclosure/non-disclosure of HIV and/or domestic abuse on the woman and her family.
3. To explore specific health and social impacts of domestic abuse for WLWH.
4. To identify perceived helpful support strategies for women and to begin to formulate accessible and relevant service responses.

Methods: Ethical approval was granted for 10–15 face to face in depth interviews in a clinical setting. All material has been translated into French and Arabic and women who speak these languages could be interviewed with an interpreter. WLWH were recruited from a busy HIV service in the North West of England. Recruitment was purposive, interviews were semi-structured and a narrative approach was taken. Preliminary findings will be presented; in depth analysis of individual interviews including a poly vocal approach and thematic analysis is underway.

Results: Fourteen women have been interviewed, each once and no interpreters were required. All interviews were in the hospital setting. All women interviewed were black; 13 were African from 9 different countries. They were aged between 24 and 53 and 11 of the women were mothers. Interviews ranged in length from 30 minutes to two hours. They discussed a diverse experience of domestic abuse. Each individual interview yielded rich data and insight into the subject area. This study presents the experiences of a highly marginalised group who have not been evaluated in this way before.

Conclusion:

1. Women living with HIV in the UK experience high levels of domestic abuse.
2. The intersectional nature of oppressive factors in the lives of WLWH is significant.
3. Immigration is a factor in the lives of all but one woman interviewed.
4. Domestic servitude and trafficking features in the lives of several of the women interviewed.
5. Poverty was an issue for many of the women both in the UK and in Africa.

P165

Supplying, dispensing and collecting HIV medicines in the community. A pilot service

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Background: HIV medications supplied and dispensed by community pharmacy are currently exempt from VAT. This saving is essential as HIV cohorts grow. Furthermore in services covering rural areas this can provide improved access to medications especially with newer less toxic regimes requiring less frequent review.

Our service covers a large rural area including islands and cares for approximately 400 HIV positive patients. As a significant proportion of patients live in these rural areas, there are often shared care arrangements with primary care and/or tele/videoconferencing. The option of community supply and dispensing of HIV medications was seen as an opportunity to provide more localised, patient centred care.

Methods: All 347 patients on treatment were surveyed with 20% opting for community pharmacy. For eligible patients community supply arrangements were put in place with all drug companies & wholesalers. Each nominated pharmacy was contacted and/or visited by HIV pharmacist and provided with a transfer pack containing ordering instructions, regimens, drug stability data, interaction resources and secondary care contact information. Hospital based prescriptions were posted to community pharmacies and the drugs were ordered and dispensed accordingly. Patients were then informed when medications were ready to collect.

Results: 56 patients are currently receiving medications from community pharmacies. To date this has not affected clinic attendance or compliance and there have been no requests from patients to return to hospital dispensing. In addition the feedback from community pharmacists has been positive.

Conclusion: Community pharmacy supply and dispensing is a relatively simple option to establish and provides increased access to care for patients. Furthermore as this model is used in other chronic conditions, this can be viewed as a forward step in normalising HIV care.

P166

The pneumococcal vaccine in patients living with HIV: knowledge and numbers

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Background: *Streptococcus pneumoniae* infection is a significant cause of pneumonia and invasive pneumococcal disease (IPD). HIV-positive adults are at a 40 times higher risk of infection, with associated greater morbidity and mortality compared to aged-matched HIV-negative adults. BHIVA recommend that all HIV positive adults receive a single dose pneumococcal conjugate vaccine (PCV-13) irrespective of CD4 count, anti-retroviral (ARV) use and viral load (VL), and that those aged >65 years or with other co-morbidities also receive a single dose of pneumococcal polysaccharide vaccine (PPV-23). Locally, these BHIVA recommendations are included in all written HIV correspondence to GPs who, at present, are the main providers of the pneumococcal vaccinations .The aim of this study is to establish current patient knowledge of the vaccination(s) and adherence to BHIVA guidelines as demonstrated by the number of patients confirmed to have been vaccinated.

Methods: We conducted a cross-sectional study, using a questionnaire, of 50 out-patients attending HIV clinics over a one week period. Medical history and vaccination status was confirmed using hospital and GP electronic notes.

Results: 33 males and 17 females completed the questionnaire; age range 22-56 years. Duration of HIV diagnosis ranged from 6 months to 25 years. 48 patients (96%) were prescribed ARV therapy. Mean CD4 count was 618/uL (range 138-1591/uL). 3 patients had a CD4 of <200/uL. Latest VL levels were: <20copies/ml (37), 20-200copies/ml (4), >200copies/ml (9). 12 patients had a history of an AIDS-defining illness. 46 GPs were aware of patient's HIV

diagnosis. 44 patients had other co-morbidities; diabetes mellitus (3); lung disease (1); liver disease (1); previous pneumonia (7); current smoker (22); alcohol history (10).
17 patients (34%) had prior knowledge of the pneumococcal vaccine. 14 patients (28%) were aware that they should be vaccinated. 10 patients reported having had the vaccine. GP records confirmed that a further 2 patients (total 12/50) had been vaccinated. All 12 had had the PCV-13; 2 patients had also received the PPV-23. 2 patients had had their vaccination status clearly documented in hospital HIV electronic notes. 25 patients (50%) had no knowledge of the vaccine and 38 patients (68%) were unvaccinated.
Conclusion: The study shows that in this general HIV clinic population a significant number of patients had no knowledge of the pneumococcal vaccine, with the majority of patients remaining unvaccinated and at risk of the increased mortality associated with pneumococcal disease. Further health promotion strategies are needed to improve vaccination awareness in this important patient population. Funding for the pneumococcal vaccination administration in HIV clinics, as opposed to current practice which relies on GP administration, may increase uptake of the vaccination in line with BHIVA recommendations.

P167

What are the benchmark standards to ensure high quality and effectiveness of HIV peer support services?

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Background: There is both a growing demand for peer support from communities living with HIV and recognition within the NHS of the role of peer support in supporting clinical outcomes and improving health and well-being.
Consultations with people living with HIV such as The Manifesto of People Living with HIV (Positively UK 2015), Positive Person Manifesto (HIV Scotland 2016) have all clearly stated the centrality of Peer Support for people living with HIV to manage their health and well-being.
NHS 5-Year Forward View, British HIV Association (BHIVA) Standards of Care for People Living with HIV (2013), Standard 9, NHS Standard Contract for Specialised Human Immunodeficiency Virus Services (2014) all identify the role of the Third Sector in providing community led support and addressing the need for people living with HIV to access peer-support to promote well-being, treatment adherence and self-management.
Developing evidence based standards of HIV peer support is essential to have a benchmark for the HIV community, health and social care providers and decision makers to ensure consistency in approach and promote good practice in the delivery of peer support.
Method: The Standards were developed by a Steering Group of people living with HIV, representatives of NGOs providing peer support and of the British HIV Association, National HIV Nurses Association and Children's HIV Association (CHIVA). Targeted consultation was undertaken with groups of people living with HIV in London and Liverpool, the youth group leaders of the CHIVA Summer Camp, and with individuals from across the sector. From August to September 2016 the Standards were then out for open consultation through e-forums including UK-CAB and NGOs across the UK.
Results: A format of the standards was identified that included: title, rationale, competencies and skills needed to achieve the standards, expected outcomes – the change we hope to achieve through the standards, and auditable indicators – to demonstrate how the standards have been implemented.
The standards identified were:

1) Everybody living with HIV should have access to peer support
2) People who provide peer support will be living with HIV and have access to training, support and personal development
3) Peer Support will include robust monitoring, measuring and evaluation processes
4) Children and Young People with HIV will have access to child and youth centred peer-support.

Conclusions: The standards will be launched early 2017.

P168

What is the impact of having UK-CAB representatives on guideline writing committees and academic/clinical research study boards

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Background: HIV community engagement in the health care sector has a long history. The UK Community Advisory Board (UKCAB) is a network of HIV advocates with over 800 members and 120 HIV groups and source for community representatives (CRs).
Methods: 14 semi-structured interviews were conducted with multi-disciplinary England based clinicians (7F/7M) on their experiences on BHIVA/NHVNA committees, Trial Steering Groups and Scientific Advisory Boards with HIV CRs. Transcript analysis was done using primary coding of pre-set and emergent codes on clinicians experiences of CR impact.
Results: Most frequent cited benefit was lived experience and whole pathway perspectives that CRs brought. Others were non-clinical, advocacy, empathy, patient centeredness, research initiation and direction, developing patient information and other dissemination strategies, community prioritisation, lobbying, studies/guidelines reality check, media management and increased learning for clinicians. All interviewees valued the contribution of CRs on committees and identified their unique impact. The UK-CAB is seen as a valuable formal resource for providing skilled CRs.
Funding was the most commonly described challenge for community engagement. Some participants felt that training, mentorship, apprenticeship, induction and shadowing was valuable for all professionals and CRs joining committees.
Representativeness of CRs had varied views, some were impressed at CRs ability to bring a range of views from the HIV community, others were uncertain about existing feedback systems and some concerns that viewpoints of some groups was unheard. Observation was that people newly diagnosed may have different needs from long term diagnosed. Concern was expressed about CRs selection process and provision of opportunities for newer and less experienced CRs. A number of innovative and best practice examples of community involvement were identified.
Conclusion: CRs were highly valued and seen as effective/impactful by all professionals in this study with benefits to the individual, professionals, organization and the health system. Constant reflection is needed for organizations and community to ensure effective representation. Mechanisms within all stakeholders (UKCAB, BHIVA, NHIVNA, TSCs) are needed to sustain the CR model. There was unanimity that people living with HIV must be directly involved in decision making on service delivery and clinical care that will have a direct impact on their lives

P169

Women inspire support and empower to unleash positive potential (WISE UP+): workshop for HIV-positive women in the UK

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Sophia Forum, UK

Background: The WISE UP+ workshops aim to provide advocacy skills to women living with HIV, as well as an opportunity to meet and collectively analyse their current situation and to begin to develop an advocacy strategy. Following the huge success of the first WISE UP+ workshop in 2014 the Sophia Forum ran a second workshop for a new group of advocates, in October 2015. The Sophia Forum engaged Positively UK to help with the design and delivery.
Methods: The workshop took place in Manchester over 3 days and was attended by 24 women from different parts of England. Women were selected based on their interest in and desire to participate in advocacy. The group was diverse, with 18 black African women, 3 black women from the Caribbean, 1 Russian and 1 European. The age ranged from 27 to 58.
The facilitators were all women living with HIV; one of whom had attended the first workshop as a participant. External speakers were also invited to facilitate specific sessions such as sessions on: 'Power, Control and Women's Resistance' with Imkaan, 'Activism and Direct Action' with Act Up and 'Poetry and Advocacy' with Dorothea Smart. The Sophia Forum has recently published a collection of poetry from this session.

Results: The evaluation of the workshop was overwhelmingly positive. Participants were asked to evaluate each session individually (scoring from poor, satisfactory, good and excellent). Ninety-nine per cent of all the ratings for the sessions were either good or excellent.
Conclusions: This second WISE UP+ workshop highlighted once again the importance of women only spaces for women with HIV to reflect on their lives and develop confidence and skills to move into activism. The discussions showed how perceived stigma prevents people living openly with HIV, they fear family members, friends, employers and employees will respond negatively. This, combined with poverty, isolation, issues with unresolved immigration cases, and lack of skills, still create huge obstacles for women's full participation in advocacy. However, throughout the workshop the women explored the myriad ways they drew strength to effect change in their lives and how this could be drawn on to catalyze wider transformations.

STIs, Reproductive Health, Contraception and Sexual Dysfunction

P170

'You're suffering all these things and you keep going backwards and forwards': experiences of the menopause among women living with HIV in the United Kingdom

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Background: Improvements in survival due to antiretroviral therapy (ART) have led to a shift in the age distribution of people living with HIV, with increasing numbers of women living with HIV (WLHIV) reaching menopausal age. We present results from a qualitative study exploring experiences of the menopause among WLHIV in the UK.
Methods: In collaboration with an HIV charity and two peer researchers, we conducted three focus group discussions (FGDs) in 2015 with 24 WLHIV aged 43-62. All FGDs were transcribed verbatim and analysed thematically in NVivo 10.0. This work is part of the PRIME study, a mixed-methods observational study exploring the impact of the menopause on WLHIV's health and wellbeing
Results: Women described a lack of prior knowledge, leaving them under-prepared for menopausal symptoms. For women born in Sub-Saharan Africa (n=16), this was exacerbated by cultural taboos around discussing menopause, and loss of kinship networks during migration.
Menopause in the context of HIV brought particular challenges. Participants were concerned that menopause could be precipitated by HIV-infection or ART, whilst some were reluctant to take further medication such as hormone replacement therapy when already on ART. Common symptoms such as hot flushes, mood changes and poor sleep, sometimes impacted on ability to adhere to ART. Many participants did not recognise their menopausal symptoms, instead attributing them to ART side-effects or HIV. Furthermore, they found themselves "going backwards and forwards" between primary healthcare providers (HCPs) and HIV-physicians when seeking advice and clinical care, often leading to frustrating delays.
Participants highlighted the importance of supportive HCPs and accessible information on HIV and the menopause, and the need for ongoing peer-support, many describing their participation in the FGDs, often their first opportunity to discuss menopause with other WLHIV, as "empowering".
Conclusion: This is one of the first qualitative studies to explore experiences of the menopause in WLHIV. Participants encountered particular challenges in the recognition and management of the menopause, as a result of also being HIV-positive. Increasing awareness among patients and HCPs, developing HIV-specific patient resources, and peer-support networks may help support WLHIV at this stage in their lives and limit negative impacts on their HIV care.

P171

Do women with HIV/AIDS on antiretroviral therapy have a lower incidence of symptoms associated with menstrual dysfunction?

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Background: Symptoms associated with endometriosis and menstrual disorders are common amongst women of reproductive ages, the pathogenesis of these illnesses is postulated to be due to aberrations in endometrial regeneration, immune response and endometrial stem cells. Highly active antiretroviral therapy (HAART) has been shown to enhance events seen in biological aging of tissues, with illnesses associated with stem-cell aging appearing prematurely in HIV/AIDS patients. The specific component of HAART that causes features resembling ageing are thought to be nucleoside reverse transcriptase inhibitors (NRTIs) which have anti-telomerase activity. We have recently shown that high telomerase activity is a feature of endometrial epithelial progenitor cells and endometriosis.
Aim: Examine if women on HAART have a lower incidence of symptoms associated with menstrual irregularities or endometriosis.
Methods: 100 HIV positive women (group 1) attending the specialist HIV clinic at the Royal Liverpool University Hospital were consented, completed a questionnaire and the attending doctor recorded the patients HIV related history including recent blood test results. 75 non HIV positive patients (group2) were used as controls.
Results: Women in group1 were slightly older (38 vs. 33 years, $p<0.01$); with higher BMI (29 vs. 25, $p<0.01$); likely to be parous (85% vs. 47% <0.01) and non-Caucasian (84% vs 21%, $p<0.01$), compared with group2. Mean duration of diagnosis of HIV was 8 years with 4 patients diagnosed with AIDs. Most (82%) of group1 had a CD4 count of $>$ 400, a viral load of $<$ 50 (93%) and a median duration of HAART of 6 years.
A similar proportion of women from both groups did not use contraceptives (30% vs 28%) and more women in group1 used condoms (41% vs 24%). Women reported light or normal flow (56% vs 50%) and shorter duration ($<$7 days) of bleeding more commonly in group1 compared with controls (90% vs 80%). Women in group1 were less likely to rate menstrual pain as moderate to severe compared with controls (39% vs 42%).
Conclusion: Our data suggests that women with HIV on NRTIs have decreased incidence of menstrual flow, duration and pain, supporting our hypothesis, possibly due to the (beneficial) side effects of NRTIs on endometrial telomerase activity. Further studies are warranted to examine the effect of NRTIs to treat patients with menstrual problems and endometriosis. NRTIs have a unique advantage over existing treatments, they allow patients to retain fertility.

P172

Does providing holistic sexual and reproductive health (SRH) care in an HIV outpatient setting improve the SRH outcomes for HIV positive women?

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Background: Our urban HIV service provides pre-conception advice, multidisciplinary obstetric/paediatric/HIV care during pregnancy, contraceptive service, including long acting reversible contraception (LARC) and cervical screening. The female cohort are mostly from areas of high deprivation, in which low cervical screening uptake and high unintended pregnancy rates are well recognised. We aim to enable women to safely plan pregnancies, prevent HIV mother to child transmission and prevent cervical cancer, with the enhanced SRH services provided.
We sought to evaluate use of the service, assess pregnancy planning, pregnancy outcomes, contraceptive use and cervical screening in these women.
Methods : A two year retrospective review of pregnancies (July 14 to Aug 16). A snapshot analysis of contraceptive use via city-wide hospital and sexual health service case note review (Oct 16). The Scottish cervical call/recall system was accessed to assess cervical screening uptake and recent result (Dec 16).
Results: 15 pregnancies resulted in termination or spontaneous abortion in 14 women (disclosed to service) and 39 pregnancies to term in 38 women, with a median age of 33 years (cf national average 30.1 years). Prior to conceiving, 12/39 (8%) reported planning a pregnancy and 5/30 (13%) were documented to be using contraception. After conception, 12/39 (31%) were reported as unplanned (cf national average 20%).
In 30/39 (77%) pregnancies, the woman was established on antiretrovirals (ARVs) prior to conception, 27/39 (67%) with HIV VL<40 copies/ml. 4/39 (10%) were new diagnoses during pregnancy. 5/39 (13%) were previously diagnosed but not on ARVs. 8/9 achieved VL<40 copies/ml at term. There were no caesarean sections for non-obstetric reasons.
Postpartum, 24% were on LARC and 37% using condoms or no contraception. Figure 1 shows overall contraceptive use in the cohort.

78% had cervical screening in previous 15 months (cf national rate of 69.8%), of which 84.7% had negative result.
Conclusion: There is poor uptake of preconception service and few disclosures of pregnancy planning. The unplanned pregnancy rate is high and LARC rates are low (including post partum), despite all contraception offered. Cervical screening uptake is higher than Scottish national average.
We plan to increase patients' awareness of the SRH services and conduct qualitative research to determine why women do not avail of the full SRH service currently offered.

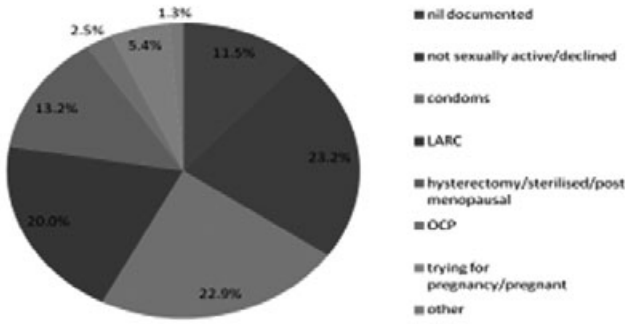

Figure 1. Contraceptive use in HIV positive women

P173

Experience of hormone replacement therapy (HRT) in postmenopausal women living with HIV

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Background: One-third of people living in the United Kingdom are female and increasing numbers of women living with HIV are reaching menopause. Hormone replacement therapy (HRT) is beneficial to HIV positive women who are symptomatic and/or with early menopause and may improve bone health. At our centre 40% of HIV positive patients are female and 625 (63%) are aged >45 years. Postmenopausal women may be referred to an HIV medical gynaecology clinic for review and HRT counselling.
Aim: To assess the uptake of HRT in HIV positive postmenopausal women, the effectiveness of HRT in treating menopausal symptoms and demographic and HIV characteristics of those with early, premature or natural menopause.
Methods: Retrospective case note review of post-menopausal women with HIV attending the medical gynaecology clinic between 1st Jan 2011–31st Dec 2016. Menopause was classified by age at menopause as premature (<40 years), early (40–45 years) or natural (>45) and baseline characteristics and management described.
Results: Of the 579 women referred to medical gynaecology, 73 (12%) were postmenopausal (88% black ethnicity, 95% undetectable on treatment, median (IQR) current and nadir CD4 630 (435,780) and 259 (111,396) cells/μl respectively) The age range at menopause was between 36–53 years; 11 (15%) had premature and 15 (21%) early menopause. There was no evidence of a difference between demographic/HIV characteristics between menopause categories (P<0.5 for all). There was a trend to higher parity among those with natural menopause compared to early or premature (median IQR) parity 2 (1,2) vs. 1 (0,2) and 1 (0,1) respectively, p=0.02). 69 women attended; 49 (71%) to discuss menopause management and symptom control, of which 28 (57%) accepted HRT. 23 (82%) were prescribed systemic HRT; 19 (83%) had continuous or sequential oestrogen patch or gel plus micronized progestogen. 11 (58%) required oestrogen up-titration to improve symptoms. 4 experienced side effects (bleeding N=3, mood disturbance N=1). All women had symptomatic relief within 6 months of starting HRT; 4 discontinued due to side effects and anxiety about breast cancer. 24 underwent bone mineral density evaluation, 15 (62.5%) were osteopenic and 2 (8%) had osteoporosis.
Conclusion: HRT was acceptable to the majority of women with HIV who were counselled and offered treatment. All women had symptomatic improvement and adverse effects were rare. Dose adjustments were required in the majority patients.

P174

Prevalence of asymptomatic STIs in patients at high risk of HIV acquisition and transmission in a Ugandan clinic setting

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Background: Management of sexually transmitted infections (STIs) in sub-Saharan Africa utilizes syndromic management. Asymptomatic patients who are at high risk of STIs will therefore not be routinely tested. The aim of the study was to establish the prevalence of asymptomatic chlamydia (CT) and gonorrhea (NG) in key populations at increased risk of acquisition or transmission of HIV, and the risk factors for STIs.
Materials and Methods: The study was carried out at the Infectious Disease Institute, Mulago Hospital Kampala from March–July 2015. Asymptomatic patients in the following categories were offered STI testing: HIV discordant couples; HIV young adults; HIV pregnant patients and those attending the 'most at risk population clinic'. Patients were not examined and provided urine, self-taken vulval swab or both to test for NG and CT by polymerase chain reaction (PCR) using BD ProbeTec™.
Results: 412 patients were screened; 273 (66.3%) women; the median age 29 years [IQR 23–39] with median CD4 505 cells/μL [IQR 351–671]; 368 (89.3%) were HIV positive with 339 (92.6%) on antiretrovirals. All STIs diagnosed were in women (17/273, 6.2%); 15 HIV positive and 2 HIV negative. The prevalence of NG was 10 (3.6%) and CT 7 (2.6%). Having an STI was associated with age <25 years OR [95% CI] 4.4 [1.5–12.9]; being employed OR 3.2 [1.1–9.7] and having a partner of unknown HIV status OR 3.2 [1.1–10] compared to an HIV positive partner. Having an STI was not associated with history of a previous STI, condom use or number of partners. 16 (94.1%) patients were treated; 1 at screening as she was a contact and the other 15 following call back. 10 (58.8%) partners reported to have received treatment.
Conclusion: There was a significant prevalence of asymptomatic STIs in females <25 years. These patients would have gone undiagnosed using syndromic management. Untreated asymptomatic STIs may facilitate increased HIV transmission. In asymptomatic key HIV positive populations, self-collected NG/CT tests should be further investigated.

P175

Sexual health of people living with HIV

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Background: The British HIV Association (BHIVA) issued 'Standards of Care for People Living with HIV' in 2013 which states specific auditable outcomes relating to sexual health. They advise an annual sexual health history and screen, 3–6 monthly syphilis and hepatitis C serology and an annual cervical cytology screen for women. This audit evaluated the performance of an inner city HIV clinic in meeting these targets and compared it to previous audits.
Methods: This was a retrospective study of HIV patients attending an appointment in May 2016. Exclusion criteria included recent HIV diagnosis or patient not attending within the preceding year. Sample size was 104, with 42 female and 52 male (20 patients excluded). Information was gathered from clinic letters, case notes and GUM/HIV and AIDS reporting database (HARS). The 5 domains evaluated were: evidence of sexual health history, sexual health screen, syphilis serology, hepatitis C serology and cervical cytology. Evidence of a contraception discussion was evaluated for quality improvement purposes. Results were compared to previous audits carried out in 2009, 2011 and 2015.
Results: Sexual health audit outcomes (2009–2016)

Domain	2016	2015	2011	2009
Sexual health history	61%	63%	38%	38%
Sexual health screen	56%	65%	65%	42%
Syphilis serology	90%	88%	42%	7%
Hepatitis C serology	68%	69%	NA	NA
Cervical cytology	69%	88%	94%	61%
Contraception discussion (in women)	45%	NA	NA	NA

Conclusions: Our results show an overall improvement in meeting the BHIVA standards of care since 2009, in particular with the uptake of syphilis serology (90%). Audit limitations include unavailable case notes, handwriting legibility and lack of documentation. The clinic is moving away from paper notes which will improve outcomes in some of these areas. Changes to our HARS database are being implemented to aid documentation of sexual health history and screening. Uptake of annual cytology has decreased. Since the result of the audit an IT aide-mémoire has been created reminding clinicians to address overdue smears with patients. The low uptake of a recorded contraception discussion (45%) highlights a need for improvement in this area. Contraception discussion could be included in the BHIVA sexual health auditable outcomes.

P176

Should healthcare practitioners discuss parenthood possibilities with HIV-positive MSM? Preliminary findings from the MAIL Study

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Background: Despite extensive empirical literature on the sexual health of HIV-positive men who have sex with men (MSM) and the reproductive health of HIV-positive women and heterosexual couples, the topic of gay parenthood remains unexamined in HIV research. The objective of this study was to identify and explore contexts in which considerations about parenthood might be relevant to HIV-positive MSM.
Methods: Qualitative interviews were conducted with 25 HIV-positive MSM across four HIV outpatient clinics. Men were aged 20-45 (mean=33.5), all but two self-identified as gay, and none had children. As part of the interview, patients were asked whether they wanted to become parents in the future, whether they had ever talked about parenthood possibilities with their clinicians, and whether they thought parenthood and the reproductive health should be discussed as part of HIV care.
Results: Of the 25 MSM, 11 expressed some parenting desire. Only four patients recalled talking about parenthood possibilities with healthcare practitioners. In each case, the men had been briefly reassured at the time of HIV diagnosis that it was possible for HIV-positive people to become parents, which they saw as both significant and sufficient information. Most men said that they would like, or would have liked, to discuss issues related to parenthood in the context of HIV or to be directed to relevant information sources. In a minority of cases, living with HIV seemed to have a direct impact on the men's parenting intentions. The most frequently given suggestion was to highlight that parenthood was a possibility at the time of HIV diagnosis, with signposting to information sources for those potentially interested. Most men said that they would feel comfortable asking clinic staff about parenthood possibilities, especially if they had specific questions about implications of HIV for biological parenthood.
Conclusion: Our findings suggest that a significant number of HIV-positive MSM would like to have children in the future and that the time of HIV diagnosis is especially crucial for the reassurance that it is possible for people living with HIV to become parents. More detailed and reliable information should be available to clinicians so that they are able to direct patients to relevant resources if needed. It is important for healthcare practitioners not to assume that issues related to parenthood and the reproductive health are not relevant to the MSM population.