HIV

MEDICINE

EDITORS
Brian Gazzard
Jens Lundgren

British HIV Association
BHIVA

DAIG
Deutsche AIDS-Gesellschaft e.V

EACS European
AIDS Clinical Society

WILEY
Blackwell

British HIV Association
BHIVA

PRELIMINARY ANNOUNCEMENT

BHIVA Autumn Conference
13–14 October 2016

including
CHIVA Parallel Sessions
Friday 14 October 2016

Preceded by
Seventh Annual BHIVA Conference for the
Management of HIV/Hepatitis Co-infection
Wednesday 12 October 2016

QEII Centre
London

Discounted registration rates
available for non-consultant
BHIVA members

CPD Accreditation
will be available

www.bhiva.org

Oral Abstracts

HIV Care and Service Development

O1

Non–AIDS mortality among people diagnosed with HIV in the era of highly–active antiretroviral therapy compared to the general population: England and Wales, 1997–2012

S Croxford[1], S Desai[1], A Kitching[1], M Kall[1], M Edelstein[1], A Skingsley[1], V Delpech[1] and A Sullivan[2]

[1]Public Health England, London, UK; [2]Chelsea and Westminster Hospital, London, UK

Background: Since the introduction of highly-active anti-retroviral therapy (HAART) in the mid-90s, there has been a shift in causes of death among people with HIV from AIDS to non-AIDS. We examine non-AIDS mortality in England & Wales (E&W) among people diagnosed with HIV in the era of HAART and compare to the mortality of the general population.
Methods: Follow-up data on a national cohort of adults (≥15 years) diagnosed with HIV between 1997 and 2012 in E&W, were linked to death records from the Office of National Statistics (ONS) to the end of 2012. Deaths were categorised using a modified CoDe protocol. To compare cohort mortality to the general population, standardised mortality ratios (SMR) were calculated, stratifying by sex and five-year age bands, using published ONS population denominator data.
Results: Of the 83,276 people included in these analyses, 5302 (6.4%) had died by the end of 2012, representing a crude mortality rate of 119 per 10,000 pys. All-cause mortality of the cohort was over five times higher than that of the general population of the same sex and age structure (SMR 5.7; 95% confidence interval [CI]: 5.6–5.9). SMR was higher among women (SMR 9.0; 95% CI: 8.6–9.5) than men (SMR 4.9; 95% CI: 4.8–5.1). Mortality remained high after deaths due to AIDS were excluded (SMR 2.2; 95% CI: 2.1–2.3; men: SMR 2.0; 95% CI: 1.9–2.1; women: SMR 3.0; 95% CI 2.8–3.3).
Non-AIDS conditions accounted for 42% (2017) of all deaths with a known cause (91%). The majority of non-AIDS deaths were due to malignancies (19%) followed by cardiovascular disease (CVD)/stroke (19%), infections (17%), liver disease (12%), accident/suicide (9.4%), substance misuse (6.0%) and other causes (17%). Compared to the general population, high mortality was observed among people diagnosed with HIV who died from non-AIDS infections (SMR 11; 95% CI: 9.8–12), liver disease (SMR 3.7; 95% CI: 3.3–4.2), substance misuse (SMR 2.6; 95% CI: 2.1–3.1) and CVD/stroke (SMR 1.7; 95% CI: 1.4–1.9). Late diagnosis (CD4 <350 cells/mm^3) was 65% (759/1154) among people dying of non-AIDS.
Conclusion: Mortality among people with HIV infection remains significantly higher than that of the general population of similar age and sex. Interventions aimed at increasing prompt diagnosis, reducing lifestyle risk factors and managing co-morbidities as part of holistic care would also reduce excess deaths.

O2

Quality of HIV care in the United Kingdom is excellent and improving: over 80% of diagnosed patients are virologically suppressed

Z Yin[1], S Croxford[1], A Skingsley[1], A Brown[1], S Conti[1], V Delpech[1], A Presanis[2] and D DeAngelis[2]

[1]Public Health England, London, UK; [2]MRC Biostatistics Unit, Cambridge, UK

Background: The continuum of care is a useful tool for monitoring national HIV epidemics and the quality of care, by representing the numbers of people living with HIV infection, being diagnosed, receiving antiretroviral therapy (ART) and ultimately, virologically suppressed. We compare the UK continuum of care in 2010 and 2014 and examine differences by risk group.
Methods: Estimates of the number of people living with HIV in the UK were modelled using a multi-parameter evidence synthesis model fitted to surveillance and survey data. Data of HIV-diagnosed adults (aged≥15 years), receiving ART regardless of CD4 and those who were virologically suppressed (using the most recent viral load [VL] <200 copies/mL) were extracted from an integrated multi-sources national surveillance of people seen for HIV care.
Results: Between 2010 and 2014, the estimated total number of people living with HIV in the UK increased from 91,900 (95% credible intervals [CrIs]: 85,000–100,000) to 103,700 (95% CrIs: 97,500–112,700), a 13% increase. The rise was due to an increase in total number of people living with diagnosed HIV while the estimated number (18,100 [95% CrIs: 12,100–26,900 in 2014] and proportion [17% (95% CrIs: 12–24%] in 2014) of people with undiagnosed HIV remained steady. ART coverage among people living with diagnosed HIV increased from 84% in 2010 to 91% in 2014 (from 89% to 93% of those with a CD4 <350 and 84% to 90% of those CD4<500). Of adults receiving ART, proportions of those with a VL <50, <200 and <1500 improved from 85%, 92% and 96% in 2010 to 89%, 95% and 97% in 2014, respectively. Both ART coverage (ranging from 90% among people who inject drugs, men who have sex with men and heterosexual women excluding black Africans to 94% among heterosexual black African men in 2014) and VL<200 (ranging from 90% among people who inject drugs to 96% among men who have sex with men in 2014) were similar across risk groups.
Conclusion: There is no indication of inequalities in HIV care received through the National Health Service. In 2014 in the UK, all subpopulations of people living with HIV have reached the UNAIDS targets of 90% diagnosed on ART and 90% VL suppression for those on ART. Improvements over time are due to earlier prescribing and uptake of ART to prevent HIV transmission as per British HIV Association guidelines and as well as an open cohort effect.

O3

A national nurse–led audit of the standards for psychological support for adults living with HIV

M Croston

North Manchester General Hospital, Manchester, UK

Background: The standards for psychological support for adults living with HIV (2011) were intended to address the delivery of psychological care in practice and bring about the development of services to meet holistic care needs. The standards are reinforced by governmental public health policy, placing equal emphasis on physical and mental health. Central government's strategy, No health without mental health, acknowledges that psychological well-being is central to our life quality. It stresses that psychological care is everybody's business, and good mental health is fundamental to our physical well-being, relationships and ability to attain potential. The audit aimed to assess whether the standards for psychological support are being implemented in clinical practice and to highlight gaps in service delivery and subsequent training needs.
Methods: A working group developed an audit proforma based on the auditable outcomes of the standards of psychological support for adults living with HIV (2011). All eight standards were referenced at least once, however, due to the methodology utilised (site survey and case note reviews) some standards were more frequently represented than others. Fifty two sites (one third of those invited) participated, submitting data on 1446 patients.
Results: Regarding psychological support in clinical practice, findings indicated that when psychological needs were identified, management of these needs was generally in keeping with the stepped care model promoted in the standards. However, there appeared to be a lack of documentation of mental health history, risk and psychological well-being in general. The rate of cognitive screening was also extremely low. Regarding service "set up" and processes, there appeared to be a lack of local policy for psychological support, risk and medication adherence and variation across services in relation to access to relevant professionals. Psychological and cognitive screening tools also varied considerably across sites, as did the access to psychological support training.
Conclusion: There is a need for a psychological training package to assist healthcare professionals to provide support within HIV clinical settings and the development of local policy regarding psychological support, risk and treatment adherence is required. The national standardisation of psychological and cognitive screening tools was also recommended.

O4

Managing the menopause in women living with HIV: a survey of general practitioners and practice nurses

M Chirwa[1], R Ma[2], C Guallar[3] and S Tariq[4]
[1]Chelsea and Westminster Hospital, London, UK; [2]Imperial College London, London, UK; [3]Mortimer Market Centre, London, UK; [4]University College London, London, UK

Background: One in three women living with HIV (WLWH) in the UK is aged 45–56, and therefore of potentially menopausal age. Menopause is routinely managed within primary care, however little is known specifically about the management of menopause in WLWH in primary care. This is the first study in the UK to explore current knowledge and practice in management of menopause in WLWH among general practitioners and practice nurses (GP/PNs).

Methods: We invited GP/PNs attending two sexual and reproductive health conferences in October – November 2015 to complete a paper-based questionnaire.

Results: Overall response rate was 19% (n=88). Over 90% of respondents (n=81) were GPs; 39% (n=33) were based in London. A higher proportion of respondents from London compared with other areas in the UK reported seeing WLWH for general consultations in their practice (79% vs. 57%, p<0.05). Almost all respondents (n=87, 99%) routinely managed menopause-related symptoms; however only 18 (20%) reported having managed menopause in WLWH, of whom 60% worked in London.

Over 95% (n=85) reported being confident in managing menopause in general whereas less than half (n=40) reported confidence in managing menopause in WLWH. There was no association between confidence in managing menopause in WLWH and respondent gender, age, clinical role, practice size or region (all p>0.05).

The majority of respondents (n=84) felt that menopause should be routinely managed in primary care. In contrast, 46% (n=35) felt that menopause in WLWH should be managed in specialist services such as menopause or HIV clinics (22% and 24% respectively). Almost all respondents (n=85) reported concerns about managing menopause in WLWH. These included lack of knowledge of long-term risks of hormone replacement therapy in WLWH (48%), potential drug interactions (79%), and fears that symptoms may be due to HIV-related illness (51%). Four-fifths of respondents (n=68) stated they would benefit from further training in the management of menopause specifically in WLWH.

Conclusions: GP/PNs have little experience of managing menopause-related symptoms in WLWH, in particular those based outside of London. Nearly all GP/PNs had concerns managing menopause-related symptoms in WLWH despite being confident managing menopause in general. Development of national guidance and specialised training, coupled with good liaison between HIV services and GP/PNs, may improve confidence in this area.

O5

HIV treatment information and advocacy 2014/15: continued demand for community support services

R Jakob, R Trevelion, J Dunworth, M Sachikonye and S Collins
HIV i-Base, London, UK

Background: i-Base has been directly supporting HIV positive people with up-to-date, evidence-based information about treatment options for 15 years. Information is provided using plain English, with minimum use of technical medical language. Information is provided to be used in consultation with a doctor. The services include:

1. A free phone line.
2. An email service.
3. An online Q and A.

We wanted to know if advances in easier treatment (reduced pills, fewer side effects) were reducing the need for these services.

Methods: Anonymised data was collected from all contacts to the treatment information service from January 2014 to December 2015. Other factors (advertising and data collection etc.) were unchanged over this time. Demographic information and primary/secondary topics were analysed from the phone service because of greater detail available.

Results: During 2015 the service was accessed by 2405 HIV positive people (130% increase vs. 2014). Significant increases were reported for both phoneline (122%) and email (152%) services (Table 1). Online comments were slightly reduced. There were over 200 calls to the phoneline: 87% men, 12% women; London 61%, outside London 41%. Median call time was 18 minutes (range 5–120 minutes) with many calls over an hour.

Table 1. Enquiries to i-Base information service 2014 and 2015

Contact (n)	2014	2015	% Change (n)
Emails	1146	1744	+152% (+598)
Phone calls	174	212	+122% (+38)
Online posts	134	136	+1% (+2)
Comments	397	313	−78% (−84)
Total overall	1851	2405	+130% (+554)

Where recorded, the majority of callers were between 30 and 60 and evenly distributed though this range. Data is less complete for route of transmission and ethnicity. The most common primary reasons for calls were: Side effects (17%), HIV transmission (13%), access to treatment (12%), HIV testing (10%), changing treatment (8%), drug interactions (7%), PrEP (6%) and starting treatment (6%). Median numbers of topics per call was 5 (range 2–8). Questions about side effects included, specific ARVs, or about side effects when changing ART. Enquiries about changing treatment were common. PrEP was a recent new topic, especially over last 6 months of 2015.

Conclusions: These results show there is continued demand for this community run information service. Despite a shift to email questions, which also increased, there is still a need for the phoneline service. Information about PrEP shows responsiveness to new issues.

O6

HIV stigma and discrimination in primary care

J Forni[1], S Nicholson[1] and W Ford-Young[2]
[1]ViiV Healthcare, London, UK; [2]Broken Cross Surgery, Macclesfield, UK

Background: Stigma and discrimination continue to be a real issue for people living with HIV (PLWH). This is particularly important in the health care environment where PLWH should feel secure. However, PLWH continue to face stigma and discrimination in this setting.

This study was designed to investigate the knowledge, practices and behaviours of GPs located in England with regard to HIV.

Methods: Two hundred and fifty GPs in England participated in a 15 minute online survey between July 2015 and September 2015. They were questioned about their knowledge of HIV transmission, confidentiality considerations, management of HIV vs. other long term conditions and their beliefs and attitudes. The sample was stratified according to region and HIV prevalence.

Results: 21% of GPs have received some form of training on HIV in the last 1–2 years; half (50%) of this training has been provided directly by HIV physicians. 79% of GPs are confident in their knowledge of HIV transmission. Despite this only 15% correctly identified all the potential risks for transmission (from a list of 10 options) and only 17% correctly identified which bodily fluids contained enough HIV to infect someone else. Encouragingly 47% of GPs agreed that an undetectable viral load means the risk of transmission is negligible. However 19% believe they are at increased risk when treating someone with HIV compared to other long term conditions. In line with the Positive Voices survey 2014, there are indicators of discriminatory behaviour: 45% agree that is wise to double glove when taking blood from a HIV positive patient and 18% would wear gloves to carry out a non-intimate examination. This was independent of experience, knowledge and training. Furthermore 34% thought that discrimination of patients due to their HIV status occurs within the NHS.

Conclusion: Knowledge gaps still exist in routes of HIV transmission and there is a heightened sense of risk among many GPs when treating someone with HIV which can lead to behaviours which are perceived as discriminatory by PLWH. Training should involve not only knowledge of HIV transmission but the types of unconscious behaviours that can negatively impact PLWH.

Clinical and Pathological

O7

Outcomes of autologous stem cell transplantation in patients with relapsed/refractory HIV–associated lymphoma

R Ramaswami[1], A Dalla Pria[1], K Parker[1], S McCann[1], M Nelson[1], M Bower[1] and EJ Kanfer[2]
[1]Chelsea and Westminster Hospital, London, UK; [2]Hammersmith Hospital, London, UK

Background: The survival rates of HIV-associated lymphoma (HIV-Ly) are comparable to HIV-negative patients treated for lymphoma. Since 2000, autologous stem cell transplantation (ASCT) has been included in the algorithm of care for patients with relapsed and refractory HIV-Ly (r-HIV-Ly) with safe and favourable results. This study describes the clinico-pathological features and outcomes of patients treated with ASCT for r-HIV-Ly at the National Centre for HIV malignancies.
Methods: Clinical characteristics at lymphoma diagnosis have been prospectively collected since 1986, along with details of lymphoma treatment and outcomes. Following first line treatment for HIV-Ly, patients were diagnosed with r-HIV-Ly with radiology and histology confirmation. Wilcoxon signed-rank test was used to compare CD4 count before and after ASCT. Overall survival was calculated from ASCT till death or last date of follow-up.
Results: Since 1986, 628 patients have been diagnosed with HIV-Ly and 113 (18%) developed r-HIV-Ly. Curative salvage treatment was not administered to 69 patients, due to diagnosis of r-HIV-Ly prior to 2000 (38), central nervous system involvement by lymphoma (24) and co-morbidities (7). Salvage chemotherapy was given to 44 patients with the intention to subsequently treat with high dose chemotherapy and ASCT, though 25 patients progressed or died prior to ASCT. Nineteen patients (15 male, mean age 42 years) underwent ASCT (11 B-cell NHL, 7 Hodgkin lymphoma, 1 T-cell NHL). The median CD4 cell count at ASCT was 278 cells/mm^3. The mean follow up time from ASCT is 3.2 years, with a total follow up time of 61 person-years. Five patients (26%) died following ASCT, 4 deaths were due to r-HIV-Ly progression and in one patient died from infection. The 2 year overall survival following ASCT is 70% (95% CI: 43–86) and no deaths occurred more than 1 year after ASCT. Compared to the start of ASCT, there was no statistically significant change in the CD4 cell count 1, 6, and 12 months after ASCT (p=0.67, p=0.20, p=0.32).
Conclusion: The outcomes for patients with r-HIV-Ly treated with ASCT are similar to those for the general population and again reinforce the dogma that people living with HIV should receive the same cancer therapy as the general population.

O8

HPV vaccination acceptability, uptake and completion in younger men who have sex with men in an HIV–positive cohort

J McSorley, G Brook, A Shaw, A Sealy and R Arjoonsingh
London North West Healthcare NHS Trust, London, UK

Background: BHIVA guidelines now recommend HPV vaccination for HIV positive individuals to mitigate recognised increased risks of HPV mediated morbidity including genital warts (GW) and anal intra-epithelial neoplasia/anogenital cancers (AIN/AC). We have been offering HPV vaccination to younger MSM within our HIV cohort since 2014.
Methods: We conducted a retrospective case note review of acceptance, uptake and completion of a 3 dose quadrivalent HPV (HPV4) vaccine schedule. We conducted an online survey of 100 vaccine recipients.
Results: 150/150 (100%) offered HPV4 vaccine accepted a first dose, Age Range 18–45 years. Median 30 years. 126 (84%) are Black or Minority Ethnic background. 120 Homosexual, 25 Bisexual & 5 Transgender.
116/129 (89%) eligible to date have received a second, and 80/92 (86%) a third dose. 29/150 (19%) had a history of previous GW.
84/100 completed an online survey.
6% were aware of HPV vaccine prior to clinician offer.
83% felt they received enough information at offer. 3% had concerns about the vaccine. 2% did not intend to complete the course and 1% regretted

starting. Preventing GW & AIN/AC for themselves, potential partners and the general population was very important in decision making.
Not disagreeing with clinician advice was not important.
87% would recommend HPV4 to others, 83% had done so.
29% had previous GW, 4% previous AIN/AC.
3% had GW since 1st dose, but no new cases, 1% AIN/AC.
40% reported another sexually transmitted infection.
84% thought advice and recommendation from a GUM/HIV clinician would persuade others to be vaccinated, 64%, a Primary Care clinician, 60%, a personal or facebook friend, 46%, a Twitter recommendation; other media less so.
Conclusion: There was limited awareness of HPV vaccine and its potential benefits or harms in our HIV positive cohort of MSM. Uptake and completion or intention to complete vaccination was high when information was provided and vaccine offered. A recommendation from a clinician was most highly valued though not decisive. HIV care providers should consider strategies to increase general awareness of the potential benefits of HPV vaccine and implement systematic recommendation to the HIV positive population. Services should anticipate high uptake.

O9

Prevalence, type and factors associated with HPV infection at multiple sites in young HIV–positive MSM

C Sadlier[1], S O'Dea[1], S Delamere[1], C Bergin[1], P Smyth[2], G Blackshields[2] and N Meyers[3]
[1]St James's Hospital, Dublin, Ireland; [2]Trinity College Dublin, Dublin, Ireland; [3]Université catholique de Louvain, Louvain, Belgium

Background: HIV-positive MSM are at increased risk of HPV associated disease, particularly anal cancer. Prevalence of type specific HPV infection in young HIV-positive MSM is not well described. We aimed to characterize prevalence and type of high risk (hr) oncogenic HPV infection at multiple sites (oropharyngeal, anal, genital) and identify factors associated with hr HPV infection in HIV-positive MSM in whom HPV vaccine is indicated.
Methods: HPV vaccine naïve MSM≥18 and ≤26 years were recruited. Healthcare provider performed Dacron-swabs were obtained. Detection of HPV was carried out by multiplex PCR using PGMY09/11 consensus primers. PCR positive samples were subtyped using next generation sequencing on the Ion Torrent platform for 12 h HPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59). Association of prevalent hr HPV infection and selected behavioral/clinical characteristics were assessed using the chi-square and Fisher's exact test.
Results: In 50 HIV-positive MSM, median age was 25 years, median CD4+T cell count was 580 cells/mm^3 and 76% had an undetectable viral load.
HPV DNA was detected from one or more site in 68% (n=34). The prevalence of HPV DNA detection was higher in the anal canal (66%) vs. genital (8%) and oropharyngeal sites (4%), (p<0.01).
The prevalence of anal and genital hr HPV was 46% and 4% respectively. Oropharyngeal hr HPV was not detected.
Factors negatively associated with detection of hr HPV include HIV viral <40 copies/mL (p=0.04) and provision of cART (p=0.08) although this was of borderline significance.
Quadrivalent HPV vaccine hr HPV 16 and 18 were detected in 23% and 8%. Additional nonavalent vaccine hr types 31, 33, 45 and 52 were detected in 2%, 4%, 17% and 6%. Non-vaccine anal hr HPV types 51, 56 and 59 were detected in 6%, 8% and 17%.
Conclusion: Young HIV-positive MSM have a high prevalence of hr anal HPV infection. Non-detectable HIV viral load was significantly associated with absence of hr HVP infection although cART has not been shown to decrease incidence of anal cancer. While HPV vaccine has potential to prevent a significant proportion of hr HPV, frequent non-vaccine oncogenic HPV types were observed.
Vaccine based prevention strategies for HPV infection should monitor potential differences in HPV type distribution among HIV-infected MSM when designing interventions.

O10

Healthy HIV–1–seropositive individuals have impaired alveolar immunity despite highly active antiretroviral therapy

M Bewley[1], D Dockrell[1], P Collini[1] and J Greig[2]
[1]University of Sheffield, Sheffield, UK; [2]Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

Background: HIV+ individuals remain at increased susceptibility to chronic lung disease and pneumococcal infection in the era of highly active antiretroviral therapy (HAART). Immune activation, oxidative stress and inverted CD4:CD8 T cell ratios are described in the blood of those on HAART. We hypothesised that lung cellular immunity remains dysregulated in HIV+ individuals despite ART.

Methods: We performed bronchoalveolar lavage (BAL) in 14 healthy HIV+ non-smokers on HAART (5 female, mean age 42, mean HAART duration 86 months) and 10 matched HIV- controls. Mononuclear cell subtypes were identified with microscopy and analysed by flow cytometry. BAL supernatants were analysed by ELISA. We used microscopy, flow cytometry and counts of intracellular viable bacterial to characterise the response to pneumococcal challenge of alveolar macrophages (AM) and healthy human monocyte derived macrophages (MDM) either exposed to 10–100 ng/mL of gp120 or co-cultured with activated, syngeneic CD8 T cells. Data were compared with t, Mann–Whitney or Wilcoxon tests and considered significant if p<0.05.

Results: Compared to HIV− controls, HIV+ individuals had a relative lymphocytosis in their lungs (12.4±1.9 vs. 7.6±1.1%, p=0.043), constituted by a greater proportion of CD8+ T cells (45.0±4.0 vs. 22.3±4.0%, p=0.0006) and thus a reduced CD4:CD8 ratio (1.16±0.15 vs. 3.79±0.76, p=0.0019). 45% of HIV+ individuals had gp120 detectable in their BAL fluid, in the 10–100 ng/mL range and had significantly lower plasma CD4 counts (mean 470±SEM 43 vs. 756±80 cells/mL, p=0.0087) than those in whom gp120 was undetectable. HIV+ AM demonstrated impaired intracellular killing of pneumococci (1.3±0.4 vs. 0.5±0.5 log CFU/mL), as did MDM treated with gp120 (1.2±0.3 vs. 0.7±0.3 log CFU/mL, p=0.019), a finding associated with reduced apoptosis (18.1±4.8 vs. 33.5±7.0%, p=0.039). However, apoptosis-associated killing was not reduced when MDM were co-cultured with activated syngeneic CD8 T cells. gp120 exposure induced mROS generation in MDM (1.86±0.5 fold change MFI, p=0.016) but blunted further mROS induction with pneumococci (p=0.047).

Conclusions: A CD8 lymphocytosis persists and gp120 remains detectable in the lung despite HAART. gp120 causes macrophage oxidative stress and impairs apoptosis-associated killing of pneumococci. Thus, the immune environment of the lung fails to correct with HAART and may play a role in HIV associated lung disease.

O11

Interventions to improve screening for latent TB: effectiveness and outcomes

F Ntziora, T DeSilva, N Baker, D Talbot, L Byrne, K Sherry, K Rogstad and A Tunbridge
Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

Background: Patients with HIV infection should be offered screening for latent TB (BHIVA guidelines for HIV/TB co-infection 2011). These include patients from sub-Saharan Africa if not on anti-retroviral therapy (ART) or on ART for less than 2 years, patients from medium TB incidence countries with duration of ART less than 2 years and current CD4 count less than 500 cells/mL, and patients from low TB incidence countries not on ART or on ART for less than 6 months with current CD4 count less than 350 cells/mL. An audit in 2013–2014 found that compliance of our service was very low (7.3%) with only 2 patients having a positive Quantiferon test and being offered latent TB treatment. The impact of interventions to improve diagnosis and treatment of latent TB in patients with HIV infection under our care was then evaluated through further service review.

Methods: Educational activities were set up to inform staff of BHIVA HIV/TB co-infection guidelines, risks of latent TB and poor audit results. Active interventions included: appointing a lead for the initiative, early identification of eligible patients, reminders in patients' notes, e-mails to nursing and medical staff. Outcome was assessed by reviewing data from 869 patients, 394 and 475 patients attending HIV clinics at the Infectious Diseases (ID) and the Genito-Urinary Medicine (GUM) Departments, respectively, from 01/01/2007 to 31/12/2014.

Results: Fifty four (21 ID, 33 GUM) patients with HIV infection were eligible for screening for latent TB when those with active TB infection, lost to follow-up, transfer care or no longer eligible were excluded. A Quantiferon test was offered to 35/54 (65%) patients (17/21, 80.9% ID, 18/33, 54.5% GUM). One patient declined the test. Of the 34 Quantiferon tests performed 8 (23.5%) were positive. Latent TB treatment was offered to 5/8 (62.5%) patients (one patient was very frail; one patient has recently started ART and had a high pill burden and one patient defaulted follow-up appointments until recently). Data will be presented using run charts as recommended for quality improvement initiatives.

Conclusion: A combined approach of educational activities and active interventions resulted in a marked improvement in quality of care by increasing screening and thus treatment of patients with HIV infection and latent TB. Differences across the two Departments need to be explored and additional interventions designed to improve screening to 100% need to be offered.

O12

Brain MRI changes associated with poorer cognitive function despite suppressive antiretroviral therapy

J Underwood[1], J Cole[1], D Sharp[1], A Winston[1], R Leech[1], C Majoie[2], M Caan[2], D De Francesco[3], R van Zoest[3], G Geurtsen[3], B Schmand[3], F Wit[3], P Reiss[3] and C Sabin[3]
[1]Imperial College London, London, UK; [2]Academic Medical Center, Amsterdam, The Netherlands; [3]UCL, London, UK

Background: Grey and white matter (GM and WM) abnormalities have been reported in HIV-positive subjects. However, data are lacking in virologically suppressed cohorts compared with appropriate control populations.

Methods: We assessed cognitive function across 6 domains, brain tissue volumes (using T1 structural MRI) and measures of WM microstructure (using diffusion weighted MRI) in 134 HIV-positive and 79 age-matched HIV-negative subjects. All HIV-positive participants (median [range] 56 [45–82] years) were receiving suppressive cART. HIV-negative subjects (57 [47–80] years) were recruited from GU clinics and the community using targeted advertising to ensure comparable demographics. Localised differences in brain structure were investigated using whole brain (voxelwise) analyses of volumetric and diffusion data. To relate imaging findings to cognition and identify potential subgroups, measures of GM volume (GMV), fractional anisotropy (FA, a marker of WM microstructure) and cognitive T-scores were integrated using the k-means clustering statistical method.

Results: HIV-positive subjects had significantly lower T-scores, representing poorer cognitive function, in 4/6 domains tested (median T scores were 50.2 vs. 56.8; 49.3 vs. 52.3; 48.5 vs. 51.2 and 51.2 vs. 54.6 (p≤0.01 for all) for attention, executive function, motor function and processing speed in HIV-positive subjects vs. controls respectively).

Voxelwise analyses demonstrated reduced GM volume in HIV-positive subjects, principally in the intra- and supracalcarine cortices and the lingual gyrus. Despite no WM volume reductions, widespread abnormalities in white matter microstructure were evident in the HIV-positive group. K-means clustering analysis optimally clustered participants into a higher GMV/FA cluster (n=99) and a lower GMV/FA cluster (n=109). HIV-positive subjects were more likely to be in the lower GMV/FA cluster compared to controls (61.2% vs. 36.4%, odds ratio 2.74 [95% confidence interval 1.53–4.98], p<0.001). Individuals in this cluster also exhibited poorer cognitive function (global T score 51.1 vs. 53.6, p<0.001).

Conclusion: In summary, cognitive impairment, grey matter atrophy and white matter microstructural abnormalities were evident in HIV-positive individuals despite fully suppressive antiretroviral therapy. Future work to understand the underlying pathogenesis of these brain changes is warranted.

O13

What is the overlap between HIV and shigellosis epidemics in England?

K Mohan, M Hibbert, G Rooney, M Canvin, T Childs, C Jenkins, I Simms, P Kirwan, V Delpech, Z Yin, G Hughes and N Field
Public Health England, Colindale, London, UK

Background: Shigellosis epidemiology in England has changed over the past decade, with more than half of cases now non-travel associated, thought to be largely due to sexual transmission between men. However, sexual identity and HIV status are not routinely recorded for shigellosis, and the extent to which patients with HIV are affected is not well understood at a population level. This study linked two national datasets to inform control efforts.

Methods: The Modular Open Laboratory Information System containing all shigellosis diagnoses reported to Public Health England (PHE) and the PHE HIV and AIDS Reporting System containing all patients diagnosed with HIV were anonymously linked using a soundex coding system (based on surname, date of birth and sex). We (1) estimated the proportion of patients diagnosed with shigellosis and HIV between 2003 and 2015, (2) used the national cohort of people attending for HIV care as the denominator to estimate annual rates of shigellosis amongst HIV diagnosed persons, and (3) described clinical characteristics, and timing of diagnoses.

Results: From 1979 to 2014, 139,950 HIV diagnoses were reported in the UK among adults (aged>15 years), and from 2003 to 2015, 10,027 shigellosis cases were reported in England. Overall, 12% (1184/10,027) of shigellosis cases were diagnosed with HIV. This proportion was much higher in those without travel history (20% [1050/5398] compared to 3% [134/4629]) in those with travel history (p<0.01). We observed year-on-year increases in shigellosis incidence in men with HIV, with the rate rising from 80 per 100,000 HIV diagnosed population in 2004 to 364 per 100,000 in 2014 (p<0.01). No major increase was observed in women. Of non-travel associated shigellosis cases with HIV, 94% (958/1018) were in men who have sex with men (MSM). In most cases, HIV preceded the shigellosis diagnosis (90%; 919/1018), and most were not immuno-compromised (59% [168/283] had viral load <50 [where available within 3 months of shigellosis]).

Discussion: This is the first national-level investigation of the overlap between shigellosis and HIV epidemics. We observed high and increasing rates of shigellosis in men with HIV, who may experience more serious clinical disease. Sexually transmitted shigellosis should be considered by clinicians in MSM presenting with gastrointestinal symptoms, patients need to be better informed, and urgent work is required to understand how to control this infection.

O14

Ledipasvir/sofosbuvir for 6 weeks in HIV-infected patients with acute HCV infection

M Nelson[1], S Bhagani[2], R Hyland[3], C Yun[3], M Natha[3], W Zheng[3], D Brainard[3], J McHutchinson[3], A Jackson[4], P Ingiliz[5], T Lutz[6] and J Rockstroh[7]
[1]Chelsea and Westminster Hospital, London, UK; [2]Royal Free Hospital, London, UK; [3]Gilead Sciences Inc., Foster City, CA, USA; [4]Gilead Sciences Ltd., London, UK; [5]Centre for Infectiology, Berlin, Germany; [6]Infektiologikum, Frankfurt, Germany; [7]University of Bonn, Bonn, Germany

Background: There is no currently approved treatment for acute HCV infection. Guidelines recommend 24 weeks of therapy with interferon (IFN) and ribavirin in HIV coinfected patients who are diagnosed with acute HCV. Shorter duration therapy with all-oral agents may offer a better-tolerated, more efficacious alternative. Here we evaluated the safety, tolerability and efficacy of ledipasvir (LDV)/sofosbuvir (SOF) fixed dose combination for 6 weeks in genotype 1 or 4 HIV-infected patients with acute HCV infection.

Methods: Patients with an acute HCV infection of <24 weeks duration as per NEAT AHC guidelines were included. Patients were required to either be receiving HIV antiretroviral (ARV) therapy with HIV RNA <200 copies/mL, or not be receiving any treatment for HIV with no plans to start therapy. Enrolment of patients with active illicit drug use was permitted. Patients with acute opportunistic infections or HBV co-infection were excluded. The primary endpoint was sustained viral response defined as HCV RNA <lower limit of detection 12 weeks after the completion of therapy (SVR12).

Results: Twenty-six patients were enrolled. All were male, the majority were Caucasian (92%), IL28B non-CC (54%), and receiving ARV therapy (96%). The median baseline HCV RNA was 5.4 log10 IU/mL. Nineteen (73%) patients had HCV genotype 1a infection and 7 (27%) had genotype 4 infection. All patients completed therapy. 22/26 (85%) achieved SVR4. Four (15%) patients relapsed. There was a strong relationship between baseline HCV RNA and treatment outcome; all patients (21/21) with baseline HCV RNA<9 million IU/mL achieved SVR4. Treatment was safe and well tolerated. Twenty two of 26 (85%) patients had an adverse event; the majority being mild or moderate. One patient had serious adverse events related to a motor vehicle accident and illicit drug use. No patients discontinued, died or experienced HIV rebound. Post treatment week 12 data will be presented.

Conclusions: LDV/SOF for 6 weeks is effective and well tolerated in HIV-infected patients with acute HCV infection who have a baseline HCV RNA <9 million. Acutely HCV-infected patients with a higher viral load should be considered for longer duration of therapy.

Baseline HCV RNA and Response for Individual Patients
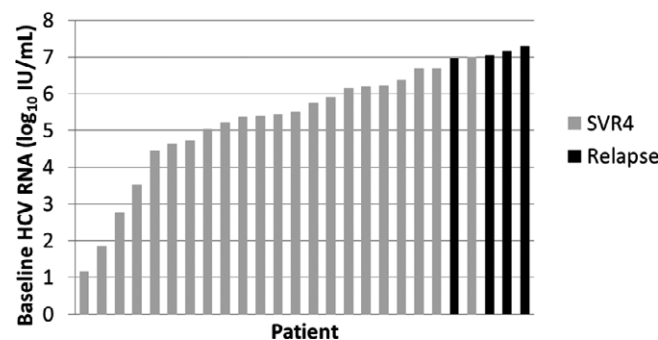
O15

Relapse of multicentric Castleman's disease following rituximab-based therapy in 82 PLWH

S Chitty, A Dalla Pria, R Ramaswami, J Roe, M Bendle, M Nelson and M Bower
Chelsea and Westminster Hospital, London, UK

Background: The management of HIV associated multicentric Castleman's disease (MCD) was revolutionised by the introduction of rituximab based immunochemotherapy in 2003. However, relapses may occur following treatment and the clinicopathological features and outcomes after relapse of MCD have not been described.

Methods: A retrospective review of prospectively collected data on patients treated at the National Centre for HIV malignancy with MCD was undertaken including all 98 patients diagnosed with HIV associated MCD.

Results: Eighty two patients (70 male, mean age 42 years) were treated with rituximab based immunotherapy for MCD (median HHV8 viral load at MCD diagnosis 350,000 copies/mL). Four died from refractory or progressive MCD within the first month of treatment and 78 achieved remission. The median follow-up is 4.2 years. The 5 year overall survival is 95% (95% CI: 90–100%) and 6 patients have died (2 from HHV8-related lymphomas, 1 pulmonary KS, 2 suicides, 1 MCD (at 4th relapse). Eleven (14%) of 78 who achieved remission have relapsed at least once with biopsy confirmed relapsed MCD. The median time to first relapse is 19 months (range: 8.7–49). At first relapse all 11 (10 male) had symptoms and detectable plasma HHV8 viraemia (median 130,000 copies/mL). At relapse the median duration of symptoms was 2 months (compared to 4 months at first diagnosis). The median CD19 (B-cell) count at relapse was 204/mL (16%) suggesting that this had recovered following rituximab first line therapy. All 11 patients were retreated with rituximab monotherapy (8) or rituximab combined with etoposide (3) and all achieved a second remission. Five have had second relapses also successfully treated and three have had third relapses including one patient who died from progressive MCD at fourth relapse 9.4 years after first MCD diagnosis.

Conclusion: Relapse following rituximab based treatment for MCD is not infrequent and may occur after recovery of CD19 (B cell) counts. Relapses are usually sensitive to rechallenging with rituximab based immunochemotherapy.

HIV Testing and Prevention

O16

Does the new migrant "jungle" camp in Calais meet the minimum standards for sexual and reproductive health in an emergency situation set down by the inter-agency working group (IAWG) in reproductive health?

F Finnerty, Y Gilleece and D Richardson
Brighton & Sussex University Hospitals NHS Trust, Brighton, UK

Backgrounds/Introduction: There are internationally recognised minimum standards for provision of sexual and reproductive health (SRH) care in a crisis situation (MISP). The new migrant "jungle" camp in Calais, France has been increasing in size due to a combination of the current refugee crisis and also to tightening security measures around the Calais port and Eurotunnel. A recent environmental health report by the University of Birmingham classed the camp as a humanitarian emergency.
Objective: To compare conditions in the camp with the MISP standards.
Methods: The lead author interviewed clinicians (n=3) using a variety of methods including via email and telephone, conducted a survey for volunteers via social media (n=32) and attended the camp to compare provision of SRH with MISP for a charity scoping exercise.
Results: There is no reproductive health officer in place to coordinate services (objective 1). There is inadequate security − poor lighting and inadequate access to safe, secure washing and toileting facilities (objective 2). Incidents of sexual violence have been reported. There is free access to male condoms from NGOs and volunteers but not to female condoms (objective 3). There is access to 24 h emergency new-born and obstetric care however it is difficult to access out of hours as ambulances will not always drive into the camp (objective 4). Comprehensive SRH is not provided in the primary care facility and women have to travel to Calais to access contraception (objective 5). There does not appear to be any access to the minimum set of HIV prevention, treatment, care and support services during disasters as set out by the MISP.
Conclusion: The new migrant "jungle" camp in Calais fails the MISP standards. Failure to comply with MISP impacts on the safety and short and long term SRH of women and girls in the camp. There are also implications for transmission and treatment of HIV infection. A recent study in France showed that migrant women are eight times more likely to have transactional sex if they do not have access to stable housing and also showed that at least one third of African migrants living with HIV in France seroconverted after arriving in the country (destitution appears to have contributed to those infections). A study in Belgium and the Netherlands showed that refugees, asylum seekers and undocumented migrants are extremely vulnerable to violence especially sexual violence.

O17

Factors associated with undiagnosed HIV infection among people who inject drugs in England, Wales and Northern Ireland, 2005–2014

VD Hope, KJ Cullen, J Njoroge, JV Parry and F Ncube
Public Health England, London, UK

Background: In Europe people who inject drugs (PWID) are one of the groups most affected by HIV. In the UK, injecting drug use is the primary risk factor for 5964 (4.3%) of the reported HIV diagnoses (to end of 2014); overall HIV incidence among PWID is low, though outbreaks still occur. It is estimated that 10–20% of HIV infections acquired by injecting drug use in the UK are undiagnosed. Factors associated with undiagnosed HIV infection among PWID are explored to inform case finding.
Method: An annual unlinked-anonymous survey recruits PWID through drug services across the UK (except Scotland); participants provide a biological sample & complete a short questionnaire. First participations between 2005 and 2014 were selected. Self-reported data on HIV testing & last test result were used to asses if those with HIV had been diagnosed. Factors associated with undiagnosed infection were examined in bivariate & multivariable analyses.
Results: Of the 25,743 first participations 318 (1.2%; 4% in London, 0.7% elsewhere) had HIV (those with HIV were older [median 37 years vs. 34, p<0.001]; women were fewer [19% vs. 26%, p=0.007]). Of those with HIV, 29% (86/298) were probably undiagnosed (for 20 this could not be assessed; excluded from analyses). Among those with HIV, undiagnosed infection was

associated with: being younger (AOR=0.92 95% CI 0.88–0.96; median 32 years vs. 38.5); recruitment outside London (AOR=2.0 95% CI 1.1–3.7; 66% vs. 43%); & never having a hepatitis C test (AOR=0.37 95% CI 0.18–0.77; 71% tested vs. 89%). Among those undiagnosed, there were fewer men reporting sex with men (AOR=0.17 95% CI 0.03–0.82; 2% vs. 12%) & more women reporting no sex during the past year (AOR=4.5 95% CI 1.5–14; 10% vs. 4%). There was no association with: being UK born; imprisonment; the uptake of drug services, or hepatitis B vaccination. When compared to those HIV negative, the undiagnosed were: younger (AOR=0.96 95% CI 0.94–0.99; median 32 years vs. 34); more often recruited in London (AOR=2.6 95% CI 1.6–4.3; 34% vs. 15%); & more often born outside the UK (AOR=3.0 95% CI 1.8–5.2; 23% vs. 7%). There was no association with: gender/sexual practice; imprisonment; or the uptake of drug services, hepatitis B vaccination, or hepatitis C testing.
Conclusion: Three in 10 HIV infections among PWID in contact with drug services remain undiagnosed. Targeted interventions (such as point-of-care testing in drug services) are needed to improve the uptake of HIV testing, particularly among younger PWID.

O18

Condomless sex in HIV-diagnosed men who have sex with men in the UK: prevalence, correlates, and implications for HIV transmission

M Daskalopoulou[1], AJ Rodger[1], AN Phillips[1], A Speakman[1], FC Lampe[1], J McDonnell[1], AM Johnson[1], L Sherr[1], J Elford[2], N Perry[3], E Wilkins[4], S Collins[5] and WJ Burman[6]
[1]University College London, London, UK; [2]City University London, London, UK; [3]Brighton and Sussex University Hospitals NHS Trust, Brighton, UK; [4]Pennine Acute Hospitals NHS Trust, Manchester, UK; [5]HIV iBase, London, UK; [6]Denver Public Health, Denver, CO, USA

Background: Transmission of HIV and other STIs remains high in UK MSM. Recent evidence shows the extremely low risk of HIV transmission during condomless sex with HIV-negative partners when the HIV-positive partner is on ART with undetectable HIV viral load(VL). We assessed, in HIV-diagnosed MSM in the UK, the prevalence of condomless sex with HIV-serodifferent (CLS-D) and HIV-seroconcordant (CLS-C) partners, and of condomless sex with an appreciable risk of HIV transmission, accounting for VL (CLS-D-HIV-risk).
Methods: Cross-sectional questionnaire study in UK HIV clinics (2011/12). MSM diagnosed with HIV for ≥3 months were classified into 4 groups of reported sexual behaviour (past 3 months): (1) CLS-D, (2) CLS-C (but not CLS-D), (3) condom-protected sex only, and (4) no anal/vaginal sex; associations with socio-demographic, lifestyle, other sexual behaviours, and HIV-related factors were studied. CLS-D-HIV-risk was defined as CLS-D plus either not being on ART or having VL>200(or>50)c/mL; the effect of incorporating additional factors (time on ART, ART non-adherence, recent diagnosed STI) was evaluated.
Results: 2189 MSM were included: 87% were on ART, 78% had VL≤50c/mL. Sexual behaviour was: CLS-D 16%, CLS-C 22%, condom-protected sex 25%, and no sex 36%. Prevalence of recently diagnosed STI, group sex, and higher number of sexual partners was highest for the CLS-D group, then the CLS-C group, and was lower for the condom-protected sex group (Table) Polydrug and chemsex drug use were highest for the CLS-C group and were also high for the CLS-D group. Prevalence of CLS-D-HIV-risk (CLS-D plus either VL>200c/mL or not on ART) was 3%, rising to 10% with additional factors incorporated. The CLS-D-HIV-risk group had similar profile to CSL-D.

	Sex in past 3 months (N=2189)				
	CLS-D N=355	CLS-C N=480	Condom-protected sex only N=556	No sex N=798	CLS-D-HIV-risk# N=75
	%	%	%	%	%
Diagnosed STI	22	16	9	4	22
Group sex	45	36	19	3	51
≥5 sexual partners	39	28	13	–	39
≥10 new sexual partners (12 months)	47	37	22	5	49
Polydrug use (≥4 recreational drugs)	40	48	20	13	37
Chemsex drug use*	23	34	10	4	27
3 month recall for all unless otherwise specified;					
*GHB,mephedrone,methamphetamine; # Subset of CLS-D group					

Conclusion: Among HIV-diagnosed MSM in 2011/12, prevalence was 38% for all condomless sex (CLS-D or CLS-C) and was lower (≤10%) for CLS-D-HIV-risk, suggesting differing implications for transmission of HIV compared to other STIs. Incorporating viral load in definitions of 'HIV-risk sex' is important in future studies and in informing safer sexual practices between serodifferent partners.

O19

Self-testing for HIV: initial experience of the UK's first kit

M Brady[1], G Carpenter[2] and B Bard[2]
[1]King's College Hospital, London, UK; [2]Biosure (UK) Ltd, Essex, UK

Background: Rates of undiagnosed HIV and late diagnoses remain unacceptably high in the UK. A dramatic increase in HIV testing rates could lead to significant reductions in HIV incidence, prevalence and treatment cost. There remain a number of barriers to HIV testing, many of which are potentially removed with HIV self-testing.
Methods: The UK's first HIV Self-Test was certified for use and launched in April 2015. It is a 2nd generation HIV antibody test that requires just 2.5 μL of blood and delivers a result in 15 minutes. The tests are available for sale on-line and from various outlets. We report the first 9 months' experience of HIV self-testing in the UK. Clients purchasing the test kit are able to provide feedback on the site or via an independent website (PEBLFeedback.com).
Results: 24,717 tests were purchased between April and December 2015. 78% of kits were requested by men and 75.3% were ordered from people living in non-metropolitan areas. 7.5% of orders were repeat purchases. When asked about testing history: 1644/3259 (50.4%) had never tested before. Test ordering is very sensitive to external influences with significant purchase uplifts seen when HIV is in the news (e.g. World AIDS day, National HIV testing week, Charlie Sheen). Sales also rise dramatically (typically +90%) when the service is advertised on social media. Overall feedback has been extremely positive. 1265 people (5.12%) completed on-line feedback. From a sample of 506 people 97.5% said they would use it again, 98.1% said the test was easy to do and 99.4% said it was easy to read. The rate of reported invalid tests has been extremely low (<0.2%) and the rate of reported false positives has been lower than expected (currently 3, expected 25).
Conclusions: Self-testing for HIV has, so far, proven to be highly acceptable to users with excellent unsolicited feedback. Self-testing has the potential to really shift our approach to HIV testing and to address some of the barriers many people experience that prevent them from testing and testing regularly. We won't start to realise the real benefits of self-testing unless the scale of testing increases dramatically through wider NHS provision as part of routine care. The challenge with self-testing remains providing assurance about access to care and further work is needed on greater numbers of users to better understand testing experience, access to care and health economics of self-testing.

O20

Are laboratory specialties recommending HIV testing for suggestive results and is anyone listening?

O Seddon, S Froude and A Freedman
University Hospital of Wales, Cardiff, Wales, UK

Background: HIV infection is associated with a number of abnormalities on routine laboratory blood tests. Some, such as unexplained haematological dyscrasias, are indicator conditions that should prompt HIV testing according to BHIVA guidelines. Others, such as a polyclonal rise in IgG, are seen frequently in HIV infection but do not feature in the guidelines. Authorising laboratory staff in our hospital will often add a comment to such results suggesting testing for HIV. This study examines whether this is done consistently, whether it is acted upon and the impact on HIV diagnosis.
Methods: The laboratory results of all new diagnoses within a tertiary infectious diseases centre over 4 years (2012–2015) were examined retrospectively. The historical haematological and biochemical tests of these patients were reviewed for instances of blood dyscrasias (persistent and unexplained by other testing) or polyclonal rise in IgG (identified as a persistently raised globulin on routine liver function tests, followed by specific immunoglobulin levels showing a raised IgG and electrophoresis to exclude a paraprotein).
Results: There were 97 new diagnoses during the time period. Of these, 13 had a comment on a laboratory test suggesting HIV testing, prior to the diagnosis

being made. The median time to testing following such a comment was 1 month, but with a large range (0–37 months). Of the remaining 84 patients, 31 had either a polyclonal rise in IgG, unexplained cytopenias or a combination of both, but had no comment to suggest HIV testing. These abnormalities preceded eventual diagnosis by a median 9 months (range 0–78 months). 21 patients had no relevant biochemical or haematological abnormalities seen prior to diagnosis and 32 patients were diagnosed at first presentation.
Conclusion: A laboratory comment suggesting HIV testing potentially prompted diagnosis in up to 13% of patients, although in several instances a comment was seemingly not acted upon, as evidenced by the length of time between comment and eventual testing. There is inconsistency in comments being added to results, with an opportunity to recommend HIV testing missed in 32%. In some cases a comment had the potential to hasten diagnosis by 6 years. We recommend standardising laboratory practices to comment on all such results, as well as exploring mechanisms to ensure such comments are acted upon.

O21

Reducing the barriers to HIV testing – a simplified consent pathway increases the uptake of HIV testing in a high-prevalence population

J Paparello, L Hunter, R Betournay, M Craven and N Larbalestier
Guy's and St Thomas' NHS Foundation Trust, London, UK

Background: Sustaining the consistent offer of an HIV test has been shown to be challenging in traditional opt-out HIV testing initiatives. Front line clinical staff have many competing clinical priorities and to be effective HIV testing pathways have to be designed to work seamlessly with standard clinical pathways.
Methods: Clinical staff were asked to use pre-configured EPR order-sets which included a *pre-selected* HIV test for all patients requiring a blood test. All patients were given a comprehensive HIV testing leaflet which explained the rationale for testing and positive results pathways. Patients could decline testing after they had read the leaflet. Reactive results were followed up by a dedicated new HIV diagnosis team and re-called directly to the HIV service for confirmatory testing and treatment. Data were collected on the rates of testing, patient demographics, baseline surrogate markers, evidence of previous ED attendance and the reason for current attendance. The project is ongoing and the first 5 months of data is presented
Results: HIV testing increased from 2.9 to 61%. 12 176/19 961 bled patients were tested for HIV. 103/12 176 HIV tests were positive (1%) of whom 26/103 were new diagnoses (25%). 77/103 patients were already diagnosed and of these 3/77 (4%) were not in care (LTFU).
29 patients (new and LTFU) demographics were 7 (24%) female and 22 (76%) male 59% heterosexual 41% MSM 10% Asian 48% BA 42% White median age of 39 (25–61).
Median time initial test to 1st patient contact=3-days (0–18) & 1st HIV OPD attendance (& first CD4 count) was 7-days (IQR 0–31) All 29 patients were contacted but 5/29 have declined to attend.
24/29 patients attending for care baseline CD4 28% (CD4 0–200), 22% (CD4 201–350), 50% (CD4>350), 59% (17/29) had the HIV test at the 1st ED attendance, 10% (3/29) on the 2nd or 3rd attendance and 31% (9/29) was on the 4th or more attendance.
Of the 29 new or LTFU diagnoses 7 were admitted on that attendance 3/7 with an AIDS presentation. 3/29 were diagnosed with HIV seroconversion.
Conclusion: A pragmatic approach to HIV testing consent can significantly increase the rates of testing. 41% of newly diagnosed patients had previously attended the ED representing a missed opportunity for earlier diagnosis and admission avoidance.

O22

A calculation of the financial impact of opt-out HIV testing in a London Emergency Department (ED)

H Alexander, M Brady and M Poulton
King's College Hospital, London, UK

Background: BHIVA and NICE recommend universal opt-out testing where HIV prevalence is >2/1000. However, in the current economic climate, significant pressure on finances has limited roll-out in most settings. We

aimed to determine the financial impact of opt-out HIV testing in ED in a major London hospital.

Methods: Using 2014 data we calculated the following; the cost of conducting opt-out HIV testing in adults having a blood test in ED over 1 year, the costs of inpatient stays and outpatient investigations in patients who were newly diagnosed in 2014 where there had been a missed opportunity to test in ED and the potential cost savings from the prevention of onward transmission based on PHE data.

Results: 1. Cost of testing: *Variable*: In 2014 34,500 patients over 18 years of age had blood tests in ED. The local prevalence of diagnosed HIV is 1.2% and we assumed that ¼ would not be aware of their status giving a prevalence of undiagnosed HIV of 0.4%. Taking into account the differential costs of negative and positive tests and consumables, the cost at 50% uptake would be £84,838.26, at 75% uptake it would be £127,272.94 and at 100% it would be £169,676.52.

Fixed: Calculating the costs of marketing, a band 4 results administrator, project management, clinical leadership and education results in a fixed annual cost of £75,860.

Total annual costs:

	50% testing	75% testing	100% testing
Total cost	£160,698.26	£203,132.94	£245,536.52

2. Potential savings: An audit was conducted looking at patients who were newly diagnosed with HIV in 2014 outside of GU and antenatal services. 15/59 patients had presented to ED in the previous 5 years representing missed diagnostic opportunities; median CD4 count at diagnosis was 61 (range 6–390). The total cost of admissions and outpatient investigations in these patients, as a result of their late presentation, was £335,777.65. This underestimates cost as it doesn't take into account long term morbidity, ongoing community support, social care and lack of economic contribution.

3. Savings from prevention of onward transmission: Assuming 0.72 new cases are prevented by each new diagnosis and the lifetime cost of a patient with HIV is £360,777, the total lifetime savings at 50% uptake would be £17,923,401.40, at 75% uptake £27,014,981.80 and at 100% uptake £35,846,802.70.

Conclusion: Our analysis clearly demonstrates that investment in opt out HIV testing in our population would save money both for the trust and for the wider population.

O23

The Pre-exposure Prophylaxis (PrEP) Clinic at a central London sexual health service – the first 6 weeks

M Toby, G Whitlock and N Nwokolo
Chelsea and Westminster NHS Foundation Trust, London, UK

Introduction: As a result of high demand and reassuring findings from two large recent PrEP clinical trials, in September 2015, a central London sexual health clinic opened the first NHS PrEP service.

A website with detailed information, clinic guidelines and patient information leaflets were formulated. Information was provided about two regimens – daily Truvada (PROUD regimen) or Truvada before and for 2 days after a sexual event (IPERGAY).In addition to Truvada prescriptions, a Tenofovir/Emtricitabine (TDF/FTC) drug level monitoring service was offered for those taking the generic version.

Method: The service started in September 2015 and runs for four hours weekly. We retrospectively collected patient data for the first 6 weeks including patient demographics, HIV and hepatitis B status, number of sexual partners, use of "chems" and use of generic TDF/FTC.

Results: 55 people attended over a 6 week period: 98% (54/55) were men. 96% (53/55) were MSM. 60% (33/55) were white British, 18% (10/55) were any other white ethnicity. 49% (27/55) used "chems" and of these, 52% (14/27) were using more than once monthly. 32% (18/55) had taken post exposure prophylaxis (PEP) in the last year. 15% (8/55) had been infected with syphilis previously. 89% (49/55) had had condomless anal intercourse in the last 3 months: 55% (30/55) reported that this was both insertive and receptive, 24% (13/55) receptive only. 18% (10/55) reported >20 partners.

At first attendance 91% (50/55) were prescribed Truvada by our service; 5 (9%) requested a TDF drug level for TDF/FTC obtained elsewhere. At initiation, 54% (30/55) chose the PROUD regimen, 45% (25/55) chose the IPERGAY

regimen. At 3 week follow up 6% (2/30) had switched from PROUD toIPERGAY and 4% (1/25) from IPERGAY to PROUD. 18% (9/50) had switched to generic TDF/FTC at 3 week follow up.

Conclusion: The PrEP clinic was successful in managing to target an appropriate cohort of patients; the majority were at high HIV-risk disclosing episodes of condomless anal intercourse.

O24

Baseline predictors of HIV Infection in the no–PrEP group in the PROUD trial

M Desai[1], **N Gill**[1], **S McCormack**[2], **D Dunn**[2], **E White**[2], **J Fox**[3], **I Reeves**[4], **R Gilson**[5], **A Sullivan**[6] and **A Clarke**[7]
[1]*Public Health England, London, UK;* [2]*MRC CTU at UCL, London, UK;* [3]*Guy's and St Thomas' NHS Trust, London, UK;* [4]*Homerton University Hospital NHS Foundation Trust, London, UK;* [5]*University College London, London, UK;* [6]*Chelsea and Westminster Hospital NHS Foundation Trust, London, UK;* [7]*Brighton and Sussex University Hospitals, Brighton, UK*

Background: Despite broad eligibility criteria in the PROUD trial, HIV incidence was higher than expected for MSM repeat attendees of sexual health clinics. We evaluated PROUD baseline factors associated with higher HIV incidence.

Methods: MSM/transgender women were eligible if they reported prior and future (90 days) anal intercourse with no condom; and were HIV negative in the 4 weeks before or on the day of randomisation. Randomisation was to immediate pre-exposure prophylaxis (PrEP) or deferred for 1 year. Demographic, clinical, and sexual behavioural data were recorded at enrolment. This analysis considers new HIV infections in the 253 deferred participants with no-PrEP. Person-years were censored at the dates of the first reactive HIV test, or the date of the last negative. Assessment was by Poisson regression, using tests for trend for ordinal variables.

Results: 20 HIV infections were diagnosed among 253 participants over 220 person-years (PY), an overall incidence of 9.1/100 PY (90% CI 6.3, 13.1). The most powerful predictor of HIV was the diagnosis of rectal chlamydia or gonorrhoea in the previous year (17.4/100 PY vs. 5.0/100PY, p=0.009). Incidence was associated with the number of prior URAI partners (p=0.02), with a much increased risk for 2 or more partners (13.9/100 PY). The small number of events precluded robust multivariate analysis. There were non-significant expected trends for previous use of PEP (p=0.57), use of ChemSex drugs (p=0.39) and circumcision (p=0.33), but no clear associations with age or locality of clinic (London vs. non-London). Participants in a cohabiting relationship were at similar risk to those not in a relationship (10.2/100PY and 10.1/100PY respectively); those in a non-cohabiting relationship were at reduced risk (5.0/100PY, p=0.37).

Conclusions: In this univariate analysis, a bacterial rectal STI or 2 or more prior anal sex partners when no condom was used in the previous 90 days identified men at imminent risk of HIV infection. This information should help clinicians make people aware of their risk and the benefit gained from starting PrEP.

HIV incidence (90% CI) by selected baseline characteristics
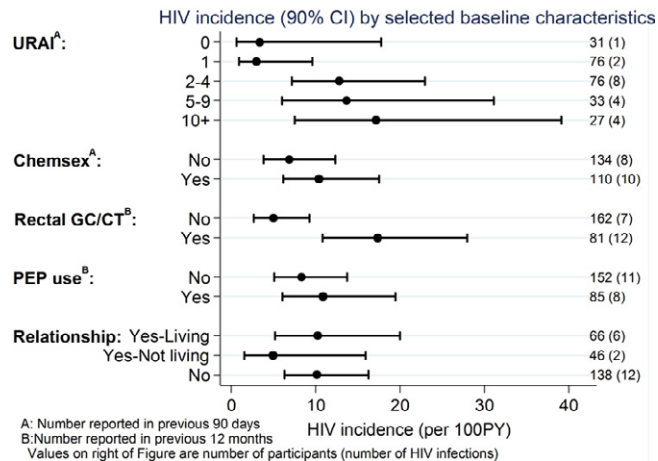
Antiretroviral Therapy

O25

Impact of timing of ART on HIV DNA; findings from HEATHER, an observational cohort study

J Thornhill[1], J Underwood[1], K Kuldanek[1], K Mahay[1], S Fidler[1], J Frater[2], E Hopkins[2], J Meyerowitz[2], J Fox[3], N Nwokolo[4], G Whitlock[4], N Mackie[5] and K Porter[6]
[1]Imperial College London, London, UK; [2]University Of Oxford, Oxford, UK; [3]Guy's and St Thomas' NHS Foundation Trust, London, UK; [4]Chelsea & Westminster NHS Trust, London, UK; [5]Imperial College NHS Trust, London, UK; [6]MRC Clinical Trials Unit at UCL, London, UK

Background: Primary HIV infection (PHI) accounts for 22% of new HIV diagnoses in the UK. HEATHER (HIV Reservoir targeting with Early Antiretroviral Therapy) is an observational cohort of 253 individuals initiating ART in PHI, designed to study the impact of ART in PHI on clinical, immune and HIV reservoir parameters. We present the characteristics of the HEATHER cohort, preliminary data on the impact of ART in PHI on HIV DNA and the clinical predictors of this biomarker of HIV reservoir.
Methods: HEATHER has enrolled individuals at 3 London sites from 2013 to 2015 with confirmed PHI according to the following criteria; (i) Positive HIV test within 6/12 of negative test (ii) HIV Ab negative with+p24 Ag or (iii) incident RITA. Eligible individuals commenced ART within 3/12 of confirmed PHI. A cohort of individuals who initiated ART during chronic infection (CHI) from one of the sites was used for comparison. A cross sectional analysis of total HIV-1 DNA was measured in a subset of individuals from both groups at a single time point when VL<50 cpm on ART. T tests were used to compare HIV DNA levels in HEATHER and CHI cohorts. Associations were assessed using multiple linear regressions. Factors investigated include age, CD4, CD4/8 ratio, viral load, and ART.
Results: Data on 109 individuals was available, 101 Heather and 8 CHI. HIV DNA was significantly lower in HEATHER (n=29) compared with the CHI (n=9) group (p=0.001). Time on suppressive ART was different between the groups; 20 vs. 106 months (p=0.01). At the time of measurement, in the univariate model increased age (p=0.03), lower CD4/8 ratio (p=0.02) and longer time from HIV diagnosis (p=0.01) were associated with higher HIV DNA. In a multivariate model adjusted for baseline VL; age, (p<0.01), CD4/8 (p=0.05) and time from diagnosis to ART start (p=0.05) remained predictive. However, there may be confounding for age as CHI cohort was older.
Conclusions: In this UK cohort, HIV reservoir, as measured by HIV DNA was lower in those initiated on ART during PHI vs. CHI, with shorter time to ART initiation predicting lower HIV DNA levels. Despite longer time on ART amongst the CHI group, HIV DNA remained lower amongst those treated in PHI. CD4/8 ratio is a useful clinical correlate of total HIV DNA and may help inform design of future cure trials.

Clinical Characteristics	HEATHER n=101 %	CHI n=8
Male	97	100
MSM	90	88
	Median	
Age	34	46
Baseline CD4	510	264
Log VL	5.5	4.9
Log HIV DNA, mean	3.2	3.5

O26

Factors associated with virological rebound in patients receiving protease inhibitor monotherapy in the PIVOT trial

W Stöhr[1], D Dunn[1], A Arenas-Pinto[1], N Paton[1], C Orkin[2], A Clarke[3], I Williams[4], M Johnson[5], N Beeching[6] and E Wilkins[7]
[1]MRC Clinical Trials Unit at UCL, London, UK; [2]Barts and Royal London NHS Trust, London, UK; [3]Brighton and Sussex University Hospitals NHS Trust, Brighton, UK; [4]University College London, London, UK; [5]Royal Free Hospital, London, UK; [6]Royal Liverpool University Hospital, Liverpool, UK; [7]North Manchester General Hospital, Manchester, UK

Background: Protease inhibitor (PI) monotherapy as a simplification strategy has been shown to be safe in terms of drug resistance but less effective than combination therapy in suppressing HIV viral load (VL). In a large clinical trial, we sought to identify factors associated with the risk of VL rebound.
Methods: PIVOT was a randomized controlled trial in HIV-positive adults with suppressed VL for ≥24 weeks on combination therapy comparing a strategy of physician-selected ritonavir-boosted PI monotherapy vs. ongoing triple therapy. In participants receiving monotherapy, we analysed time to VL rebound and its predictors using flexible parametric survival models. VL rebound was defined as 3 consecutive VL tests ≥50 copies/mL, with at least 4 weeks between the first and last test (one of these 3 tests could be a repeat test on the same sample).
Results: Of 290 participants initiating PI monotherapy (80% darunavir, 14% lopinavir, 6% other), 93 developed VL rebound on monotherapy. The risk of VL rebound peaked at 9 months after starting monotherapy, and then declined to approximately 5 per 100 person-years from 18 months onwards. Independent predictors of VL rebound were duration of VL suppression prior to starting monotherapy (hazard ratio [HR] 0.81 per additional year <50 copies/mL; p<0.001), CD4 count nadir (HR 0.73 per additional 100 cells/mm^3; p=0.008); ethnicity (HR 1.87 for non-white vs. white, p=0.025). Patients whose VL was measured with the Roche Taqman-2 assay had a 1.87-fold risk for VL rebound compared with Abbott RealTime (p=0.012). There was no evidence of a difference between the different individual PI drugs prescribed (p=0.27).
Conclusions: In addition to the lack of harm associated with short-term VL rebound demonstrated in in the main analysis of PIVOT, the finding that selection criteria can identify those with lower probability of rebound may increase the appeal of PI monotherapy. These results show that patients with prolonged suppressed VL to switch to monotherapy and with a higher CD4 cell nadir are the most suitable candidates. Patients who have remained virologically suppressed on PI monotherapy for 18 months or longer can be re-assured that PI monotherapy is likely to continue to be effective in the long term.

O27

Impact of regional ARV prescribing guidance on choice of first-line therapy

N Marshall[1], C Smith[2], J Figueroa[3], P Sharott[3], J Peck[3], H Curtis[4], N Mackie[5], P Clift[6] and P Wilcock[7]
[1]Royal Free London NHS Foundation Trust, London, UK; [2]University College London, London, UK; [3]NHS England (London Region), London, UK; [4]British HIV Association, London, UK; [5]Imperial College Healthcare NHS Trust, London, UK; [6]King's College Hospital NHS Foundation Trust, London, UK; [7]Positive East, London, UK

Background: In 2014, following a tendering process, the London HIV Drugs & Treatment group implemented clinical guidance with a focus on first line ART. Guidance was to start Kivexa (KIV) plus efavirenz (EFV) if clinically appropriate, with raltegravir (RAL) the alternative if EFV was not suitable. We evaluated patterns of prescribing after implementation of this guidance.
Methods: Prospective evaluation of all ART naïve patients starting ART across 19 providers from 1/12/14 till 31/8/15. Data were collected using standard proforma on demographics, CD4, indication & choice of ART, & reasons for not starting KIV, EFV or RAL. Multiple reasons were allowed. Pregnancy (inc planning) or clinical trials that dictate ART choice were excluded.
Results: 1639 patients started ART of whom 1385 (85%) were male, 898 (55%) White, & 1114 (68%) MSM. Median CD4 at start of ART was 390 cells/mm^3; 41% & 35% started with CD4 <350 & >500 respectively. Key indications for starting were CD4< or approaching 350 (870, 53%) & treatment as

prevention (TasP) (499, 30%). MSM were 2.8 & 2.9 fold more likely than non-MSM (inc women) to start with CD4>500 (44 vs. 16%; p=0.0001) & for TasP (39 vs. 13%; p=0.0001) respectively. KIV (including single tablet regimens, STRs) was prescribed for 489/1639 (30%) patients. Among those who didn't start KIV, the most common reasons were VL>5log (484/1150, 42%), & patient choice (323, 28%) with preference for STR the main reason for patient choice (202/323, 63%). EFV (including STRs) was prescribed in 497/1639 (30%) patients, & RAL in 508 (31%). Reasons for not starting EFV included: Lifestyle or shift work (280/1142, 25%), psychiatric history (172, 15%), other mental health concerns (224, 20%) & patient choice (238, 21%). Preference for once daily ART (356/640, 56%) was the most common reason not to use RAL after EFV. Of the 339 (21%) starting a boosted PI, 195/339 (58%) were for reasons other than resistance or genotype availability. Compared to all others, MSM were as likely to start EFV (31 vs. 28%, p=0.2), but more likely to start a non-EFV based STR (43 vs. 29%, p<0.0001).

Conclusions: 30% of individuals were prescribed EFV, with a further 31% receiving RAL. 30% received Kivexa. These findings may have financial implications for ART prescribing, particularly with changes in recent national guidelines, and will require careful discussion between clinicians, commissioners and patient groups. An analysis of switches from first line ART is planned.

O28

Cost impact of an HIV MDT for managing anti–retroviral switch

F Dave, I Sayers, F Niazi, A Torkington, E Wilkins and K Ajdukiewicz
North West Infectious Diseases @ North Manchester Hospital, Manchester, UK

Background: Managing patients on anti-retrovirals (ARVs) can present complex challenges. The HIV multi-disciplinary team (MDT) meeting provides a forum for discussion and an approval process for ARVs in the context of agreed algorithms. An analysis of the cost impact of the MDT on ARV switch decisions was investigated.
Methods: Demographic and pharmacy data were retrospectively retrieved by case note review and the MDT records reviewed. Patients primarily managed at other organisations were excluded due to insufficient information. Data were analysed using SPSS.
Results: 172 patients were submitted to the MDT for advice on ARV switch between February and October 2015. 63% of the cohort was male and the mean age was 43 years (range 15–81 years). 50% were Caucasian and 41% Black African; 48% were heterosexual and 25% were MSM; 17% did not clarify their sexual orientation.
Patients were brought to the MDT to discuss switching regimens principally due to issues regarding tolerability (58%). These included gastrointestinal (13%), renal (13%), hepatic (6%) and neurological (16%). Other reasons for seeking advice included poor adherence (20%), resistance/treatment failure (13%) and drug interactions (8%).
The majority of patients discussed at the MDT were either on regimens with a Truvada™ (34%) or Kivexa™ (21%) backbone; 30% were on single tablet regimens (Atripla™, Eviplera™, Stribild™ or Triumeq™). After discussion at the MDT, 51% of patients were commenced on Triumeq™ and 10% on Stribild™; 15% remained on a Truvada™ backbone and 3% Kivexa™.
Incorporating the regional HIV treatment algorithm in the MDT was cost neutral during this time period. Switching regimens in 101 cases resulted in a monthly saving of £10,583, with a mean saving of £105 per patient (range £4–£569). In 71 cases a total monthly cost increase of £10,639 was incurred, with a mean increase of £120 per patient (range £2–£1768). The increased costs were mainly attributable to complex HIV drug resistance patterns requiring a switch to more costly regimens.
Conclusion: The MDT was highly effective in providing a forum for discussion and allowing approval of ART switches. The inevitable increase in cost associated with switching ART prompted by extensive resistance or other complex clinical reasons was offset by the majority of patients switching to more cost-effective and better tolerated regimens.

O29

Reducing prescribing errors in a large HIV outpatient clinic using feedback strategies to improve prescribers' awareness of their prescribing behaviour

A Ali, S Castelino, A Grant, S Guarad, M Savage and J Paparello
Guy's and St Thomas' NHS Foundation Trust, London, UK

Background: Outpatient prescriptions are dispensed by a non-specialist outsourced pharmacy after specialist HIV pharmacists have screened them for safety, clinical appropriateness, legality, legibility and operational requirements. Prescribers rely on this safety mechanism, however, some errors breach this safety net thus putting the patient at risk. The aim of this study was to reduce prescribing errors by modifying individual prescribers' behaviour through awareness.
Methods: All prescriptions written from January 2015 to December 2015 were prospectively tallied for number written per prescriber, number of errors and error type. Error types were collated into pre-assigned micro-categories under the broader categories: legality, legibility, patient identifiers, drug prescribing, clinical, operational, and other. Each micro-category was pre-assigned a harm rating (or harm prevented by identifying the error before dispensing) using definitions from the National Patient Safety Agency (NPSA). Baseline prescribing error data was collected without the knowledge of prescribers in the first month to prevent modification of behaviour. This data was disclosed to prescribers along with anonymous data of other prescribers for self-comparison. In subsequent months, data was provided for four months with anonymity; three months of no data reporting (to assess if prescribers were actively seeking to reduce errors without the prompt of the error report), one further month of anonymous data with a warning that future data would not be anonymous, followed by three months of open data.
Results: Prescribing by an average of 24 doctors, 3 independent prescribing pharmacists and 2 independent prescribing nurses was assessed, comparing the start and the end of the study year for a total of 7970 prescriptions with 2254 errors:
  1 Total number of monthly errors reduced from 331 to 173 (52% reduction).
  2 Total % prescriptions with errors reduced by 117 (29% reduction).
  3 23%, 34% and 3% of prescriptions written by doctors, nurses and pharmacists respectively, had one or more errors.
  4 Errors associated with legality, legibility and clinical implications reduced by 4.8%, 2.5% and 0.2% respectively.
Conclusion: Providing feedback of monthly prescribing errors with prescribing advice reduced errors by half. There was a small shift from potential moderate harm to low or insignificant harm. Reporting with and without anonymity did not appear to affect the number of errors. When errors were not reported for three months, the number of errors continued to fall suggesting the culture of prescribing awareness had been ingrained into practice. The success of this pilot study will continue in the clinic and will also be rolled out to other clinics within the Trust.

O30

Real–world persistence with antiretroviral therapy for HIV in the United Kingdom: a multicentre retrospective cohort study

J Lewis[1], C Smith[2], A Torkington[3], C Davies[3], S Ahmad[3], A Tomkins[3], J Shaw[4], M Kingston[4], G Muqbill[5], P Hay[5], L Mulka[6], D Williams[6], L Waters[7], N Brima[7], N Marshall[8], M Johnson[8], M Chaponda[1] and M Nelson[9]

[1]Royal Liverpool University Hospital, Liverpool, UK; [2]University College London, London, UK; [3]North Manchester General Hospital, Manchester, UK; [4]Manchester Centre for Sexual Health, Manchester, UK; [5]St George's Hospital, London, UK; [6]Brighton and Sussex University Hospital, Brighton, UK; [7]Mortimer Marker Centre, London, UK; [8]Royal Free Hospital, London, UK; [9]Chelsea and Westminster Hospital, London, UK

Background: Persistency, the length of time a patient remains on an antiretroviral regimen informs us on effectiveness, durability, tolerability and lowers costs associated with switches. Persistency data are lacking. We compared persistence of different antiretroviral regimens in ART-naive individuals according to (i) choice of NRTI backbone (ii) choices of third

agent and (iii) choice of single-tablet vs. multiple-tablet regimens (STR vs. MTR) in the cases where the constituent drugs were the same.

Methods: Retrospective cohort study at nine UK centres of ART-naïve adults starting ART between January 2012 and June 2015. Considered regimens were: TDF/FTC or ABC/3TC with DRV/r, ATV/r, EFV or RAL; Atripla or Eviplera. Aggregate demographics and clinical characteristics were extracted from local databases. Individuals were followed from date of starting ART until date of the last available viral load. Times to discontinuation were compared using incidence rates.

Results: A total of 1949 individuals were included with median age 37 [IQR 37–45] years, 70.4% white, 70.2% MSM and median CD4 count 343 [IQR 219–492] cells/mm^3. 339 individuals made changes to their NRTI backbone in 2214.6 person-years (rate=0.15/person-year; 95% CI 0.14–0.17). Excluding STR, the rate of discontinuation of abacavir[ABC]/lamivudine[3TC] was significantly higher than tenofovir[TDF]/emtricitabine[FTC] [0.17 vs. 0.10 per person-year p=0.0073].

There were 557 changes to the 'third' drug in 1971.9 person-years (rate=0.28/person-year; 95% CI 0.26–0.31). Comparing DRV, ATV, EFV, RAL and RPV, only RPV had a significantly lower rate (0.07 per person-year [95% CI 0.04–0.11]). There was no difference in discontinuation rates between EFV/TDF/FTC as STR or MTR.

Conclusion: In our cohort, Rilpivirine was significantly less likely to be discontinued than other third agents, and TDF/FTC a lower discontinuation rate than ABC/3TC. In like-for-like comparisons of EFV/TDF/FTC, the discontinuation rates of STR and MTR are similar.

Poster Abstracts

Antiretrovirals: Efficacy, Interactions and Pharmacokinetics

P1

High antiretroviral uptake and fast viral suppression in acute HIV infection

N Girometti, N Nwokolo, E Kershaw and G Whitlock
56, Dean Street, Chelsea & Westminster Hospital NHS Foundation Trust, London, UK

Background: Acute HIV infection (AHI) contributes disproportionately to the spread of HIV transmission and early antiretroviral (ARV) treatment as prevention has now become a validated clinical option. There is little data on immunovirological outcomes following rapid ARV initiation in AHI. We analyzed a large cohort of acutely infected HIV patients starting ARV to determine uptake, linkage into care and time to achieve viral suppression according to the regimen given.

Methods: We reviewed case-notes of all individuals diagnosed with AHI between May 2014 and October 2015 at 56 Dean Street, a sexual health clinic in London, UK. AHI was defined as initial HIV-RNA positive only (A), initial p24 Ag+ only (B), evolving HIV enzyme immunoassay from negative or indeterminate to positive over 6 weeks (C). Individuals with a reported CD4 count or viral load (VL) within 3 months of HIV diagnosis were considered linked to care. Viral suppression was defined as VL ≤200 cp/mL.

Results: Over 18 months, 113 individuals were diagnosed with AHI (class A, 7; class B, 77; class C, 29). All patients were offered ARV at first medical appointment, 23% did not start ARV and were excluded from analysis (patient choice, 18; lost to follow-up, 6; other, 2). Linkage to care was 95%. 87 patients were included in the study: all MSM, median age 35 y, median CD4 483 cells/mm^3 and median VL $\log_{10}$ 6.45 cp/mL. 67% had baseline VL >1 million cp/mL. 17 (20%) had documented seroconversion symptoms. 45% reported recreational drug use in the previous month. Median time from diagnosis to first medical appointment was 14 days, and to ARV initiation was 21 days.

22 initiated a regimen containing an integrase inhibitor (INI) with 2 NRTIs; 9 initiated quadruple therapy: raltegravir and ritonavir-booster darunavir and 2 NRTIs. At 24 weeks, of 82 patients with continuous follow-up, none had discontinued ARV; 85% of patients achieved viral suppression at 16 weeks, 99% at 24 weeks. Median time to VL suppression was 74 days (41 days for INI-containing regimen).

Conclusions: We report observational data on early ARV initiation from the largest cohort of acutely infected seroconverters to date. High ARV uptake on first medical visit was observed with fast VL suppression, especially with INIs, which suggests that early ART is acceptable and efficacious in AHI. Our results in the clinical setting are comparable to those seen in research studies e.g. RAPID.

P2

A randomized, double-blind comparison of tenofovir alafenamide (TAF) vs tenofovir disoproxil fumarate (TDF), each coformulated with elvitegravir, cobicistat and emtricitabine (E/C/F) for initial HIV-1 treatment: week 96 results

A Clarke[1], D Wohl[2], S Oka[3], N Clumeck[4], C Brinson[5], K Tashima[6], J Arribas[7], A Cheret[8], J Brunetta[9], P Sax[10], L Zhong[11], M Das[11], M Fordyce[11] and C Elliott[12]
[1]Brighton and Sussex University Hospitals NHS Foundation Trust, Brighton, UK; [2]University of North Carolina, Chapel Hill, NC, USA; [3]National Center for Global Health and Medicine, Tokyo, Japan; [4]CHU Saint-Pierre University Hospital, Brussels, Belgium; [5]Central Texas Clinical Research, Austin, TX, USA; [6]Alpert Medical School of Brown University, Providence, RI, USA; [7]Hospital La Paz, Madrid, Spain; [8]Tourcoing Hospital, Paris, France; [9]University of Toronto, ON, Canada; [10]Harvard Medical School, Boston, MA, USA; [11]Gilead Sciences Inc, Foster City, CA, USA; [12]Gilead Sciences Ltd, London, UK

Background: Two international, randomized, double-blinded, Phase 3 trials in distinct regions directly compared TAF vs TDF, each co-formulated with elvitegravir/cobicistat/emtricitabine (E/C/F). At Week 48, E/C/F/TAF (Genvoya) met the primary objective of non-inferior efficacy with improved renal and bone secondary safety endpoints compared to E/C/F/TDF (Stribild). We describe longer term follow up of efficacy, safety, and tolerability endpoints through W96.

Methods: ARV naïve participants were randomized 1:1 to receive E/C/F/TAF (TAF) or E/C/F/TDF (TDF). W96 viral suppression (HIV-1 RNA<50 c/mL) by FDA snapshot analysis, pre-defined bone and renal safety, and tolerability endpoints are reported.

Results: 1733 subjects were randomized and treated: 15% women, 43% non-white, 23% viral load >100,000 c/mL. Median baseline characteristics: age 34 yrs, CD4 count 405 cells/μL, and VL 4.58 log10 c/mL. Virologic suppression (HIV-1 RNA<50 c/mL) was 86.6% (TAF) and 85.2% (TDF), difference 1.5%; 95%CI (−1.8, 4.8%), p=0.36. Viral outcomes did not vary by age, sex, race, geography, or baseline CD4/VL. Mean [SD]% decrease in BMD was significantly less in the TAF group for both lumbar spine (−0.96 [3.72] vs −2.79 [3.92], p<0.001) and total hip −0.67 (3.89) vs −3.28 (3.97), p<0.001. As shown in Table 1, renal safety endpoints favoured TAF. There were greater increases in lipids in the TAF arm vs TDF but no difference in rate of initiation of lipid-modifying agents (TAF: 3.8% vs TDF: 4.4%). There were no cases of renal tubulopathy in the TAF arm vs 2 on TDF, including 1 that led to discontinuation.

Table 1. Renal safety endpoints

Median (Q1, Q3) percent change from baseline (unless otherwise noted)	E/C/F/TAF	E/C/F/TDF	Significance
CrCl Cockcroft−Gault (mL/min) (change from baseline)	−2.0 (−12.4, 9.4)	−7.5 (−17.4, 2.9)	p<0.0001
Urine protein/Cr	−9.1 (−39.6, 36.0)	16.2 (−22.5, 81.5)	p<0.0001
Urine albumin/Cr	−5.2 (−35.7, 30.1)	4.9 (−32.7, 60.0)	p<0.0001
β−2 microglobulin/Cr	−32.1 (−61.0, 4.2)	33.5 (−27.8 230.7)	p<0.0001
Retinol binding protein/Cr	13.8 (−18.8, 66.1)	74.2 (10.4, 192.3)	p<0.0001

Conclusion: Through W96, rates of virologic suppression were high and similarly maintained in both the TAF and TDF groups. E/C/F/TAF continued to have a statistically superior bone and renal safety profile compared to E/C/F/TDF. These longer− term data support the use of E/C/F/TAF as a safe, well tolerated, and durable regimen for initial and ongoing HIV−1 treatment.

P3

Strategic simplification: the efficacy and safety of switching to elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (E/C/F/TAF) plus darunavir (DRV) in treatment–experienced HIV–1 infected adults (NCT01968551)

G Huhn[1], J Gallant[2], T Wilkin[3], C Callebaut[4], M Fordyce[4], M Das[4], S Mccallister[4] and S Yau[5]

[1]Infectious Diseases, Ruth M Rothstein CORE Center, Chicago, IL, USA; [2]Southwest CARE Center, Santa Fe, NM, USA; [3]Division of Infectious Diseases, Weill Medical College of Cornell University, New York, NY, USA; [4]Gilead Sciences Inc, Foster City, CA, USA; [5]Gilead Sciences Ltd, High Holborn, London, UK

Background: Strategic simplification of an antiretroviral regimen with high pill burden and dosing frequency is a priority for treatment-experienced patients with multi-drug resistance. A single tablet with co-formulated E/C/F/TAF (Genvoya) has demonstrated high efficacy and improved renal and bone safety compared to E/C/F/TDF in Phase 3 clinical trials. This study evaluated the efficacy and safety of switching to E/C/F/TAF +DRV in patients with ≥ 2-class resistance, including TDF resistance mutations (K65R, ≤3 TAMs).

Methods: Virologically suppressed adults (N=135) on a DRV-containing regimen for ≥ 4 months, with two prior failed regimens, and no history of Q151M, T69ins, or DRV RAMs, were randomized 2:1 to open-label E/C/F/TAF +DRV 800 mg OD or to continue baseline regimen (BR). Week (W) 24 viral suppression (HIV-1 RNA <50 c/mL) by FDA snapshot analysis and safety data are reported.

Results: Participants were older (median age 49, 25% female, 45% Black, and 14% Hispanic. At entry, the median pills/regimen was 5, with 65% taking a twice-daily regimen, and a majority (58%) on a TDF-containing regimen. Viral suppression was maintained in 96.6% (86/89) in the E/C/F/TAF +DRV arm and 91.3% (42/46) in the BR arm (95%CI: −3.4%, 17.4%). In the E/C/F/TAF +DRV arm, 2 patients had viraemia at W24 but were suppressed at W36 and W48; 1 and 4 persons were missing data in the E/C/F/TAF +DRV and BR arms, respectively. There was no emergence of resistance. There were no differences in the median change in eGFR [2.5 in the E/C/F/TAF+DRV vs −0.1 mL/min in the BR arm (p=0.62)] or urine protein/creatinine (Cr) ratio [−14% in the E/C/F/TAF +DRV arm vs −4% in BR arm (p=0.21)]. Specific markers of proximal tubular proteinuria improved with E/C/F/TAF +DRV: median urine beta-2M/Cr decreased 35% (p<0.001) and median urine RBP/Cr decreased 17% (p=0.019), compared to increases of 11% and 13% respectively in the BR arm. There were no drug-related SAEs and no AEs leading to treatment discontinuation.

Conclusion: Through W24, strategic simplification to E/C/F/TAF + DRV (two pills once daily) maintained viral suppression, and the switch to TAF was associated with significant improvement in proximal tubular proteinuria. E/C/F/TAF +DRV may offer an attractive option for treatment-experienced patients on complex multi-tablet regimens.

P4

The effect of chemotherapy on the HIV reservoir in patients on suppressive ART with malignancy: an observational study

E Hopkins[1], J Meyerowitz[1], S Kelly[2], M Bower[2], S Fidler[3], M Cross[3], J Cason[4] and J Frater[5]

[1]University of Oxford, Oxford, UK; [2]Chelsea and Westminster Hospital, London, UK; [3]Imperial College London, London, UK; [4]King's College London, London, UK; [5]The CHERUB Collaboration, NIHR CBRC, UK

Background: Within days of infection, Human Immunodeficency Virus 1 (HIV-1) establishes a latent reservoir of replication competent virus integrated within the genomes of host cells, predominantly CD4 + T cells. Elimination of HIV reservoir cells is the critical barrier to HIV cure. Latency reversing agents have been shown to activate expression of virus from these latently infected cells. Some chemotherapy agents may be suitable candidates for this approach as they are capable of modifying chromatin to make the latent reservoir transcriptionally available. We present data from an observational clinical study looking at the impact of cytotoxic agents on measures of the latent HIV reservoir in HIV+ patients on suppressive ART with malignancies.

Methods: 17 participants were recruited: all were males over the age of 18 (median 48 (IQR 35, 60)), on ART and with a plasma viral load of <50 copies per mL. Malignancies included were either Kaposi's Sarcoma (n=12), Non-

Hodgkin's lymphoma (n=2) or Hodgkin's disease (n=3) and patients received either liposomal doxorubicin (n=5), liposomal daunorubicin (n=5), paclitaxel (n=2), R-CHOP (n=2) or ABVD (n=3), respectively. Median (IQR) CD4 count at enrolment was 589 (352,669) cells/ul, with only two individuals having a CD4 count <250. Blood samples were taken at a screening visit before chemotherapy was started (baseline), mid chemotherapy cycle (visit 2), at the final chemotherapy dose (visit 3) and 4 and 12 weeks after completing (visits 4 and 5, respectively). The HIV reservoir was measured using a Total HIV-1 DNA qPCR assay and baseline values were compared to those at visits 3, 4 and 5.

Results: Through all time points measured there was no impact on the HIV reservoir using this assay and a denominator of all peripheral blood cells, when the data set were analysed as a whole or grouped by individual or similar treatment regimens. Further data will presented following correction for CD4 percentage as well as the impact on T cell exhaustion and activation markers from FACS analysis.

Conclusions: Although some chemotherapy agents have the potential to activate the latent HIV reservoir we find no in vivo evidence that the agents tested in this study impacted total HIV-1 DNA, but further analyses are on-going.

P5

Longer–term safety of tenofovir alafenamide in renal impairment

F Post[1], A Clarke[2], W Short[3], C Robinson[4], M Abram[5], S Jiang[5], A Cheng[5], M Das[5] and M Fordyce[5]

[1]King's College Hospital, London, UK; [2]Brighton & Sussex University Hospital, Brighton, UK; [3]Thomas Jefferson University, Philadelphia, PA, USA; [4]Gilead Sciences Ltd, London, UK; [5]Gilead Science Inc, Foster City, CA, USA

Background: Tenofovir alafenamide (TAF) is a novel prodrug of tenofovir (TFV) that results in 91% lower plasma TFV levels compared to TDF. Switch to a once-daily single tablet regimen of elvitegravir, cobicistat, emtricitabine, and TAF (E/C/F/TAF) in HIV-1 infected patients with CrCl (Cockcroft-Gault) 30 to 69 mL/min was shown to be effective and safe through 48 weeks. Here, we report longer term results.

Methods: Virologically suppressed adults with stable CrCl of 30 to 69 mL/min had their treatment switched to open-label E/C/F/TAF. The primary endpoint was the change from baseline in glomerular filtration rate estimated using various formulae at 24 weeks. Longer term efficacy and safety data are described, including tests of renal function and bone mineral density (BMD).

Results: Of 242 subjects enrolled, mean age was 58 years (range: 24–82), 18% Black, 39% had hypertension, 14% had diabetes, and 65% were taking TDF-containing regimens prior to switch. Through Week 72, minimal change in CrCl was observed. Five patients (2.0%) with baseline CrCl <50 mL/min discontinued study drug for decreased creatinine clearance, none had evidence of proximal renal tubulopathy and all had risk factors for renal disease progression (diabetes and poorly controlled hypertension). Subjects who switched from TDF at baseline had significant improvements in proteinuria and albuminuria (median UPCR 21.3 to 10.4 mg/mmol and median UACR 4.6 to 1.2 mg/mmol) to levels seen with non-TDF regimens (median UPCR 11.8 to 9.6 mg/mmol and median UACR 2.0 to 1.8 mg/mmol). The prevalence of significant proteinuria (UPCR>22.6 mg/mmol) and albuminuria (UACR ≥ 3.4 mg/mmol) decreased from 42% to 18% and 49% to 28%, respectively. Hip and spine BMD increased significantly (mean % changes from baseline +1.50 and +1.91, respectively, p<0.001). 93% maintained HIV-1 RNA <50 copies/mL based on Missing=Failure analysis

Conclusions: At 72 weeks, switch to E/C/F/TAF was associated with minimal change in CrCl. Proteinuria, albuminuria and bone mineral density significantly improved. These data support the efficacy and safety of once daily E/C/F/TAF in HIV+ patients with CrCl 30–69 mL/min without dose adjustment.

P6

Drug–drug interaction studies between HCV antivirals sofosbuvir and velpatasvir and HIV antiretrovirals

E Mogalian[1], S Naik[1], M Natha[1], L Stamm[1], G Shen[1], K Sajwani[1], A Osinusi[1], J McNally[1], A Matthias[1], M Chaponda[2] and A Jackson[3]
[1]Gilead Sciences Inc., Foster City, CA, USA; [2]Royal Liverpool & Broadgreen University Hospitals NHS Trust, Liverpool, UK; [3]Gilead Sciences Ltd, London, UK

Background: A once-daily fixed-dose combination tablet composed of sofosbuvir (SOF; nucleotide analog NS5B inhibitor) and velpatasvir (VEL; pangenotypic NS5A inhibitor) is under regulatory review for the treatment of chronic HCV infection. Phase 1 studies were conducted in healthy volunteers to evaluate potential drug-drug interactions (DDIs) between SOF/VEL and HIV antiretroviral (ARV) regimens to support coadministration in HIV/HCV co-infected patients.
Methods: These were multiple-dose, randomized, cross-over DDI studies. Subjects received SOF/VEL and the following ARV: EFV/FTC/TDF, RPV/FTC/TDF, DTG, RAL+FTC/TDF, EVG/COBI/FTC/TDF, DRV/r+FTC/TDF, ATV/r+FTC/TDF, LPV/r+FTC/TDF, or EVG/COBI/FTC/TAF alone and in combination. Steady-state plasma concentrations of SOF, its predominant circulating nucleoside metabolite GS-331007, VEL, and ARVs were analysed on the last day of dosing for each treatment. PK parameters were calculated and geometric least-squares means ratios and 90% confidence intervals (combination vs alone) for SOF, GS-331007, VEL, and ARV AUC_{tau}, C_{max} and C_{tau} were estimated and compared against lack of PK alteration boundaries of 70–143% for all analytes. Safety assessments were conducted throughout the study.
Results: 230 of 237 enrolled subjects completed the studies; 5 subjects withdrew consent, 1 discontinued due to Grade 1 urticaria and 1 discontinued due to pregnancy. The majority of adverse events (AEs) were Grade 1 and there were no serious AEs. Table 1 reports the effect of coadministration on HIV ARVs and SOF/VEL. No clinically significant changes in the PK of HIV ARVs, except TDF, were observed when administered with SOF/VEL. Increased TFV exposure (~40%) was observed with SOF/VEL when administered as TDF.

Table 1. Effect of Coadministration on HIV ARVs and SOF/VEL

ARV with SOF/VEL	Effect on SOF/VEL AUC		Effect on ARV AUC	
EFV/FTC/TDF	SOF:	↔	EFV:	↔
	GS-331007:	↔	FTC:	↔
	VEL:	↓53%*	TFV:	↑81%
FTC/RPV/TDF	SOF:	↔	FTC:	↔
	GS-331007:	↔	RPV:	↔
	VEL:	↔	TFV:	↑40%
DTG	SOF:	↔	DTG:	↔
	GS-331007:	↔		
	VEL:	↔		
RAL + FTC/TDF	SOF:	↔	RAL:	↔
	GS-331007:	↔	FTC:	↔
	VEL:	↔	TFV:	↑40%
DRV/r + FTC/TDF	SOF:	↓28%	DRV:	↔
	GS-331007:	↔	RTV:	↔
	VEL:	↔	FTC:	↔
			TFV:	↑40%
ATV/r + FTC/TDF	SOF:	↔	ATV:	↔
	GS-331007:	↔	RTV:	↔
	VEL:	↑142%	FTC:	↔
			TFV:	↔
LPV/r + FTC/TDF	SOF:	↓29%	LPV:	↔
	GS-331007:	↔	RTV:	↔
	VEL:	↔	FTC:	↔
			TFV:	↔
EVG/COBI/FTC/TDF	SOF:	↔	EVG:	↔
	GS-331007:	↔	COBI:	↔
	VEL:	↔	FTC:	↔
			TFV:	↔
EVG/COBI/FTC/TAF	SOF:	↑37%	EVG:	↔
	GS-331007:	↑48%	COBI:	↔
			FTC:	↔
	VEL:	↑50%	TAF:	↔
			TFV:	↔

* PK/Pharmacodynamic data from Phase 3 trials will guide recommendation for use of SOF/VEL with EFV-containing regimens.

P7

How important is an accurate drug history in the HIV clinic?

K LLoyd[1], A Torkington[1], K Ajdukiewicz[1] and K Ashton[2]
[1]Northwest Infectious Diseases unit (NWID) at North Manchester General Hospital, Manchester, UK; [2]Pinderfields General Hospital Mid Yorkshire NHS Trust, Wakefield, UK

Background: As HIV cohorts age co-morbidities increase and with this concomitant medication. BHIVA standards require a full medication review annually. Pharmacists and pharmacy technicians can perform this to highlight areas where medication may be optimised, and to monitor for and prevent drug-drug interactions (DDIs).
Methods: Medicines optimisation reviews were carried out in clinic by a pharmacy technician, with the support of a specialist pharmacist. Patients completed a medication pro-forma (produced by MSD®), followed by an informal interview. Summary care records (SCR) were accessed, with consent, to confirm medication prescribed by the GP. The prescriber was informed prior to their consultation with the patient.
Results: 56 patients were interviewed. 45% were female; 15% of these were pregnant. Median age was 45 years (range 29–66).
148 concomitant medications were prescribed for this cohort in 71% of patients interviewed. Patients had a median of 2 (range 1–18) additional drugs.
HIV clinic letters had incorrect medication listed in 40% of patients. There were a total of 37 clinic letter errors: 32% had a drug missing; 30% had the incorrect or missing dose; 14% had an incorrect statin or statin dose; 5% had an incorrect proton pump inhibitor (PPI) or the PPI was omitted; in 11% the patient was no longer taking the prescribed medication listed; in 8% the erectile dysfunction medication was omitted.
Using Liverpool's HIV drug interaction website (www.hiv-druginteractions.org), 1 red DDI was identified (atazanavir with PPI) and 41 amber DDIs. 60% of patients had at least one amber DDI: 42% on a PI, 42% on an NNRTI and 16% on an INSTI.
17% (9/54) of patients had their ARVs listed on their GP SCR. 28% of patients who had DDIs identified had ARVs listed on their GP records.
Conclusion: This project highlighted the benefits of a pharmacy-led annual medication review. The pharmacy pro-forma enabled a structured approach to patient interviews, allowing thorough medicines reconciliation to be achieved prior to clinic review by a HIV clinician. ARVs were not routinely listed on GP SCRs, and this may impact on DDIs. Clinic letters were not always accurate records of patients' current medication.

P8

The next genericion

V Hardweir, C Richardson, E Simpkin, Y Gilleece and S Soni
Royal Sussex County Hospital, Brighton, UK

Background: The increasing availability of generic antiretrovirals (ARVs) provides alternative (and cheaper) ways of delivering established effective HIV treatments, including multi-tablet combinations (MTCs) instead of single tablet regimens. The new Regional ARV contract resulted in a significant price increase for some centres of all Truvada® (TVA)-based fixed-dose combination ARVs. They identified significant potential cost savings if suitable patients switched from Atripla® or TVA to equivalent or similar MTCs including generics.
Methods: Patient representatives were consulted and information leaflets (PILs) produced about switching from Atripla® to tenofovir (TDF)/lamivudine (3TC)/efavirenz (EFV) or TVA/EFV, or from TVA to TDF/3TC. All clinicians were asked to assess during clinic visits each patient's suitability, to discuss the option of switch with those deemed eligible and to provide the relevant PIL(s). Patients had a pharmacist consultation to discuss the switch and 2 week post-switch telephone follow up by a pharmacist to assess adherence and tolerability. All clinic staff were briefed to ensure patients were given appropriate and consistent information about the rationale for the switches.
Results: 64 patients (57 male) opted to switch to MTCs in the first 5 months: 59/64 have remained on them. 4 patients switched back due to intolerance (3 who had switched from Atripla® to TDF/3TC/EFV and 1 TVA/dolutegravir [DTG] to TDF/3TC/DTG). 1 patient who switched from Atripla® to TVD/EFV, transferred to another clinic.

Switched from	Switched to	Patient number	Cost saving per month (£)
Atripla®	TDF/3TC/EFV	29	5784.75
Atripla®	TVA/EFV	20	966.66
TVA+3rd agent	TDF/3TC+3rd agent	10	789.67
Total		59	7541.08

MTCs including generic ARVs were highly acceptable to patients. Self-reported adherence remained high and no patients reported pill burden as a reason to switch back. In the first 5 months of the switch programme drug cost savings were >£26,000.

Discussion: A high degree of patient and clinician engagement and transparency about the rationale were key features of this switch programme. Significant cost savings can be realised by offering patients the opportunity to switch fixed-dose combinations to the same or similar ARVs in MTCs, with no reduction in quality of care. These savings can help mitigate the impact of increasing demand for ARVs to treat HIV and prevent transmission, and ongoing budget constraints.

P9

Dolutegravir use in 181 patients, 54 women and 9 pregnancies – a real life experience

R Simons, A de Ruiter and R Kulasegaram
Guy's and St Thomas' NHS Foundation Trust, London, UK

Background: Study populations are often not representative of real life HIV cohorts with fewer women and no pregnancies. Our aim was to assess the use of Dolutegravir (DTG) in a busy clinic cohort.

Methods: All patients dispensed DTG or the single-tablet regimen (STR) Triumeq® between 14.1.15 and 30.11.15 were identified. Data were collected on demographics, reason for use, virological efficacy, toxicity and pregnancy outcome.

Results: 181 patients were identified: 127 (70%) men and 54 (30%) women; 9/54 were pregnant. Median age was 42 (22–77); 54% Caucasian and 25% Black-African. 2% were Hepatitis B sAg+ve and 6% had Hepatitis C.

8 patients were started on DTG and 43 on Triumeq, 38 were switched to DTG and 92 to Triumeq. Main reasons for starting were patient preference for an STR (43%) and concern about CNS side-effects (20%). Reasons for switch included simplification (31%), CNS or gastrointestinal side effects (26%) and virological failure (12%). Concerns about drug interactions were documented in 11%.

In the treatment-naïve group, median baseline CD4 was 392 (16–833) and vL 61,983 (271–2,018,536). 79% had suppressed by 12 wks and 93% by 24 wks. Median time to suppression was 42 days. Those switching had a median CD4 of 508 (21–1719). 72% had a vL<20 at switch; of those 100% stayed undetectable. Thirty-eight patients (28%) had a detectable vL at switch [median 372 (51–869,544)]; 91% had suppressed by 12 weeks.

The 9/181 (5%) discontinuations were due to: dizziness (22%), insomnia (33%), malaise/myalgia (33%). 1 patient developed acute kidney injury after starting DTG (eGFR fell from 54 to 26), which improved on stopping.

9 pregnant women median age 27 (22–41) were started/switched to Triumeq at a median gestation of 21/40 (8–32) with avg. baseline vL 4959 (21–40,025). Reasons for use were need for rapid viral suppression, concerns about adherence and adverse effects. Triumeq was well tolerated with no discontinuations and of the 6 deliveries to date all achieved a viral load <20 by delivery. There was one preterm delivery at 28 + 2 in a mother with pre-existing hypertension. There were no observed birth defects and all infants to date are HIV DNA PCR negative.

Conclusion: In this diverse but representative cohort, including a significant proportion of women, virological efficacy and discontinuation rates were similar to phase 3 studies. DTG appeared to be a safe and effective treatment in pregnancy although continued data collection will be required.

P10

Single dose Maraviroc provides high drug levels in all sites; no gender differences

J Tiraboschi[1], O Davies[1], J Fox[1], L Else[2], D Egan[2], A Amara[2], S Khoo[2], D Back[2], R Shattock[3], N Olejniczak[3], C Herrera[3], A Jackson[4] and M Boffito[4]
[1]Guy's and St Thomas' NHS Foundation Trust, London, UK; [2]University of Liverpool, Liverpool, UK; [3]Imperial College London, London, UK; [4]Chelsea and Westminster Hospital NHS Foundation Trust, London, UK

Pre-exposure prophylaxis (PrEP) is an effective prevention strategy against HIV-1 transmission. Maraviroc (MVC) showed no protection ex vivo following stat dosing [CROI 2105]; daily dosing studies are ongoing. Understanding the drugs levels achieved by stat dosing which failed to show ex vivo protection will help to inform future clinical trials of daily or "on demand" MVC PrEP. We present results of a PK dosing study of single oral dose MVC 300 mg in all HIV exposure compartments and compare men and women, multi-site, open label, randomised controlled clinical trial.

Methods: 56 healthy adult female (n=26) and male participants (n=30) were randomized to a control arm or to one of 4 intervention arms (n=12 per arm) where a single oral MVC 300 mg dose was taken at two time points prior to sampling, 1 month apart. Sampling to determine MVC concentrations included blood, saliva and rectal fluid (RF) for all subjects. In addition, men provided a urethral swab and rectal tissue (RT) and women provided cervico-vaginal fluid (VF) and vaginal tissue (VT). MVC drug concentrations were measured by validated LC-MS/MS.

Results: MVC Cmax was reached within 4 hours in all compartments, and exceeded suggested MEC (25 ng/mL). The highest Cmax level was in urethra (median 4 hr compartment-to-plasma ratio =116), RF (99 males and 102 females), RT (9.7 males), VT (3.6) and vaginal fluid (2.6): only saliva (0.22 males and 0.17 females) levels were lower than plasma at Cmax. MVC concentrations remained above the MEC of 25 ng/mL for 2 h saliva, 12 h VF, 8 h plasma, 24 h VT, 60 h urethra, >72 hRF, >72 hRT. All drug levels exceeded EC90 of 0.5 ng/mL for 72 h except saliva. At 72 hours drug concentrations in compartments were higher than plasma: saliva 1.3×, urethra 1.7×, VF 24×, vaginal aspirate 12×, VT 26×, RT 60× and RF (718×). Plasma concentrations correlated with saliva, urethra, VT and RT but not with RF and VF. No gender differences were observed in any site. RF and RT (R2 0.617) correlated in males and VF swab and VT (0.182) correlated in females.

Conclusions: MVC concentrations greater than the EC90 occurred in multiple sites of HIV acquisition after single oral 300 mg MVC despite a the lack of inhibition in rectal and vaginal tissue previously reported. The lack of gender differences in genital tract dug levels is highly relevant for PK studies.

P11

Ritonavir–associated Cushing's syndrome in an adolescent receiving topical ocular corticosteroids with HIV–1 infection

A Malem[1], A Tappin[1], P Rainsbury[2], J Sharp[3], M Hussey[4], A Lenko[5] and C Foster[5]
[1]Portsmouth Hospital NHS Trust, Portsmouth, UK; [2]University Hospital Southampton NHS Foundation Trust, Southampton, UK; [3]Imperial College London, London, UK; [4]Poole Hospitals NHS Foundation Trust, Poole, UK; [5]Imperial College Healthcare NHS Trust, London, UK

Background: Vernal keratoconjunctivitis (VKC) is an ocular inflammatory condition, which can cause corneal epithelial breakdown and sight threatening complications. VKC often requires topical steroid treatment. Ritonavir (rtv) is a potent cytochrome p450 CYP3A4 inhibitor and it is this pathway which metabolises the majority of corticosteroids. Iatrogenic Cushing's syndrome following co-administration of systemic/inhaled corticosteroids with rtv is widely described, but there is minimal data on topical ocular steroids. Manufacturers of dexamethasone 0.1% eye drops advise that 'systemic absorption is minimal'.

Case report: A 15 year old Gambian male with perinatally acquired HIV infection was registered as severely sight impaired due to VKC. He suppressed on nevirapine based antiretroviral therapy (ART) but failed with a K65R, Y181C, Y115F, H221Y and a X4 tropic virus. He re-suppressed on lopinavir/rtv, raltegravir and zidovudine, simplifying to darunavir/rtv and Combivir, reconstituting to a CD4 count >900 cells/uL. His VKC required a maintenance dose of twice daily (bd) dexamethasone 0.1% eye drops after topical ciclosporin failed to control the inflammation. In February 2015, he developed a 3×5 mm corneal ulcer in the left eye, which was culture negative

for bacteria and fungi. He received hourly topical cefuroxime 0.3%, gentamicin 0.3% and dexamethasone 0.1% to try and minimize further visual loss. With this he rapidly developed Cushing's syndrome; moon face, hypertension (BP 146/89), 10.2 kg weight gain, mood change and serum cortisol was <18 nmol/L (200–800). To reduce systemic steroid absorption, a punctal plug was inserted. To aid epithelial healing, both a botulinum toxin ptosis and a temporary tarsorrhaphy were required. Due to resistance, a protease inhibitor sparing ART regimen could not be constructed but to reduce CYP3A4 inhibition he was switched to unboosted atazanavir, dolutegravir and Combivir. Tacrolimus 0.1% ointment bd was subsequently started, allowing his topical steroids to be stopped. These changes resulted in a resolution of his Cushing's syndrome whilst maintaining virological control.

Conclusions: To our knowledge, this is the first reported case of Cushing's syndrome associated with topical ocular steroid use in an adolescent on rtv and highlights the need for vigilance in prescribing topical steroids in this setting.

P12

Switching tenofovir disoproxil fumarate to tenofovir alafenamide in virologically suppressed adults

C Orkin[1], A Clarke[2], J Gallant[3], E Daar[4], F Raffi[5], S Antonucci[6], Y Mingjin[7], A Chang[7] and M Rhee[7]

[1]Barts Health NHS Foundation Trust, London, UK; [2]Brighton and Sussex University Hospital, Brighton, Sussex, UK; [3]Southwest Care Center, Santa Fe, NM, USA; [4]Los Angeles Biomedical Research Institute, Torrance, CA, USA; [5]Chu Hotel Dieu-Chu De Nantes, Nantes, France; [6]Gilead Sciences Ltd., London, UK; [7]Gilead Sciences Inc., Foster City, CA, USA

Background: Tenofovir alafenamide (TAF) is a novel tenofovir prodrug that achieves 91% lower plasma tenofovir levels than TDF. In phase 3 studies, TAF had less adverse effect on kidneys and bone than TDF.

Methods: We conducted a 96-wk randomized, double blind, active controlled study in virologically suppressed HIV-1 infected patients receiving F/TDF-containing regimens to evaluate the efficacy and safety of switching from F/TDF to F/TAF vs continuing F/TDF while remaining on the same third agent. Primary endpoint was virologic success at wk 48 by ITT FDA snapshot algorithm with a pre-specified noninferiority margin of 10%. We describe the wk 48 data.

Results: 663 patients were randomized and treated (F/TAF 333 vs F/TDF 330); median age 49 years, 15% women, 46% were on a boosted PI, 28% on an INSTI, 25% on a NNRTI. Through wk 48, virologic success (HIV-1 RNA <50 c/mL) was: F/TAF 94.3% vs F/TDF 93.0% (difference +1.3%, 95% CI: −2.5% to +5.1%), demonstrating noninferiority of F/TAF to F/TDF (Table). Emergent resistance was rare (0.3% vs 0). Drug related serious adverse events were rare (0 vs 0.3%). Discontinuation due to adverse events was low (2.1% vs 0.9%). There were no cases of proximal renal tubulopathy in either group. Quantitative measures of proteinuria improved in the F/TAF group but not in the F/TDF group (Table). Bone mineral density (BMD) increased in the F/TAF group but declined in the F/TDF group: hip (mean) +1.14% vs −0.15% (p<0.001) and spine +1.53% vs −0.21% (p<0.001), respectively. More patients in the F/TAF group had ≥ 3% improvement in BMD at Wk 48: hip 17% vs 9% and spine 30% vs 14%.

Table 1. Virologic outcome and percentage change in renal biomarkers

Virologic outcome (ITT, FDA snapshot algorithm)	F/TAF n=333	F/TDF n=330
Virologic success	314 (94.3%) Diff: +1.3% (95% CI: −2.5% to +5.1%)	307 (93.0%)
Virologic failure	1 (0.3%)	5 (1.5%)
No virologic data in window	18 (5.4%)	18 (5.5%)
% Changes in renal biomarkers (median)		
Urine protein: creatinine ratio*	−14.6	+7.7
Urine albumin: creatinine ratio*	−7.7	+12.3
Urine retinol binding protein: creatinine ratio*	−16.3	+18.2
Urine Beta-2-microglobulin: creatinine ratio*	−39.6	+22.0

*p<0.001 for between-group differences.

Conclusions: Switching from F/TDF to F/TAF maintained high rates of virologic suppression, while renal and bone safety parameters improved.

With its safety benefits relative to F/TDF, F/TAF has the potential to become an important NRTI backbone for antiretroviral treatment.

P13

A first-in-human study, in HIV-positive men, of the novel HIV-fusion inhibitor C34-PEG4-Chol

K Quinn[1], G Bouliotis[1], N Doyle[1], A Winston[1], D Ashby[1], J Weber[1], V Libri[1], A Amara[2], D Back[2], SD Penchala[2], S Khoo[2], M Nelson[3], R Jones[3], R Cortese[4] and A Pessi[5]

[1]Imperial College London, London, UK; [2]University of Liverpool, Liverpool, UK; [3]Chelsea and Westminster Hospital, London, UK; [4]CEINGE, Naples, Italy; [5]PeptiPharma, Rome, Italy

Background: Long acting injectable antiretroviral (ARV) drugs with low toxicity profiles and low propensity for drug-drug interactions are a goal for future ARV regimens. Candidates include long acting HIV-fusion inhibitors (FI). By conjugating cholesterol with a pegylated (PEG) spacer to the known FI C34, the compound is concentrated in cell membranes, resulting in extremely potent inhibition of HIV in vitro, while the circulatory half-life of C34 in rodents is extended by 10-fold. We assessed the safety, pharmacokinetic (PK) and pharmacodynamic (PD) profile of C34-PEG$_4$-Chol in HIV-positive men and compare findings with pre-clinical toxicology studies.

Methods: In a first-in-human study, ARV therapy naïve men with plasma HIV RNA ≥10,000 copies/mL and CD4 + count ≥400 cells/μL were randomised to a single subcutaneous dose of C34-PEG$_4$-Chol or placebo at incrementing doses starting at 10 mg. Detailed clinical (including injection site reaction (ISR) grading), plasma PK and PD (plasma HIV RNA) parameters were assessed over a period of 84 days. Animal toxicology studies were conducted in two species (rodent/mice and non-rodent/dogs) prior to the clinical trial where multiple high doses of C34-PEG$_4$-Chol were administered for 14 days (equivalent to 12 mg/kg or 10× the maximum proposed human dose).

Results: Of five men enrolled (median age 32 years, range 19–60), three received active drug (10 mg, 10 mg and 20 mg). No systemic toxicities were observed. In two individuals, grade 3 ISR occurred within 12 hours of active drug dosing, maximum severity occurred 24 hours post dose and resolved by day 14. As per protocol, the study was halted. Plasma concentration of C34-PEG$_4$-Chol remained above a protocol defined target minimum exposure of 25 ng/mL (equivalent to 10×IC$_{50}$) for 3 and 4 days, respectively, after a single 10 or 20 mg dose. Consistently, the mean change from baseline HIV RNA was −0.9 log$_{10}$ copies/mL at day 4. In both mice and dogs no significant ISR and no-observed-adverse effect level (NOAEL) was apparent following twice weekly subcutaneous administration of 12 mg/kg for 2 weeks.

Conclusions: PD activity and a desirable PK profile is observed when C34-PEG$_4$-Chol is administered to HIV-positive men, although this observation is limited to three subjects. However, subcutaneous administration of C34-PEG$_4$-Chol in humans is not viable due to ISRs, despite a lack of significant toxicity in two animal models. Plans are underway to evaluate alternative administration routes.

P14

Pivotal role of NFATc4 in antiretroviral-induced adipocyte toxicity

R Majid, S Pushpakom and M Pirmohamed
The University of Liverpool, Liverpool, UK

Background: cART impairs adipogenesis and dysregulates secretion of adipokines and glucose metabolism in the adipose tissue. (da Cunha, et al.2015). Nuclear Factors of Activated T cells (NFAT)c4 plays a role in adipogenesis and has also been suggested to mediate adiponectin (AdipoQ) expression levels (Yang et al. 2006). The aim of this project was to examine the role of NFATc4 in the pathogenesis of cART-induced cytotoxicity.

Methods: 3T3-F442A adipocytes were treated with ARVs after knock down (KD) of NFATc4 gene using siRNA. The effect of NFATc4 KD on AdipoQ, IL6 and PPARg protein levels were assessed using ELISA and western blot. Data are presented as mean+SD for 20 μM incubation of ARVs and 5 μM -of TEL.

Results: All ARVs resulted in a dose-dependent increase in gene expression level of NFATc4 (LPV, 1.9 + 0.05 [p=0.001]; atazanavir,2.1 + 0.1 [p=0.0001]; ritonavir,1.4 + 0.05 [p=0.0005] and efavirenz,1.8 + 0.02 [p=0.0004]) as

compared to the vehicle control; this also correlated with its protein expression levels. siRNA KD of NFATc4 reversed the ARV-mediated effect on protein expression levels of AdipoQ (without NFATc4 KD, 3.6 + 0.3 pg/mL; with NFATc4 KD, 7.5 + 0.4 pg/mL [p=0.008]), PPARg (without NFATc4 KD, 1.1 + 0.4; with NFATc4 KD 1.7 + 0.2; [p=0.02]) and IL6 (without NFATc4 KD, 81.6 + 1.2 pg/mL; with NFATc4 KD, 13.168 + 1.3 pg/mL [p=0.009]).

Conclusion: Our data suggests that ARV-induced upregulation of NFATc4 could be a mediator of ARV-induced adipocyte toxicity, the upregulation of proinflammatory cytokines and potentially insulin resistance.

P15

The effect of Maraviroc intensification on gut reservoir and immune function in HIV-1-infected individuals receiving antiretroviral therapy with suboptimal CD4+ T cell recovery

J Tiraboschi[1], J Fox[1], S Ray[1], J Sanderson[1], J Frater[2], N Robinson[2], M Pace[2], J Meyerowitz[2] and S Fidler[3]

[1]Guy's and St Thomas' NHS Trust, London, UK; [2]University of Oxford, Oxford, UK; [3]Imperial College London, London, UK

Background: Combination antiretroviral therapy (ART) suppresses HIV-1 replication, but does not restore CD4 T-cell counts in all individuals. We hypothesise that one mechanism underlying the failure of immune recovery is damage to gut associated lymphoid tissue. We investigated this by measuring the effect of maraviroc intensification for 24 weeks in individuals stable on ART with an incomplete CD4 T-cell recovery, on HIV-1 reservoir and immune function in the blood and gut

Methods: A single arm trial in 10 chronically HIV-1-infected patients receiving suppressive ART with a CD4<500 cells/mL were intensified with maraviroc for 24 weeks. Blood samples were collected at baseline, weeks 4, 12 and 24. Sigmoidoscopy with rectal biopsies was carried out at baseline and week 24 in all individuals. Microbial translocation (18sRNcA, sCD14a), immune activation (CD8 + CD38 + HLA+DR+), immune exhaustion (CD4 Tigit and CD4 Pd-1) and latent reservoir size [total HIV-1 DNA, intracellular RNA, low copy RNA (sensitive to 3 copies/mL)] were analysed.

Results: All patients were male with subtype B HIV-1, nadir CD4 117 and 6/10 individuals had R5 virus. The mean CD4 T cell count was 321 (SD 112), CD4:CD8 0.51 (SD 0.27) and nadir CD4 117 (SD 135).

Between week 0 and week 24: In blood, no change in bacterial translocation (16s DNA: change −0.6; p=0.80 and sCD14a: change +59.35 p=0.64), T cell subsets (CD4+48.22; p=0.28; CD8 T cells +39.23; p=0.672 and CD4:CD8 0; p=0.99), immune activation (%CD8+CD38+HLA+DR+ +0.28 p=0.09), immune exhaustion (%CD4+ tigit+ +1.63 p=0.52 and CD4+Pd1+ +0.98 p=0.06) or viral reservoir (total HIV-1 DNA −3.43 copies/CD4 T cell p=0.56, ultra low copy viral load +21.8 copies/mL p=0.14, HIV-1 intracellular RNA-1295 copies/18S RNA p=0.53) was observed.

In the gut, no change in total HIV-1 DNA occurred (−44,062 copies/CD4 Tcell p=0.47). Decreases in gut CD4 (−0.80 p=0.09), CD8 (−5.59 p=0.05) and total T cell numbers (−13.81 p=0.020) were observed but this was not associated significant increases in blood T-cell numbers. Viral tropism did not impact any parameter in blood or gut.

Conclusions: Maraviroc intensification did not improve surrogate markers of enhanced clinical outcome in the blood or the gut and did not affect measures of viral reservoir.

P16

Complex drug–drug interactions in HIV therapy: use of phenytoin as a CYP3A4 inducer to manage tacrolimus toxicity without adversely affecting therapeutic HIV drug levels

F Dave, N Desai and P Flegg

Blackpool Teaching Hospitals, Blackpool, UK

Introduction: Phenytoin has been used therapeutically as an enzyme inducer to treat tacrolimus toxicity. No data on this topic exists in the context of HIV; this is of particular importance as concurrent use of phenytoin has the ability to also render anti-retroviral (ARV) levels sub-therapeutic. Lack of experiential evidence in this area forms the basis of this report.

Case report: A 56 year old male with multi-resistant HIV on Eviplera™ presented with profuse diarrhoea and acute kidney injury. He started tacrolimus 14 days earlier for immune recovery uveitis following CMV. Tacrolimus was stopped, the patient's renal function improved with rehydration and he was discharged.

The patient was readmitted 7 days later with confusion, hallucinations and tremor and a further deterioration in renal function. To avoid tenofovir-induced renal tubular nephropathy Eviplera™ was stopped and darunavir/ritonavir was commenced. Despite further fluid rehydration there was still no improvement in renal function. Dolutegravir and rilpivirine were added to his ARV regimen.

Then a toxic tacrolimus level became available (>42 μg/L) despite the drug being stopped 14 days earlier. A diagnosis of tacrolimus nephrotoxicity and neurotoxicity was made, and ritonavir was discontinued as this was felt to be the likeliest cause of tacrolimus toxicity through inhibition of liver CYP3A4. However, toxic levels of tacrolimus continued to persist, and the patient experienced ongoing symptoms of neurotoxicity.

Phenytoin 300 mg was then prescribed daily for 3 days, as an enzyme inducer to reduce tacrolimus levels. Nine days following the phenytoin course the levels of tacrolimus had reduced to 5.3 μg/L. Levels of his ARVs were also monitored in tandem with phenytoin treatment, and showed no significant drop to subtherapeutic levels. The patient's renal function improved (and he exhibited no further signs of tacrolimus neurotoxicity). Ritonavir was restarted 2 weeks after completion of phenytoin treatment. His renal function remains normal, CD4 count 464 cells/μl, and his HIV and CMV viral loads are both undetectable.

Conclusion: Medications given concurrent with HIV therapy may lower therapeutic HIV drug levels, increasing the risks of virological failure and drug resistance. This case demonstrates that phenytoin, when deployed as an enzyme inducer, was able to successfully lower tacrolimus levels without significantly adversely impacting on concurrent therapeutic HIV drug levels.

P17

Is Kivexa with rilpivirine as effective as Eviplera for switch in clinical practice?

N Marshall[1], M Johnson[1], L Swaden[1], S Shah[2], L Hedley[2], C Smith[2], C Daniels[3], J Latimer[3], S Doshi[4], D Nugent[5], L Waters[5], S Edwards[5], J Swan[6], C Chelsea[6], S Sonecha[6] and M Nelson[6]

[1]Royal Free London NHS Foundation Trust, London, UK; [2]University College London, London, UK; [3]North Bristol NHS Trust, Bristol, UK; [4]King's College Hospital NHS Foundation Trust, London, UK; [5]Mortimer Market Centre, London, UK; [6]Chelsea and Westminster Hospital NHS Foundation Trust, London, UK

Objectives: There are limited data on abacavir-lamivudine (Kivexa, KIV) plus rilpivirine (RPV) as an option for antiretroviral therapy switch. We have reviewed the clinical outcome of this approach in a multi-centre cohort analysis.

Methods: From June 2012 to February 2015 all patients switching to KIV-RPV at five UK HIV units were identified & compared with consecutive patients switching to Eviplera (EVA) at one unit. Treatment history, indications for switch or discontinuation & viral load (VL) outcomes were analysed. Only first use of RPV use was included with ART change considered a treatment failure. Comparisons between groups were performed using chi-squared testing.

Results: 108 patients switched to KIV-RPV & 160 to EVA with no significant differences in respective baseline characteristics: median age (45 vs 42 yrs), gender (73% [79] male vs 77% [123]), ethnicity (62% [67] white vs 56% [89]), HIV risk (58% [63] MSM vs 61% [97]), proportion with VL< 50 c/mL (98% [106] vs 96% [154]) or CD4 (median 620 vs 663 cells/mm³). Significantly more KIV-RPV than EVA switches were from NNRTI-based regimens (65% [70] vs 47% [75], p=0.001). 87% (94/108) of switches to KIV-RPV were from KIV-based regimens; 84% (135/160) of EVA switches were from tenofovir/emtricitabine-based therapy. Main reasons for switching to KIV-RPV or EVA were: CNS side-effects (47% vs 32%; p<0.0001), simplification (5% vs 18%), GI issues (6.5% vs 11%) & hyperlipidaemia (8% vs 8%). At 24 & 48 wks of follow up (by switch=failure, missing=excluded analysis), 87% (35/40) & 82% (63/77) on KIV-RPV vs 77% (74/96, p=0.24) and 73% (96/131, p=0.18) on EVA had a VL< 50 copies/mL (p-value for difference at week 24/48=0.24/0.18). 48-week results by on-treatment analysis were 98% (63/64) for KIV-RPV and 95% (96/101; p=0.41) for EVA. Median (range) CD4 count at 48 weeks was 600 (98–1350) for KIV-RPV vs 678 (255–1434) for EVA. At 48 weeks 15% on KIV-RPV and 22% on EVA had switched regimen (p=0.22). Switch was driven by

toxicity/tolerability issues in 50% of individuals for both arms. In the KIV/RPV arm 9/16 switched for toxicity/tolerability reasons: GI/CNS ×2, renal ×1, other ×6. 17/34 on EVA switched for toxicity/tolerability: CNS ×4, GI ×7; renal ×2, other ×4.

Conclusions: In this diverse cohort, switching antiretroviral therapy to Kivexa-rilpivirine had similar immunological and virological efficacy compared to switching to Eviplera with similar rates of, and reasons for, subsequent switch.

P18

Multicentre open-label, pilot study of switching from efavirenz to dolutegravir for central nervous system (CNS) toxicity – interim analysis results

M Bracchi[1], M Boffito[1], M Nelson[1], T Adams[2], A Clarke[2], L Waters[3], A Winston[4] and L Thomas[5]

[1]Chelsea and Westminster Hospital, London, UK; [2]Royal Sussex County Hospital, Brighton, UK; [3]Mortimer Market Centre, London, UK; [4]St Mary's Hospital, London, UK; [5]St Stephen's AIDS Trust, London, UK

Background: Guidelines for initial therapy have recently degraded efavirenz (EFV) to an alternative third agent. Preferred third agents are integrase inhibitors. We investigated substituting EFV for dolutegravir (DTG), in combination with 2 NRTIs, in patients with ongoing EFV associated CNS side effects.

Methods: A randomised open-label multi-centre study of virologically suppressed patients receiving an EFV containing regimen for at least 12 weeks. Randomisation was to immediate (IS) vs delayed switch (DS) (after 4 weeks) to DTG, without backbone change. Primary endpoint was CNS toxicity (CNS score) at 4 weeks in the IS vs DS arms, measured by a questionnaire based on EFV SPC and graded according to ACTG adverse event scale. Secondary endpoints were: CNS toxicity, change in sleep, quality of life, neurocognitive function, CD4 count, fasting lipids and virological suppression at 4 and 12 weeks post switch.

Results: 40 patients (38 male), mean age 48 years (range 27–67) were enrolled: 19 IS and 21 DS arms. Median CD4 were 544 & 601 cells/μl, respectively. Baseline (BL) CNS scores were similar (IS=33, DS=40). There was a significant improvement in CNS score at week 4 in the IS arm vs DS arm (p<0.001) and in abnormal dreams in the IS vs DS arm at week 4 (p<0.001). Combined (both arms) improvement in total CNS score after 4 weeks of DTG was significant (p<0.001). All patients maintained virological suppression and there was significant improvement in total cholesterol.

Conclusion: Switching EFV to DTG is associated with a significant improvement in CNS toxicity as shown by a reduction in overall CNS score at 4 weeks, and improvement of individual CNS toxicity including abnormal dreams.

	Baseline		Week 4		
	IS N 19	DS N 21	IS N 19	DS N 21	p-value
Median CNS score (IQR)	33 (20–53)	40 (27–53)	10 (7–20)	33 (20–43)	<0.001
Grade 3/4 CNS toxicity (%)	19 (100)	20 (95.2)	5 (26.3)	20 (95.2)	<0.001
Insomnia (%)	9 (47.4)	13 (61.9)	4 (21.1)	9 (42.9)	0.258
Abnormal dreams (%)	16 (84.2)	18 (85.7)	1 (5.3)	17 (81.0)	<0.001
Dizziness (%)	4 (21.1)	6 (28.6)	0 (0)	6 (28.6)	0.037
Depression (%)	8 (42.1)	8 (38.1)	1 (5.3)	8 (38.1)	0.035
Anxiety (%)	7 (36.8)	11 (52.4)	2 (10.5)	4 (19.1)	0.756
Impaired concentration (%)	5 (26.3)	6 (28.6)	2 (10.5)	4 (19.1)	0.756
Headache (%)	0 (0)	4 (19.1)	0 (0)	4 (19.1)	0.140
Somnolence (%)	4 (21.1)	8 (38.1)	1 (5.3)	6 (28.6)	0.128
Aggressive behaviour (%)	2 (10.5)	5 (23.8)	1 (5.3)	4 (19.1)	0.402

P19

Current raltegravir use: clinical practice in 8 UK centres (CRICKET – PN-807)

C Jones, J-E Tan, J Robinson, H Tate and H Lamba
Merck Sharp & Dohme Limited, Hoddesdon, UK

Background: The majority of cohort studies examining raltegravir use in the UK were undertaken soon after licencing. The objective of the CRICKET study was to investigate recent clinical practice at 8 HIV treatment centres in the UK, examining the demographics and treatment responses in patients who started raltegravir prior to April 2013.

Methods: A retrospective case notes review was undertaken at 8 large HIV treatment centres (4 within London, 4 outside London), identifying the 40 most recent consecutive patients (per centre) who had started raltegravir prior to April 2013 with at least 12 months follow up data. Demographics, clinical characteristics, reasons for raltegravir initiation, and % virological suppression (viral load <50 copies/mL, ≥24 weeks), was recorded. A centre level survey was also performed examining the number of HIV patients in care per centre, raltegravir use and local treatment guidelines.

Results: 12 months of follow up data following raltegravir initiation was available for 317 patients. Their mean age was 46.3 years, 71.6% were male and 67.5% Caucasian. Patients started raltegravir between May 2007 and March 2013. 12% of those evaluated were treatment naïve at raltegravir initiation, with this proportion increasing in more recent years. Intolerance to other antiretroviral drugs was the most common reason for raltegravir initiation (34.4%). 269/317 (84.9%) of patients were virologically suppressed on raltegravir at or after week 24. Survey responses estimated the combined HIV cohort size across the 8 centres at 19,215 patients, representing 23.6% of those in care in the UK in 2013. 1428/19,215 patients (7.4%) were taking raltegravir within their ARV regimen.

Conclusion: A high proportion of patients initiating raltegravir were treatment experienced in this study. Switching due to tolerability issues was common. Use among treatment naïve patients increased with time. Virological suppression rates were favourable.

P20

Dolutegravir in the real world: is it all plain SAILING?

J Shaw, B McBrien, A Hatley, C Wood, S Jewsbury and C Ward
Manchester Centre for Sexual Health, Manchester, UK

Background: Dolutegravir (DTG) arrived on the crest of a wave of excellent efficacy, safety and tolerability data. Real world antiretroviral (ARV) experience can differ significantly from phase II/III studies. We review our experience with DTG since its inception.

Methods: All patients prescribed DTG prior to 31/10/15 were identified via pharmacy records. Demographic, clinical, virological and biochemical data were collated at baseline and follow up appointments.

Results: 178 patients (10.1% of our cohort) received DTG, providing 97.5 patient years of follow up. 94 (52.8%) were White British and 53 (29.8%) Black African; 132 (74.1%) were male of whom 106 (80.3%) were MSM. There were 3 (1.7%) patients co-infected with Hepatitis B and 10 (5.6%) with Hepatitis C. Median nadir CD4 count was 250 cells/mm3 with median CD4 at diagnosis 365 c/mm3. DTG was used antenatally in 8 patients without any adverse outcomes.

130 (73.0%) were ART-experienced and 48 (27.0%) naïve. At DTG initiation ART-naïve patients had a median CD4 count of 369 c/mm3 and VL 41,499 copies/mL. ART-experienced patients had a median CD4 count of 527 c/mm3 and VL<40 c/mL.

98 (55.1%) patients received DTG as Triumeq (DTG, abacavir, lamivudine), 77 (43.3%) as DTG with other concomitant agents, and 3 (1.7%) received both DTG and Triumeq. The most prevalent backbone with DTG was Truvada (39/77, 50.6%). Median duration of DTG use was 194 days (range 2–608). Median VL remained <40 c/mL with no significant change in liver function or lipids. The expected creatinine rise seen in DTG licensing studies occurred at the 4 week point, then plateaued:

	Baseline	4 weeks	3 months	6 months	12 months
Cohort size	178 (100%)	170 (95.5%)	135 (75.8%)	63 (35.4%)	5 (2.8%)
CD4 c/μL	471	488	470	521	535
Viral Load c/mL	51	<40	<40	<40	<40
Creatinine μmol/L	81.5	92	91.5	95.5	102
eGFR mL/min	88	77.5	77	72.5	67

26 (14.6%) patients discontinued DTG: 15 (8.4%) due to side effects, 5 (2.8%) were lost to follow up, 2 (1.1%) died. Median time to discontinuation was 91 days (range 2–253). Side effects were reported by 41 (23.0%) patients with gastrointestinal (33.9%) and CNS (32.1%) disturbance most common. Two virological failures occurred in patients taking Triumeq, both failing with Raltegravir associated mutations (T97AT, E157Q).

Conclusion: DTG has been safe and efficacious in our cohort in a wide variety of patients; however there were a large number of ARV-induced side effects and resultant treatment switches. More real world data is required on DTG use to assess this further.

P21

Persistency with Raltegravir in initial ART in a patient cohort

P Green and S Ahmad
University Hospital of South Manchester, Manchester, UK

Background: JM Lewis et al's multicentre retrospective cohort study on real-world persistence with antiretroviral therapy for HIV in the United Kingdom, presented at EACS 2015, reported discontinuation of Raltegravir in initial ART regimen at a rate of 0.32 per person yrs. This seemed high compared with our experience with RAL so we have reviewed its use in initial ART regimens in our cohort of patients and compared persistency with that reported by Lewis et al.

Method: A retrospective case note review of HIV positive patients who commenced Raltegravir first-line at our centre between 1st Jan 2009 and 31st Dec 2015 and remain under our care on 31st Dec 2015. All backbones were included. Time to discontinuation and incidence rates were calculated. Reasons for switches were identified and the findings compared to those of Lewis et al.

Results: 115 patients commenced Raltegravir in first-line regimen. Female 21 (%); Male 94 (%); Mean age 37 yrs (range 19–68 yrs). Ethnicity: White (80.9%); Black (14.8%); Other (4.3%). Nadir CD4 mean 351 (range 2–834) cells/ml[3]. Viral Load >100 K copies/mL=30. Backbone at initiation ART: TDF/FTC 64 (55.7%); ABC/3TC 47 (40.9%); 3TC/DRV/r=3 (2.6%); TDF/FTC/EFV =1 (0.8%). Total follow up 229.7 patient-years. 53 patients were taking Raltegravir 800 mg OD, out of license, at the end of the period under review. 5 patients switched from Raltegravir: 1 due to musculoskeletal pain which resolved after switch (CK normal); 1 because of depression which subsequently proved unrelated to Raltegravir; 2 due to low level viraemia and 1 due to resistance. 1 woman started a Raltegravir containing 1st line regimen during pregnancy and stopped ART after delivery.

Conclusion: In our cohort the switch rate from Raltegravir when used in initial ART regimen is 0.022 per person-yrs; lower than that reported by Lewis et al's multicentre study. Of the 5 switches only one was because of side effects which resolved on switch. This high level of tolerability is comparable to that demonstrated in ACTG A5257. The patient who developed Integrase Inhibitor resistance was poorly adherent to therapy. Persistency with Raltegravir indicates it to be well tolerated and effective in first-line use in our patients.

P22

Safety and efficacy of dolutegravir and maraviroc plus background regimen in HIV-1 treatment-experienced participants

M Prakash, J Huang, J Lim, J Koteff, C Trezza, S Griffith, M Ait-Khaled, B Wynne, M Gartland, A Clark and M Aboud
ViiV Healthcare UK, London, UK

Background: Dolutegravir (DTG) is an integrase inhibitor with demonstrated efficacy in HIV-1 experienced integrase inhibitor-naive patients (SAILING) and in those with integrase resistance (VIKING3). Maraviroc (MVC) is a CCR5 antagonist with a favourable safety profile indicated for adults with CCR5-tropic HIV infection. There is minimal data on DTG with MVC in combination. A post hoc analysis assessed the safety and efficacy of this combination plus background therapy (BT) in HIV-1 treatment experienced (TE) participants from the SAILING and VIKING3 Phase 3 studies.

Methods: SAILING was a randomised double blind study in TE (integrase inhibitor naive) patients with 354 subjects on the DTG QD arm, and VIKING3 was an open-label single arm study in 183 participants who exhibited genotypic and/or phenotypic evidence of raltegravir and/or elvitegravir resistance and at least 2 other antiretroviral classes. Post hoc analysis was undertaken of all confirmed CCR5 tropic participants who received DTG in combination with MVC plus BT. Data for each study are shown for participants at 48 weeks.

Results: In total; n=71 participants were analysed, n=38 from SAILING (DTG QD+MVC BID) and n=33 from VIKING3 (DTG BID+MVC BID) plus BT. In this analysis, the PSS of the BT (additional to MVC activity) in SAILING was 0 (6; 16%), 1 (32; 84%) and in VIKING3 was 0 (9; 27%), 1 (18; 55%), ≥2 (6; 18%). VIKING3 participants exhibited no Q148 (n=22, 67%), Q148 + 1 (n=11, 33%), Q148 + >=2 (n=0) resistance substitutions at baseline. At Week 48, 76% (29/38) achieved viral load <50 c/mL in the SAILING study and 73% (24/33) in the VIKING3 study, which was comparable to overall virologic responses (71%, 63% respectively). Median increase from baseline in CD4 cell count at Week 48 in SAILING was144 cells/mm^{3} and in VIKING3 was 80 cells/mm3, compared to overall results (144 and 110 cells/mm^{3} respectively). The majority of adverse events were mild to moderate (grade 1 and 2). The safety profile in those receiving DTG and MVC plus BT was comparable to that observed overall, across each study population over 48 weeks.

Conclusions: This post hoc analysis demonstrates that virologic safety and efficacy in a subset of TE subjects who received 50 mg of DTG, either QD or BID and MVC (BID) plus BT was comparable to the overall study results of SAILING and VIKING3. Given the tolerability of MVC, DTG/MVC in combination with BT, offers an option for TE-individuals including those with integrase resistance.

[This abstract was amended following print publication. Sentence "In this analysis, the PSS of the BT (including MVC activity) in. . ." was changed to "In this analysis, the PSS of the BT (additional to MVC activity) in. . ."].

P23

Starting first-line ART as part of a randomised controlled trial (RCT): demographic differences in recruitment and long-term response

C Smith[1], F Lampe[1], A Phillips[1], A Carroll[2], M Youle[2], M Johnson[2], P Byrne[2], Z Cuthbertson[2], M Dosani[2], T Fernandez[2], S Hutchinson[2], M Jones[2], F Turner[2], L Swaden[2] and N Marshall[2]
[1]UCL, London, UK; [2]Royal Free London NHS Foundation Trust, London, UK

Background: Although it is well known that women and non-white ethnicities are underrepresented in RCTs, efforts to improve recruitment have taken place in recent years. Furthermore, the long-term benefits of starting first-line ART as part of an RCT, potentially through better support, monitoring and increased contact with healthcare teams during the initial ART period, are as yet unclear.

Methods: We included all previously ART-naïve patients starting ≥2 NRTIs with at least one of PI, NNRTI or II at a single clinic from 2004 to 2012, with follow-up until June 2014. Percentages with viral suppression (VL<200 cps/mL; missing=excluded) after 12, 24, 36 and 48 months were calculated and summarised according to whether ART was started in an RCT or in routine care (RC). We ignored ARV switches and discontinuations (intent-to-treat).

Results: 153/1324 (12%) starting ART did so as part of an RCT (34 START trial, 14 M05-730). RCT participants were more likely to be male (RCT: 86 vs RC: 73%, p=0.0005), MSM (74 vs 52%, p<0.0001), of white ethnicity (65 vs 53%, p=0.0057), with longer median time from HIV diagnosis (1.7 [IQR 0.4–4.3] vs 1.0 years [0.1–4.2], p=0.0019), higher CD4 count (317 [208–509] vs 260 [138–365]; p<0.0001) and fewer previous AIDS diagnoses (7 vs 19%, p=0.0004). RCT and RC had a median 7 (5–9) and 5 (4–7) VL measurements in the first year of ART respectively, and 3.4 (2.8–4.3) and 3.0 (2.3–3.9) measurements/year from 12 months onwards. Viral outcomes were similar between groups over 48 months (Table). Missing=failure and on-treatment analyses, as well as redefining viral success as VL<50 cps/mL led to consistent results. After 48 months, median CD4 count change from pre-ART was +315 (165–486) in the RCT group and +340 (219–500) in the RC group (p=0.20).
Conclusion: Women, non-MSM and those of non-white ethnicity continue to be underrepresented in RCTs. Further investigation into how to improve participation in these groups is required. Nonetheless, those starting ART in routine care have similarly excellent short- and long-term outcomes compared to those starting ART in RCTs, despite decreased initial monitoring.

| Month | Viral load<200 copies/mL | | Adjusted OR* (95% CI) | |
	RCT	Routine Care	RCT vs RC	p
12	93% (127/137)	94% (918/981)	0.76 (0.35–1.66)	0.49
24	93% (116/126)	93% (851/915)	0.76 (0.36–1.62)	0.48
36	91% (98/108)	94% (730/779)	0.54 (0.24–1.20)	0.13
48	89% (82/92)	94% (612/653)	0.46 (0.20–1.04)	0.23

*Adjusted for gender, risk, age, time since diagnosis, VL, CD4, year & ART type.

P24

How beneficial is a treatment algorithm for naïve patients initiating ARVs?

F Dave, H Mooney, A Torkington, E Wilkins and K Ajdukiewicz
North West Infectious Diseases, North Manchester Hospital, Manchester, UK

Background: Regional anti-retroviral (ARV) treatment algorithms for HIV positive patients who are treatment naïve have been introduced to guide management. First line therapy for patients is efavirenz (EFV) and KivexaTM with second line options available if there is a contraindication. All patients are discussed in the weekly HIV MDT. We have analysed our patient's eligibility to first and second line treatment regimens.
Methods: Patient records and pharmacy data from 68 naïve patients starting ARVs between February and October 2015 were reviewed retrospectively. Algorithm compliance and reasons for treatment choices were analysed. Data were analysed using SPSS.
Results: 68% of the cohort was male and the mean age was 37 years (range 18–63). 41% were Caucasian and 19% Black African. Mean baseline CD4 count and viral load were 335 $\times 10^6$/mL and 156,680 copies/mL respectively. Only 3% of patients were eligible for EFV/KivexaTM. After MDT discussion, in patients where EFV or KivexaTM was deemed to be contraindicated, MDT approval was given for patients to be started on TriumeqTM (56%), TruvadaTM based regimen (28%), KivexaTM based regimen (10%), StribildTM (3%) and AtriplaTM (2%). Analysis of the reasons for ineligibility revealed 43% of patients could not start EFV due to psychological factors, 15% had drug interactions, 14% required treatment urgently therefore HLA/resistance results were not available, 9% could not have EFV or KivexaTM due to a combination of psychological reasons, HLA and viral load, and 6% could not have KivexaTM due to hepatitis B and a high viral load.
74% of the remaining patients were compliant with the second line of the treatment algorithm. Reasons for deviation from second line treatment were drug interactions (41%), co-existent tuberculosis (17%), resistance (12%), hepatitis B (6%), pregnancy (6%) and renal impairment (6%).
Conclusion: Only 3% of patients received EFV and KivexaTM. The first line algorithm for HIV positive patients naïve to treatment is unsuitable for the majority of patients in our cohort mainly due to psychological factors. Second line regimens are mainly challenged by drug interactions and concurrent infections. Nevertheless, the algorithm fulfilled its objective of facilitating cost-effective choices without compromising anti-viral efficacy.

P25

Rilpivirine with Kivexa for treatment-naïve HIV: Experience in clinical practice

N Marshall[1], M Johnson[1], S Edwards[2], C Smith[2], L Hedley[2], D Nugent[3], L Waters[3], J Hales-Owen[4], J Latimer[5], S Doshi[6], S Sonecha[7] and M Nelson[7]
[1]Royal Free London NHS Foundation Trust, London, UK; [2]University College London, London, UK; [3]Mortimer Market Centre, London, UK; [4]Oxford University Hospitals NHS Trust, Oxford, UK; [5]North Bristol NHS Trust, Bristol, UK; [6]King's College Hospital NHS Foundation Trust, London, UK; [7]Chelsea and Westminster NHS Foundation Trust, London, UK

Background: There is a lack of data on the use of Kivexa with rilpivirine first-line. We aimed to review the clinical outcomes of treatment-naïve individuals starting this regimen.
Methods: Retrospective, multi-centre evaluation of all treatment naïve patients starting KIV-RPV with at least one follow-up viral load (VL). Results were compared with 147 patients within the previously presented UK Eviplera (EVA) cohort who started EVA first-line. Data were collected on demographics, VL/CD4 outcomes, and reasons for start/stop. Response was assessed at 24 and 48 weeks for those with follow-up and compared using chi-squared and Mann-Whitney U tests, as appropriate.
Results: Five UK centres identified 36 patients starting KIV-RPV. Baseline characteristics were similar in the KIV-RPV and EVA groups for: gender (78% [28/36] vs 84% male), risk (69% [25] vs 59% MSM) and ethnicity (61% [22] vs 59% white). Baseline VL in the KIV-RPV group was<100,000 c/mL in 100%; median CD4 395 cells/mm³. For the EVA group, 95% with known baseline VL were <100,000 c/mL; 74% had a CD4<350 cells/mm³. The commonest indications for starting KIV-RPV were CD4 approaching/below 350 cells/mm³ (56%) and treatment as prevention of transmission (19%).
At 24 and 48 weeks (using a Switch=Failure, Missing=Excluded analysis), 74% (17/23) and 81% (25/31) had VL<50 c/mL in the KIV-RPV group, vs 82% (78/95, p=0.374) and 88% (67/76, p=0.310) on EVA. By On Treatment analysis (Switch=Excluded, Missing=Excluded), 100% (25/25) and 88% (67/76) had VL< 50 c/mL at 48 weeks on KIV-RPV and EVA respectively.
At 48 weeks, 23% (7/31) on KIV-RPV and 11% (10/92, p=0.132) on EVA, still under follow-up, had switched regimen. Amongst individuals switching from KIV-RPV, the KIV backbone was maintained in 5/7; 4/7 switched due to toxicity/intolerance, 1/7 due to drug interactions with rilpivirine, and 1/7 due to food requirements. Viral failure with resistance (M184V, Y115F, K219E and Y191C) occurred in 1/7 on KIV-RPV with documented intermittent adherence.
Conclusions: Outcomes for Kivexa-rilpivirine in treatment naïve patients are broadly positive and similar to Eviplera albeit with limited numbers and follow up.

P26

Adverse events of dolutegravir may be higher in real world settings

C Kirby[1], K Ovens[2], M Shaw[2], V Hardweir[2], Y Gilleece[2] and D Churchill[2]
[1]King's College Hospital, London, UK; [2]The Lawson Unit, Brighton, UK

Background: The convenience, low toxicity profile, lack of drug-drug interaction and virological potency of once- daily dolutegravir make it an attractive drug. In trials low rates of discontinuation have been observed for dolutegravir (1–2%). The aim of our work was to assess real life discontinuation rates, and to see what the principal causes of drug intolerance were.
Methodology: Patients who had started dolutegravir or Triumeq from 1st January 2015 to 30th November 2015 were identified from an electronic database. Paper notes were reviewed, and data extracted as follows: basic demographics, whether patient was ART (antiretroviral therapy) naïve or experienced at initiation of drug, dates of commencement and discontinuation if applicable, presence of adverse events. Adverse events were grouped into categories of sleep disturbance, psychiatric, gastro-intestinal, and other.
Results: 164 patients were identified; 12 were excluded as they were on clinical trials, 24 patient notes were not located, leaving a total of 128 patients. Mean age was 47 years, with 93% male. Nearly two thirds (82/128) were on dolutegravir, with the remainder on Triumeq, and 20% were on their first ARV regimen. 46/128 (36%) experienced any symptom. Sleep disturbance (insomnia, vivid dreams) were reported by 25/128 patients (20%); psychiatric symptoms were also frequently reported at 8% (10/128). The average age of

those who discontinued was slightly higher at 47 years, and all were men, with the majority treatment experienced. 18/128 discontinued dolutegravir, with 16 (13%) of those due to adverse effects of dolutegravir. These patients experienced more than one symptom-type, with no one predominant side effect leading to discontinuation. The average number of weeks prior to discontinuation was 17 weeks. Four patients (3%) died whilst on dolutegravir, all thought to be unrelated including one suicide in a patient with a long mental illness background.

Conclusion: A much higher rate of discontinuation due to adverse effects was observed in our cohort than in clinical study data. This may reflect the fact that outside clinical trials, rates of pre-existing mental illness, sleep disturbance and recreational drug usage are high. This should impact the counselling that is given to patients prior to switching or commencing dolutegravir, and patients may require additional support in managing troublesome initial adverse events.

P27

Clinical outcomes of co-prescription of ranitidine with boosted atazanavir and rilpivirine-based ART

N Marshall[1], L Swaden[1], A Katiyar[1], A Hunter[1], R Tsintas[1], S Bhagani[1], I Cropley[1], D Grover[1], S Kinloch[1], M Lipman[1], S Madge[1], T Mahungu[1], G Murphy[1], R Shah[1], M Tyrer[1], M Youle[1], D Ivens[1], F Burns[1], L Sathia[1], M Johnson[1], F Lampe[2] and C Smith[2]
[1]Royal Free London NHS Foundation Trust, London, UK; [2]University College London, London, UK

Background: Boosted atazanavir (ATV) and rilpivirine (RPV) require an acid environment for optimal gastrointestinal absorption. Patients requiring acid suppressive therapy are often prescribed once daily ranitidine (RAN) split 4–12 hours after ATV or RPV. There are few data looking at HIV clinical outcomes with co-administration of these drugs.

Methods: Single centre, retrospective evaluation of all patients receiving boosted ATV, or RPV (inc. Eviplera). For discontinuation analysis, follow-up started on the latest of 1/5/2009 or first receipt of ATV/RPV and ended on the earliest of 1/5/2015, date of last clinic visit or discontinuation of RPV/ATV. For virological analyses, start of follow-up (FU) was delayed until the first date during FU that VL<50 c/mL. Subsequent viral rebound was defined as two consecutive VLs>50 c/mL. It was assumed all RAN was prescribed by the HIV clinic due to risk. Rates of ATV/RPV discontinuation and viral rebound were calculated stratified by current receipt of RAN.

Results: 7.1% (33/469) & 15.3% (165/1078) patients on RPV and ATV-based ART were prescribed RAN at some point over follow-up. There was a total of 672 & 2603 person years (pyrs) of FU with RPV and ATV respectively, of which 1.9% (13) & 2.9% (76) were spent also receiving RAN. The rate of discontinuation from RPV and ATV for those on RAN were higher than those not receiving RAN (table). Amongst those who discontinued RPV, 100% (5/5) of those with a RAN co-prescription vs 78% (89/114; p=0.58) without RAN had VL<50 c/mL. For ATV, these were 72% (21/29) vs 68% (399/585; p=0.63). Of those co-prescribed RAN, 20% (1/5) and 34% (10/29) stopped RPV and ATV due to drug interactions. There was no difference in viral rebound rates according to RAN receipt (table).

Conclusions: Co-prescription of boosted atazanavir or rilpivirine with once daily ranitidine was not associated with increased viral failure. An increased rate of discontinuation when prescribed ranitidine may be multifactorial.

		ARV discontinuation		Viral rebound	
	RAN?	N events/pyrs	Rate/100 pyrs (95% CI)	N events/pyrs	Rate/100 pyrs (95% CI)
RPV	Yes	5/13	38.4 (12.6–90.5)	0/12	0 (0.0–31.5)
	No	114/659	17.3 (14.1–20.5)	16/600	2.7 (1.5–4.3)
	p-value		0.077		–
ATV	Yes	29/76	38.1 (24.2–52.0)	4/66	6.1 (1.6–15.4)
	No	585/2527	23.1 (21.3–25.0)	114/2057	5.5 (4.5–6.6)
	p-value		0.008		0.87

P28

Retrospective review of real life patient experiences with dolutegravir; virological suppression, immunological recovery and adverse events

O Negedu[1], N Naous[1], R Weston[1], N Mackie[1], S Fidler[1] and S-H Kim[2]
[1]Imperial College NHS Trust, London, UK; [2]The Hillingdon NHS Foundation Trust, London, UK

Background: Dolutegravir (DTG), a once daily integrase inhibitor was licensed for the treatment of people living with HIV (PLWH) in UK in January 2014. There has been very encouraging data on tolerability and potency of DTG containing regimens from trials but real-life experience is limited. It is unknown if rapid viral control is associated with immune recovery. We describe experiences within a large UK HIV clinic of management of PLWH using DTG 2 years post licensing and commissioning in the UK.

Methods: Case note review of all HIV positive patients attending one London HIV centre on antiretroviral therapy (ART), receiving combinations that included DTG. Between January 2014 until end of December 2015 data collection and analysis included CD4 count recovery pre and post initiation of ART regimen containing DTG in treatment naïve patients, HIV viral load (VL), and reported toxicities and laboratory toxicities.

Results: 138 patients were commenced on DTG containing regimens during the data collection period from January 2014 to December 2015 (length of time on DTG: 1–10 months); 27 were antiretroviral therapy (ART) naïve, 11 restarted ART, and 100 switched to a regimen which included dolutegravir. 64 were prescribed Truvada (tenofovir/emtricitabine) and were either HLA-B*5701 positive or had high cardiovascular risk (coronary heart disease risk >10% over 5 years). 65 received Triumeq (abacavir/lamivudine/dolutegravir) and 12 had no nucleoside backbone in the ART regimen. Of 138 patients, 37 (26%) achieved viral suppression, 82/138 (59%) had VL <50 copies/mL prior to initiation of DTG (mainly switch), 10/138 (7%) did not yet achieve VL <50 copies/mL and sufficient data sets were not available in 10 patients (7%). All 10 patients who did not achieve VL <50 copies/mL were known to have long standing non-adherence. Prior to initiation of DTG, 2 (1%) had laboratory confirmed renal toxicity and 29 (21%) had hepatotoxicity. DTG was discontinued in 3 patients due to insomnia and sleep disturbances. The median numbers of days to achieve VL<50 copies/mL for all patients was 36 days (IQR: 28–63 days). In naïve patients it was 36 days (IQR: 30.5–77 days).Out of 27 naïve patients, 19 (70%) achieved viral suppression, 2 (7%) had VL <50 copies/mL prior to starting DTG, 1 (4%) did not achieve VL <50 copies/mL and 5 (19%) do not have sufficient data sets to draw conclusion. 14/27 naïve patients had follow up data for CD4 recovery which showed an increase in CD4 cell count of approximately 36 cells/uL within 3–12 month period.

Conclusion: DTG is well tolerated and produces rapid virological response with a median of 36 days to viral suppression in comparison to study data with a median of 56 days. There is evidence of improved immune function within months 3–12. Both these finding will warrant further investigation over time.

P29

Abacavir hypersensitivity: still a worry?

K Michie and M Chaponda
Royal Liverpool Hospital, Liverpool, UK

Background: Abacavir is known to cause a potentially life-threatening hypersensitivity reaction in approximately 5% of patients; with carriers of the HLA-B*5071 allele being at high risk. Guidelines recommend that patients should be screened for HLA-B*5701 and abacavir use is contra-indicated in patients with positive results.

We sought to determine the incidence of abacavir hypersensitivity in our cohort and the proportion, if any, of these patients that had negative results for HLA-B*5701.

Methods: We searched our cohort database for "abacavir hypersensitivity" to identify patients who had previously had a reaction. We then performed a case note review to determine the HLA-B*5701 status of each patient. We also noted the nature of the reaction and the sex and ethnicity of each patient.

Results: 1060/1152 (92.0%) patients in our cohort are taking treatment for HIV. We identified 9/1060 (0.8%) that were documented as having had an abacavir hypersensitivity reaction at some time. 7/9 (77.8%) were HLA-

B*5701 negative. 6/7 (85.7%) of these patients had been diagnosed with probable abacavir hypersensitivity after becoming unwell, including development of a rash, shortly after initiation of the drug. In 1/7 (14.3%) patients the only symptom documented was severe nausea. 1/7 (14.3%) HLA-B*5701 negative patients were non-Caucasian, and 3/7 (42.9%) were female. Notably, 1 patient in our cohort, who had previously had a negative HLA-B*5701 result in 2006, developed a hypersensitivity reaction after receiving abacavir in 2012. A repeat HLA-B*5701 test subsequently showed a positive result, demonstrating that false negative results can occur.

Conclusion: Our results indicate that, whilst uncommon, abacavir hypersensitivity in HLA-B*5701 negative individuals may occur. It is therefore important to consider hypersensitivity as part of the differential diagnosis in any patient who becomes unwell following initiation of abacavir. This is particularly pertinent given the recent increase in abacavir use following the introduction of Triumeq.

P30

Raltegravir treatment outcomes among older patients and those with comorbidities: a sub-analysis of the CRICKET study (PN-807)

C Jones, J-E Tan, J Robinson, H Tate and H Lamba
Merck Sharp & Dohme Limited, Hoddesdon, UK

Background: With successful treatment people living with HIV (PLWH) have a near normal life expectancy. Improved outcomes bring new challenges, including comorbidities, an ageing cohort and a population that may not reflect phase III registrational trials. The purpose of this sub-analysis was to examine raltegravir treatment outcomes among older patients and those with comorbidities using real-life data from the UK based CRICKET study

Methods: CRICKET (PN-807) was a retrospective, UK based, multi-centre case notes review, identifying patients who started raltegravir prior to April 2013 with at least 12 months follow up data. Demographics, comorbidity status, concomitant medications, and % virological suppression (viral load <50 copies/mL, ≥24 weeks), were recorded.

Results: 12 months of follow up data following raltegravir initiation was available for 317 patients, of whom 30.3% were aged 50 and above. 269/317 (84.9%) of patients were virologically suppressed on raltegravir at or after week 24. Hyperlipidaemia; a history of mental illness; AIDS defining illnesses and Hepatitis C were the most frequently reported co-morbidities. 70% of patients were taking concomitant non antiretroviral medications. Virological suppression at week 24, by age, sex, concomitant medication and comorbidity status are summarised in the table below.

Subgroup, N, (% of patients)	% with virological suppression (95% CI)
Main study population n=317 (100)	84.9 (80.4–88.6)
Female n=89 (28.2)	80.9 (71.2–88.5)
Male n=227 (71.8)	86.8 (81.7–90.9)
Age <50 n=205 (64.7)	82.0 (76.0–87.0)
Age ≥50 n=112 (30.3)	90.2 (83.1–95.0)
No concomitant medications n=92 (29.0)	83.7 (74.5–90.6)
Concomitant medications n=222 (70.0)	85.1 (79.8–89.5)
Hyperlipidaemia n=91 (28.7)	91.2 (83.4–96.1)
History of mental illness n=73 (23.0)	90.4 (81.2–96.1)
Aids defining illness n=67 (21.1)	79.1 (67.4–88.1)
Hepatitis B or C n=64 (20.2)	79.7 (67.8–88.7)
Hep' C n=45 (14.2)	80.0 (65.4–90.4)
Hep' B n=21 (6.6)	76.2 (52.8–91.8)
Other active malignancy n=18 (5.7)	72.2 (46.5–90.3)

Conclusion: Co-morbidities were frequently reported among patients initiating raltegravir. Virological suppression rates were favourable irrespective of age, concomitant medication or comorbidity status.

P31

Trends in HIV drug resistance: a review of baseline resistance in new diagnoses of HIV over 3 years

K Michie, L Ratcliffe and M Chaponda
Royal Liverpool Hospital, Liverpool, UK

Background: BHIVA guidelines recommend performing resistance testing on all newly diagnosed HIV patients prior to starting treatment with anti-retroviral therapy. We sought to determine the incidence and nature of resistance mutations in patients receiving a new diagnosis of HIV in our cohort over the last 3 years.

Method: We reviewed all patients newly diagnosed with HIV between August 2012 and August 2015. We collected demographic data alongside the presence or absence of resistance mutations on baseline testing. In patients that were found to have mutations, the type of mutation was noted.

Results: 162 new diagnoses of HIV were identified; male 133/162 (82.1%), female 29/162 (17.9%), age range 20–70 years, median 35 years. The majority of patients were British (79.0%) and had acquired HIV in the UK (82.1%). 96/162 (59.3%) were MSM, 59/162 (36.4%) heterosexual, 2/162 (1.2%) IV drug users, and in 5/162 (3.1%) a likely route of infection could not be identified.

We identified 20/162 (12.3%) patients with baseline resistance mutations. 18/20 had single class resistance: 5 NRTI mutations only (T215 D/I, D67N, T69D, K219Q, M184V), 8 NNRTI mutations only (V108I, V179D, K103N, V106M, P225H), and 5 PI mutations only (M46I, Q58E, L33F, V32I, K20I). 1 patient was noted to have dual NRTI/NNRTI resistance (M184V/K103N), and 1 patient had mutations affecting all 3 classes (M184V, Y181C, V32I, M46I).

A total of 30 separate mutations were noted. The most common mutation was K103N which was present in 4/20 (20.0%) patients, followed by V179D, T215D and K219Q, which were all present in 3/20 patients.

We do not routinely test for baseline integrase mutations.

Conclusion: The most common class of resistance was NNRTI mutations which were present in 10/20 patients. We note that other than 1 patient who was found to have acquired Y181C though transmitted drug resistance, all other NNRTI mutations conferred a degree of resistance to efavirenz and nevirapine which are no longer preferred options according to the latest guidance. Similarly the PI mutations (present in 6/20 patients) mostly conferred low level resistance to drugs which are no longer widely used. Only 2 patients had mutations (V32I, M46I) that could indicate some resistance to PIs currently recommended for treatment of HIV (atazanavir and darunavir). This is in keeping with reports published in the UK in recent times. With increasing use of integrases, we recommend baseline screening for this class.

P32

Antiretroviral therapy switch – subgroup analysis of tenofovir to abacavir-containing regimens in an inner-city London hospital

M Savage, A Grant, R Kulasegaram and S Castelino
Guy's and St Thomas' NHS Foundation Trust, London, UK

Background: BHIVA guidelines for the treatment of HIV-1-positive adults (2015) recommends that antiretroviral therapy (ART) contains two nucleoside reverse transcriptase inhibitors (NRTIs) plus a third agent. Tenofovir (TDF)/emtricitabine (Truvada®) is the preferred backbone; Abacavir (ABC)/lamivudine (Kivexa®) is an alternative. The London HIV Consortium guidance (2014) recommends Kivexa® first line when appropriate. BHIVA monitoring guidance (2011) suggests patients established on ART have regular monitoring of adherence, safety, efficacy, cardiovascular (CVD) risk and fracture risk. These, along with tolerance, co-morbidities and patient choice should guide ART selection and determine if a switch in ART is required. In this analysis, we review the reasons determining ART switches from TDF to ABC based ART and related outcomes.

Methodology: A retrospective database search identified patients that switched ART between June and November 2015. Reasons for switching and outcome data were collected. 255 patients switched ART regimens. 51 switched from TDF to ABC-based ART. Third agent-only switches and switches onto ART without an NRTI backbone were excluded.

Results

Reason	Proportion switches (%)	Proportion patients who report satisfaction/improvement at follow-up (%)
Adherence	9.8	80
GI	19.6	90
CNS	11.8	66.7
Pill Burden	27.5	85.7
Food restrictions	13.7	100

5 (9.8%) switches cited adherence as a reason and 3 (5.9%) cited viral failure. 80% and 100% patients respectively had viral load <20 at 3 months. 11 switches (21.6%) were for renal concerns. All patients showed no deterioration in renal function at 3 months but further monitoring is required. 4 switches (7.8%) cited osteopaenia/osteoporosis. This requires long-term follow-up so outcomes are not yet available. 7 switches (13.7%) cited drug-drug interactions. 9 (17.6%) switches cited "Other." 20 (39.2%) patients had CVD risk assessed prior to starting ABC-based ART. Overall, 36 (70.6%) of switches were to Triumeq® (abacavir/lamivudine/dolutegravir), with a further 2 patients involved in a stepwise switch to Triumeq®.

Conclusion: This analysis demonstrates real-life clinical reasons for TDF to ABC-based ART switches. Triumeq® is the most frequent choice of ABC-based ART in this subset of patients where adherence, pill burden, GI, CNS, food restrictions, renal and bone are concerns. Limitations to this study: retrospective case note review and follow-up time frame.

P33

Exploring the possibility of switching to a single-tablet regimen for HIV-positive patients on a protease inhibitor (PI)-based regimen

M Rosenvinge, G Bottoni, K Buckberry, N Collins and J Russell
Lewisham and Greenwich NHS Trust, London, UK

Background: There are now four single-tablet regimens (STRs) available for the treatment of HIV. These may have fewer drug-interactions, side effects and may be preferable to patients for the treatment of HIV than PI-based regimens. Depending on locally negotiated tariffs, they may also be cheaper.
Methods: A retrospective case notes review of all patients attending two clinics currently receiving the commonly prescribed PI-based regimen of Truvada, Darunavir and Ritonavir (T/D/r). Basic demographic data was collected on ethnicity, gender, age and HIV risk factor. Further information was recorded on total duration of cART, number of previous regimens, documented cART resistance, adherence and most recent HIV plasma viral load (VL). Patients with potential STR switches were identified by cross-referencing resistance and adherence data. STR switches were deemed safe if the patient had good adherence and either no resistance or only NNRTI (Non Nucleotide Reverse Transcriptase Inhibitor) resistance.
Results: 100/126 notes were evaluated. 50% female, Mean age 43 years (range 18–72), 65% Black African, 23% White British. Risk factor: 66% Heterosexual transmission. Duration of cART (combination antiretroviral therapy): 6% <1 year, 1–4 years 34%, >5 years 59%. Number of previous regimens: None 21%, one 28%, two or greater 51%. 41% of patients had confirmed cART resistance of which 36 had NNRTI and 23 had NRTI resistance. 83% of patients had a VL <50 copies/mL (undetectable) at their last measurement. 47% of those were assessed as having good adherence (VL consistently <50 copies/mL). 24 patients were identified where a potential STR switch was deemed safe: 20 identified could have either an NNRTI or Integrase-based regimen and 4 an Integrase-based regimen.
Conclusions: Patients taking the combination of Truvada, Darunavir, Ritonavir were found to be highly treatment experienced. Despite this, 24% were found to be eligible for a switch to a single-tablet regimen. This switch could potentially decrease the potential for drug interactions, costs (depending on local tariffs) and the pill burden for the patient.

P34

Retrospective multicenter analysis on the use of eviplera in an HIV-infected cohort attending Essex services

MSA Bakar[1], AP Chun[1], L Hilton[1], H Jaleel[1], M Lechelt[2], H Price[3] and M Ramogi[4]
[1]Southend University Hospital, Essex, UK; [2]North East London NHS Foundation Trust, London, UK; [3]Mid Essex Hospital NHS Trust, Essex, UK; [4]Colchester University Hospital NHS Foundation Trust, Essex, UK

Background: Eviplera (EVP) is a single-tablet regimen (STR) consisting of three antiretroviral drugs: emtricitabine, tenofovir and rilpivirine. It must be taken with at least 400 calories of food to maintain efficacy. Studies have shown that switching from efavirenz (EFV) or protease inhibitor (PI) based regimes to EVP results in improved toxicity and tolerability. In naïve studies EVP has been shown to be non-inferior to Atripla in patients with a baseline viral load (VL) of <100,000.
Methods: Case note review of individuals on EVP both first- and second-line attending four Essex HIV centres. Data collected at weeks 0, 4, 8, 12, 24 and 48 after starting EVP included gender, age, surrogate markers (i.e. CD4 count, VL), renal and liver parameters (LFT), cholesterol and patient-reported adverse events, pill and calorific adherence.
Results: A total of 57 patients were identified (median age 43; 33 female and 24 male). 36 (63%) had switched and 20 (35%) were naïve prior to EVP. In 1 the indication for EVP was unknown. 30 (83%) had switched from an EFV-based regime and 6 from a PI. 24 (67%) had switched because of EFV-related central nervous system (CNS) side effects, 4 (11%) for simplification and in 8 (22%) the reason was unknown. In naïve patients baseline VL was >100,000 in two and ranged from 2530 to 504,526, median 75,254. All achieved VL<100 at week 12 and <50 at week 48 with a mean CD4 increase of 135. No serious adverse events were reported by week 48; 9 patients had gastrointestinal upset, 3 chest symptoms, 2 musculoskeletal pain, 2 CNS symptoms, 2 weight issues and 1 neuralgia. 1 patient had deranged LFT at baseline until week 48, 1 had impaired renal function and hypophosphataemia at week 12 and 5 had raised cholesterol at week 48. 22 (92%) of 24 patients switched for EFV-related CNS toxicity had complete resolution by week 12 while those simplified reported better adherence. Caloric adherence was only documented at 50% of visits and pill adherence at 64%. 2 reported poor adherence. One patient struggled to maintain minimum caloric intake and was referred to a dietician.
Conclusion: EVP is a good alternative for patients who experience EFV-related CNS toxicity or as a regime simplification. Both naïve and switched patients maintained full virological suppression over the analysis period. EVP has a lower pill burden and is generally well tolerated. The extra caloric requirement does not seem to be an issue for most patients.

P35

Clinical characteristics of patients commencing antiretroviral treatment and regimen at 12 months

K Htun, C Ndelu and M Pakianathan
St George's Hospital, London, UK

Background: Local guidelines with prescribing algorithms can influence when and what treatment is initiated. We describe the characteristics of patients starting antiretroviral treatment for the first time at a busy urban HIV treatment centre over a 6-year period and assessed if they remained on the regimen initiated at 12 months.
Methods: Retrospective case note review of patients commencing HAART between 2008 and 2014. The following data fields were analysed; demographics, viral load and CD4 count at time of diagnosis, the treatment regimen initiated, the regimen at 12 months and the outcome. Those with any previous HAART or commencing treatment in pregnancy were excluded.
Results: 229 commenced HAART for the first time in the period analysed. There was a trend to lower median age at starting treatment from 43 in 2008 to 36 in 2014 and increase in median CD4 at treatment from 178 (2008–2011) to 255 (2011–2014). An increasing proportion of patients switched treatment within 12 months of starting therapy from 18% (2008–2011) to 34% (2011–2014) [p=0.015]. NNRTI containing regimens were most frequently prescribed (74%) followed by protease-inhibitor (PI) [24%] and Integrase inhibitor (2%) containing regimens. 40% of those commencing PI containing regimens switched by 12 months, compared to 19% of those starting NNRTI containing

regimens. PI use was unchanged when comparing the initial and subsequent 3 years 27% (08–11) and 20% (11–14) [p=0.3].

Conclusion: Patients are commencing treatment at higher CD4 counts but increasingly likely to switch treatment after commencing therapy. This was not due to higher level of PI initiation and may have been in part due to local prescribing algorithms and the availability of better-tolerated newer treatments.

P36

Dolutegravir use in naïve and experienced patients in 2 linked clinical settings: a review of indications, outcomes and patient experience

L Cunningham[1], F Clarke[1], B Healy[1] and C Goodman[2]
[1]Cardiff University Health Board, Cardiff, UK; [2]Cardiff University Medical School, Cardiff, UK

Background: Dolutegravir (DTG) is licensed and recommended for the treatment of naïve and experienced patients with human immunodeficiency (HIV) infection. It offers potential advantages over other integrase inhibitors with respect to virological efficacy, pill burden and drug-drug interactions and first became available in our service in June 2014. This is a retrospective case note analysis of the indications for use and initial experience of patients on DTG in a clinical setting over an 11 month period.

Methods: Patients started on DTG between 30th June 2014 and 1st May 2015 were identified from pharmacy records and the case notes reviewed. Data was collected on demographics, baseline characteristics, antiretroviral (ARV) and other drug history, indications for starting DTG and for stopping DTG if applicable. Data was also collected on clinical, immunological and virological response to DTG including side effects.

Results: 63 notes were available for analysis. The majority of patients (53/63, 84%) was male and the median age was 44 years. The rationale for prescribing DTG was recorded clearly in 61/63 patients and of these, 52/61 (85%) were switches. Overall, the most common primary indications for using DTG included side effects from other agents (27/61, 44%), request for a once daily regimen (24/61, 39%) and viral resistance (13/61, 21%). Resistance reports were available in 40 cases. Overall, 22/40 (55%) had documented viral resistance. On starting DTG, nearly half of patients (28/63, 44%) experienced side effects which were most often neuropsychiatric (19/28, 68%) with sleep disturbance cited in 11/19 (58%) of these patients. Other reported side effects included gastrointestinal (8/28, 29%), skin (4/28, 14%) and respiratory (2/28, 7%). Where recorded, 12/17 (71%) patients who reported neuropsychiatric side effects had a history of psychiatric morbidity as compared with an overall rate of 54%.

Conclusion: This review shows that DTG was used in a significant number of patients in the fist 11 months after it became available to us in 2014. The majority of patients were switched from other agents, most commonly for side effects. However, significant numbers of patients experienced side effects with DTG which were commonly neuropsychatric. Further data will be presented on virological and immunological outcomes as well as discontinuation rates.

Basic Science: Immunology, Virology and Pathogenesis

P37

Baseline telaprevir (TVR) resistance mutations do not predict failure in the response guided treatment of genotype 1 acute hepatitis C (HCV) in individuals with HIV co-infection

G Singh[1], M Nelson[1], G Hicks[1], M McClure[2], S Kaye[2], C Boesecke[3] and J Rockstroh[3]
[1]Chelsea and Westminster Hospital, London, UK; [2]Imperial College London, London, UK; [3]Universitätsklinikum Bonn, Bonn, Germany

Background: There are no data on the effects of baseline drug resistance mutations (DRMs) to direct-acting antivirals (DAAs) in acute HCV in individuals co-infected with HIV. The present study investigated the baseline prevalence of naturally occurring DRMs by deep sequencing and the effects on the addition of TVR to standard PEG-IFN/RBV in patients with genotype 1 acute HCV co-infected with HIV who were enrolled in a multi-centre trial.

Methods: The HCV non-structural (NS3) viral protease was analysed for DRMs at baseline (n=31) and at viral breakthrough (n=5) following TVR treatment both using Sanger and next generation sequencing (NGS).

Results: Sequence analysis indicated that all subjects were infected with HCV genotype 1a. A 100% concordance was seen between Sanger and NGS for high levels of mutant viral populations. The simeprevir associated Q80K mutation was present at high frequency in the German subjects (7/11 − 64%) and infrequently in the UK subjects (1/20 − 5%).Phylogenetic analysis showed no obvious separation of the two subject populations and hence the discrepancy remains unexplained. In 3/5 treatment failures, V36M/I and R155K/T appeared but not R155G which was detectable at low levels at baseline in two subjects. Comparison of sequences pre- and post-therapy in 5 who failed therapy revealed the emergence of additional V193G, E176K, P189S and V181S in one instance each. A subject who failed therapy had a DRM at baseline (A156T) which reverted to wild-type in the post-therapy sample.

	UK site baseline	UK site post-therapy	German sites baseline	German sites post-therapy
V36M/L	1/20	0/0	1/11	3/5
Q80K	1/20	0/0	7/11	3/5
R155G/K/T	0/20	0/0	2/11	4/5
I170V	1/20	0/0	0/11	0/5
N174S	1/20	0/0	4/11	1/5

Conclusion: The presence of baseline DRM for the NS3 protease gene of HCV genotype 1a did not predict treatment failure. Where detected, Q80K was present at high levels (>98%) had no effect on outcomes and remained at high levels after failure.

P38

Comparison of immune response after vaccination with polysaccharide and glycoconjugate vaccines against encapsulated bacteria between HIV-infected and HIV-non-infected adults in the UK

CA MacLennan[1], J Birtwistle[1], A Whitelegg[1], S Faustini[1], T Plant[1], M Drayson[1], K Manavi[2], M Singo[2], J Chigiga[2], S Masuka[2] and J Hodson[2]
[1]Institute of Biomedical Research, School of Immunity and Infection, College of Medicine and Dental Sciences, University of Birmingham, Birmingham, UK; [2]HIV Services, Queen Elizabeth Hospital Birmingham, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

Background: HIV-infected individuals have increased susceptibility to encapsulated bacteria. Data on the effect of polysaccharide and glycoconjugate vaccines against those bacteria among HIV infected individuals are limited.

Methods: This was a prospective study on consenting adults with and without HIV infection in a large teaching hospital. Participants received intramuscular injections of 23-valent pneumococcal polysaccharide vaccine (PPV) and *Haemophilus influenzae* b/meningococcal C polysaccharide-tetanus toxoid conjugate vaccine (Hib/MenC-TT). Post vaccination antibody levels were measured and compared between HIV infected and HIV non-infected adults. Response to vaccines was defined according the international standards. This included eliciting protective levels of IgG against eight of 12 pneumococcal serotypes in PPV.

Results: In previously-unprotected participants, Hib/MenC-TT induced protective IgG against MenC in 56% HIV-infected and 65% HIV-uninfected subjects (medians 2.88 and 4.56 µg/mL, p=0.01) and against Hib in 68% HIV-infected and 77% HIV-uninfected subjects (medians 3.74 and 4.85 µg/mL, p=0.06). Eight of 12 PPV pneumococcal serotypes induced protective IgG in more than 50% previously-unprotected HIV-uninfected subjects, this however was achieved in the HIV-infected group. Four *S. pneumonia* serotypes induced significantly lower IgG titres in HIV-infected compared with HIV-uninfected participants (medians, Pn 1 1.11 and 2.76, Pn 7F 1.51 and 5.24, Pn 18C 2.1 and 5.96, Pn 23F 1.08 and 2.35 µg/mL, p<0.001 for all comparisons). There was no significant association between response to vaccination and CD4 count or suppression of viral load.

Interpretation: In a stable UK adult HIV-infected population, Hib/MenC-TT glycoconjugate vaccine induced protective IgG responses in HIV-infected

adults. Pneumococcal polysaccharide vaccine induced poor responses compared to non-HIV infected adults. The findings support immunization with glycoconjugate vaccines against encapsulated bacteria soon after HIV diagnosis.

P39

CD4/8 ratio recovery in perinatally acquired HIV-1 infection; premature immunosenescence or immune resilience?

K Pollock[1], S Fidler[1], H Pintilie[2] and C Foster[2]
[1]Imperial College London, London, UK; [2]Imperial College Healthcare NHS Trust, London, UK

Background: The majority of young people with perinatally acquired HIV-1 (PaHIV) now survive into adulthood, however the long-term prognosis remains unclear given the relationship between chronic HIV-1 infection, premature immunosenescence and consequent associated complications. We hypothesized that premature immunosenescence, reflected in the failure of CD4/8 ratio normalisation would be observed in a population of perinatally infected adults, born in the pre-HAART (highly active antiretroviral therapy) era despite subsequent potent antiretroviral therapy (ART).
Methods: A cross sectional analysis of routine clinical data in a cohort of young adults (≥18 years) with PaHIV was undertaken. This included most recent CD4/8 ratio, demographic and viral parameters (HIV-1 viral load (VL) and human cytomegalovirus (HCMV) infection) and retrospective analysis of paediatric records. The anonymised dataset was analysed using IBM SPSS Statistics 22.
Results: 65.2% of the cohort (n=115) were Black African with 51.3% female and median (IQR) age 22 (20–24) years. HCMV IgG was positive in 71/74 (95.9%). 90/115 (78.3%) were on ART, of whom 69/90 (76.7%) had an undetectable VL (<50 RNA copies/mL). Of these 43/69 (62.3%) had CD4/8 ratio <1. 52 had CD4 counts ≥500 cells/μl, whilst 15 had CD4 ≥ 900 cells/μl and of these 24 (46.2%), and 8 (53.3%) had normal CD4/8 ratio respectively. CD4/8 ratio normalisation was associated with a CD4 count of ≥500 cells/μl (p=0.019) (Table 1). Median (IQR) nadir CD4 count was 280 (155–425) cells/μl and time on ART was 13 (9–17) years. CD4/8 ratio correlated inversely with age at which ART was started (Spearman's Rho-0.348 p=0.028) but not with nadir CD4 count or time since HIV suppression, although data were limited.
Conclusion: Persistence of abnormal CD4/8 ratios where CD4 count has recovered suggests ongoing immune activation despite potent ART, with potentially important consequences for non-AIDS morbidity and mortality. However, we observed high levels of normalisation of CD4/8 ratio amongst treated PaHIV infected young adults compared with data from cohorts with adult-acquired infection on ART where rates of CD4/8 ratio normalisation are estimated at 27% (13–39). This may indicate immune resilience in PaHIV despite prolonged infection and HCMV co-infection.

Table 1. Individuals on ART with VL<50 RNA copies/mL (n=69/115)

CD4 cells/μl	CD4/8<1	CD4/8 ≥ 1	Total	p-value*
<500	15	2	17	0.019
≥500	28	24	52	
<900	36	18	54	0.229
≥900	7	8	15	

*Fishers exact 2-sided.

P40

A novel method to assess the functional of the anti-HIV gp-41 antibody in acute HIV-1 infection

K McFaul, J Guo, E Atkins, X-N Xu and P Kelleher
Imperial College London, London, UK

Background: Human immunodeficiency virus (HIV) remains a significant global health problem, with men who have sex with men particularly at risk of infection. Strategies including vaccination and immunotherapeutics must remain a priority. Recent studies show early HIV infection is characterised by a highly mutated polyclonal gp41 antibody response, which is ineffective at controlling viraemia. This antibody response may originate from pre-priming of

existing B cells previously exposed to recognised intestinal microbial antigens including E. coli RNA polymerase (ERP), and bacterial protein pyruvate-flavodin oxidoreductase (PFO). We have developed a novel mechanism to characterise the major antigenic determinants of the HIV envelope protein and subsequent antibody response by isolation and manipulation of the gp41/120 antigen using a yeast surface display system.
Methods: A novel yeast surface displayed (YSD) system was developed using the following methods. The HIV envelope gene was isolated, amplified and randomly digested to produce large and small fragment size libraries encompassing the HIV envelope and HIV gp41 gene regions. Fragments were ligated to a carrier plasmid vector pCTCON2-T and transformed into electrocompetent DH10b *Escherichia coli* cells for culture. Library coverage was assessed and confirmed by selection and sequencing of isolated E coli clones. Plasmids containing the library were subsequently extracted and used to transform *Saccharomyces cerevisiae* EBY100 cells, which were then induced to display HIV envelope and HIV gp41 epitope fragments. Presence of displayed envelope antigen was confirmed by flow cytometry analysis using human monoclonal antigen 10E8 to target the membrane bound proximal external region (MPER) of the HIV envelope protein.
Results and Conclusion: A combinatorial antigen library was constructed to allow analysis and characterisation of immune responses to HIV envelope proteins, and to screen the antibody profile in our patient population. Future work will employ this technique along with monoclonal antibody production and functional antibody assessment to quantitatively assess the role and function of anti-gp41 and anti-envelope antibodies in distinct patient populations: high risk seronegative men who have sex with men, patients with acute HIV infection, and those with established infection.

P41

Detection of replication-competent HIV from latently infected CD4 + T cells

A Fun, M Wills and A Lever
University of Cambridge, Cambridge, UK

Background: Accurate measurement of the latent HIV reservoir is critical for the evaluation of novel eradication strategies. Drawbacks of the "standard" viral outgrowth assay are the high cost and poor sensitivity due to low expression of CCR5 on most donor peripheral blood mononuclear cells (PBMC). RIVER, a UK wide collaboration aimed at eradicating HIV is the first phase II trial designed to test a combination of a prime-boost vaccination strategy followed by treatment with an HDAC inhibitor in order to reduce the size of the latent HIV reservoir. This study aimed to develop a reliable assay to quantify the replication competent latent HIV load in CD4+ T cells with a significant cost reduction and increased sensitivity for R5-tropic virus.
Methods: Resting CD4+ T cells were obtained from whole blood using density-gradient PBMC isolation followed by negative selection of CD4+ T cells and depletion of activated cells. The resulting resting CD4+ T cells were activated with PHA and allogeneic irradiated PBMCs and co-cultured with a clonal cell line expressing CD4, CXCR4 and CCR5. Viral production was detected by HIV-1 p24 ELISA.
Results: The new assay has significantly lowered costs from £3800 to £750 per assay and is more sensitive than co-culture with donor PBMCs. Replication competent virus was detected in 19/23 patients. Re-stimulation with PHA of negative cultures often resulted in viral outgrowth in additional cultures. However, in samples from patients without a detectable reservoir all cultures remained negative upon re-stimulation. The robustness of the assay was validated using 8 samples from the same patient taken over a period of 4 months.
Conclusion: The cell line based outgrowth assay reduced both labour and cost. It demonstrated high reproducibility and an improved sensitivity compared to a donor PBMC based assay. Multiple rounds of PHA stimulation can result in a larger proportion of the latently infected population being activated, indicating that the standard assay is only a measure of the minimal reservoir size. This assay will facilitate further studies on quantitating the latent HIV load.

P42

The quest for a prophylactic HIV vaccine continues: results from a Phase I trial using novel routes of DNA vaccination in HIV-uninfected volunteers

R Shattock[1], A Cope[1], G Bouliotis[1], G Haidari[1], A Miller[1], H Ridgers[1], S Venables[1], C Yan[1], A Spentzou[1], P Hayes[2], S Joseph[3] and S McCormack[3]

[1]Imperial College London, London, UK; [2]IAVI, Human Immunology Laboratory, London, UK; [3]Medical Research Council, Clinical Trials Unit at University College London, London, UK

Background: DNA vaccines are poorly immunogenic when delivered via the intradermal (ID) and/or intramuscular (IM) routes. Novel routes of delivery may enhance immunogenicity. In previous trials, electroporation (EP) has been used to successfully enhance IM immunisation with HIV DNA, and transcutaneous (TC) delivery of a licensed influenza/tetanus vaccine elicited CD8 + T-cells, an important goal for HIV immunisation.
Methods: 30 eligible HIV uninfected volunteers were randomised to receive GTU® MultiHIV DNA vaccine at weeks 0/4/12, administered by 1 of 3 routes: ID+IM, TC+IM, or EP assisted IM injection. The primary endpoint was a response to vaccine encoded peptides in the IFN-ɣ T-cell ELISpot assay at week 14, according to pre-defined thresholds. The proportion of responders and mean of triplicates expressed in Spot Forming Units/million cells (SFU/million) in each novel group was compared to ID+IM and tested for statistical significance. An exploratory outcome was the viral inhibition assay to assess the in vitro ability of CD8+ cells to inhibit HIV replication.
Results:

	ID+IM	TC+IM	EP+IM
Peptide response week 14	3/9 (33%)	0/11 (0%)	9/10 (90%)
Rev (SFU/million)			
n	0	0	5
Mean			221
Median			167
Tat (SFU/million)			
n	0	0	3
Mean			82
Median			82
Nef (SFU/million)			
n	2	0	9
Mean	64		233
Median	64		277
Gag (SFU/million)			
n	1	0	9
Mean	170		209
Median	170		168

EP+IM was significantly better than ID+IM both in terms of proportion of responders and magnitude across all peptides (all p values=<0.05). No responses were seen in the TC+IM group. However, viral inhibition was observed in all 3 groups, with the maximum responses in the EP+IM group (5/10 participants inhibiting up to 4/6 viruses including non-clade B inhibition).
Conclusions: Electroporation assisted IM vaccine delivery improved the immunogenicity of the GTU® MultiHIV DNA compared to the more conventional ID+IM route. Transcutaneous immunisation was disappointing and did not confirm the promising results seen with influenza/tetanus vaccine, which may reflect the greater immunogenicity of those antigens.

P43

Inflammation and microbial translocation in primary HIV infection and the effect of short-course antiretroviral therapy

E Hamlyn[1], W Stöhr[2], K Porter[2], K Parmer[3], BJ Hunt[3], S Kinloch[4], D Cooper[5], J Frater[6] and S Fidler[7]

[1]King's College Hospital NHS Foundation Trust, London, UK; [2]MRC Clinical Trials Unit at UCL, London, UK; [3]Guy's and St Thomas' NHS Foundation Trust, London, UK; [4]Royal Free Hospital, London, UK; [5]Kirby Institute, NSW, Australia; [6]Oxford University, Oxford, UK; [7]Imperial College London, London, UK

Background: Microbial translocation is associated with immune activation in chronic HIV-1 infection and may provoke endothelial dysfunction. We examined the relationship between surrogate markers of microbial translocation, endothelial activation and immune activation in Primary HIV-1 infection (PHI) and assessed whether short course ART given in PHI impacts on these biomarkers after stopping treatment.
Methods: Plasma samples from 90 UK and Australian SPARTAC participants recruited within 6 months of HIV seroconversion and randomised to 12 or 48 weeks ART, or no ART, were analysed for surrogate markers of microbial translocation (LPS-Binding Protein (LPB), soluble CD14 and Endotoxin Core Antibody (EndoCab) at baseline and week 60. Results were correlated with markers of inflammation, coagulation and endothelial activation (IL-6, D-dimer, soluble tissue factor, ICAM-1) and CD4 and CD8 T-cell activation (CD38 and HLA DR) using Spearman rank correlations. Biomarker levels at week 60 and change from baseline were compared between arms using linear regression analyses. Samples from 30 healthy controls were also analysed at a single time point and compared to SPARTAC week 0 and 60 using Mann-Whitney U tests.
Results: In SPARTAC participants at week 0 there was a significant association between LPB and IL-6 (rho=0.4, p<0.001), between sCD14 and D-dimer (rho=0.3, p=0.01) and between sCD14 and sICAM (rho=0.3, p=0.004). These associations remained at week 60.
At SPARTAC week 0, no relationship was seen between T cell activation and markers of microbial translocation. However at week 60, sCD14 and EndoCAb correlated with CD4 T-cell activation (e.g. sCD14 and CD4 HLADR% rho=0.4, p<0.001; EndoCab and dual CD4 CD38 HLADR% rho=0.3, p=0.01) and LBP weakly correlated with CD8 T-cell activation.
No difference was seen between SPARTAC arms at week 60 comparing those who received either 12 or 48 weeks ART and those randomised to no ART.
LBP and sCD14 were raised in SPARTAC patients compared to healthy controls at week 0 and week 60 (p<0.001 for sCD14; p=0.002 at week 0, p=0.02 at week 60 for LPB).
Conclusion: Surrogate markers of microbial translocation were raised in HIV+ve patients compared to healthy controls. In SPARTAC, these markers were associated with T cell activation at week 60 but not at seroconversion. 48 weeks of ART did not impact LPS activity at 60 weeks after PHI, 12 weeks after treatment interruption; this analysis was however limited by small numbers.

[BHIVA Research Awards winner 2009: Elizabeth Hamlyn]

P44

Correlation between GeneXpert, a novel Human Immunodeficiency Virus type 1 (HIV-1) assay for viral load measurement assay with the Abbott m2000 real-time assay

S Masuko, J Chigiga, J Hodson, K Dedicoat, P Killick, H Osman and K Manavi
University Hospitals Birmingham, Birmingham, UK

Background: HIV-1 viral load (VL) measurement is the best method for monitoring success of combination antiretroviral therapy (cART) for suppression of HIV replication. Because of a life-long requirement for cART, VL should be measured regularly. Historically, VL measurements have been carried out in laboratories with a turnaround time of 1 week on average.
A point of care VL assay can provide a model of VL monitoring service where clinicians can access the results on the same day of VL sampling. GeneXpert HIV-1 viral load assay offers such a model of service delivery.
The aim of the present study was to investigate the correlation of a new point of care VL assay with Abbott m-2000 HIV VL assay; a widely used laboratory based assay.

Methods: Prospective study on consecutive HIV infected patients attending a large centre between 2nd and 20th February 2015. Consenting patients agreed to undergo venesection to provide paired blood samples for VL testing on GeneXpert and on Abbott's m-2000 assays. Samples were labelled with unique study codes to keep laboratory scientists blinded. VL results were abstracted from the VL machines after the paired specimens of the last study participant were processed.

Results: 100 paired VL measurements on the two assays were available. Of these, 75 were undetectable on both assays, and 18 gave detectable levels on both assays, showing reasonable consistency, with 93% agreement, and a Kappa of 0.79 (p<0.001). Six samples were detectable on the GeneXpert but not on the Abbott, compared to only one in the opposite direction. This bias was not significant (p=0.125). Twenty five samples with detectable VL measurements were further investigated. The GeneXpert measurements were on average, 2.0 times larger than those on the Abbott assay (95% CI: 1.3–3.2). The degree of bias was significant (p=0.004).

Conclusion: The GeneXpert assay was reasonably consistent with the Abbott assay for identifying patients with undetectable viral load (< 40 copies/mL), with 93% agreement. However, for those with detectable viral loads, there was a significant bias, and considerable variability between the two assays.

P45

Slow emergence of resistance to C34–PEG4–Chol; a novel HIV fusion inhibitor

K Quinn[1], A Winston[1], S Kaye[1], G Maertens[1], M McClure[1], R Cortese[2] and A Pessi[3]
[1]Imperial College London, London, UK; [2]CEINGE, Naples, Italy; [3]PeptiPharma, Rome, Italy

Background: Long acting injectable antiretroviral (ARV) combination regimens may provide alternative treatment strategies for HIV-positive individuals. C34, a known fusion inhibitor (FI), when tagged with pegylated cholesterol (C34-PEG4-Chol), has a long half-life in animal models and may be a candidate for use in humans. Aside from injection site reactions, use of FI is limited by the rapid emergence of resistance. An understanding of the resistance profile of novel ARV agents is crucial. We assessed the emergence of resistance associated mutation with C34-PEG$_4$-Chol in vitro and in vivo and compared results to known mutations which arise in the presence of enfuvirtide.

Methods: HIV was grown in a T-cell line starting at the IC90 of the C34-PEG4-Chol. Viral growth was monitored by a performance enhanced reverse transcriptase (PERT) assay. With each passage, drug concentration was doubled. Sequence analysis of gp41 was undertaken to identify evolution of mutations. Site-directed mutagenesis was used to create viral clones to confirm the effect of emergent mutations on drug susceptibility. In vivo samples were analysed from 3 viraemic HIV-positive patients exposed to a single dose of C34-PEG$_4$-Chol.

Results: Ten viral passages were conducted (up to $500 \times IC_{90}$) whereupon viral growth was completely inhibited. Virus grew competently up to $250 \times IC_{90}$. A single point mutation arose within the heptad repeat (HR)-1 domain of gp41 (A71T) and two compensatory mutations within the HR-2 domain (E136G, E148K). These mutations differ from enfuvirtide where mutations emerge rapidly at positions 36–43 of gp41 with occasional compensatory mutations at 136–138 (Table). Viruses containing A71T, E136G and E148K remained replication competent. Clonal virus containing A71T mutation allowed cell entry in concentrations of C34-PEG$_4$-Chol 16-fold above the IC_{90}. No mutations emerged over 90 days in 3 patients exposed to a single dose of C34-PEG$_4$-Chol.

Conclusions: Resistance to C34-PEG$_4$-Chol emerged slowly in vitro. The mutation, A71T has been described but not shown to reduce susceptibility to enfuvirtide. The resistance pathway of C34-PEG$_4$-Chol differs to that seen with enfuvirtide.

Compensatory	Enfuvirtide					C34–PEG$_4$–Chol		
	Primary				Compensatory	Primary		
	36	38	43	71	138	71	136	148
	G	V	N	A	S	A	E	E
	D/S	A	D	T	A	T	G	K
Fold change in susceptibility	450	60	249	1	–	16	–	–

P46

Frequency of virological control off ART amongst a cohort of patients attending a London HIV clinic

F Nyatsanza, F Huq, F Ramzan, N Mackie and S Fidler
Imperial College Healthcare NHS Trust, London, UK

Background: Certain rare individuals maintain spontaneous plasma viraemic control off antiretroviral therapy (ART). Control of plasma viraemia after ART treatment interruption, post treatment control (PTC) is extremely rare but has been reported amongst treated seroconverters who interrupted therapy enrolled into the Visconti Study. We sought to identify and characterise the frequency of this phenotype amongst attendees at one London HIV centre.

Methods: Definition of viral control was plasma HIV RNA<200 copies/mL for >6 months in the absence of reported ART. For this group a "Viral Blip" was defined as viral load of >200 copies/mL which resolved spontaneously without treatment. Patients who had previously been treated but interrupted therapy were also included. We present a descriptive analysis of eligible individuals identified from a cohort of HIV+ patients attending the clinic.

Results: 15 individuals of a clinic cohort of 3224 HIV+ individuals fitted the viral controller phenotype, 11/15 were spontaneous viral controllers, and 4/15 were PTC. As shown in Table 1 below, overall comparison between the two groups showed no significant differences in terms of gender, nadir CD4 count, Hepatitis B (HBV) and Hepatitis C (HCV) co-infection, resistance profile and number of viral blips. Of the 4 PTC the length of time on ART prior to interruption was very variable, median time on treatment 12 weeks (range 8–208).

Conclusion: Spontaneous viral control off ART and post-treatment viral control is rare. Better understanding of associated factors is important to inform the design of future HIV cure approaches. Within the current BHIVA ART guidelines, ART interruption is not recommended and treatment initiation is recommended for all meaning that prospective studies to explore this phenotype more rigorously are not ethical or feasible.

Table 1.

	ART Naïve	PTC
Number of patients	11	4
Country of origin	5 UK, 1 Philippines, 1 Grenada, 1 China, 1 Guinea Bissau, 1 Colombia, 1 Ireland	1 Kenya, 1 Colombia, 1 Brazil, 1 Ethiopia
Age (range)	47 (30–76)	43 (38–47)
Gender	9 Male, 2 Female	3 Male,1 Female
Nadir CD4 count (range)	490 (159–720)	394 (328–630)
Viral clade	4 B,1 C 1 CRF01_AE 5 not available	2 B,1 C 1 not available
Resistance	1 G190E 5 Nil mutations	3 Nil mutations
HBV cleared	1	0
HCV cleared with treatment	0	1
HCV spontaneously cleared	1	1
HCV co-infected	0	1
Length on ART (range)	not applicable	12 (8–208 weeks)
Number of Viral Blips (range)	1 (0–3)	1 (1)

P47

Gag– and Nef–specific responses are associated with increased proportions of regulatory T cells in treated chronic HIV–1 infection

A Cocker[1], G Hardy[1], A Herasimtschuk[1], N Imami[1] and M Nelson[2]
[1]Imperial College London, London, UK; [2]Chelsea and Westminster Hospital, London, UK

Background: Interventions directly targeting the HIV-1 reservoir to achieve a cure (induction, immune recognition and clearance) are required, and CD4 T

cells, mediators of HIV-1-specific response, are central to this. Functional and phenotypic immune profiles associated with slower progression rates have been demonstrated. Early and robust CD4 T-cell responses to Nef and a preserved Gag p24 proliferative response are associated with better disease prognosis. Furthermore, long-term non-progressors have less generalized CD4 T-cell immune activation compared to rapid progressors. This study aims to determine the relationship between virus-specific responses and regulatory T cell (Treg) frequency in treated chronic HIV-1 infection.

Methods: Peripheral blood mononuclear cells from ART-treated HIV-1^{+} individuals were assessed in IFN-γ and IL-2 ELISpot assays, for their functional responses following stimulation with overlapping pools of Gag and Nef peptides. Subjects were characterized as being responders to Gag (n=5), Nef (n=3), both Gag and Nef (n=2), or as non-responders (n=7). Functional responses were then compared to the immunophenotypic profiles using flow cytometry and markers of Tregs (CD4, CD25, CD45RO). Analysis of seronegative donors was also undertaken (n=10). Statistical analysis was performed using the Mann-Whitney U test.

Results: All patients had CD4 T-cell counts >350 cells/μl blood and plasma HIV-1 RNA <50 copies/mL. Percentage CD4 Treg subset was significantly higher in the HIV-1^{+} subjects compared to seronegative donors (p<0.0001). Responders tended to have higher proportions of Tregs, and non-responders lower proportions, albeit higher than observed for seronegative controls. Treg frequencies did not differ between Gag and/or Nef responder groups.

Conclusion: Functionally classified responders have increased levels of Tregs during treated infection. This may indicate dysfunction of Treg-mediated suppression. Conversely, elevated Tregs may protect from excessive activation and exhaustion. As Tregs may represent a population enriched for the HIV-1 reservoir in virally suppressed individuals, it is key that the role of Tregs is understood to allow accurate therapeutic targeting in chronically infected individuals. Further in-depth studies, focussing on functional and phenotypic complexity of Tregs during HIV-1 infection and/or therapeutic interventions, are warranted.

Behaviour, Transmission and Prevention

P48

Are sexual health programmes in sub-Saharan African schools effective in promoting condom use and preventing sexually-transmitted infections including HIV? A systematic review and meta-analysis

AS Sani, C Abraham, S Denford, and S Ball
University of Exeter, UK

Background: School environments are arguably the best avenue for promoting adolescent sexual health. We reviewed evaluated school-based sexual health education interventions implemented in sub-Saharan Africa and determined their effectiveness in promoting condom use and reducing STIs including HIV. We also explored features that may be associated with effectiveness in the development and implementation of the programmes.

Methods: Ten electronic databases, key journals and citation lists of included papers were searched. The quality of included articles was assessed and relevant data including intervention characteristics were extracted. Random effect meta-analysis was used to synthesized condom use, HIV infection and Herpes Simplex Virus 2 (HSV2) infection. Chi-square test was used to determine the statistical difference in occurrence of features that may be associated with effective interventions.

Results: We found 32 interventions that met our inclusion criteria (17 randomised controlled trials and 15 quasi-experimental evaluations). Majority (31) were of good methodological quality. The interventions were successful in promoting condom use, most significantly for short and intermediate follow-up periods (OR=1.62, 95% CI=1.03–2.55, p<0.05 and OR=1.40, 95% CI=1.16–1.68, p<0.05 respectively). However, the few papers that reported on HIV or HSV2 infections showed the interventions to have no statistical effects on the infections (OR=1.16, 95% CI=0.87–1.54, p>0.05 and OR=1.08, 95% CI=0.94–1.24, p>0.05). Only few papers reported on implementation details. Fifteen features that may be associated with effectiveness of the interventions were identified. Interventions that include six or more of these features are more likely to be effective [$\chi 2$ (1, n=32)=5.04, p=0.03].

Conclusion: School-based sexual health education interventions are effective in promoting condom use in sub-Saharan Africa. However, future interventions

should evaluate measurable effects on STIs/HIV and report on implementation details of the programmes. The effectiveness of future programmes can be improved potentially by including six or more of the features identified by this study to be associated with effectiveness.

P49

Sexual health knowledge, attitudes and practices among BAME MSM: a mixed methods study

R Jaspal[1], Z Jamal[2], I Paccoud[2] and P Sekhon[2]
[1]De Montfort University, Leicester, UK; [2]NAZ, London, UK

Background: Both men who have sex with men (MSM) and Black, Asian and Minority Ethnic (BAME) groups experience significant sexual health inequalities. BAME MSM face a double jeopardy, with black MSM fifteen times more likely to be HIV-positive compared with the general population. Despite the sexual health inequalities faced by BAME MSM, there is little research into HIV knowledge and sexual behaviour in this population. In an attempt to address this lacuna, this exploratory cross-sectional correlational survey provides insights into the sexual health knowledge, attitudes and practices of BAME MSM. A survey exploring the sexual health knowledge, attitudes and practices of BAME MSM was conducted.

Methods: Quantitative data were collected using a cross-sectional correlational survey administered to 577 BME MSM. They completed the survey at NAZ, a community-based BAME sexual health charity, and at BAME MSM events over an 18-month period. Data were analysed using a variety of statistical approaches. Qualitative data consisted of individual and focus group interviews conducted with 40 BME MSM. These data were analysed using qualitative thematic analysis.

Results: There was an interaction effect of ethnicity and sex party attendance on frequency of drug use, with HIV-positive Latino attendees reporting greatest drug use. There was an interaction effect of ethnicity and level of education on sexual health knowledge, with less educated South Asians possessing the least knowledge. Sexual health knowledge was lowest among those MSM who believed their sexual behaviour was low-risk. There were significant inter-ethnic differences on key sexual health variables: frequency of sex-seeking in saunas/on mobile applications, frequency of drug use, frequency of condom use during anal sex, and HIV/sexual health screening. There were strong correlations between perceived homophobia, racism and sexual risk behaviours, and this effect was strongest for Black MSM.

Conclusion: These preliminary results shed light on potentially effective contexts in which BAME MSM can be successfully engaged. The findings should contribute to the nature and structure of sexual health interventions for BAME MSM.

P50

Experiences of stigma among people living with HIV accessing care through the National Health Service

C Ferraro[1], L Benton[1], I Lut[1], A Hudson[1], P Kirwan[2], J Jefferies[2], V Delpech[2], S Okala[2], W Sseruma[3], R Mbewe[3], J Morton[3], G Valiotis[4], C Kunda[5], Z Jamal[5], I Reeves[6], M Nelson[7], M Ross[8], A Wolton[8], H Cardwell[9] and L Sharp[9]
[1]Family Planning Association, London, UK; [2]Public Health England, London, UK; [3]StigmaIndexUK, London, UK; [4]HIV Scotland, UK; [5]NAZ, London, UK; [6]Homerton University Hospital, London, UK; [7]Chelsea and Westminster Hospital, London, UK; [8]Clinic Q, London, UK; [9]Glasgow University, UK

Background: Stigma impacts on wellbeing and the quality of healthcare. We report on the experience of disclosure and stigma among people living with HIV accessing health care through the National Health Service (NHS).

Method: The STIGMASurveyUK 2015 was co-designed by people living with HIV, clinicians and researchers. People were recruited through over 120 cross sector community organisations and 47 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: Of 1528 (97%) people who completed the healthcare section, 1152 (76%) were male (948 [82%] identified as men who have sex with men) and 344 (23%) female (322 [93%] identified as heterosexual). Mean age was 44 years (range 18–83 years). 1393 (91%) people had disclosed their HIV status to their GP and 863 (56%) to their dentist: 54% and 57% respectively
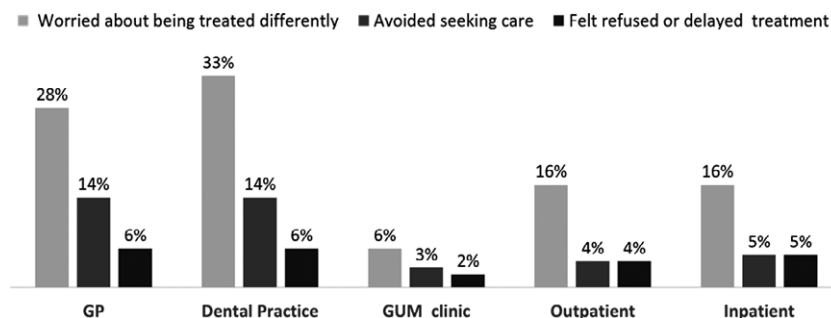
■ Worried about being treated differently   ■ Avoided seeking care   ■ Felt refused or delayed treatment

Fig. 1 Reported experiences of anticipated and enacted stigma in the previous 12 months STIGMASurveyUK 2015

of those who had disclosed felt supported during the process. Over the past 12 months, a high proportion of people reported being worried about being treated differently in a range of health care settings, up to one in eight avoided their GP and dentists and one in twenty reported being refused or delayed treatment (Fig 1). 14% had heard negative comments from a healthcare worker about their HIV status or people living with HIV.

Conclusion: In 2015, people living with HIV continue to experience stigma in the health care setting and some consequently avoid care. Culturally specific educational programmes aimed at health care professionals are needed to reduce experienced stigma and discrimination.

P51

The potential impact of PrEP (pre-exposure prophylaxis) in a single HIV centre

S Cavilla

Royal Sussex County Hospital, Brighton, UK

Background: New HIV diagnoses among men who have sex with men (MSM) accounted for 54% of reported 2013 UK diagnoses. The lifelong cost of treating a single HIV infection is estimated at £280,000–£360,000. The efficacy of PrEP has been demonstrated in multiple trials. PrEP has been recommended by the World Health Organization as an additional method of preventing HIV infection in MSM, but it is not currently commissioned by NHS England and is only available in trials or by private prescription.

This work was conducted at a centre in an area of high HIV prevalence. In the centre's HIV cohort of 2296 patients, 80% have sex between men documented as the probable route of infection. This study evaluated the patient characteristics of those newly diagnosed in 2015, to assess whether they would have been suitable for PrEP.

Methods: New HIV diagnoses in 2015 were identified from electronic records. Data were collected from paper and computerised notes. Patients were deemed eligible for PrEP if they fitted criteria for entry to the PROUD study or the main UK private provider clinic checklist.

Results: Of 57 newly diagnosed HIV positive patients; 50 (88%) identified as MSM. Of these, 24 (48%) had tested HIV negative in the previous year, and 22 more than a year previously; 4 had never previously tested. 27/50 (54%) of the MSM cohort reported unprotected anal intercourse (UPAI) in the last 3 months and 45 (90%) ever. 16/50 (32%) had a rectal sexually transmitted infection or syphilis in the last 12 months. 18/50 (36%) reported chemsex. 7/50 were hospitalised at or within 3 months of diagnosis. 11/42 MSM had an avidity test result reported as incident.

Conclusion: 88% of the new HIV diagnoses in 2015 at this centre were MSM. A majority reported risk factors such as UPAI, chemsex and recent STIs. Most of the new diagnoses in this cohort would have been eligible for PrEP. Commissioning of PrEP has the potential to markedly reduce HIV incidence in this cohort.

P52

The impact of HIV stigma on intimate relationships

A Hudson[1], L Benton[1], I Lut[1], C Ferraro[1], S Okala[2], V Delpech[2], P Kirwan[2], J Jefferies[2], R Mbewe[3], J Morton[3], W Sseruma[3], C Kunda[4], Z Jamal[4], H Cardwell[5], L Sharp[5], M Nelson[6], I Reeves[7], M Ross[8], A Wolton[8] and G Valiotis[9]

[1]Family Planning Association, London, UK; [2]Public Health England, London, UK; [3]StigmaIndexUK, UK, UK; [4]NAZ, London, UK; [5]Glasgow University, UK; [6]Chelsea and Westminster Hospital, London, UK; [7]Homerton University Hospital, London, UK; [8]Clinic Q, London, UK; [9]HIV Scotland, UK

Background: Stigma and discrimination impact on the wellbeing of people living with HIV. We present findings of the UKStigmaSurvey focusing on intimate relationships.

The survey was co-designed by people living with HIV, clinicians and researchers. People were recruited through community organisations and 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: 1576 people (1180 men, 359 women, 27 transpersons) completed the survey; 75% were men (62% identified as men who have sex with men (MSM)); 37% were of Black, Asian, or another ethnic minority (BAME); 92% were on treatment. Overall, two-thirds felt in control of their health and positive about life; 95% had disclosed to at least one member of their family, friends, to a partner or in their workplace. Among the 840 (53%) people currently in a relationship, 84% reported that their partner/s was aware of their HIV status. A quarter did not feel in control to disclose or supported by sexual partners, 47% worried about being rejected by a sexual partner and 49% had avoided having sex in the last year. Four in five respondents were aware of prosecutions for recklessly transmitting HIV and one in five believed that transmission of HIV should be a criminal offence. The risk of criminal prosecution relating to HIV transmission influences decisions about disclosure for 40% of respondents. Overall 87% felt that both partners, regardless of HIV status, equally share responsibility for preventing HIV transmission. Some differences by gender, age and risk group were observed.

Conclusion: The majority of people living with HIV feel in control of their health and positive about their life. Nevertheless, in 2015, "in an age of un-detectability" and effective treatments, HIV continues to have a profound impact on intimate and sexual relationships. Greater awareness of "treatment as prevention" would reduce fear and stigma within relationships.

P53

Engaging the disengaged in a community clinic

A Horsley[1], FJ Vilar[1] and G O'Shea[2]

[1]North West Infectious Diseases, North Manchester General Hospital, Manchester, UK; [2]Urban Village Medical Practice, Manchester, UK

Background: Patients living with HIV are enjoying an improved life expectancy, fewer side-effects and better viral control. However, those with chaotic lifestyles, intravenous drug use (IVDU) and inadequate housing continue to do poorly. They have higher rates of disengagement, poor compliance with therapy and more medical co-morbidities. One of our departmental clinics is run in a local GP surgery that cares for the homeless in Manchester with a pro-active and engaged clinical team. Multidisciplinary

team meetings provide, whether patients attend or not, an onward plan for their HIV treatment alongside other medical issues. We looked at a group of patients managed in this non-traditional approach and how their care has progressed, including a number who had moved to other GPs.

Methods: A group of 11 patient's records were reviewed who were seen at the Urban Village (UV) clinic. Their CD4 counts and viral loads (VL) from diagnosis, before and after transfer to UV clinic were compared. We also looked at overall admission rates and "did not attends" (DNAs) pre- and post-transfer. The causes for two deaths in this group were assessed for preventable factors.

Results: All but one of the patients were male, 9/11 had a history of IVDU and 9/11 were co-infected with hepatitis C. 3 of the patients had moved on to another GP, 2 of these were undetectable whilst 1 has disengaged completely with a rising VL. 3/6 of the current patients were undetectable with a CD4>200. The average number of admissions in this group fell from 4.5 to 1 despite only a small change in DNAs (2 to 2.17). One of the two patients died from a HIV-associated infection with poor medication concordance, clinic attendance and repeated self-discharges from hospital. The other died from a non-HIV related tumour.

Conclusions: Given the complex needs of these patients the preserved CD4 counts and VL indicate a comparatively good level of viral control. They compare favourably with our experience with disengaged patients whose mortality approaches 50%. The non-traditional approach and integration within a primary care facility means their HIV issues are treated holistically alongside other issues. Ad hoc attendance and opportunistic reviews meant their care plans could be carried out appropriately by their GP. By expanding the service to other community clinics with a similar cohort of patients we hope to re-engage some of our highest risk patients with more established HIV services.

P54

Programs to control spreading of HCV and HIV in populations at risk

G Kaminskiy, A Pronin and E Orlova-Morozova
Moscow Regional AIDS Centre, Moscow, Russia

Background: Noninvasive (oral) tests for HIV and HCV are available for use in populations at risk (PR). Direct acting agents (DAA) for hepatitis C become accessible worldwide (ombitasvir/paritaprevir/ritonavir, dasabuvir – first DAA, asunaprevir, daclatasvir– second DAA, licensed in Russia). There are encouraging data, that DAAs can reduce the spreading of HCV. Early treatment of HIV-infection is a powerful tool to confine spreading of HIV. The purpose of work is to combine control programs for both infections.

Methods: Measuring of epidemic in PR in Moscow region (7M. total population), Russia (2014- 2015) was performed. The following indicators were defined: size of PR, prevalence, incidence, renewal time, basic reproduction number, both in HCV and HIV (mean, first quartile – third quartile). Required daily number of revealed and managed cases, needed for elimination – R&M rate, admissible size of reveal gap (the window between events the person was infected and revealed for control) – RG, time to eradication of new cases in population at risk – TE, were calculated by the epidemic integral equation.

Results: Overall 36 different territory based PR were studied. Average size of PR was 8 000 (1500–12,000) people, renewal time 3650 (825–19,450) days (10.0 years) – the same for HCV and HIV. Among new cases – 30% injection drug users, 40% sexual, 30% both factors. Average HCV prevalence 0.25 (0.06–0.6), incidence 0.002 (0.00001–0.001), basic reproduction number 3.8 (1.9–4.9). Average HIV prevalence 0.15 (0.05–0.4), incidence 0.0002 (0.00001–0.001), basic reproduction number 2.8 (1.3–4.1).For HCV and HIV the R&M rate was calculated as 6 cases/day. In the presence of this R&M rate – TE for HCV was 1709 days (4.7 years), HIV – 808 days (2.2 years). Great differences of RG between both infections was defined: for HCV it was 60 days as for HIV it was 365 days.

Conclusion: The estimation of intervention in both HCV and HIV infections in PR gives affordable amount of R&M cases (6 cases per day in average PR). Eradication of both diseases in PR (in terms of stopping spreading) needs early presentation of diseased persons for control measures, including treatment. HCV needs earlier detection and management than HIV due to higher proportions of acute infections. DAA agents will be epidemiologically effective only in case administered very early in the course of infection. This supports the paradigm of targeted access to treatment.

P55

High rates of recreational drug use (RDU) and sexually transmitted infections (STIs) in HIV–positive men who have sex with men (MSM) attending clinics across London

AK Sullivan[1], E Elliot[1], S Singh[2], T Pasvol[2], I Reeves[3], A Barbour[4], C Taylor[5], J Peck[6] and L Sathia[7]

[1]*Chelsea & Westminster Hospitals, London, UK;* [2]*Barts Health NHS Trust, London, UK;* [3]*Homerton University Hospital Foundation Trust, London, UK;* [4]*St George's University Hospitals, London, UK;* [5]*King's College Hospital, London, UK;* [6]*NHS England, London, UK;* [7]*Royal Free Hospital, London, UK*

Objectives: Increasing use of drugs, particularly in a sexualised context, and high levels of alcohol use have been reported by MSM; both are associated with poor sexual health outcomes. National guidelines recommend screening for use during history taking and offering 6 monthly sexual health screens (SHS) in HIV positive individuals. We aimed to audit the documentation of SHS offer and drug and alcohol history in MSM attending routine HIV appointments across London, to determine whether use was deemed problematic and interventions were offered.

Methods: We performed retrospective case-note review of 40 randomly selected HIV positive MSM attending routine HIV outpatient care at each of 22 London clinics during 2014. Results were collected using an anonymised electronic collection form and centrally collated and analysed.

Results: A total of 860 patients were included. Of these 484 (56%) were aged between 35 and 54 years. 616 (72%) were white, 83 (10%) black and 58 (7%) Asian. A sexual health screen had been offered to 604/860 (70%) in the preceding 14 months; 506 (84%) accepted and of these 176 (35%) had a STI diagnosed. The most common STI was gonorrhoea (51% 89/176). Most patients (695, 81%) had been asked about alcohol consumption; 477 (55%) in the preceding 14 months. Problematic use was identified in 78 patients, of whom 33 (42%) were referred to specialist support. 70% (601) of patients had been asked about RDU at least once, of these 246 (41%) admitted to RDU ever and 122 (20%) to use in the last 6 months. The commonest drug currently used was Mephedrone (55/122, 45%), followed by Cannabis (32%), Crystal Meth (30%) and GHB/GBL (28%). RDU was considered problematic in 44/122 patients (36%) and of these 75% (33) were referred to specialist support.

Conclusions: Whilst the majority of patients were screened as recommended, performance can be improved. We observed high levels of STI and use of alcohol and recreational drugs in this cohort, with a significant proportion of use deemed problematic. These findings will shape future policies for drug and alcohol screening in HIV units across London and emphasises the need to perform regular sexual health screening in this patient group.

P56

Should MSM attending for PEP be offered PrEP?

G Whitlock, C McCormack, J Fearnley and A McOwan
56, Dean St, London, UK

Background: There are limited outcome data for men who have sex with men (MSM) who have received HIV post-exposure prophylaxis (PEP). The objective was to determine HIV incidence and repeat PEP use among MSM PEP recipients in London, UK.

Methods: Retrospective electronic case-note review of all MSM who were prescribed PEP between January and April 2013 at a central London sexual health service.

Results: 530 MSM received PEP between 1st January and 31st April 2013. Median age was 31 y. PEP indication was unprotected anal intercourse, 98% (receptive 88% and insertive 10%) and other, 2%. Up to 1st November 2015, 448 (85%) had subsequent re-attendance at our clinic after their initial PEP course; total follow-up was 756 person-years. 183 users (35%) received repeat PEP. The total number of repeat PEP courses was 442. 18 disclosed taking Truvada for pre-exposure prophylaxis. 57 MSM (11%) newly acquired HIV: the HIV–incidence was 7.5 per 100 person-years.

Conclusion: PEP was associated with a high risk of subsequent HIV seroconversion in this cohort; this group may be appropriate candidates for pre-exposure prophylaxis.

P57

A qualitative study exploring community charity workers' perspectives on medication adherence among African Men on long-term HIV treatment in South East London

B Oburu
OPAM, London, UK

Background: The study sought to understand perspectives of community charity workers on African men HIV medication adherence. Despite being 5.5% of London population, Africans are the second largest group using HIV services. African men present late to HIV services and poorly adhere to medication. Non-adherence denies optimal treatment benefits, doesn't suppress onward HIV transmission, and may precipitate drug resistance and treatment failures. It is a public health problem costing the NHS £4 billion yearly. The study undressed issues specific to SE London African men ARVs adherence.
Aim: To explore community charity workers' perspectives on African men HIV medication adherence in order to recommend to public health stakeholders, adherence improvement strategies among African men on long-term HIV treatment in South East London.
Method: A qualitative design rooted in interpretive epistemology was used to grasp individual community workers perspectives on African men HIV medication adherence. Data was collected using 16 in-depth interviews with community charity workers supporting African men on HIV Medication. Thematic content analysis was used to analyse the data.
Results: The study unearthed three main themes: Barriers, facilitators and recommendations.
Barriers: Housing difficulties, Work medication disharmony, male gender socialization, and stress related to immigration status, stigma and non-disclosure, low knowledge and motivation levels.
Facilitators: Family, peer and health system support, treatment and adherence literacy, disclosure and personal motivations, and
Recommendations: Initiate GUM clinics and HIV community charities linkages and referrals, peer support group funding, and further research into male health seeking behaviours', and reduction of medication ARVs dosage and frequency
Conclusion: This study provided in-depth insights into community workers perspectives on African men HIV medication adherence. It explored facilitators, barriers, and recommendations on HIV medication adherence improvement among African men in SE London.

P58

What is the experience of patients testing HIV-positive through rapid testing in general practice? A qualitative study

H McMullen[1], W Leber[1], C Griffiths[1], S Mguni[2], J Anderson[2], D Millett[2], T Greenhalgh[3] and J Figueroa[4]
[1]Queen Mary University of London, London, UK; [2]Homerton University Hospital, London, UK; [3]University of Oxford, Oxford, UK; [4]NHS England, London, UK

Background: Rapid point of care testing allows us to test for an HIV infection in approximately 1 minute in various settings. Despite HIV's current clinical designation as a long-term condition, it remains a highly stigmatized and "biosocial" infection. Whilst tools such as rapid HIV tests open up exciting possibilities, their use has social meaning. The RHIVA-2 trial of rapid HIV testing in general practice evaluated whether the offer of an opt-out rapid HIV test to new registrants would lead to a greater rate of detection, at an earlier stage in the infection. While the trial proved significant, the experience of patients was left unexplored. We explore the diagnostic experiences of 5 patients undergoing rapid testing as a part of the new patient health check in intervention practices and testing HIV-positive.
Methods: In-depth qualitative interviews were undertaken with a purpose sample of 5 of 11 eligible patients. Of the 6 non participating patients, 5 refused participation and 1 was not able to be invited to participate. Patients were approached by the research nurse in the local HIV department before meeting the lead researcher and carrying out the interview. Interpretation services were used when required. Interviews were transcribed and coded thematically.
Results: Patients diagnosed as HIV-positive through the RHIVA-2 trial of rapid HIV testing, with the initial test being the rapid HIV test, found rapid testing in primary care broadly acceptable. Themes of "normalisation" and "expertise" impacted the diagnostic experience, uncovering a tension between

exceptional and "normalised" approaches to HIV care and an important role for specialist services beyond biomedical expertise. Additionally patients may not fit the assumptions of the trial logic, such as being new patients, unaware of their HIV status. For example, one patient had known their HIV-positive status for over a decade and used the trial to access health services and disclose their status to loved ones. Hence rapid testing in this case actualised multiple events – their inclusion as a research subject, the disclosure of their status to their loved ones and their ability to access relevant health services.
Conclusion: While the broad objectives of the trial were realised by encountering patients who would not have otherwise accessed HIV testing, greater emphasis is needed on improving the surrounding practices and attending to patient particularities and experiences.

P59

No time like the present – delays in initiating PEP following high risk exposure

F Hunt and NM Fadzillah
Royal Liverpool University Hospital, Liverpool, Merseyside, UK

Background: BASSH recently updated their guidelines on PEPSE. This audit was performed to assess our clinical performance against this guidance.
Methods: All patients accessing PEP have a PEP proforma completed. The proformas of 50 patients' between October 2014 and August 2015 were reviewed. Data gathered included: indication, timing and completion of PEP and whether STI and hepatitis screening was offered.
Results: The majority (66%) of patients accessing PEP were male and 84% were British, just over 50% were heterosexual. In 46% of cases PEP was initiated due to unprotected insertive or receptive anal intercourse with MSM of unknown HIV status. Other indications included sexual assault and needle stick injury. In all but 1 of the cases the first dose was given within 72 hours. In 56% PEP was started within 48 hours. The majority of patients (86%) completed PEP. The completion rate was highest in cases of sexual assault and lowest in MSM. In three cases PEP was stopped due to side effects (rash, diarrhoea, raised ALT). Hepatitis B vaccination was offered in 92% of cases and STI screening was offered in 90% of cases. Of the 50 patients included 12 were lost to follow up.
Conclusion: There was good adherence to BASHH guidelines, with all but one PEP prescription started within the recommended time window. However, almost half of PEP prescriptions were initiated after 48 hours. There is evidence that prompt initiation of antiretroviral therapy following high risk exposure may reduce the risk of HIV transmission. The latest guidance suggests the first dose should ideally be given within 24 hours. Further education of clinicians and patients is needed to highlight the importance of and identify potential barriers to timely PEPSE

P60

An audit of PEPSE in an integrated sexual and reproductive health centre resulting in change of local protocol in accordance to national guidelines: room for improvement

D Raha and R Gilson
Chalmers Centre, NHS Lothian, Edinburgh, UK

Background: BHIVA guidelines on PEPSE (post exposure prophylaxis for sexual exposure) were published in December 2011. Updated draft guidelines were published in 2015 and are awaiting publication following comments. The aim of this audit was to review if in Chalmers Centre Edinburgh we have been following the BHIVA guidelines using the following auditable standards from 2011 guidelines i.e.
1 Proportion of PEPSE patients having a baseline HIV test: aim 100% within 72 hours of presenting.
2 Proportion of PEPSE prescriptions that fit recommended indications: aim 90%.
3 Proportion of PEPSE prescriptions administered within 72 hours of exposure: aim 90%.
4 Proportion of individuals completing 4-week course of PEPSE: aim 75%.
5 Proportion of individuals seeking PEPSE undergoing STI (sexually transmitted infection) tests: aim 90%.
6 Proportion of individuals completing 12-week post-PEPSE HIV test: aim 60%.

Method: The above and demographics were documented on Excel Spreadsheet for 100 patients seen from 1st January 2012 to 31st December 2014.

Results (%): 1Proportion of PEPSE patients having a baseline HIV test: Yes =81 No= 17 Unknown= 2.2Proportion of PEPSE prescriptions within recommended indications: Recommended =55 Consider=30, Not recommended=8, Pack to keep as partner positive=5, Unknown=1, Occupational =1.3Proportion of PEPSE prescriptions administered within 72 hours of risk exposure: Within 72 hours=83, Over 72 hours=2, Unknown=6, Not started=9.4Course completed=47, Not completed=23, Unknown as DNA (did not attend) =22, Not started=4, Pack to keep at home=4.5Proportion undergoing testing for STIs: Yes=51 No=49.6HIV test 12 weeks post PEPSE: Yes=25, Seroconversion =1, DNA=28, Not done=18, Not required=9, Follow up elsewhere=10, N/A=7, Done at 16 weeks=1 Done at 8 weeks=1.

Conclusion: Results show that we fall short of the auditable standards, particularly for proportion of prescriptions within recommended criteria, completion of PEPSE, post PEPSE HIV testing and STI testing. Co-incidentally, the draft 2015 BHIVA Guidelines for provision of PEPSE have changed recommendations for PEPSE prescription and monitoring. Based on the results of the audit and the new draft guidelines changes were incorporated into a new patient PEPSE pathway within the department and resulted in the updating of the PEPSE proforma and protocol and staff were updated and educated. We will re-audit once these are implemented.

Children and Pregnancy

P61

The impact of immigration issues on the care of women living with HIV during pregnancy: a survey of healthcare providers in UK & Ireland maternity units

K Francis[1], P Tookey[1], H Peters[1] and S Tariq[2]
[1]UCL Institute of Child Health, London, UK; [2]UCL, London, UK

Background: Approximately 1300 HIV-positive pregnancies in women with diagnosed HIV-infection are reported annually in the UK & Ireland (UK&I); 85% are in women who were born abroad. Immigration issues may impact on women living with HIV's (WLWH) access to care during pregnancy, and they have been identified as a contributing factor in national audits of perinatal HIV infection. We describe recording of patient immigration status within maternity units, and healthcare providers' opinions on impact of immigration issues on WLWH's access to care during pregnancy.

Methods: The National Study of HIV in Pregnancy and Childhood (NSHPC) collects comprehensive data from maternity units on pregnancies in WLWH in UK&I. In late 2015 we administered a web-based survey to all NSHPC maternity unit respondents.

Results: Overall response rate was 55% (118/214). Over two-thirds of respondents (80/118) reported that immigration status was routinely recorded for pregnant women (regardless of HIV-status). Over 40% (52/118) were able to calculate or estimate the proportion of WLWH who were due to deliver in the study period who had insecure immigration status; the median proportion was 2.5% (interquartile range 0–60%). Of 91 units who had experience of managing migrant WLWH, 64% reported that immigration issues impacted upon their care. This varied by unit size and region (see table below). Key concerns included dispersal, poverty and women's fears about disclosure.

	Immigration issues impact upon care, n (%)	Immigration issues DO NOT impact upon care, n (%)
Unit size		
Small	24 (59)	17 (41)
Medium	22 (60)	15 (41)
Large	12 (92)	1 (8)
Region		
London	13 (87)	2 (13)
England (outside London)	39 (61)	25 (39)
Scotland/Wales/N Ireland	4 (50)	4 (50)
Ireland	2 (50)	2 (50)

Conclusion: Nearly two-thirds of maternity unit respondents who had cared for migrant WLWH in UK&I reported that immigration issues impacted upon care. This was more common in larger units and units in London. This patient group may have complex needs, requiring multidisciplinary support to engage in care without interruption.

P62

Integrase Inhibitor usage in paediatrics: a single centre cohort experience

E Refsum[1], N Mackie[2], S Kaye[2], H Lyall[2], G Tudor-Williams[2] and C Foster[2]
[1]Imperial College London, London, UK; [2]Imperial College Healthcare NHS Trust, London, UK

Background: Integrase Strand Transfer Inhibitors (INSTI); raltegravir (RAL), dolutegravir (DTG) and elvitegravir are used increasingly in adults living with HIV with minimal published data in children. RAL is available in suspension, chewable and tablet formulations from 4 weeks of age. DTG is approved from 12 years/40 kg. Elvitegravir is currently not approved for use <18 yrs. We audited INSTI-regimen use in a single-centre paediatric cohort.

Methods: Retrospective case note audit of children with perinatally acquired HIV-1 (PaHIV) starting INSTI-based antiretroviral therapy (ART) below 18 years of age between 2009 and 2015. Patients who transferred care were excluded. Data included demographics, ART, viral load, CD4 count, weight at INSTI initiation and therapeutic drug monitoring (TDM) where available. Data was anonymised and collected in Microsoft Excel.

Results: 24 children commenced INSTI-based ART from 2009 to 2015; 5 transitioned to adult care and are excluded from analysis. 19/118 (16%) PaHIV in care received INSTI-based ART; 11/19 (58%) female, 17/19 (90%) Black African, median age at start of INSTI 15.1 years (IQR 13.8–16.3, range (r) 2.2–17.5) at a median weight 58.6 kg (IQR 45–71.1, r 14.1–117.4).

9/19 (47%) started RAL; 8 with virological failure, median VL 8609 c/mL (IQR 3743–36,915), median CD4 316 cells/ul (IQR 170–509), and one, VL <50 c/mL, switched prior to chemotherapy for Burkitts lymphoma. 8 also received a boosted protease inhibitor (PI), 1 child with disseminated BCG on rifabutin received RAL with NNRTI based ART. 7/8 suppressed after a median of 52 days (IQR 33–56). 5/9 stopped RAL; rash (1), neutropenia (1), planned cessation (1), simplification to DTG (2). Median duration RAL exposure 56 weeks (IQR 13–134). 10/19 (53%) started DTG; 6/10 with VL<50 cp/mL switched due to; toxicity of current ART (5) and PI simplification (1); all remain suppressed; median duration 23 weeks (IQR 22–24). 4/10 had virological failure, median VL 5362 c/mL (r 86–32,649), median CD4 cells/ul 593 (r 115–869), 3 suppressed after median of 22 days (r 14–26). Median duration of DTG exposure 24 weeks (IQR 21–26). TDM, available for 3 children (2 RAL), were within normal ranges. No integrase mutations were reported.

Conclusion: INSTI-regimens were generally well tolerated and efficacious in a treatment experienced paediatric cohort. Once daily DTG is convenient for adolescents whilst the diverse formulations of twice daily RAL favour use in younger children.

P63

Off–licence use of once–daily maraviroc in children with perinatally acquired HIV–1 infection

T Fraser-Taliente[1], N Mackie[2], M Nyirenda[2], C Foster[2] and S Kaye[3]
[1]Nuffield Placement, Imperial College London, London, UK; [2]Imperial College Healthcare NHS Trust, London, UK; [3]Imperial College London, London, UK

Background: Maraviroc (MRV) is currently the only CCR5 antagonist licenced for use in adults, with convenient once daily (OD) dosing with a boosted protease inhibitor. Whilst safety and efficacy studies for twice daily MRV in 2–17 year olds are on going, the paediatric experience of off licence use of OD MRV is yet to be reported.

Methods: Descriptive case series of OD maraviroc use following discussion in a regional paediatric virtual clinic between September 2010 and August 2015 in children aged <18 years with perinatally acquired HIV infection. Baseline demographics, safety, immunological and virological response to MRV-ART, therapeutic drug monitoring (TDM) where available were collected, anonymised and analysed in Microsoft Excel.

Results: 22 children received OD MRV, median age 14 years (range 8–17), 45% were female, 59% black African with a median weight of 45.5 kg (IQR,

36–58, range 23–72). Reasons for MRV-ART were: 13 (59%) virological failure, 5 (23%) ART toxicity (4 tenofovir associated nephrotoxicity) and 4 (18%) ART simplification. Cumulative HIV-1 associated resistance mutations; dual class 86% (19/22) and triple class 14% (3/22) and 77% had a non-B clade virus. All had CCR5 tropic virus on RNA (HIV plasma VL >500 c/mL) or DNA V3 loop sequencing (HIV plasma VL <500 c/mL) within 3 months of switch. 21 received 300 mg MRV and 1 received 150 mg, plus a boosted protease inhibitor (21/22) and optimized backbone, including an integrase inhibitor in 5. At baseline, median CD4 count was 577 cells/ul (IQR 275–910), median VL 157 copies/mL (IQR <50–10,600) and 7/22 (32%) were suppressed. Follow up data was available for 21; median time on MRV-ART was 139 weeks (IQR 96–187), median CD4 775 cells/uL (IQR 581–956), 15/21 (71%) had VL <50 copies/mL, including all 7 suppressed at time of switch. 2 patients discontinued MRV; virological failure with a CXCR4 tropic virus (1) and gastrointestinal toxicity (1). No postural hypotension was reported. Plasma TDM was available for eight patients, weight range 23–65 kg. Median time post MRV dose; 13 hr 45 (range 05 hr00 to 16 hr50), median concentration 126 ng/mL (range undetectable −483 ng/mL). Two patients had a Cmin of <50 ng/mL both with known adherence issues and detectable viraemia.

Conclusion: Though not licenced in children, once daily MRV was safe and well tolerated in a small cohort of treatment experienced children with CCR5 tropic virus, almost three quarters of whom remain virally suppressed.

P64

Introduction of a national protocol for the management of non-specific reactivity in antenatal HIV screening tests

O Seddon[1], R Jones[1] and K Williams[2]
[1]Public Health Wales, Cardiff, UK; [2]Antenatal Screening Wales, Cardiff, UK

Background: Fourth generations assays for HIV are highly sensitive, but their large scale use in a low risk population, such as women undergoing antenatal screening, leads to a number of reactive results. In most cases this reactivity will be in the primary laboratory test alone and subsequent additional tests are negative. Recently acquired HIV infection needs to be excluded in these patients, but this is an extremely rare event within this patient group in Wales and the vast majority of these results represent false positive, non-specific reactivity. A look-back exercise identified inconsistency in management of these results, associated with several adverse incidents causing significant anxiety for patients and staff.

Methods: A detailed protocol for the management of non specific reactivity in HIV antenatal tests, alongside an information leaflet for patients and one for healthcare professionals was introduced in May 2015. We surveyed antenatal screening coordinators nationally for their experiences prior to, and post, its introduction.

Results: Data were collected from 6 of the 7 health boards. All were aware of the protocol and none had reported difficulty accessing it online. 50% reported discussions prior to introduction of the protocol were "difficult" or "very difficult" and 33% reported an adverse event related to non-specific reactivity in a screening test. Following introduction of the protocol 100% of users rated discussions as "easy" or "very easy". 33% reported positive feedback from patients regarding the information leaflet. There have been no clinical incidents reported since introduction of the protocol. Free text comments suggested that practitioners valued the consistency of the framework and the clarity of the information.

Discussion: The protocol has standardised management of non-specific reactivity in antenatal screening with excellent feedback from stakeholders. Similar protocols are to be developed for Syphilis and Hepatitis B testing. Our protocol will differ from those of other geographical regions, and is an example of the importance of tailoring guidelines to the prevalence of the population served.

P65

CD4/8 ratios in children with perinatally acquired HIV-1 infection

T Seers[1], S Fidler[1], C Foster[2] and K Pollock[2]
[1]Imperial College London, London, UK; [2]Imperial College Healthcare NHS Trust, London, UK

Background: Failure to restore a normal CD4/8 ratio (≥1) on suppressive antiretroviral therapy (ART) is an important predictor of non-AIDS mortality in adults living with HIV and may indicate persistent underlying immune activation with excessive CD8 T cell activation and premature immunosenescence. However data is sparse in paediatric populations with perinatally acquired HIV (PaHIV).

Methods: A cross sectional analysis of latest CD4/8 ratios and association with age, sex, ethnicity, HIV viral load, total CD4 count, BMI and lipid profile was conducted in a PaHIV cohort aged 5–18 years inclusive. Routine clinical data was collected, anonymised and analysed in Microsoft Excel.

Results: Of 112 children with PaHIV, 58% were female, 77% Black African (BA), median age of 15.4 (IQR 12.6–16.8) years and a median BMI 21.3 (IQR 18.7–23.9). Ninety three (83%) were on suppressive ART for >1 year, defined by viral load <50 RNA copies/mL. Of these 58/93 (62%) had a normalised CD4/8 ratio ≥ 1 and 38% had a CD4/8 ratio <1. Viraemically suppressed patients with abnormal CD4/8 ratios (<1) tended to be older (16.3 (14.8–16.7) years) than their normalised peers (14.8 (12.1–16.8)) (p=0.03) and to have a lower current absolute CD4 count (median 677 (IQR 528–784) v 1033 (704–1373), (p<0.001)). Stratification by current CD4 count: ≥ or <900 cells/ul showed that 8/41 (20%) and 27/52 (52%) had abnormal ratios respectively. There was no significant difference in sex (female 54% v 60% p=0.56), ethnicity (black African 77% v 78%, p=0.96), median BMI (21.4 v 20.5, p=0.23) or lipid profile (Total cholesterol/HDL median 3.3 v 3.0, p=0.45) between patients with normalised v abnormal CD4/8 ratios respectively.

Conclusion: Two thirds of perinatally infected children born in the era of highly active ART on suppressive therapy had normalised CD4/8 ratios, including 80% achieving total CD4 counts >900 cells/ul, supporting early treatment for all children. The longer term implications of persistent immune activation despite suppressive ART throughout growth and development requires further investigation in a unique population with lifelong HIV.

P66

Hepatocellular carcinoma in perinatally acquired HIV and HBV co-infection: a case report

T Seers[1], P Ross[2], N Heaton[2], A Suddle[2], H Lyall[3], G Tudor-williams[3], S Fidler[3], C Foster[3] and D Sarker[4]
[1]Imperial College London, London, UK; [2]King's College Hospital, London, UK; [3]Imperial College Healthcare NHS Trust, London, UK; [4]King's College London, London, UK

Background: Infection with HBV is a major risk factor for the development of hepatocellular carcinoma (HCC), and incidence is increased in HIV co-infection. Despite HBV co-infection being relatively common in children with perinatal HIV, this is the first report of HCC in the era of suppressive antiretroviral therapy (ART).

Case report: 20-year-old Black African Malawian male, diagnosed with HIV/HBV co-infection aged 6 years. Baseline parameters; CD4 count 260 cells/μL, HIV viral load (VL) 69,000 c/mL, ALT 87 IU/L, HBV VL 58,000,000 c/mL with liver histology; inflammatory score 6/18, fibrosis 4/6. He started ART with efavirenz, lamivudine, abacavir and tenofovir, the later on compassionate grounds, 10 years prior to paediatric licensing in 2012. He rapidly suppressed, reconstituted to a CD4 count >500 cells/ul and maintained control of HBV and HIV viraemia for 11 yrs. He simplified to Atripla in 2006 and a repeat biopsy showed inflammatory score 2/18, fibrosis 4/6. At 16 years HCC screening commenced with four-monthly alpha-fetoprotein (AFP) and six-monthly liver USS. At age 19, AFP rose from <6 (normal range) to 24 kunits/L and MRI/CT confirmed a solitary 5 cm lesion in liver segment IVB characteristic of an HCC, with no evidence of extra-hepatic spread, CD4 590 cells/μL, HIV and HBV VL <20 c/mL, ALT 24 IU/L and FibroScan E score 7 kPa. There was no known alcohol, drug use or aflatoxin exposure. He underwent partial right hepatectomy (segments IVb/V) confirming a 5.7 cm poorly differentiated HCC with microvascular invasion (pT2N0M0) clear resection margins, with background porto-septal and bridging fibrosis but no cirrhosis. Post-operative recovery was rapid, AFP 1.48 units/L at 6 weeks however CT at 3 months revealed new liver lesions (segment II/III/VII) and bilateral lung metastases, AFP 104 kunits/L. He commenced the oral tyrosine kinase inhibitor sorafenib at 400 mg bd but had progression after 12 weeks switching to palliative FOLFOX (5-flurouracil and oxaliplatin) chemotherapy with initial disease stabilisation followed by progression with gastrointestinal and bone marrow toxicity. Following multidisciplinary discussions with him and his family he declined further chemotherapy and was referred for palliative care.

Conclusion: This case raises important questions regarding optimal HCC screening in this high-risk group and the oncogenic potential of even very well controlled HBV/HIV co-infection.

P67

### Venous sinus thrombosis in a patient with perinatally acquired HIV, a paediatric case report

H Pintilie, S Raghunanan, A Shlebak, A Everitt and C Foster
Imperial NHS Trust, London, UK

Background: Venous sinus thrombosis is a rare disorder more often affecting young adults and children. Risk factors include female sex, pregnancy, oral contraceptives, thrombophilia, smoking, localised trauma/infection and obesity but rarely reported in HIV infection. Neurological outcome is good in more than 80% of patients, but diagnosis can be difficult as symptoms are often non-specific.
Case report: 17 year old female, perinatally infected with HIV, with borderline learning disability (IQ 72) secondary to infantile HIV encephalopathy, presented to the ED with headache but was discharged on normal examination. She re-presented 2 days later with photophobia, neck pain and worsening headache. Neurological examination demonstrated impaired heel-toe walking, without papilloedema. An episode of bradycardia prompted an urgent CT revealing significant cerebral oedema secondary to sagittal and transverse sinus thrombosis, confirmed on MR venogram. Risk factors identified; uncontrolled HIV with poor antiretroviral (ARV) adherence (CD4 248 cells/uL, viral load 20,009 c/mL, CD4:8 0.2) and obesity (BMI 35). She was not on hormonal contraception and thrombophilia screen including paroxysmal nocturnal hemaoglobinuria screen and JAK-2 mutation were negative.
Unfractionated heparin was commenced followed by low molecular weight heparin (LMWH) due to potential interaction of vitamin K anatgonists with ritonavir. Her symptoms improved and at discharge her headache had resolved and heel-toe walking was normal. Neurocognitive testing revealed no change from previous assessments. She completed 6 months LMWH anticoagulation and a repeat MRI showed complete resolution of the thrombosis. ARV adherence remained poor necessitating gastrostomy insertion for liquid darunavir, ritonavir with crushed Truvada. Virological control (<20 c/mL) was briefly obtained within 12 weeks but ARV compliance deteriorated despite extensive multidisciplinary input. She commenced prophylactic LMWH pending viral resuppression, to reduce thrombosis risk.
Conclusion: Although rare venous sinus thrombosis must be considered in patients presenting with headache, particularly young women. Uncontrolled HIV infection is associated with increased risk of venous thrombosis and should be considered a risk factor for venous sinus thrombosis. Adherence remains a major challenge in this case.
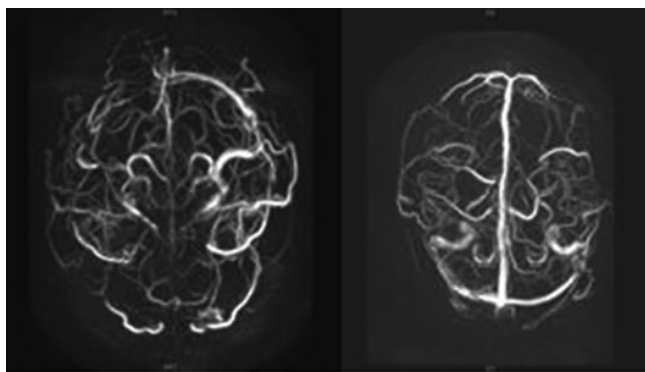
MRV superior view before and 3 months post treatment, showing recanalization of superior saggital and transverse sinuses

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

P68

HIV infection in persons testing for Hepatitis C: England, 2008–2014

G Ireland, V Delpech, S Lattimore, P Kirwan, S Croxford, S Mandal and R Simmons
Public Health England, London, UK

Background: Whilst HIV infection in persons with HCV leads to faster progression to advanced liver disease, few studies have estimated the burden of HIV in persons with HCV. We estimate HIV prevalence among those testing for HCV with evidence of active HCV infection, and examine associated risk factors.
Method: Persons with a HCV antibody test (anti-HCV), regardless of result, reported to the PHE sentinel surveillance of blood borne viruses, covering around 40% of the population, were linked to the PHE national HIV database using a deterministic methodology. All adults (≥15 yrs) presenting for an anti-HCV test between 2008 and 2014 were included.
Results: Between 2008 and 2014, 1,445,565 adults were tested for anti-HCV, of whom 3.9% (56,250) were anti-HCV positive (anti-HCV+) and 2.1% (29,665) were linked to the HIV database. A PCR test was conducted on 77.6% (43,674) of those anti-HCV+, with an active infection (PCR+) identified in 65.6% (28,655). 3.9% of adults PCR+ were also infected with HIV (co-infected). In a multivariable model among persons HCV PCR+, a HIV diagnosis was more likely among men (aOR: 2.4, 95% CI 2.0–2.9), less likely among older adults (aOR: 0.83 per 10-year increase, 95% CI 0.78–0.88) and less likely in persons of Asian ethnicity compared with white ethnicity (aOR: 0.5, 95% CI 0.4–0.7). Among those co-infected, the most frequent route of transmission for HIV was sex between men (59.1%), followed by injecting drug use (21.1%) and heterosexual contact (12.1%). 72.5% of persons co-infected had their HIV diagnosis more than 6 months before their anti-HCV+ test, 29.1% of whom had a negative HCV test between 2008 and 2014, prior to their first anti-HCV+ result.
Conclusion: Among those with an active HCV infection captured in sentinel surveillance in the study period, 3.9% had evidence of a HCV/HIV co-infection when matched to the national HIV database. This is lower than the reported proportion of HCV among persons living with HIV and accessing care (~8.9%). Identification of co-infections may reflect HIV testing practices. Available epidemiological information suggest predominance of sexual transmission rather than injecting drug use, the latter being most frequent risk factor among HCV only infected population. Our results also suggest continued high risk behaviour after an HIV diagnosis.

P69

Ledipasvir/Sofosbuvir (LDV/SOF) for 8 weeks in genotype 1 HCV-infected treatment-naive patients without cirrhosis with HIV co-infection and HCV RNA<6 million

D Ain[1], P Wolfe[1], M Weissman[1], M Huezo[1], E Cabrera[1], N Hernandez[1], L Tran[1], P Ruane[1], V Vu[2], J Reeves[3] and A Jackson[4]
[1]Ruane Medical and Liver Health Institute, Los Angeles, CA, USA; [2]UCLA Fielding School of Public Health, Los Angeles, CA, USA; [3]Monogram Biosciences Inc., South San Francisco, CA, USA; [4]Gilead Sciences Ltd, London, UK

Background: Short, safe, and effective oral treatments compatible with multiple antiretroviral therapies (ART) are needed for the treatment of HCV/HIV co-infected patients This pilot study evaluated the efficacy and safety of 8 weeks of LDV/SOF administered with various ART regimens in HCV GT1 treatment-naïve non-cirrhotic patients with HIV co-infection and HCV RNA <6 million IU/mL (6M).
Methods: Treatment naïve (TN) HCV GT1 patients, co-infected with HIV, without cirrhosis, a screening HCV RNA<6M (Abbott RealTime PCR) and Creatinine Clearance (CrCl) >60 mL/min, received 8 weeks of LDV/SOF 90/400 mg once daily. Patients were either off ART with CD4>350 or on stable ART with HIV RNA <50 copies/mL. ART regimens were adjusted as needed during the screening period to exclude cobicistat, nevirapine, and tipranavir. The primary endpoint was SVR12. Secondary endpoints included CD4 count changes and HIV virologic rebound >50 copies/mL in patients on ART.

Results: Twenty TN chronic HCV patients with mean Fibroscan kPa 6.0 were enrolled. 85% were GT1a, 90% were male, 35% were Hispanic, 10% were Black. Nineteen patients were receiving ART, of whom 15 were receiving Truvada (TVD), and 6 a ritonavir-boosted protease inhibitor. Eighteen achieved SVR4. One virologic non-response and one virologic relapse 4 weeks after treatment occurred. Both had 100% LDV/SOF compliance. No AEs resulted in treatment discontinuation and no SAEs have been observed. The most common AEs (>10%) included headache, fatigue, diarrhea, and nausea. Grade 3–4 lab abnormalities included elevations in ALT, AST, and CPK deemed unrelated to LDV/SOF. One patient on TVD + DTG with a history of proteinuria and baseline CrCl of 61 mL/min experienced treatment-emergent 1 + proteinuria and a transient decrease in CrCl to 49.7 mL/min. No other CrCl <50 mL/min or clinically significant renal laboratory abnormalities were seen. No ART changes were required. No significant changes in CD4 count or HIV virologic rebound were observed.

Conclusions: LDV/SOF co-administered with various ART regimens is well tolerated in treatment-naïve GT1 HCV/HIV co-infected patients without cirrhosis and with HCV RNA <6M. SVR12 results for all patients along with pertinent HCV resistance and pharmacokinetics data will be presented.

P70

Differences in urine metabolomes with HIV infection and antiretroviral drug exposure

A Chetwynd[1], A Abdul-Sada[1], E Hill[1], J Vera[2], M Fisher[2], A Samarawickrama[2], S Holt[3] and Y Gilleece[4]

[1]University of Sussex, Brighton, UK; [2]Brighton and Sussex Medical School, Brighton, UK; [3]University of Melbourne, Melbourne, Vic., Australia; [4]Brighton and Sussex University Hospitals, Brighton, UK

Background: Metabolomics is the analysis of small molecular weight compounds (<1000 Daltons) in biological samples. Exposure to combined antiretroviral therapy (cART) is associated with increased risk of adverse metabolic changes. We investigated changes in the urinary metabolome of HIV-infected patients to identify markers of cART exposure and disorders of metabolite function.

Methods: Fasted urine samples from randomly chosen HIV-infected patients and negative controls were analysed by non-targeted metabolomics using liquid chromatography mass spectrometry. Participants were grouped into HIV-infected on cART, HIV-infected cART-naïve and HIV-negative. Principal components analysis (PCA) was used to plot metabolomic differences associated with HIV and cART status. A supervised modelling approach identified metabolites associated with cART.

Results: 89 participants (cART-naïve: 26; on cART: 50; negative: 13) were included (mean age 42.1 [SD 9.9] years, 100% male, 97.8% white). All on cART (median CD4 525 [IQR 403,690] cells/μL, 100% VL <40 copies/mL) were on tenofovir/emtricitabine, ritonavir and atazanavir (ATZ, n=20) or darunavir (DRV, n=30). In cART-naïve participants, median CD4 was 463 (IQR 216, 886) cells/μL. Serum renal and liver profiles were similar between groups, except for higher bilirubin in those on ATZ. Metabolites of ATZ, DRV and ritonavir and parent compounds of all cART drugs were detected in urine of all but one patient on cART confirming adherence to the regimen. The PCA plot showed no difference in metabolomes between HIV-negative and HIV-infected groups, but discriminated between those on cART (ATZ vs DRV) and naïve groups (Figure). Analysis of urine samples from patients on cART revealed disruptions in bile acid and androgen metabolism and decreased concentrations of 5-deoxy-5(methylthio)adenosine, a marker of immune deficiency.

Conclusions: This to our knowledge is the first urinary trace metabolomic study in HIV. There were significant differences between the urine metabolome of those on protease inhibitor-based cART compared with cART-naïve and negative groups. This study reveals the potential to identify novel markers of cART intervention and metabolite disruption in HIV patients, which may enable the efficacy, compliance and side effects of these pharmaceutical compounds to be investigated.

P71

Frailty prevalence and predictors in older adults with HIV

T Levett[1], J Wright[1] and J Rusted[2]

[1]Brighton and Sussex Medical School, Brighton, UK; [2]University of Sussex, Brighton, UK

Background: Advances in HIV management have resulted in life expectancy gains and consequent ageing in people living with HIV (PLWH). Frailty represents a state of vulnerability to stressor events and is associated with adverse outcomes. Frailty has been demonstrated in PLWH at earlier ages and in higher prevalence than HIV-negative cohorts. It may be useful to identify those at risk of negative ageing trajectories. We aimed to identify frailty predictors in a cohort of PLWH in the UK.

Method: A prospective observational study recruited PLWH aged ≥50 from five HIV clinics from October 2014-October 2015. Frailty was defined by modified Fried frailty phenotype including five criteria: exhaustion, low physical activity, weight loss, weak grip strength and slow walking speed. Presence of ≥3 denoted frailty, 1–2 pre-frailty and 0 robust. Predictors of frailty were evaluated from collected demographic, clinical, HIV, psychosocial and functional parameters.

Results: 253 participants were recruited, of which 90.9% were male. Median age was 59.6 (IQR 54.9–65.6). 48/253 met frailty criteria, giving a prevalence of 19% (95% CI 14.6–24.3). A further 111/253 (43.9%) were prefrail and 94/253 (37.1%) robust. Analyses compared frail (48) to non-frail (205) groups. Age, gender and ethnicity did not differ, but frail individuals were more likely to have less formal education and experience financial insecurity. Though not significant, longer HIV duration and current CD4<350 cells/mm³ were more common if frail. Other HIV factors of viral load, antiretroviral use and AIDS were not associated. Strongest associations with frailty were non-HIV related comorbidities, polypharmacy and moderate/severe symptoms of anxiety and depression.

	Non-frail, N (%)	Frail, N (%)	p-value	aOR**	p-value
Age	59.6 (54.8–65.7)	60.3 (56.3–64.7)	0.483	–	–
Age (10 years)*	–	–	–	1.04	0.887
Female	16 (7.8)	7 (15)	0.141	3.14	0.034
Education (years)*	13 (11–16)	11 (11–14)	0.019	5.25	0.040
Financial insecurity	15 (7.3)	10 (21)	0.005	3.83	0.011
CD4<350	19 (9.3)	9 (19)	0.059	2.41	0.061
Comorbidities	2 (1–3)	3 (2–5)	<0.001	1.67	<0.001
Medications	5 (4–8)	8 (7–1)	<0.001	1.30	0.001
Depression	10 (4.9)	11 (23)	<0.001	5.25	0.002
Anxiety	34 (16.6)	23 (48)	<0.001	4.80	<0.001

*Med (IQR) **for age, CD4, sex, no. comorbidities.

Conclusion: Frailty is common in this cohort and is importantly not driven by age. Comorbidities, particularly mood related are better predictors than HIV and demographic factors. The relationship between mood and frailty warrants further investigation.
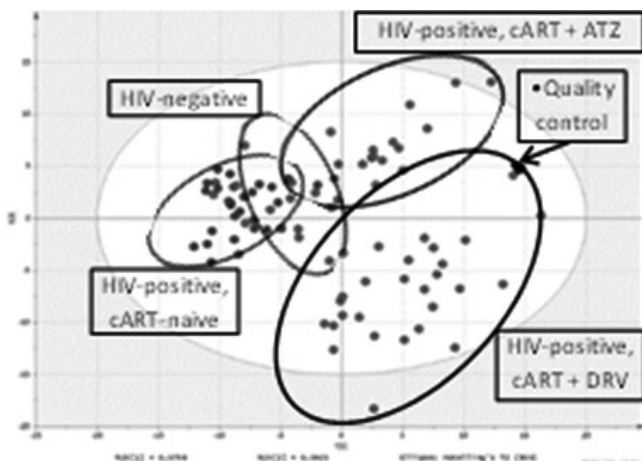
P72

Incidence and risk factors for invasive pneumococcal disease (IPD) in HIV-infected individuals 2006–2015

C Sadlier, S O'Connell, M Kelleher and C Bergin
St James's Hospital, Dublin, Ireland

Background: Invasive pneumococcal diseases (IPD) remain a significant cause of morbidity and mortality in HIV-infected individuals despite widespread use of HAART and availability of pneumococcal vaccines. The aim of our study was to measure incidence and risk factors for IPD (defined as culture of *Streptococcus pneumoniae* from a normally sterile site) in a cohort of 3160 HIV-infected patients who attended a single centre in Dublin from 2006 to 2015.

Methods: Incidence of IPD was determined as events per 100 000 person-years of follow-up. Poisson regression was used to assess linear trend in incidence over time. A nested case-control study (four controls per case) assessed risk factors for IPD.

Results: There were 47 episodes of IPD recorded in 42 HIV-infected individuals (median [IQR] age 38 [33–43], 69% male, 86% IDU, median CD4 T-cell count 213 cells/mm^3) over 16 008 person-years of follow-up (overall incidence rate of IPD, 293/100 000 person-years). Three patients had 2 episodes and one patient had 3 episodes of IPD during the study period. The overall case fatality rate was 14% (95% confidence interval (CI), 4–24).

The incidence of IPD per 100 000 person-years decreased significantly over time from 728 [95% CI, 455–1002], to 242 (95% CI, 120–365) to 82 (95% CI, 40–154) in calendar periods 2006–2008, 2009–2012, and 2013–2015, respectively (p<0.01 for linear trend).

CD4 T-cell count<200 cells/mm^3 was significantly associated with IPD in multivariate analysis (odds ratio (OR), 24; 95% CI 1.35–437, p<0.03). Treatment factors including HAART (OR, 521; 95% CI 8–35,345, p=0.04) and 23-valent polysaccharide pneumococcal vaccine (OR, 43; 95%CI 2–728, p=0.01) were negatively associated with IPD in multivariate analysis.

Conclusion: The decrease in incidence of IPD observed is likely multifactorial relating to improved vaccination coverage in our cohort in the setting of an integrated vaccination unit, changes to HIV care guidelines driving earlier initiation of HAART, herd immunity conferred following introduction of conjugate pneumococcal vaccine (PCV) to the infant immunisation programme in 2008 and the changing demographics of individuals presenting with HIV infection.

Despite decreases observed, HIV-infected individuals remain at higher risk of IPD compared to the general population. PCV may confer greater protection in HIV-infected individuals and should be seen as a priority to ensure best protection for our patients.

P73

Retreatment of patients co-infected with HCV and HIV-1 who failed 12 weeks of ledipasvir/sofosbuvir

S Bhagani[1], C Cooper[2], S Naggie[3], M Saag[4], J Yang[5], L Stamm[5], M Natha[5], H Dvory-Sobol[5], J McHutchinson[5], A Jackson[6], D Dieterich[7] and M Sulkowski[8]
[1]Royal Free London Foundation Trust, London, UK; [2]Ottawa Hospital Research Institute, Ottawa, ON, Canada; [3]Duke University School of Medicine, Durham, NC, USA; [4]The University of Alabama at Birmingham, Birmingham, AL, USA; [5]Gilead Sciences Inc, Foster City, CA, USA; [6]Gilead Sciences Ltd, London, UK; [7]Mount Sinai School of Medicine, New York, NY, USA; [8]Johns Hopkins University School of Medicine, Baltimore, MD, USA

Background: Ledipasvir/sofosbuvir (LDV/SOF) fixed-dose combination is highly effective and well tolerated in treatment of genotype 1 HCV-infected patients with HIV co-infection. Of the 335 HCV/HIV coinfected patients enrolled in the ION-4 Phase 3 study, 3% relapsed (n=10) after 12 weeks of LDV/SOF treatment. These patients were eligible for a retreatment substudy, which evaluated the efficacy and safety of LDV/SOF (90 mg/400 mg) plus weight-based RBV for 24 weeks.

Methods: Eligible patients were enrolled within 60 days from the time of confirmed virologic failure. NS5A and NS5B resistance associated variants (RAVs) were evaluated by deep sequencing prior to retreatment and at the time of virologic failure post-retreatment. The primary endpoint was SVR12.

Results: Nine of 10 patients were enrolled and completed treatment. All patients were black, IL28B non-CC, HIV suppressed on ARV regimens with a median baseline CD4 count of 785 cells/uL (Q1, Q3=404, 971). The mean age was 57 years (range 35–65) and most were male (n=7), without cirrhosis (n=7), and had genotype 1a infection (n=7). The mean baseline HCV RNA was 6.2 log10 IU/mL (range 4.4–7.1). HIV ARV regimens included tenofovir+emtricitabine (TDF+FTC) with either efavirenz (n=7) or raltegravir (n=2). Prior to retreatment, 2 patients had no NS5A RAVs and 7 patients had high-level NS5A RAVs detected (see Table). The SOF-specific NS5B RAV S282T was not detected in any patients; 1 patient had L159F. Overall SVR12 rate was 89% (8/9): 1 patient relapsed. There were no treatment-emergent SAE. Fatigue (n=6), cough (n=4), anemia (n=2) and arthralgia (n=2) were the most common adverse events. No significant lab abnormalities were observed and creatinine clearance was stable on treatment. No patient had confirmed HIV virologic rebound (HIV-1 RNA≥400 copies/mL).

Conclusions: Ledipasvir/sofosbuvir with ribavirin for 24 weeks was well tolerated and demonstrated that successful retreatment is possible in the majority of these genotype 1-infected, NS5A-experienced HCV/HIV co-infected patients.

Table 1. Baseline NS5A RAVs for 9 patients prior to retreatment with LDV/SOF + RBV for 24 weeks and virologic outcome

GT	NS5A RAVs	SVR12
1a	None	Yes
1a	None	Yes
1a	L31M (>99%), H58D (>99%)	Yes
1a	Y93N (>99%)	Yes
1a	L31M (>99%), Y93N (>99%)	Yes
1a*	Y93N (>99%)	Yes
1a	L31M (>99%)	No
1b	L31I (11.12%), Y93H (>99%)	Yes
1b	L31V (>99%)	Yes

*Patient also had NS5B L159F (9.86%) prior to retreatment.

P74

Testing for TB in a contemporary UK HIV clinic – is it really worth it?

S Capocci[1], J Sewell[2], C Smith[2], I Cropley[1], S Bhagani[1], S Morris[2], I Abubakar[2], M Johnson[1] and M Lipman[1]
[1]Royal Free London NHS Foundation Trust, London, UK; [2]University College London, London, UK

Guidelines recommend testing people living with HIV (PLHIV) for latent TB infection (LTBI). We sought to assess the cost-effectiveness of different testing strategies in a UK HIV clinic.

All patients with a new HIV diagnosis and a sample of those in established care (by stratified selection) were offered assessment that included chest x ray (CXR), interferon-gamma release assay (IGRA), tuberculin skin test (TST) and induced sputum (IS) for mycobacterial culture & GeneXpert. Using the results, cost-effectiveness of 16 differing testing strategies (including BHIVA and National Institute for Care Excellence, NICE) were compared from an NHS perspective. Costs and quality of life utilities were taken from published literature.

219 subjects took part. Subclinical TB was identified in 2 (0.9%) and LTBI in 14 (9%). Testing only sub-Saharan Africans (sSA) with IGRA alone was most cost-effective at £28,971 per QALY. More comprehensive strategies including BHIVA & NICE were not cost-effective at a £30,000/QALY threshold (Table: strategies in bold are cost effective at <£30,000/QALY). Probabilistic sensitivity analysis showed "No testing" to be the most likely cost-effective approach up to £30,000.

Testing for TB in an UK adult HIV infected population appears marginally cost-effective. This may be due to a fall in the overall risk of active TB, itself the result of widespread ART use and changing UK HIV demography.

Table 1. Costs and TB cases prevented/10,000 PLHIV, cost/QALY gained compared to no testing. MI: from middle TB incidence countries

Strategy	Total cost	Cases TB prevented	Cost/QALY
No testing	£501,345	0	—
BHIVA 2011	£550,003	2.38	£36,300
TST in sSA only	£550,389	4.08	£22,410
TST in sSA and MI	£562,526	4.70	£24,121
NICE 2011	£588,766	1.17	£133,218
IGRA in sSA only	£612,777	7.14	£27,710
TST alone in all	£628,807	5.27	£48,166
sSA and MI with IGRA alone	£666,688	9.47	£30,999
IGRA alone in all	£851,577	9.47	£65,663
TST and IGRA in all	£1,014,029	10.34	£93,211
IGRA and CXR in all	£1,181,280	20.91	£63,074
IGRA, TST, CXR, IS in all	£1,343,732	17.28	£97,695

P75

Persistent low-level viraemia in HIV-positive individuals adherent to cART is associated with increased pre-treatment viral load and non-AIDS events

JJ Reynolds-Wright, D Richardson, D Churchill and Y Gilleece
Royal Sussex County Hospital, Brighton, UK

Background: Despite effective cART and reported good adherence, persistent low-level viraemia (PLLV) has been observed in a significant proportion of HIV-positive patients. The aim of this study is to evaluate the impact of PLLV on clinical outcomes and virological failure (VF) among HIV-positive patients on cART.

Method: We analysed data from a UK based HIV clinical cohort between 2010 and 2015. Patients were eligible if they had a viral load (VL) below 40 copies/mL within 6 months of initiating cART. PLLV was defined as three consecutive plasma VL between 40 and 499 c/mL after initial virological suppression to <40 c/mL. Cases were excluded if non-adherence was documented in the medical notes during PLLV.

PLLV was divided into two study groups (PLLV-1: 40–200 c/mL and PLLV-2: 201–499 c/mL) and compared with a control group without PLLV (VL<40 c/mL). Differences between groups were calculated using independent t-test, Mann-Whitney test and Chi-squared test according to data normality. Spearman's Correlation coefficient was used to evaluate associations between PLLV, VF (two consecutive VL of 500+ copies/mL), AIDS events, non-AIDS events and HIV parameters including pre-treatment viral load, genotypic resistance and type of ART.

Results: 42 (1.85%) of 2274 patients met the eligibility criteria for PLLV [PLLV-1: 26 (1.14%); PLLV-2: 16 (0.70%)]. 45 controls were randomly selected for comparison. Mean (SD) pre-treatment viral load for each group were PLLV-1 505,613 c/mL (513,459), PLLV-2 432,141 c/mL (511,151) and control group 257,866 c/mL (338,212). 27 (64%) patients with PLLV were on PI based cART prior to PLLV. We observed 71 non-AIDS events in the PLLV groups (PLLV-1: 34; PLLV-2: 16; Controls: 21), 2 AIDS events (Kaposi's Sarcoma and Lymphoma in the PLLV-1 group) and no VF events. A significant association between PLLV and all non-AIDS events (p=0.001, Cramer's V=0.4) was observed. Notably, increased respiratory events were associated significantly with presence of PLLV (p=0.039, φ=−0.255). PLLV was also associated with age (r=0.235, p=0.028) and greater pre-treatment viral load (r=0.256, p=0.028). No other significant associations between PLLV and other HIV parameters, including genotypic resistance, were observed.

Conclusion: PLLV was associated with greater pre-treatment viral load and increased rates of non-AIDS events in patients adherent to cART. In this study, despite the presence of PLLV there was no evidence of evolution of HIV drug resistance.

P76

Survivorship issues following treatment for anal cancer in PLWH

AD Pria, P Holmes, M Alfa-Wali, M Bracchi, J Choy, M Nelson and M Bower
Chelsea and Westminster Hospital, London, UK

Background: Cancer survivors, including PLWH who have been treated for anal cancer, face a number of health related concerns including recurrence and long-term effects of anticancer treatment.

Methods: Clinical characteristics of all PLWH treated for anal cancer are prospectively collected. Since 2005, anal cancer survivors have been offered annual high resolution anoscopic (HRA) surveillance as well as regular lymphocyte subset and HIV plasma viral load measurement. In addition, all secondary malignancies in these survivors are recorded.

Results: Between 1989 and 2016, 92 PLWH were treated for anal cancer including 17 patients treated with surgery alone for T1 anal verge tumours and 68 treated with chemoradiotherapy (CRT) with curative intent for non-metastatic anal canal tumours. Forty survivors (25 after CRT, 15 after surgery alone) had a total of 129 post-treatment surveillance HRA examinations. The highest grade histological abnormality recorded in these survivors was HSIL (AIN2-3) in 10 (25%) and LSIL (AIN1) in 6 (15%). Three (7.5%) of these 40 survivors relapsed, all after CRT, 1 had AIN3 at post-CRT surveillance HRA and the other 2 had moderate dyskaryosis but no histological abnormalities. Two of these relapsers have died of anal cancer and 4 more have died of other causes including 3 from secondary malignancies. In addition to the risk of secondary malignancy, CRT is associated with prolonged decline of CD4 in survivors. At start of CRT for 68 patients, the median CD4 cell count was 327/mm^{3} (range: 29–1577). After CRT, the median CD4 count fell to 144/mm^{3} (t-test p<0.0001) and it took 4 years before it returned to the pre CRT level.

Twenty nine of 92 patients have died including 21 from refractory or relapsed anal cancer. The remaining 8 patients died in remission of anal cancer from AIDS defining cancers (2 Kaposi sarcoma, 2 non-Hodgkin lymphoma), opportunistic infection (2), liver failure due to hepatitis C (1), and lung cancer (1). In total, 8 survivors developed secondary malignancies all following CRT (5 above and 1 prostate cancer, 1 appendiceal carcinoid and 1 sigmoid adenocarcinoma).

Conclusions: Anal cancer survivors are at risk of treatment related late toxicity including immunosuppression and associated infections and tumours, CRT-induced secondary malignancy. Following CRT or surgery, 40% have persistent or recurrent anal dysplasia. Clinicians should be aware of these issues for anal cancer survivors.

P77

Cardiovascular risk assessment – don't just record, act!

ER Pool[1], D Churchill[1] and J Schulkind[2]
[1]Brighton and Sussex University Hospital, Brighton, UK; [2]Brighton and Sussex Medical School, Brighton, UK

Background: Cardiovascular disease (CVD) is increasing for people living with HIV. Optimising management of modifiable risk factors can reduce CVD risk. The BHIVA monitoring guidelines (2011) recommend assessment of blood pressure, smoking status, body mass index (BMI), lipids and CVD risk calculation.

Aims: 1Describe prevalence of CVD risk.2Assess if CVD risk was assessed in line with BHIVA guidelines and compare to 2012.3Assess if action was taken where risk was identified.

Methods: Routinely collected data were analysed for all HIV+ patients at one large clinic. An additional randomly selected subset of 100 patient notes were selected for more in depth analysis. Data were compared to a 2012 audit.

Results: A total of 2234 patients were included. 88% were male and 80% were MSM. Median age was 46 years, and 38% of patients were >50 years old. 34% were current smokers. Systolic blood pressure was ≥140 in 18%. Obesity (BMI ≥30) was present in 12%, but was not recorded in 21%.

In the subset of 100 patients, total cholesterol was >6 mmol in 10%. CVD risk calculation was recorded in only 26%, using different tools. Where Qrisk was calculated, 10 year CVD risk was >10% in 62% (n=13/21) of cases.

Risk assessment: In the subset of patients, most CVD risk factors were regularly assessed. Recording had improved across all factors in 2015 compared to 2012, but none reached BHIVA targets. Lipids were checked recently for the vast majority of patients.

| Risk factor | 2015 results | | 2012 results | |
	Recorded within time	Recorded ever	Recorded ever	Change 2012 vs 2015
Blood pressure	79% (within 1 year)	100%	89%	↑ 11%
Smoking status	83% (within 2 years)	96%	74%	↑ 22%
BMI	68% (within 1 year)	84%	–	–
Lipids checked	94% (within 1 year)	100%	97%	↑ 3%
CVD risk calculation	22% (within 3 years)	26%	14%	↑ 12%

Was action taken?: Where SBP was >140 mmHg, action was taken in 43% (n=6/14) of cases (mostly referral to GP). Where BMI >25 was identified, lifestyle advice was documented in 11% (n=4/35). Where current smoking was identified action was taken in 50% (n=19/38) of cases.

Conclusion: Recording of CVD risk factors improved between 2012 and 2015, but is still too low, especially for CVD risk calculation and BMI. Where CVD risks were identified, action was not taken in most cases. Clearer management pathways are needed in order to optimise CVD risk management.

P78

Cardiovascular risk assessment in an HIV cohort: a comparison of QRISK2, JBS3, the Framingham Risk Score and the D:A:D score

P Killeen and A Duncan

Guy's and St Thomas' NHS Foundation Trust, London, UK

Background: There is a known increase of cardiovascular disease in HIV patients taking anti-retroviral drugs, however the main CVD risk tools in use in the UK do not currently incorporate an odds ratio for patients using these drugs. This study aimed compared the predictions of typical CVD risk tools with one specifically validated for HIV patients, in a HIV cohort.
Methods: Cross sectional study analysing 329 HIV patients and comparing the 10-year CVD risk prediction attributed to each by FRS, JBS3 and QRISK2 with the D:A:D score (a score specifically validated for use in HIV cohorts).
Results: There was good agreement between prediction of a "high-risk" individual; observed agreement between D:A:D and the Framingham Risk Score, JBS3 and QRISK2 was 78.4%, 86.3% and 89.4% (Cohen's K: 0.64, 0.79 and 0.84). However, the D:A:D score underestimated risk compared to the other scores (D:A:D, FRS, JBS3 and QRISK2 advised treatment in 65, 135, 77 and 95 of 329 patients). Furthermore, FRS, JBS3 and QRISK2 underestimated risk by as much as 53% relative to the increased risk attributed by D:A:D, in the 67% of patients receiving ART drugs which have a known association with increased CVD risk.
Conclusion: Lower thresholds to treatment may be needed for use of QRISK2 or JBS3 in HIV patients because these scores may underestimate HIV risk by 53% in the 67% of our patients taking relevant ART drugs. However primary use of the D:A:D score would cause underestimation of CVD risk in our cohort if used as a sole alternative. These findings prompt further work to validate a version of QRISK2 for HIV patients taking relevant ART medication, or a reduced threshold for starting treatment in this particular cohort.

P79

Cervical smear abnormalities in the era of ART

S Blundell, K Verma, S Murphy and G Brook

London North West Healthcare NHS Trust, London, UK

Background: HIV+ women have a high rate of cervical cancer and BHIVA guidelines recommend annual cervical smears. A recent study suggested that rates of cervical smear abnormalities in HIV+ women with CD4 counts >350 (7.2%) are similar to those in HIV- women (6.6%) and proposed that less frequent cervical smears may be appropriate. However, we feel that the study methodology was incorrect as it only looked at smear results over a 1-year period in HIV+ women (1-year prevalence) but compared the results with national data for women who had smears every 3 years on average (3-year

prevalence). The better comparison therefore should be the prevalence of abnormalities in HIV+ women over a 3 year period.
Methods: A retrospective study of HIV-positive women who had at least one cervical smear in a clinic cohort in N.W. London in the period 2013–15. Demographics, smear results and concurrent CD4, viral load results and ART status were extracted from the EPR. We compared the prevalence of abnormal smears in our HIV+ women over a 3 year period to the national prevalence. A chi-squared test was used to assess significance of differences.
Results: 583 cervical smear results were obtained from a total of 343 HIV+ women. 59 women (17.5%) had at least one abnormal smear in this 3 year period (see table). Only 5/59 (8.5%) of women with abnormal smears had a CD4<350. Of the 583 smears taken, 498 were normal and of the normal smears with a concurrent CD4 it was <350 in 68/489 (14%) (p=0.41, n.s.). There was also no difference between smear results based upon viral load or concurrent ART use.
Conclusion: Our study demonstrates a higher 3-yearly rate of cervical cytology abnormalities amongst HIV+ women than the general population which is not related to CD4 count, VL or ART use. Although national data may underestimate the 3-yearly prevalence of abnormalities, these results do not support a move to reduce the frequency of smears in HIV+ women.

Table 1. 3-yearly Prevalence of abnormal smears

Smear result	HIV+ women 2013–2015	National data 2014/15
Normal	278/337 82.5%	93.5%
Borderline	23/337 6.8%	2.6%
Low grade dyskaryosis	27/337 8.0%	2.5%
High grade dyskaryosis (moderate)	6/337 1.8%	0.6%
High grade dyskaryosis (severe)	3/337 0.9%	0.7%
Cancer	0	0
All abnormalities	59/337 17.5%	6.4%

P80

Direct antiviral agents for the treatment of hepatitis C in the co-infected population

G Hicks, S Rizvi, P Holmes, E Devitt, S Farnworth, R White, J Phillips, L Curran, M Bower and M Nelson

Chelsea and Westminster Hospital, London, UK

Background: Hepatitis C is prevalent within the HIV infected population, with approximately 10% of individuals with HIV in the UK exhibiting evidence of current or previous hepatitis C infection. The direct acting antiviral (DAAs) therapies have been highly effective in clinical trials in the co-infected population, although there is limited evidence of their use in clinical practice.
Methods: Prospective on-going data collection of individuals receiving DAAs for the treatment of hepatitis C.
Results: 36 individuals received DAAs. 4 patients received treatment for acute hepatitis C, genotype 1; one with 12 weeks of Pegylated Interferon, Sofosbuvir and Ribavirin (SVR4 achieved), two with 12 weeks of Harvoni, Ribavirin both of whom have end of treatment response and a third patient with 8 weeks of Harvoni alone who achieved SVR12. 32 individuals received treatment for chronic hepatitis; their treatment, genotype and response are detailed in the table below. All individuals had an undetectable HIV viral load. 10 individuals were receiving a protease inhibitor, 10 a non-nucleoside and 16 an integrase inhibitor for HIV. Two patients required Ribavirin dose reduction and one cessation. All patients have attended all planned visits and no patient has ceased therapy.
Conclusion: DAA based therapy is highly effective in suppressing HCV replication and no individual has failed therapy. Within the context of HIV infection, in patients who are adherent to antiretroviral therapy, detailed follow up is probably not needed due to the high rates of adherence, low toxicity and low rate of failure of DAAs. This should translate into rapid pass through for therapy in the HIV infected population.

| Genotype | n | Rx | Median baseline VL | % PCR negative (weeks) | | | | |
				2	4	8	12	SVR4
1aC	16	SOF/LDV/RBV	1,905,415	23 (3/13)	75 (9/12)	100 (9/9)	100 (8/8)	100 (4/4)
1aNC	6	PEG/RBV/SOF	299,737	80 (4/5)	100 (3/3)	100 (2/2)	100 (3/3)	
1bC	3	ABBVIE3D (1) SOF/LDV/RBV (2)	1,463,401	67 (2/3)	100 (3/3)	100 (3/3)	100 (3/3)	100 (2/2)
3C	4	SOF/DAC/RBV (3) SOF/DAC (1)	596,069	75 (3/4)	100 (4/4)	100 (4/4)	100 (2/2)	100 (2/2)
4C	1	SOF/LDV/RBV	3,240,142	1 (1/1)	100 (1/1)	100 (1/1)	100 (1/1)	
4NC	2	SOF/LDV	852,356	100 (2/2)	100 (2/2)	100 (2/2)	100 (2/2)	100 (2/2)

C, cirrhotic; NC, non-cirrhotic; SOF, Sofosbuvir; LDV, Ledipasvir; RBV, Ribavirin; DAC, Daclatasvir; PEG, Pegylated Interferon.

P81

Neurocognitive and neurometabolic effects of switch from efavirenz to ritonavir–boosted lopinavir

B Payne[1], T Chadwick[1], A Blamire[1], J Qian[1], AM Hynes[1], J Wilkinson[1], DA Price[2] and K Anderson[2]
[1]Newcastle University, Newcastle-upon-Tyne, UK; [2]Newcastle-upon-Tyne Hospitals, Newcastle-upon-Tyne, UK

Background: Mild neurocognitive impairment is thought to be relatively common in HIV infection, but the reasons are not fully understood. In patients on stable suppressive anti-retroviral therapy (ART) it is unclear whether modification of ART can have any beneficial effects on neurocognitive function. Specifically recent cross-sectional data have suggested that efavirenz (EFV) may be associated with mild neurocognitive impairment. Our aim was therefore to explore whether neurocognitive function and brain metabolites are improved by switching away from EFV.
Methods: We performed an open label phase IV study in HIV-infected adults on suppressive HAART containing EFV. All subjects were switched from EFV to ritonavir-boosted lopinavir (LPV/r, Kaletra®). Nucleoside/nucleotide backbone drugs were continued. Observations were performed before and 10 weeks after ART switch. Primary outcome measure was change in neurocognitive performance (by CogState® computerised battery). Secondary outcome measures were change in cerebral metabolites (by proton magnetic resonance spectroscopy, ^{1}H-MRS), tasked-based (attentional processing) functional magnetic resonance imaging (fMRI), and change in sleep parameters.
Results: 17 subjects entered the study and 16 completed. No changes were observed in any measures of neurocognitive performance, cerebral metabolites, or on task-based fMRI. There was improvement in sleep quality (mean change in PSQI (Pittsburgh Sleep Quality Index), −3.4; 95% CI, −6.0 to −0.7).
Conclusions: EFV is unlikely to be a major modifiable contributor to neurocognitive function in stable HIV-infected persons on suppressive HAART.

P82

No benefit of standard vitamin D/calcium supplementation HIV-infected patients

J Tiraboschi[1], J Fox[1], A Teague[1], F Ibrahim[2] and J Cason[3]
[1]Guy's and St Thomas' NHS Foundation Trust, London, UK; [2]Faculty of Life Sciences and Medicine, King's College London, London, UK; [3]King's College London School of Medicine, London, UK

Background: The prevalence of Vitamin D deficiency (25-hydroxyvitamin D (25[OH]D) in HIV infected individuals is 80–90%. The optimal management is unclear. We report week 48 data of a prospective, randomized, open-label trial investigating whether standard dose vitamin D supplementation increases 25 [OH]D levels to within normal range and/or improves bone mineral density (BMD) in a cohort of HIV infected individuals stable on antiretroviral therapy with vitamin D deficiency.
Methods: HIV infected individuals on stable antiretroviral therapy with confirmed vitamin D deficiency (25[OH] D<40 ng/mL) were randomised 1:1 to receive vitamin D3/calcium carbonate supplementation (800 IU/3000 mg) or no treatment (control arm) for 48 weeks. The primary endpoints were changes in 25(OH)D and BMD at 48 weeks. We used t-test to compare mean difference between the groups.
Results: 30 subjects were randomized. The groups had similar clinical and demographic characteristics at baseline assessments. Mean Age (SD) for participants was 43.5 years, 80% were male, 72% of individuals were white, 45% of patients were receiving a PI, 48% on NNRTIs and 7% received integrase inhibitors. Vitamin D adherence assessed by pill count was high (~80%) at 48 weeks. There was no difference in vitamin D intake between groups. One patient in the control arm was lost of follow up early after recruitment. Overall baseline 25 [OH] D (SD) was 15.89 nmol/L (9.78). No significant difference in the change in 25 (OH) D levels from week 0 to week 48 between the 2 arms was observed. After adjustment there was no mean difference between the groups, mean difference 0.74 nmol/L (−7.60, 9.08) p=0.856. At week 48, the adjusted mean percentage change in bone mineral density was −0.01 (−0.16, 0.14) p=0.907 at the hip, and 0.01 (−0.22, 0.25) p=0.902 at the spine for supplementation arm compared to control arm. On multivariate analysis no statistical association with efavirenz (p=0.50) or ethnicity was found (p=0.20).
Conclusions: Vitamin D3/calcium supplementation using a standard dose vitamin D3 (800 IU/day) in vitamin D deficient HIV positive individuals resulted in no 25[OH]D repletion or improvements in BMD after 48 weeks. HIV patients with 25[OH]D deficiency may need higher dosing such as that recommended in malabsortion syndromes (up to 40,000 IU/day).

P83

Review of causes of death in HIV–positive patients in London in 2014

S Dhoot[1], A Sullivan[1], V Delpech[2], S Croxford[2], R Harding[3], J Peck[4] and S Lucas[5]
[1]Chelsea and Westminster Hospital NHS Foundation Trust, London, UK; [2]Public Health England, London, UK; [3]King's College London, London, UK; [4]NHS England, London, UK; [5]St Thomas' Hospital, London, UK

Background: In the era of antiretroviral therapy (ART) the spectrum of causes of death (CoD) has changed from being dominated by HIV-related causes to non-HIV-related CoD compared to the pre-ART era. Our aim was to describe the reported circumstance and CoD for HIV positive patients dying in 2014, who either died in London or died elsewhere but received their HIV care in London.
Methods: Data were reported from 16 London HIV centres for patients who died in 2014 either at their centre or who had been under their care. Data included demographic data, HIV diagnosis date, cause and place of death, most recent CD4 count and viral load (VL), HIV treatment status and reported adherence. Data were analysed for the whole cohort and for patients dying within 1 year of their HIV diagnosis.
Results: There were 189 deaths reported; 144 (76%) were male. The average age at death was 54 years for men (range 29–92) and 47 years for women

(range 29–80). The majority of patients (125, 66%) died in hospital, 32 (17%) at home, 18 (10%) in a hospice, 5 (3%) in a nursing/residential home and 10 (5%) elsewhere. Almost all patients (175, 93%) were on ART, 125 (68%) had an undetectable VL and the median CD4 count was 262 cells/uL (range 1–1182 cells/uL). Of 59 patients with a detectable VL, 15 had been recently diagnosed. There were 38 patients who died within 1 year of HIV diagnosis; 33/37 had a CD4 count <350 cells/uL, 16<50 cells/uL. 74% of those that died within 1 year of diagnosis were AIDS/HIV related deaths. Of all deaths 28% were AIDS/HIV related, including AIDS defining malignancies (25), opportunistic infections (10) and 18 other AIDS/HIV related deaths.72% were categorised as non AIDS/HIV related (32% in 2005); including non-AIDS defining malignancies (32), respiratory disease (19), liver disease (13), substance misuse (12), cerebrovascular accident (11), sepsis (10), suicide (6), cardiovascular disease (5),17 non AIDS/HIV related deaths that did not fall into these categories and in 11 cases the CoD was not known.

Conclusions: The majority of deaths were not directly HIV related and the majority of patients were on effective ART. A number of potentially preventable CoD were identified, including late diagnosis. Most patients dying within a year of their diagnosis were diagnosed late and HIV testing must increase to reduce these avoidable deaths. Psychological and substance misuse factors along with cardiovascular risk factors are other potentially modifiable CoD.

P84

Systemic lymphomas in people co-infected with HIV and HCV

DA Arvind[1], OW Wright[1], AD Pria[2], P Holmes[2], G Singh[2], J Forni[2], M Nelson[2] and M Bower[2]

[1]Imperial College Medical School, London, UK; [2]Chelsea & Westminster Hospital, London, UK

Background: Both Hepatitis C virus (HCV) and HIV infection are associated with the development of B-cell lymphoma. The clinico-pathological features and outcomes of lymphomas in HIV/HCV co-infected persons has not been compared to those in HIV mono-infected individuals.

Methods: A retrospective review of prospectively collected data on patients treated at the National Centre for HIV malignancy with HIV associated systemic lymphoma (HAL) was undertaken. Since 1998 HCV antibody testing using the Abbott IMX system (Maidenhead, UK) has been introduced to routine care. Data from all patients diagnosed between 1998 and 2016 with HAL were analysed and comparisons between HCV seropositive and HCV seronegative individuals were performed.

Results: Since 1998 a total of 406 PLWH have been diagnosed with systemic HAL and 358 had HCV serology undertaken at lymphoma diagnosis. Twenty nine (8%) (26 male, mean age 43 year range: 25–64) were HCV seropositive. At the time of HAL diagnosis, HCV seropositive individuals had been diagnosed HIV positive longer (p=0.001), were more often on cART (p=0.0097) and more had an undetectable plasma HIV viral load (p=0.012), but there was no significant difference in gender, age and CD4 cell count between HCV seropositive and HCV seronegative individuals. At lymphoma diagnosis, 20 patients had chronic HCV with HCV viraemia (median 680,000 IU/mL) and 9 had cleared the HCV either spontaneously (5) or following HCV treatment (4). The histological subtypes of lymphoma in the co-infected patients included 1 patient with marginal zone lymphoma (a subtype associated with HCV infection in the general population), however Hodgkin lymphoma (HL) (15) and diffuse large B-cell lymphoma (DLBCL) (11) were the most frequent subtypes. Five patients have died, 3 of HAL and 2 in remission (1 suicide and 1 opportunistic infection). For the two common HAL subtypes, there was no significant difference in survival according to HCV serology at HAL diagnosis (DLBCL log rank p=0.09, HD log rank p=0.11).

Discussion: Although HCV is associated with rarer forms of B-cell lymphoma, the lymphomas in 29 HIV/HCV co-infected patients resemble those in the HIV mono-infected population and treatment outcomes are similar.

P85

The burden of non-viral liver disease in patients referred to an HIV/liver clinic: the tip of the iceberg?

K Childs[1], A Suddle[1], K Agarwal[1], C Taylor[2] and K MacDonald[2]

[1]Institute of Liver Studies, King's College Hospital, London, UK; [2]King's College London, London, UK

Introduction: Liver disease is a leading cause of mortality in the ART era. We describe the presenting features and underlying diagnoses of non-viral liver disease in a cohort of patients with HIV.

Method: Retrospective cohort study using electronic note review of patients seen in a HIV/liver clinic from 2009 to 2015. Demographic, lab and histological data were gathered. Continuous variables are expressed as median (IQR).

Results: Of 479 patients seen, 81 (16.9%) did not have viral hepatitis. 56% patients were men, 53% were black African. 78% had HIV viral load <40 cp/mL. Demographics, percentage of undetectable patients and fibroscan scores are shown. The most common diagnoses were non cirrhotic portal hypertension (NCPH) related to didanosine exposure of whom 14/16 had portal vein thrombosis, non-alcoholic fatty liver disease (NAFLD), autoimmune hepatitis (AIH), drug reaction related to efavirenz (EFZ) and vanishing bile duct syndrome (VBD) related to lymphoma. Other diagnoses included TB, MAI, other ART or recreational drug reaction, atazanavir related ↑bilirubin, bone related ↑ALP, acute HIV, cholangiopathy, alcohol related and schistosomiasis.16% were referred for end stage liver disease management. Other referrals were for abnormal biochemistry. 37 (46%) patients underwent liver biopsy. 21 (26%) were cirrhotic. 12 underwent transplant assessment, 5 underwent transplantation.4 died,1 post transplant.

Discussion: A significant minority of patients referred had a non-viral aetiology. A wide range of disorders were diagnosed, frequently requiring use of liver biopsy. There was a high prevalence of cirrhosis and 5% of patients with non-viral liver disease died, despite viral control in the majority. This illustrates the importance of investigating liver biochemistry abnormalities in patients with HIV and prompt referral for hepatological input, ideally in a multidisciplinary clinic.

Diagnosis (n)	NAFLD (21)	NCPH (16)	AIH (6)	EFZ (6)	VBD (3)
Median age (yrs)	45	45	47	38	48
Male (n)	15	6	0	3	3
Race (C Caucasian, BA Black African, A Asian)	11 C,6BA, 3 A	10 BA, 6 C	4 BA, 2 C	6 BA	2 BA, 1 C
Percent HIV <40 cp/mL	84%	92%	83%	83%	100
Median CD4 (cells/uL)	541	331	590	598	285
Median fibroscan (kPa)	5.6	8.6	12.6	4.9	
Reason for referral (n)					
AST only	7	1	3	4	
ALP only	5	3		1	
AST+ALP	4	3	3	1	
GGT only	3	1			
Jaundice+ AST/ALP		1			3
Advanced liver disease	2	5			

P86

Exocrine pancreatic insufficiency in HIV-infected patients: a retrospective analysis

D Lawrence, L Mulka, T Murphy, C Kirby, M Austin and A Clarke
Brighton and Sussex University Hospitals NHS Trust, Brighton, UK

Background: Exocrine Pancreatic Insufficiency (EPI) is a recognised cause of chronic diarrhoea in people living with HIV (PLWH). Alcohol and hepatitis C Virus (HCV) are associated factors and the role of drugs such as didanosine (ddI) and stavudine (d4T) has been questioned. The impact of smoking, found to be more associated with EPI in non-HIV patients than alcohol, has not been fully explored. We aimed to audit the management of patients with suspected EPI.
Methods: Retrospective analysis of all PLWH with a low faecal elastase (diagnostic of EPI) between July 2011 and October 2015.
Results: 42 patients were identified, of which 32 notes could be reviewed. All were Caucasian, homosexual men, mean age was 51 (range 24–69). Mean duration of HIV was 153 months (range 3–363), nadir CD4 428 cells/mm^3 (range 30–875 cells/mm^3); 34 (81%) had an undetectable viral load. 42 (95%) were on ART: 11 (26%) had previous ddI and 10 (24%) previous d4T. 9 (28%) reported current alcohol intake of >21 units per week and 2 (6%) had previous high intake. 1 had previous pancreatitis and 1 had treated HCV. 15 (47%) were current smokers, 11 (34%) ex-smokers, and 6 (19%) had never smoked. 20 (48%) had severe EPI (elastase <100), the remaining classed as moderate (elastase 100–200). 31 (73%) had a faecal calprotectin sent, 10 (32%) of those were raised >150. All coeliac screens were negative. 30 had stool samples sent, 5 testing positive for infective pathogens. 18 (43%) had an abdominal ultrasound: 7 (39%) were normal, 6 (33%) showed hepatic steatosis, 2 (11%) cirrhosis, and 2 (11%) known non-cirrhotic portal hypertension. 20 (48%) had a CT abdomen: 12 (60%) were normal, 3 (15%) showed hepatic steatosis, 2 (10%) identified colitis, 2 (10%) cirrhosis and 1 pancreatic tumour was seen. 22 (69%) of patients with PEI were started on Creon, 11 (50%) of whom experienced improvement of symptoms.
Conclusions: 81% of patients were current or ex-smokers, compared to 67% of our entire cohort. The role of smoking, as in the HIV negative population, may be under appreciated. Additional investigations are important to exclude other pathologies such as inflammatory bowel disease or infection, but testing here was inconsistent. Creon was frequently under dosed which may explain the moderate symptom improvement. We are producing local guidance for investigation and management of chronic diarrhoea. There is a need for research comparing those with similar symptoms, but a normal faecal elastase, to identify risk factors for EPI.

P87

Non-invasive liver assessment reveals a high prevalence of fibrosis, cirrhosis and portal hypertension from a variety of causes in a didanosine (DDI)-exposed cohort

J Millard[1], S Verma[1] and Y Gilleece[2]
[1]Brighton and Sussex Medical School, Falmer, UK; [2]Royal Sussex County Hospital, Brighton, UK

Background: Chronic liver disease (CLD) is one of the leading causes of mortality in HIV. Hepatitis B/C (HBV/HCV) co-infection are principal causes but there is an increasing burden from alcohol related liver disease (ARLD), non-alcoholic fatty liver disease (NAFLD) and non-cirrhotic portal hypertension (NCPH) due to prior didanosine (DDI) exposure. We present the findings of non-invasive liver assessment within a DDI exposed cohort.
Methods: In our current cohort of 2300 patients, we identified 273 (11.9%) with ≥6 months DDI exposure, we aimed to ensure that they all had radiology within ≤1 year and non-invasive liver stiffness assessment with Fibroscan®. We identified patients with, and likely causes of, portal hypertension (PHT) and other evidence of CLD (defined as PHT and/or ≥F2 and/or at least fibrosis on biopsy)
Results: 167 patients had imaging within ≤1 year or underwent liver ultrasound; the Fibroscan® and liver biopsy characteristics of these patients are displayed in the table.
Conclusions: Within a DDI exposed cohort, 6.6% had PHT, with over half of those biopsied consistent with DDI exposure but most of the remainder likely to be due to cirrhosis and from other causes. Similarly, of those without PHT, 15 (9.6%) had evidence of at least fibrosis, principally from viral hepatitis and

NAFLD, highlighting the wider burden of liver disease in this experienced cohort with other co-morbidities. The overall prevalence of clinically significant CLD amongst those with PHT or a biopsy/Fibroscan® result was 31/97 (32.0%).

P88

Pneumococcal vaccination and subsequent serology evaluation in an HIV-infected cohort

H Kang[1], C Saxon[1], S Ahmad[1] and P Newton[2]
[1]Withington Community Hospital, Manchester, UK; [2]University Hospital of South Manchester NHS Foundation Trust, Manchester, UK

Background: Streptococcal pneumoniae infections can cause significant morbidity and mortality in HIV-infected individuals. Until recently BHIVA guidelines recommended routine vaccination with the 23-valent pneumococcal polysaccharide vaccine (PPV23) in all HIV-infected adults with a CD4>200×10^6/L and consideration of vaccination with a CD4 count ≤200. The recommended vaccination schedule was a single dose with boosters every 5–10 years. As HIV-infected individuals have been reported to produce lower peak antibody levels and durability of response with PPV23, pneumococcal serology testing was introduced in 05/2014 locally to guide booster doses. The aim of this study was to review the immunological efficacy of PPV23 vaccination in our cohort of patients.
Methods: A retrospective case note review of all patients who attended between 09/2014 and 09/2015 was performed. Demographic data was collected, along with Nadir CD4 count, number of doses of PPV23 received and pneumococcal antibody titre levels. Adequate immunological response was defined as 6 or more IgG serology titre results above 0.35 μg/mL for the purpose of this study.
Results: A total of 435 patients were identified; age range 21–86 years (median 43; mean 43). 86.2% (375) male, 75.6% (329) MSM, 15.6% (68) black African and 78.4% (341) white British. Median nadir CD4 count 253. The majority of patients (95.2% [414/435]) were on antiretroviral therapy. 99.8% (434) patients had been vaccinated. 59.3% (258) patients had an adequate immunological response following vaccination, of these 52.3% (135) had received 1 dose of vaccination, 36.0% (93) 2 doses of vaccination and 11.6% (30) 3 doses of vaccination. 30.6% (133) of patients had a nadir CD4 count <200, with 62.4% (83) attaining adequate immunity. The remaining 69.4% (302) patients had a nadir CD4 count>200 with 57.9% (175) attaining adequate immunity.
Conclusion: Adequate immunological response to PPV23 vaccination was observed in the majority of patients vaccinated (59.3%), with many (52.3%) attaining this following 1 dose of vaccination. Firm conclusions on whether repeated doses of vaccination affected immunological outcomes cannot be made from this study. The new BHIVA guidance recommends a single 13-valent pneumococcal conjugate vaccine (PCV13), this study highlights that many of our patients have adequate immunity and therefore PCV13 vaccination may not be required in this group at present.

P89

Real world impact of direct-acting antivirals for the treatment of chronic hepatitis C virus infection in HIV-co-infected patients

N Bulteel[1], E Thomson[1], AA Murphy[2], L McLean[2] and P McGinness[2]
[1]MRC – University of Glasgow Centre for Virus Research, Glasgow, UK; [2]Brownlee Centre, NHS Greater Glasgow & Clyde, Glasgow, UK

Background: Direct acting antivirals (DAA) have revolutionised the treatment of chronic hepatitis C virus (HCV) infection. Clinical trials have reported identical rates of sustained virological response (SVR) for HIV/HCV co-infected and HCV mono-infected individuals, however real-world data are lacking. We report on the efficacy and safety of DAA therapy in our cohort of HIV/HCV co-infected individuals.
Methods: All patients who attended the co-infection clinic on at least 1 occasion were included. Choice of DAA regimen was at physician discretion and according to locally agreed guidelines. Case notes were reviewed and patient characteristics recorded.

Results: Our co-infection cohort comprises 145 patients; 26 achieved SVR with interferon and ribavirin, 6 cleared spontaneously and 6 died prior to treatment initiation. The main barrier to treatment initiation was poor engagement with care and ongoing substance misuse (n=34), 10 patients are pending treatment. Of the remainder, 44 received ≥ 1 dose DAA including 19 patients with cirrhosis. The majority were male (n=38/44, 86%) with a history of injecting drug use (n=27/44, 61%) including 4 cases of acquisition through chemsex. The majority of patients were HCV genotype 1 (Gt1) infected (37/44); the remainder had Gt3 (n=5), Gt2 (n=1) and mixed (n=1) infection. Most were treatment naïve (n=32/44, 73%); 4 patients were prior null responders. No patients were DAA experienced. The majority of patients were receiving a suppressive antiretroviral regime (42/44, 95%); the median pre-treatment CD4 count was 525 cells/mm³ and the median HCV viral load was 6.02 log10 IU/mL. At the time of writing, 36 patients had reached end of treatment (EOT). All patients followed to 12 weeks post treatment achieved SVR (29/29, 100%). Four patients had detectable HCV viraemia at EOT, all achieved SVR12. Anaemia was more common in patients receiving ribavirin. No patient discontinued treatment due to adverse events; 2 patients required prophylaxis against opportunistic infection. No patient experienced loss of HIV virological control. Of the cirrhotic patients, 2 required hospital admission with decompensation; both subsequently achieved SVR12.

Conclusion: 1Treatment of HCV with DAA in HIV/HCV co-infected individuals is safe and extremely effective.
2Detectable viraemia at EOT was not associated with failure to achieve SVR12.
3Poor engagement with care remains a barrier to effective treatment.

P90

Undiagnosed hepatitis C virus (HCV) infection in attendees of a large London Emergency Department

D Bradshaw[1], C Rae[1], M Foxton[1], A Sullivan[1], P Roberts[1], K Pillay[2], G Pickard[2], D Patel[2] and D Rezende[2]
[1]Chelsea and Westminster Hospital NHS Foundation Trust, London, UK;
[2]Imperial College Healthcare NHS Trust, London, UK

Background: Novel therapies against hepatitis C virus (HCV) have recently been licensed but access to treatment may be limited due to a high proportion of undiagnosed infection. UK national HCV and hepatitis B virus (HBV) seroprevalence is estimated at 0.4% and 0.3% respectively but this conceals hotspots of high seroprevalence and local data are lacking.
Methods: The first phase was a retrospective, anonymous, seroprevalence surveillance survey of randomly-selected, irreversibly-unlinked samples from individuals who had tested HIV-negative as part of a routine testing programme in a large London emergency department (ED). The second phase was a roll out of routine blood borne virus (BBV) testing in ED, which also included HIV. Assays were performed for anti-HCV IgG and HBV surface antigen (HBsAg), costing £3.50 and £3.60 respectively.
Results: Five hundred samples were assayed retrospectively of which 15 (3.0%) were positive for anti-HCV IgG and 8 (1.6%) for HBsAg (see Table 1.0.); this was 7.5 and 5.3 times the UK seroprevalence, respectively, The positive test cost was £117 and £225 respectively. Of 2510 ED attendees during 6 weeks of routine testing, 399 (15.9%) accepted BBV screening; nine (2.3%) were anti-HCV-positive, of whom four were previously aware of their diagnosis; 4 (1.0%) were HBsAg-positive of whom one individual was aware of his diagnosis.
Table 1. Seroprevalence of anti-HCV and HBsAg in ED attendees

Phase of study	Total no. samples	Anti-HCV (%)	HBsAg (%)
Retrospective	500	15 (3.0)	8 (1.6)
Prospective	399	9 (2.3)	4 (1.0)

Conclusions: Local seroprevalence of HCV and HBV infection was 7.5 and 5.3 times the national average, respectively, in the retrospective surveillance study. Subsequent testing as part of a routine screening programme confirmed a higher than expected prevalence for both infections. Current recommendations suggest universal screening for HIV is cost effective where local diagnosed seroprevalence is >0.2%. Further work is required on the cost effectiveness of universal screening for HBV and HCV in ED and other non-traditional settings.

P91

High cure rates and shorter treatment course with telaprevir in genotype 1 acute hepatitis C virus infection in HIV-infected men: interim data from a Phase III randomised pilot trial

G Singh, S Fedele, M Bracchi, AD Pria, G Hicks, S Farnworth and M Nelson
Chelsea and Westminster Hospital, London, UK

Background: We report 48 week data from the first open label, randomised, controlled, parallel study of pegylated interferon-alpha (PegIFN-a), ribavirin (RBV) and telaprevir (TVR) vs PegIFN-a and RBV in the response guided treatment of acute hepatitis C (HCV) genotype 1 virus infection in patients with HIV-1 co-infection, in the context of recent evidence demonstrating higher sustained virologic response (SVR) rates with the addition of TVR.
Methods: Patients were randomised in a 1:1 fashion to receive either PegIFN-a/RBV (arm 1) or PegIFN-a/RBV/TVR (arm 2). Patients in arm 1 who achieved a rapid virologic response (RVR), defined as >2 log drop within 100 days of infection, undetectable HCV (HCV RNA) at 4 weeks were treated for 24 weeks or if RVR was not achieved, for 48 weeks. Patients in arm 2 were treated for 12 weeks if RVR achieved, 24 weeks in those not achieving RVR (HCV RNA >25 but <1000 iU/mL at week 4) or 48 weeks if HCV RNA >1000 iU/mL at week 4. The primary endpoint was to compare rates of SVR$_{24}$ between treatment arms; defined as undetectable HCV RNA at 24 weeks after planned treatment completion (EOT). HCV treatment was stopped if HCV RNA had not reduced by 100-fold at week 12 or remained detectable at week 24.
Results: Twenty eligible male patients were enrolled, 17 of whom (85%) were Caucasian. Mean age was 38.9 years (range 26.9–58.7). By intention-to-treat, all 10 patients achieved SVR$_{24}$ in the arm 2 compared to 9 (90%) in arm 1. At week 4, 100% in arm 2 vs 90% in arm 1 had achieved an undetectable HCV RNA. HCV treatment was discontinued in 1 patient randomised to PegIFN-a/RBV at week 12 due to a lack of response. Baseline HIV RNA was <40 copies/mL in 19 patients, 1 was untreated. Each treatment arm had a significant drop in CD4 count from baseline to EOT but the difference between arms was not statistically significant.
Amongst patients with SVR, the mean duration of treatment was 12 weeks for arm 2 vs 29 weeks for arm 1. The overall safety profile was similar to that known for TVR-based regimens.
Conclusion: Incorporating TVR into treatment of acute genotype 1 HCV in HIV-infected men permitted significantly shorter duration of treatment with durable SVR rates compared with standard PegIFN-a/RBV.

P92

The evolution of HIV-associated lymphoma over three decades

R Ramaswami[1], AD Pria[1], J Roe[1], M Nelson[1], B Gazzard[1], M Bower[1] and G Chia[2]
[1]Chelsea & Westminster Hospital, London, UK; [2]Imperial College Medical School, London, UK

Background: The emergence of combined antiretroviral therapy (cART) and improvements in the management of opportunistic infections have altered the HIV epidemic over the last 30 years. We aimed to assess changes to the biology and outcomes of HIV-associated lymphomas over this period at the national centre for HIV oncology in the UK.
Methods: Clinical characteristics at lymphoma diagnosis have been prospectively collected since 1986, along with details of lymphoma treatment and outcomes. The clinical features and outcomes were compared between 3 decades: pre-cART decade (1986–1995), early cART decade (1996–2005) and late cART decade (2006–2015).
Results: A total of 615 patients with HIV-associated lymphoma were included in the study: 158 patients in the pre-cART era, 200 patients in the early cART era and 257 patients in the late cART era. In more recent decades patients were older (p<0.0001) and had higher CD4 cell counts (p<0.0001) at lymphoma diagnosis. Over time there has also been a shift in lymphoma histological subtypes, with an increase in lymphoma subtypes associated with moderate immunosuppression. The overall survival for patients with HIV-associated lymphoma has dramatically improved over the 3 decades (p<0.0001).
Conclusion: Over the last 30 years, the clinical demographic of HIV associated lymphomas has evolved and the outcomes have improved.

P93

Autoimmune hepatitis (AIH) in HIV infection: an emerging cause of significant liver disease in patients on combination antiretroviral therapy (cART)?

K Macdonald, K Childs, A Quaglia, K Agarwal, A Suddle and C Taylor
King's College Hospital, London, UK

Background: AIH in HIV is uncommon with only a few case reports of AIH developing in HIV infected patients.

Methods: A retrospective cohort study of HIV patients referred to a tertiary HIV/Liver clinic between 2009 and 2015. Those with AIH on histology were identified. Demographic, laboratory and histological data were collected. Cases were scored using modified Alvarez criteria, including histology reviewed by a single histopathologist. Continuous variables are presented as median (IQR).

Results: 479 patients were referred, 80 did not have viral hepatitis. Of these, 6 had AIH. Demographic, laboratory and histology data are shown (table). All patients had HIV RNA <40 cps/mL and were on tenofovir and efavirenz at referral. Pre cART median AST was 34 IU/L (30, 37), CD4 count was 194 cells/μL (154, 217) and HIV viral load was 122,000 cps/mL (84,000, 256,000). 1st abnormal AST was 92 IU/L (76, 132) and occurred a median of 43 (8, 65) months post cART. At time of abnormal AST, CD4 count was 628 cells/μL (595, 794) and HIV RNA was <40 cps/mL. 3 patients were cirrhotic on biopsy. Pre-treatment Alvarez score was 19 (16, 20) where 10–15 denotes probable and 15 denotes definite AIH. 5/6 received immunosuppression with prednisolone, then azathioprine which maintained remission in 3 patients. 2 experienced toxicity with azathioprine; both then received alternative immunosuppression. 1 patient refused treatment. Currently the 5 treated have normal AST.

Conclusion: We present the largest series of patients with HIV and AIH. In our experience AIH is uncommon in patients with HIV and is seen exclusively in those on cART. AST levels in those diagnosed with AIH only became abnormal following cART initiation, this may suggest that immune reconstitution has unmasked AIH in this group. Half of the patients were cirrhotic at their first fibrosis assessment which emphasizes the need for HIV physicians to promptly refer patients with transaminitis to hepatology services.

Table 1.

	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6
Age (years)	62	52	47	50	40	47
Ethnicity	White	White	Black	Black	Black	Black
HCV Ab[a] (+/−)	−	+/RNA−	−	−	−	−
Auto-antibody and titre	Anti SM 1:640	Anti SM 1:180	Anti SM 1:80	ANA 1:320	ANA 1:40	NA[b]
IgG (g/L)	34.01	25	26.5	26.1	29.4	NA[b]
Alvarez score Pre treatment	22	15	18	20	20	15
Alvarez score Post treatment	24	18	20	NT[c]	22	17
Presenting AST (IU/L)	181	94	121	267	165	1181
Post treatment AST (IU/L)	42	56	39	NT[c]	32	113

[a]Hepatitis C virus antibody; [b]Not available; [c]No treatment.

P94

Early virological response did not predict high levels of sustained virological response at 12 weeks (SVR12) in HIV/HCV–co-infected patients treated with directly acting agent (DAA)–containing therapy

A Umaipalan, A Jayakumar, M Patel, E Wallis, G Baily and C Orkin
Barts Health NHS Trust, London, UK

Background: Novel DAA therapy has led to sustained virological response rates >90% in HIV/HCV co-infected patients. We report treatment outcomes in an HIV/HCV co-infected cohort treated with PIFN-based (DAA-IFN+) and PIFN-free DAA (DAA-IFN−) therapy.

Method: Demographic, virological, and treatment outcome data in chronic HCV and HIV co-infected patients who received DAA-containing therapy between 2011- 2015 were reviewed retrospectively. Patients accessed therapy in clinical trials or expanded access programmes. DAA-IFN+ regimes contained: Pegylated Interferon (PIFN) + Ribavirin (RBV) with either Telaprevir, Faldaprevir, Simprevir or Daclatasvir. DAA-IFN− contained: Sofosbuvir, Ledipasvir or Daclatasvir with RBV or fixed dose MK5172 + MK 8742 without ribavirin. Genotype, Metavir scores, HIV parameters, HCV virological responses were compared and analysed by chi squared and t tests.

Results: 47 patients were identified. 42/47 were male (89%), 35/47 white (74%), 35/47 MSM (74%), 12/47 treatment experienced (26%), and 43/47 on ARVs (91%). 26 (55%) were in the DAA-IFN+ and 21 (45%) in the DAA-IFN− group. 40/47 (85%) achieved SVR; 19/26 (73%) in the DAA-IFN+ group and 21/21 (100%) in the DAA-IFN− group. Of the 7 patients who did not achieve SVR 12: 4 were null responders (Metavir F2-4), 1 relapsed and 2 discontinued due to toxicity. There were no reinfections.

No significant differences were observed in baseline demographics, ARV regime, nadir CD4 count, or baseline HIV and HCV viral loads. All patients in the DAA-IFN+ group were Genotype 1 (G1), whilst in the DAA-IFN− group 71% were G1 (n=15) and 19% G4 (n=4). 71% in the DAA-IFN− group had Metavir scores F1 or less vs 38% in the DAA-IFN+ group (p=0.02).

SVR 12 rates were higher in the DAA-IFN− group (p=0.009), with fewer null responders (p=0.06) and fewer treatment discontinuations. Of those who achieved SVR12, only 20 (50%) had achieved RVR [DAA-IFN−11 (52%); DAA-IFN 9 (47%)]. 30 (75%) achieved EVR [DAA IFN− 17 (81%) [DAA-IFN+ 13 (68%)].

Conclusions: In this predominantly MSM co-infected cohort largely with early disease, SVR rates were higher in the DAA-IFN− group (100%) vs the DAA-PIFN+ group (73%). Low RVR and EVR rates did not predict the high SVR rate in either group.

P95

Is efavirenz really suitable for 70% of PLWH starting ARVS? Results from systematic and structured review of psychiatric illness, sleep disturbance, transmitted drug resistance (TDR) and working patterns in the UK

M Chaponda[1], G Clark[2], A Teague[3], J Cartledge[3], N Aldhouse[4], M Kroes[4], L Wild[5] and A Smith[5]
[1]Royal Liverpool University Hospital, Liverpool, UK; [2]Peninsula College of Medicine and Dentistry, Exeter, UK; [3]UCL GUM/HIV Service, Mortimer Market Centre CNWL, London, UK; [4]Abacus International, Bicester, UK; [5]Gilead Scienced, London, UK

Background: Commissioning policy advises EFV should be first choice for 70% of those commencing treatment. This is not in keeping with BHIVA and DHHS guidelines where EFV is no longer preferred. EFV has warnings regarding use in "patients with a prior history of psychiatric disorders" and may not be ideal for PLWH with TDR or some performing shift work. The study aimed to better inform guidance.

Methods: Systematic searches for publications reporting epidemiological data for psychiatric comorbidity and sleep disturbance with HIV were conducted in Embase, MEDLINE, Cochrane Library, 8 key conferences (2013–2015), and hand-searching of references to included publications. Data were extracted from publications (post 2000) which reported UK prevalence of depression, anxiety, suicide ideation, or difficulty sleeping as comorbidity with HIV. Comparative UK general population data were sought from the 2007 Adult Psychiatric Morbidity in England household survey, the 2012 Health Survey for England, and "PatientBase." 2010–2013 data presented at BHIVA 2015 were reviewed for TDR. The Office of National Statistics, HSE and The Health and Social Care Information Centre were data sources for shift work.

Results: Sixteen publications met psychiatric and sleep inclusion criteria. Amongst PLWH in the UK, prevalence of depression, anxiety, depression or anxiety, suicidal ideation and difficulty sleeping were all substantially higher than in the UK general population (Table 1). Additionally, TDR was reported in 7.5% of samples at first test. Finally 2009 figures from the HSE report 14% of workers are shift workers.

Conclusion: This review of UK data demonstrates significant limitations on EFV use including rates of psychiatric illness that are substantially higher amongst PLWH than in the general population, TDR remains significant at 7.5% and shift work is common and unless identified may contribute to issues with EFV. Clinicians need to be proactive in asking about psychological well-being given its implications for quality of life, adherence and ART selection. In total the high rates of contraindications or cautions for EFV use identified, and

recognized in Guidelines, indicate that a guidance of 70% EFV use in treatment naïve patients may be excessive.

Table 1. Psychiatric comorbidity and sleep disturbance

	Depression	Anxiety	Depression or anxiety	Difficulty sleeping	Suicidal ideation
PLWH in UK	17–47%	22–49%	50–58%	61%	31%
General UK pop	2–5%	4–5%	27%	10%	1%

P96

Risk factors for falls in older adults with HIV

T Levett, O Saxena and J Wright
Brighton and Sussex Medical School, Brighton, UK

Background: Ageing of the HIV-positive cohort has drawn attention to age-related issues such as multimorbidity, polypharmacy and functional decline. Though bone health is routinely considered, falls have been neglected in the story of HIV and ageing. We aimed to investigate risk factors for falling in an older population with HIV.
Method: A prospective observational study recruited HIV-positive individuals aged ≥50 from five HIV clinics across Sussex from October 2014-October 2015. Falls were self-reported and defined as an event resulting in a person coming to rest inadvertently on the ground or other lower level. Falls frequency was recorded with >1 denoting a recurrent faller. Risk factors for falls were evaluated from demographic, clinical, HIV, psychosocial and functional parameters.
Results: 253 participants were recruited, of which 90.9% male and 91.3% Caucasian. Median age was 59.6 (IQR 54.9–65.6, range 50–87). 94/253 (37.1%) had fallen in the last year. Of these, 29 (30.9%) fell in the last month and 65 (69.1%) reported recurrent falls. The median number of falls was 2 (IQR 1–4). Analyses compared fallers (94) to non-faller (159). Age, gender, ethnicity and education did not predict falls. Longer HIV duration and prior AIDS diagnosis but not current CD4 cell count were risk factors. Numbers of non-HIV comorbidities and medications, chronic pain, frailty and symptoms of moderate/severe anxiety and depression were higher in fallers. Subjective and objective markers of gait and mobility issues were strongly associated with falls.

	Non-faller, N=159 (%)	Faller, N=94 (%)	p-value
Age	59.9 (54.3–66.3)	59.6 (55.9–63.7)	0.594
Female	13 (8.2)	10 (10.6)	0.516
Education (years)*	13 (11–16)	12 (11–15)	0.073
HIV duration (years)*	12.9 (7.5–18.7)	16.5 (9.7–23.5)	0.007
CD4<350	17 (10.7)	11 (11.7)	0.061
AIDS	41 (25.8)	37 (39.4)	0.024
Comorbidities*	2 (0–3)	3 (2–4)	<0.001
Frailty	12 (7.6)	36 (38.3)	<0.001
Pain	35 (22.0)	63 67.0	<0.001
Non-antiretroviral drugs*	2 (0–4)	4 (3–6)	<0.001
Depression	7 (4.4)	14 (14.9)	0.003
Anxiety	25 (15.7)	32 (34.0)	0.001
Walk speed (m/sec)**	1.16 (0.24)	1.01 (0.27)	<0.001
Weak grip	20 (12.6)	37 (39.4)	<0.001
Mobility poor	21 (13.2)	57 (60.6)	<0.001
Disability	5 (3.1)	19 (20.2)	<0.001

*Med (IQR); **Mean (SD).
Conclusion: Falls were common in this cohort, with almost 70% being recurrent. A number of HIV and non-HIV related risk factors have been identified. Importantly age was not associated with falling, therefore falls and mobility enquiry should be considered in all patients over 50.

P97

Obesity in the HIV-infected population in Northeast England: a particular issue in black-African women

C Ilozue[1], K Haigh[1], D Chadwick[1], A Price[2], S Shaw[2], J Hussey[3] and B Howe[3]
[1]Centre for Clinical Infection, James Cook University Hospital, Middlesbrough, UK; [2]Royal Victoria Infirmary, Newcastle upon Tyne, UK; [3]Sunderland Royal Hospital, Sunderland, UK

Background: People living with HIV (PLWH) are surviving longer on successful antiretroviral therapy (ART) and obesity rates are increasing in this group. HIV and ART are themselves associated with increased cardiovascular risk, which is heightened in the context of obesity. We sought to determine the frequency of being overweight or obese in a regional population of PLWH and to explore the demographic and clinical characteristics associated with obesity or being overweight.
Methods: Data on patients attending three Northeast England clinics in early 2015 were collected. These clinics provide HIV services for a population of 1602 known HIV infected patients in the Northeast region. Data collected included body mass index (BMI) and demographic details. The prevalence of being overweight (BMI≥25 kg/m^2) or obese (BMI≥30 kg/m^2) was determined and compared with regional population data. Associations between being overweight or obese and demographic and other data were further explored using logistic regression models.
Results: In 560 patients studied (median age 45 years, 26% black-African and 69% male), 65% were overweight/obese and 26% obese, which is similar to the local population. However 83% and 48% of black-African women were overweight/obese or obese respectively, with 11% being morbidly obese (BMI>40 kg/m^2). Twenty-three percent of patients were hypertensive and 13% had type 2 diabetes mellitus. In the multivariate analyses the only factors significantly associated with obesity were black-African race [adjusted odds ratio (aOR) 2.78, 95% confidence interval (CI) 1.60–4.85], and type 2 diabetes, (aOR 4.23, 95% CI 1.81–9.91). Overweight was associated with black-African race (aOR 3.43, 95% CI 1.81–6.51), higher CD4 count (aOR 1.004, 95% CI 1.001–1.007) and type 2 diabetes mellitus (aOR 6.35, 95% CI 1.46–27.68).
Conclusion: Levels of obesity and overweight in PLWH are now comparable to the levels in the local population of Northeast England; however the prevalence is significantly higher in black-African women. Given the additional risk factors for cardiovascular disease inherent in PLWH, the challenge of preventing larger numbers becoming obese and suffering from associated complications is considerable. Better strategies to prevent and identify obesity and develop targeted, culturally appropriate interventions to reduce obesity in this population are needed.

P98

An interim report of a study investigating longitudinal changes in sensory profiles in HIV-positive patients with and without HIV-associated sensory neuropathy

A Rice[1], H Wordsworth[1], G Moyle[2] and T Phillips[3]
[1]Pain Research Group, Imperial College London, London, UK; [2]Chelsea and Westminster Hospital NHS Foundation Trust, London, UK; [3]Oxford University Hospitals NHS Foundation Trust, Oxford, UK

Background: HIV associated sensory neuropathy (HIV-SN) is a common and often disabling complication of HIV infection and treatment[1]. Quantitative sensory testing (QST) is a structured method for testing sensory thresholds[2] and is used clinically in the diagnosis of small fibre neuropathy. Although some studies have followed patients with HIV to identify if they develop HIV-SN[3], no studies have yet used QST to follow the sensory profile longitudinally. This study aims to deeply phenotype, using QST and symptom based questionnaires, a cohort of patients over a six-year period.
Methods: A cohort of HIV positive patients were recruited between 2009 and 2011. Patients underwent neurological examination and QST in the feet, performed to full German Neuropathic Pain Network standards[2]. Patients also completed pain and neuropathy questionnaires: Neuropathic Pain Symptom Inventory (NPSI), Brief Pain Inventory (BPI) and Insomnia Severity Index (ISI). Diagnosis of HIV-SN was based on a combination of clinical examination, QST findings and skin biopsy. The patients then underwent the same tests (excluding skin biopsy) in 2015. Ethical approvals granted: NRES 09/H0706/24 REC 14/LO/1574.

Results: 16 patients were recruited. Mean age at recruitment was 51.97 (sd 8.86) years and all were male. Mean years since HIV diagnosis was 15.40 (8.03) years and 53.3% had been exposed to dNRTI medication. Mean CD4 count at recruitment was 521.87 (182.56) cells/mm^3. Initially 7 patients had neuropathy, of these 4 had neuropathic pain. By 2015, 8 had neuropathy and 7 had developed pain.

For each QST parameter a z-score was calculated as a comparison to published normative data. Table 1 shows the comparison between QST parameters and questionnaires between the two sessions. Only significant QST changes are reported.

QST	z-score, median (IQR)		Comparison between test sessions (Wilcoxon rank) p value		
			Total cohort	HIV-SN negative in 2009	HIV-SN positive in 2009
PPT	−1.45 (−2.18 to −1.22)	0.06 (−0.34 to 1.10)	0.002*	0.003*	0.273
PHS	0.00 (0.00–1.50)	3.00 (1.00–3.00)	0.003*	0.012	0.102

Symptom measure	Median score (IQR)				
NPSI	11.5 (0–35.5)	21.0 (2.0–48.8)	0.238	0.173	1.00
BPI	6.0 (0–38.0)	38 (2.0–61.0)	0.012**	0.028**	0.109
ISI	5.0 (1.0–13.5)	11.5 (7.5–16.0)	0.097	0.150	0.655

*Significant difference for QST (Bonferroni corrected p=0.004).
**Significant difference in questionnaire score (p=0.05). PPT=pressure pain threshold, PHS=paradoxical heat sensations.

Conclusions: There is a significant increase in pain but not neuropathy symptom scores between 2009 and 2015. There may also be QST changes with time, most notably in the PPT and PHS parameters; this appears to be more significant in the group who were originally asymptomatic. It is hoped that as a larger sample is recruited more definitive conclusions will be made which may help to develop predictive biomarkers of HIV-SN.

References:
1. Ghosh, 2012.
2. Rolke, 2006.
3. Evans, 2011.

P99

Combined HIV/cardiovascular clinic: review of patient cohort and analysis of outcomes

N Matin, B Trivedi, H Holyoak and P McGettigan
Barts Health NHS Trust, London, UK

Background: HIV infection, antiretroviral therapy and patchy engagement in primary care may contribute to less favourable outcomes in cardiovascular health. A specialist combined HIV- Cardiovascular clinic was established within Barts Health. The Trust electronic patient record (EPR) (Cerner Millenium) was used to record all clinical data from the clinic outset. We interrogated the EPR database to review demographics, co-morbidities and audit blood pressure (BP) and laboratory outcome measures.

Methods: Patient demographics (age, sex, ethnicity) and SNOMED clinical diagnoses were extracted. Clinic letters on EPR were reviewed for additional diagnoses and SNOMED list was updated. BP, lipid and renal function measures were extracted. The "first" and "latest" measures were compared.

Results: Data were available from 80 patients attending the clinic over 18 months. Demographics: 20 female, 60 male; Mean age 51 years; Range 25–77 years. Ethnicity data available for 72 patients. Predominant ethnic group in the cohort is black african– 55% (n=23), white british 30% (n=21) and white other 19% (n=14). Co-morbidities listed were as follows; Essential hypertension (n=40) 50%, Diabetes (n=14) 17.5%, Myocardial infarction, Heart failure (n=6)7.5%, Peripheral vascular disease (n=2) 2.5%, End stage renal failure (n=3) 3.75%.Blood pressure measures for "hypertensive" patients are shown.

N=40 patients	Range	Average	Median
First systolic BP	104–224	151	142
Latest systolic BP	109–189	142	135
First diastolic BP	61–120	87	84
Latest diastolic BP	62–114	82	80
BP reduction		9/5 mmHg	7/4 mmHg

The BP differences were: 6/4 mmHg (Mean) and 4/2 mmHg (Median). Lipid measures showed small changes and renal function was essentially unchanged. Conclusion Hypertension and diabetes were the commonest cardiovascular risk factors. Hypertensive patients had suboptimal baseline BP readings. Specialist input led to, mean systolic reduction of 9 mm Hg and mean diastolic reduction of 5 mm Hg. Hypertension management was optimized by a focussed and specialized approach within the clinic. Further analysis on the management process to achieve this may help enhance cardiovascular risk management for HIV patients in both secondary and primary care.

4/2 mmHg (Median). Lipid measures showed small changes and renal function was essentially unchanged.

Conclusion: Hypertension and diabetes were the commonest cardiovascular risk factors.

Baseline BP readings in hypertensive patients were generally suboptimal at presentation. Following review and management in the combined clinic, mean systolic readings reduced by 9 mm Hg and mean diastolic readings by 5 mm Hg. Hypertension management was optimized by a focused and specialized approach within the clinic. Further analysis on the management process to achieve this may help enhance cardiovascular risk management for HIV patients in both secondary and primary care.

P100

HIV diagnosis in older adults

R Metcalfe[1], E Peters[1] and J Schofield[2]
[1]Brownlee Centre for Infectious Diseases, Gartnaval General Hospital, Glasgow, UK; [2]Public Health Protection Unit, NHS GGC, Glasgow, UK

Background: It is recognised that people diagnosed with HIV infection over the age of 50 ("older adults") have higher rates of morbidity and mortality compared to younger adults. Pre-existing co-morbidities can complicate HIV and mask its clinical presentation. With an ageing UK population and changing sexual behaviours, HIV should be considered at all ages. However, few studies examine HIV acquisition or the clinical presentation of HIV in this group. We sought to compare HIV acquisition risk factors, clinical presentation, baseline CD4 count and outcome of those diagnosed with HIV aged over 60 with those diagnosed aged 50–59, over a 10 year period, to ascertain whether grouping together those aged "over 50," leads to an over generalisation with regards to clinical outcomes.

Method: Data was collected retrospectively on all those in our cohort who had a new positive HIV test at age 50 years and over, from 1st November 2004 until 31st October 2014. Demographics, clinical presentation information (including HIV indicator conditions and AIDs defining illnesses), co-morbidities and current outcome were recorded.

Results: 27/111 people were diagnosed with HIV aged over 60 and 84/111 aged 50–59. Ethnicity and HIV acquisition risk factor were similar between groups and most infections were sexually acquired (51/111 heterosexual, 47/111 homosexual). Baseline CD4 count for those aged over 60 was 111 (48,214) and for those aged 50–59 was 249 (105,422) cells/mm^3 (p=0.00). 89% aged over 60 had a CD4 count<350 compared to 65% of those aged 50–59 (p=0.02). 33% aged over 60 had a CD4 count<50 compared to 15% of those aged 50–59 (p=0.04). 59% aged over 60 had an AIDS-defining illness at diagnosis compared to 25% of those aged 50–59 (p=0.00). 19% of those aged over 60 had multiple (>1) comorbidities at the time of diagnosis compared to 27% of those aged 50–59 (p=0.36). 7.4% patients aged over 60 were clinically suspected to have recently seroconverted compared to 4.8% of those aged 50–59. 38% of those aged over 60 at diagnosis were known to have since died compared to 4% of those aged 50–59 at diagnosis (p=0.00).

Conclusion: Those aged over 60 at diagnosis had lower CD4 T cell counts, more AIDS defining illnesses and a shorter length of time to death than those diagnosed when aged 50–59. Almost all infections were acquired sexually and

there was no difference in co-morbidities in the two groups. The majority of infections were not thought to be recently acquired.

P101

Multicentric Castleman disease in a multi-ethnic cohort of HIV-positive patients: presentation, treatment and outcome

HL Voir, C Taylor and J Salisbury

King's College Hospital, London, UK

Introduction: Castleman disease (CD) is a rare systemic lymphoproliferative disorder associated with Human herpesvirus HHV-8. CD presents with fever, night sweats, weight loss and lymphadenopathy and is associated with lymphoma and Kaposi's sarcoma (KS). Multicentric CD is seen in patients with HIV infection.
Method: Observational retrospective study. An inner London teaching hospital histopathology database was interrogated for CD diagnosis. Patients with CD and HIV infection were identified. Clinical information was collected from paper and electronic patient records.
Results: 14 cases of HIV associated CD were diagnosed histologically between 2005 and 2015 and one referred from another centre. Age range 32 to 60 years; mean 42 years. 7 were male, 13 of black ethnicity and 2 white males. 8 were taking ARV therapy at the time of CD diagnosis. New diagnosis of HIV and CD was made in 4 patients. The mean CD4 count was 380 cells/uL and 10 had CD4 lymphocyte counts >200 cells/uL at CD diagnosis. 7 were already on ARV. Presenting clinical features included lymphadenopathy 14, pyrexia 6 and weight loss 5. Mean time from symptom reporting to biopsy proven CD was 2.1 months with 2 patients requiring more than one lymph node biopsy. Lymph node biopsies were HHV-8 positive in 11. 6 had serum HHV-8 DNA measured at CD diagnosis with a mean of 223 250 copies/mL and 1 had HHV-8 DNA measured following treatment. KS co-existed in 5 patients. Treatment of CD included: rituximab, thalidomide and steroids in 9; additional etoposide 1; rituximab and thalidomide 1; thalidomide 1. 4 did not have treatment. Two untreated patients died and time from CD diagnosis to death was 11 and 3 months.
Discussion: The majority of patients were of black ethnicity reflecting local population and prevalent ethnicity of those with CD. The main presenting symptoms were lymphadenopathy and fever. Measurement of serum HHV-8 DNA was not universally performed in our series which may be helpful in the diagnosis of CD and disease relapse. Diagnosis of CD may require more than one biopsy if symptoms persist despite a negative initial biopsy. Both patients who died had newly diagnosed HIV and CD with CD4 counts of 36 and 211. In our series the 3 year survival is 83% which is >28% in the published literature.

P102

Provision of influenza immunisation to UK HIV-positive adults: what do people want?

E Pickett[1], MV Schalkwyk[1], K Edwards[1], S Edwards[1], N Marshall[1], L Sathia[1], M Johnson[1], M Lipman[2] and J Brown[2]

[1]Royal Free London NHS Trust, London, UK; [2]University College London, London, UK

Background: The British HIV Association (BHIVA) guidelines recommend annual immunisation against influenza in all people living with HIV (PLWH). In the UK, HIV services are not given specific funding for flu immunisation (FI), whereas GP practices and community pharmacies receive payment for FI. Achieving maximal uptake requires ease of access to FI, especially for those who chose not to disclose their HIV status to their GP.
Methods: Cross-sectional survey over flu season of uptake of influenza immunisation, services used and patient attitudes towards FI in a metropolitan HIV care service.
Results: 177 patients responded to the questionnaire, of which: 146 (82%) were male, with a median age of 48 years. 143 (81%) of respondents were aware of the recommendation for annual FI for PLWH. There was a trend towards greater awareness and uptake with increasing age.
114 (64%) had received FI; 21 (12%) planned to do so and 40 (23%) did not want immunisation. Of those already immunised, 63 (55%) received this in their GP practice, 25 (22%) in their HIV care service, 14 (12%) elsewhere, 10

(8%) at pharmacy, and 2 (2%) did not specify. Participants were asked about their reasons for choosing a location for immunisation, see Table 1.
Table 1. Reasons given for choice of service used for FI, n (%)

Service used	Preferred service	Prompted by staff	Unsure	Other reason	No answer
GP	22 (35)	31 (50)	2 (3)	8 (13)	–
HIV service	13 (52)	6 (24)	1 (4)	2 (8)	3 (12)
Other	4 (29)	3 (22)	2 (14)	4 (29)	1 (7)
Pharmacy	3 (30)	3 (30)	1 (10)	1 (10)	2 (20)

Of the 26 participants who indicated that they did not plan to have the FI this year, 22 (85%) reported that this was because they did not want it, with 2 (8%) indicating that they did not know where to get it and 2 (8%) reporting allergy to the products used. When asked if they would be able to receive the FI in their GP practice, 97/133 (73%) of respondents reported that they would be prepared to do this. When asked if there were somewhere else they could have it 33/41 (80%) of respondents said they would want it given in their HIV care service.
Conclusion: We find a high level of awareness of need for annual FI, and a reasonable uptake. This is primarily provided by GP practices; though one-quarter prefer to access this immunisation in their HIV care service. The provision of influenza and funding for immunisation to HIV positive individuals should facilitate patient choice.

P103

Trypanosoma cruzi screening in an HIV-positive cohort in London

N Ahmed[1], S Herbert[1], A Arenas-Pinto[1], H Rickman[1], S Edwards[1], A Grant[1] and P Chiodini[2]

[1]Central and North West London NHS Foundation Trust, London, UK; [2]Hospital for Tropical Diseases, London, UK

Background: Chagas disease (CD) is caused by *Trypanosoma cruzi*, a parasite spread by triatomine bugs, endemic in South, Central and parts of North America (SCNA). HIV-positive people are at higher risk of reactivation of infection, resulting in gastrointestinal, cardiovascular and neurological disease. BHIVA guidelines recommend all HIV positive individuals with epidemiological risk factors should be screened for *T.cruzi*. We implemented *T. cruzi* screening as part of routine care for HIV-positive people born in Central and South America (CSA) attending a London HIV clinic.
Methods: HIV-positive patients born in CSA currently in care (attendance within the last 12 months) were identified from our clinic database and flagged for screening in our electronic patient record. Screened patients were asked about geographical history in CSA, family history, previous symptoms and prior knowledge of CD. Blood samples were taken at the time of routine HIV blood monitoring and tested for *T. cruzi* antibodies; those positive were referred to the Hospital for Tropical Diseases (HTD) for further assessment and management.
Results: We identified 231 eligible patients; to date we have results on 40 patients. 90% (n=37) were male, with a median age 40 years (IQR 35–46). 35 (87.5%) were on antiretrovirals of whom all had viral loads of <50 copies/mL. Median CD4 count was 550 cells/mm^3 (IQR 495–845). 70% of patients tested were born in Brazil (n=28) with five from Colombia, two from Argentina, and one each from Chile, Peru and Mexico. 34 (85%) lived in areas within these countries deemed highly endemic. 22 (55%) had heard of CD, eight had seen the vector in real life and three had lived in a thatched house. Nine patients had been tested previously, all negative. No patient had been treated for CD before. Five had a family history of CD. To date, none of the patients screened have tested antibody positive. One individual (male, aged 46 years, born in Bolivia, on antiretrovirals, VL <50 copies/mL, CD4 360 cells/mm^3) was tested as a result of increased awareness. He was asymptomatic but had a strong family history of CD; he tested PCR positive and subsequently started treatment with benznidazole.
Conclusion: Implementing *T.cruzi* screening as part of routine clinical care was feasible, identified at-risk individuals, provides an opportunity to disseminate information to at-risk individuals, their wider communities, and raise awareness of the condition among clinicians.

P104

Use of plasma human herpesvirus 8 (HHV8) viral load measurement: a joint evaluation of practice in 3 HIV units

D Nugent[1], E Chung[1], D Webster[2], D Mabayoje[2], KE Bouzidi[3], A O'Sullivan[4], J Ainsworth[4] and R Miller[5]

[1]Mortimer Market Centre, London, UK; [2]Royal Free London NHS Foundation Trust, London, UK; [3]University College London Hospitals, London, UK; [4]North Middlesex University Hospital NHS Trust, London, UK; [5]University College London, London, UK

Background: HHV8-related diseases, including multicentric Castleman disease (MCD), Kaposi sarcoma (KS) and lymphoma cause significant morbidity in HIV-infected patients. HHV8 is known to be detectable by PCR in the plasma of patients with HHV8-related pathology. However there is controversy regarding the clinical utility of plasma HHV8 measurement and a lack of guidance on the indications for testing.

Methods: We performed a retrospective audit of all plasma HHV8 viral load tests across our network of 3 large UK HIV treatment centres from 01/01/2012 to 01/01/2014. We reviewed case notes and laboratory results and recorded HHV8 quantitation, indications for testing, patient demographics, ART use and concurrent HIV viral load and CD4 measurements. Confirmed HHV8-related diagnoses were also recorded.

Results: Across our sites 360 tests were requested and 114 samples (32%) had detectable HHV8 levels. The proportion of HHV8 positive samples at each site was 21%, 34% and 53%. Reasons for testing were (i) Systemic Inflammatory Response Syndrome (SIRS) symptoms (44%), (ii) monitoring in known HHV8-related disease (27%), (iii) known/suspected KS (5%) and (iv) other/unknown reason (24%). The proportion of samples with detectable HHV8 in each category was (i) 22%, (ii) 73%, (iii) 33% and (iv) 5%. Patients with detectable HHV8 were more likely to be male (94% vs 68%), MSM (48% vs 29%), be receiving ART (79% vs 64%) and to have an undetectable HIV viral load (59% vs 45%). Median CD4 was 280 in those with detectable HHV8 vs 285 in those without. Of patients with MCD 14/16 (88%) had detectable plasma HHV8, as did 6/19 (32%) with lymphoma and 27/45 (60%) with KS.

Conclusion: There is wide variation between our sites in the indications for HHV8 testing with a more conservative approach resulting in a higher proportion of positive results. Plasma HHV8 requests in the absence of SIRS symptoms, established HHV8 disease monitoring or confirmed/suspected KS are unlikely to yield detectable HHV8 thus allowing potential cost savings. The higher likelihood of HHV8 viraemic patients to be on suppressive ART may indicate the occurrence of HHV8 viraemia as an IRIS phenomenon. The high frequency of HHV8 viraemia in patients with MCD suggests that the test may have clinical utility in excluding this diagnosis. Our data add to the current understanding of the relationship between HHV8 viraemia and disease and highlight the need for clinical guidance in the use of HHV8 quantitation.

P105

An alternative effect of maraviroc?

A Goodman[1], A Grant[1] and J Fox[2]

[1]Guy's and St Thomas' NHS Foundation Trust, London, UK; [2]King's College London, London, UK

Background: *Staphylococcus aureus* is a common commensal bacterium in humans which can act as a pathogen to cause severe disease. Those living with HIV are 24 times more likely than those without HIV to develop *S. aureus* bacteraemia (SAB), with a mortality of up to 30%. Methicillin resistant *S. aureus* (MRSA) colonisation is tested for in those at high risk, such as patients on haemodialysis. Maraviroc is a CCR5 receptor antagonist used as part of combination therapy for HIV. The CCR5 receptor is also a receptor for *S. aureus* leukotoxin (lukED) and CCR5-deficient mice are largely resistant to lethal *S. aureus* infection. This project aimed to determine if patients receiving maraviroc for their HIV have a lower likelihood of SAB or colonisation with MRSA than patients on an alternative drug for their HIV (raltegravir).

Methods: A retrospective database search identified patients prescribed either maraviroc (cases) or raltegravir (controls) for >1 month duration between 2010 and 2015. For each patient a search was done of microbiological specimens collected in our laboratory whilst they were on treatment. Frequency of outcomes of MRSA and SAB were determined using retrospective data collection.

Results: 98 patients prescribed maraviroc were identified. 41 of these patients had a screening test for colonisation with MRSA. One patient (1/41 (2.4%)) had a positive MRSA screening swab whilst on maraviroc. 98 patients prescribed raltegravir were identified. 37 of these patients had been screened for MRSA colonisation and 3 (3/37 (8.1%)) had a positive MRSA screening swab whilst on raltegravir. The frequency of SAB was zero in those on maraviroc and 2 in those on raltegravir. The two cases of SAB had additional risk factors for SAB. Differences between groups were not significant (Fisher's exact test p>0.05).

Conclusion: Although the numbers were small and the data was retrospective there was a trend towards reduction of SAB and MRSA colonisation in those patients taking maraviroc for HIV. Confounding factors may include risk factors for SAB such as the prevalence of malignancies in those prescribed raltegravir. Further work is needed to clarify this and to quantify the incidence of SAB and MRSA colonisation in HIV in the modern era.

P106

Presence of complex comorbidity and functional disability when ageing with HIV; review of referrals to specialist HIV outpatient physiotherapy in the UK

D Brown[1], M Nelson[1], M Bower[1] and R Harding[2]

[1]Chelsea and Westminster NHS Foundation Trust, London, UK; [2]King's College London, Cicely Saunders Institute, London, UK

Background: A specialist HIV outpatient physiotherapy service, located in a specialist HIV centre, provides individual treatment (1:1) and group treatment (Kobler rehabilitation class). Evaluation of referrals included access, patient profile, health and functional status, and treatments.

Methods: Over 24 months commencing October 2013, retrospective evaluation was completed from electronic documentation. Health and functional status were evaluated using ICD-10 online application and ICF checklist version 2.1a.

Results: We reviewed 137 patients; male (83%), median age 52 (range 29–77), HIV diagnosed >10 years (80%) and undetectable viral load (97%). Socially 61% unemployed, 71% lived alone, 64% lived locally to hospital and 87% did not meet UK physical activity recommendation. Referrals were mostly from HIV physician (47%), dietician (21%) or physiotherapist (8%) for musculoskeletal (53%), sedentary (12%) or neurological (9%) reasons. Patients lived with median 5 comorbidities (SD 2.4) and 87% met definition of complex comorbidity; ≥2 additional chronic conditions in ≥2 different body systems. ICD-10 subgroups include "diseases of the musculoskeletal system and connective tissue" (21%), "mental and behavioural disorders" (13%), "endocrine, nutritional and metabolic diseases" (11%) and "diseases of the nervous system" (11%). ICF body function impairments were "pain" (88%), "mobility of joint" (75%) and "emotional function" (71%). ICF body structure impairments were "movement of lower extremity" (64%), "movement of trunk" (53%) and "spinal cord and peripheral nerves" (32%). ICF activity limitation and participation restriction were "recreation and leisure" (72%), "walking" (56%) and "remunerative employment" (50%). ICF environmental factors were "social security" (27%), "products for indoor/outdoor mobility" (22%) and "immediate family" (18%). Treatments were provided mostly in combination (55%) with 56% requiring 1:1 treatment and 53% accessing the Kobler rehabilitation class. Patients attended mean 1.8 (range 1–6) 1:1 sessions.

Conclusion: Patients referred to specialist HIV Physiotherapy present with complex comorbidity, when ageing with well-controlled HIV. The presence of multiple comorbidities was observed with high prevalence of disability and functional challenges including pain, joint movement, mobility, employment and community life. Disability and functional measurement tools could support access and evaluation of specialist HIV physiotherapy.

P107

Surgical excision alone for stage T1 anal verge cancers in people living with HIV

M Alfa-Wali, AD Pria, M Nelson, P Tekkis and M Bower
Chelsea & Westminster Hospital, London, UK

Background: Anal cancer accounts for a small percentage of colorectal malignancies. Early stage (T1N0M0) cancers of the anal verge have been

treated with local surgical excision alone in individuals without human immunodeficiency virus (HIV) infection. The risk of anal cancer is higher in people living with HIV (PLWH). We present results of the outcomes of T1 anal verge cancers treated by local excision only in a series of PLWH.

Methods: Demographic and clinicopathological data was prospectively collected from all HIV positive individuals with anal cancer, treated between 1986 and 2015. The date from anal cancer diagnosis until the date of last follow up was collected.

Results: Fifteen patients had T1N0M0 cancer of the anal verge from a total of 92 patients with HIV-associated anal cancer. The mean age was 49 years (range 36–57). The average age of HIV diagnosis was 35 years (range 19–48) and four patients had a diagnosis of AIDS prior to the diagnosis of anal cancer. All patients were surgically managed with complete local excision of the tumour. There were no complications or need for any adjuvant therapy. No patients have relapsed and at a median follow of 4 years (range 3–15), the overall survival was 100%.

Conclusion: Surgical resection for early stage anal verge cancers is an effective strategy in PLWH. Increasing awareness of anal cancer and the surveillance in PLWH will hopefully continue to identify anal cancers at an early stage that are amenable to minimally invasive surgical management.

P108

Growing old positively: a closer look at an ageing HIV cohort

C Barclay, S Wielding and I Fernando
Chalmers Centre, NHS Lothian, Edinburgh, UK

Background: One in four people living with HIV (PLWH) infection in the UK are aged over 50 years old and we therefore need to develop HIV services appropriate for an ageing population. This project aims to better characterize the aging HIV positive cohort in a city-centre integrated sexual health centre, in order to predict what future challenges these patients may face, and to allow our services to prepare for these challenges. An audit of routine monitoring of potential age-related risk factors and conditions was also carried out against BHIVA standards.

Methods: The electronic patient records (EPR) of all PLWH aged 55 and over were reviewed. Baseline demographics were recorded, along with date of diagnosis and commencing anti-retroviral (ARV) therapy, ARV history, nadir CD4 count, current CD4 count/viral load, co-morbidities and additional medications. Records from the past year were reviewed to audit recommended routine monitoring.

Results: 103 patients aged 55 and over who had been seen in the last year were included in the analysis. The average age was 61 years (55–79). 88% of patients were male. The average age of ARV start was 51 years with an average duration of therapy of 10 years. The mean number of ARV regimens was 3.2. 52% had been reviewed by another medical specialty in the last 2 years. The most prevalent co-morbidity was cardiac disease (40%). 68% of patients take additional medications.

All patients had had routine haematology/biochemistry checked within the last year. 73% of patients had CVD risk recorded and 93% of patients had a lipid screen. Over 80% of patients had urinalysis and urine protein:creatinine ratio checked, however 10/17 patients without such a record were taking tenofovir. No patients had FRAX scores documented. Of those who should have been offered a DEXA scan because of age alone (n=8), only 12.5% (1 male patient) had had a scan. 2% of patients aged over 55 had cognitive screening completed and 5% of patients had a formal depression screen documented.

Conclusion: A large number of HIV-infected patients are aged 55 and over, and this cohort is only set to grow in coming years. Many of our current patients aged over 55 have multiple co-morbidities, resulting in polypharmacy and potential drug interactions with ARVs. Services need to adapt to the changing cohort and the potential for joint working with medical specialties should be explored. We fail to provide adequate screening of bone mineral density, depression and cognition.

P109

The impact of maraviroc intensification on neurocognitive tests and quality of life

J Tiraboschi[1], J Fox[1], S Fidler[2] and J Frater[3]
[1]Guy's and St Thomas' NHS Foundation Trust, London, UK; [2]Imperial College London HIV Clinical Trials Unit, St Mary's Hospital, London, UK; [3]Peter Medawar Building for Pathogen Research, Oxford University, Oxford, UK

Background: Intensification with maraviroc can lead to a significant CSF viral reduction after in patients with persistent CSF viral replication has already been reported. However it remains unclear whether maraviroc intensification impacts neurocognition in virologically suppressed patients. We report 24-week data of neurocognitive performance from a prospective open-label trial, in which asymptomatic, virologically suppressed patients with suboptimal CD4 count received maraviroc intensification.

Methods: Asymptomatic patients on stable HAART for ≥ 12 months, with sustained virological suppression and a CD4 count <500 cells/mm received a 24-week course of maraviroc intensification in addition to their antiretroviral treatment. At baseline and week 24 neurocognitive function [attention (TMT-A), executive functioning (TMT-B), and fine motor function (GPT)]; a dementia screening (IHDS), quality of life (EQ-D5), and on depressive and anxiety symptoms (HADS) assessed.

Results: 10 subjects were included (mean (SD) age 44.5 (6.9) years, mean (SD) CD4 cell count 320 (112.3) cells/mm3. Viral tropism was reported as R5 tropic in 6 patients and mixed tropism in 4.There was no change in neurocognitive performance at week 24 compared to baseline (mean between-arm difference (95% CI) −3 (p=0.3) for TMT-A, −18.7 (p=0.1) for TMT-B, −6.2 (p=0.1) and −6.6 (p=0.2) for GPT (dominant and non-dominant respectively). Mean (SD) change in IHDS at week 24 was 0.56 (p:0.1). None of the health outcomes assessed in the EQ-5D questionnaire showed no significant changes at week 24 (p>0.09). No significant differences in mean changes at week 24 were observed in depressive or anxiety symptoms −1.1 (p=0.2) and −1.3 (p=0.12).

Conclusions: Maraviroc intensification resulted in no changes in neurocognitive function, anxiety/depression or quality of life after 24 weeks. Whilst maraviroc leads to no short term improvement we can not exclude a benefit of this strategy in the neurocognitive performance in the long term.

P110

The systemic inflammatory response is a prognostic marker in HIV-infected patients with hepatocellular carcinoma

D Pinato, AD Pria, K Parker, M Nelson and M Bower
Chelsea & Westminster Hospital, London, UK

Background: Hepatocellular carcinoma (HCC) is an increasingly prevalent diagnosis in people living with HIV (PLHIV), especially in the context of hepatotropic viral co-infection. Systemic inflammation is a stage-independent prognostic factor in HCC, however there is no documented role of its clinical value in cases associated with HIV infection.

Methods: From a large, prospectively maintained database of 602 non-AIDS defining cancer (NADCs) treated at the National Centre for HIV Oncology, United Kingdom, we selected all patients with HCC, diagnosed between 2001 and 2014. We investigated the prognostic role of a panel of inflammatory markers including neutrophil-lymphocyte (NLR) and platelet-lymphocyte ratio (PLR), Inflammation-based Index (IBI) and Systemic Immune Inflammation (SII) score using uni- and multivariable survival analyses.

Results: Seventeen patients with HIV-associated HCC on a background of Hepatitis B (70%) or C virus infection (41%) were identified. Median survival was 18.3 months. NLR (p=0.04) and PLR (p<0.001) emerged as predictors of survival together with portal vein thrombosis (p=0.03), extrahepatic spread (p<0.001), BCLC stage (p=0.004) and provision of active treatment for HCC (p<0.008).

Conclusions: Systemic inflammation, as measured by NLR and PLR, is an independent prognostic domain for survival of HIV patients with HCC.

P111

"No smoking without fire": assessing the impact of smoking status on hospital admission in HIV patients

C Kirby[1], S George[2], Y Gilleece[2] and M-P Lirette[3]
[1]King's College Hospital, London, UK; [2]Royal Sussex County Hospital, Brighton, UK; [3]Croydon University Hospital, London, UK

Background: People living with HIV are more likely to smoke than the general population, with recent estimations at 40–47%, vs 19% in the general UK population. Studies have shown that there is excess mortality associated with smoking in HIV, from both AIDS and non- AIDS related deaths, with more cases of malignancy, pulmonary tuberculosis and COPD observed in current smokers. Smoking is also known to increase the risk of severe sepsis and hospitalisation. The aim of this work is to assess any correlation between smoking status and hospital admission of HIV positive patients, and if there was an increased burden of smoking- associated diagnoses in current smokers vs never smokers.
Methodology: A retrospective case review was conducted of all patients with HIV admitted in a 2 year period (2013–2014). Data on demographics, smoking status, main cause of admission and number of admissions per year was collected. Smoking status was defined as: current smoker at time of admission, ex-smoker, or never smoker. Smoking- associated diagnoses were classified as: PCP (Pneumocystis jirovecii pneumonia), pulmonary tuberculosis, COPD (Chronic obstructive pulmonary disease) & asthma exacerbations, bacterial pneumonia, bacteraemia, and lung cancer.
Results: 286 were patients admitted, accounting for 458 admissions in total. The smoking status was unobtainable for 92 patients, leaving a total of 194 for analysis. The majority of patients were male (87%), with an average age of 48 years (range 20–78). 75 (39%) were never smokers, 43 (22%) were ex-smokers, and 76 (39%) were current smokers. Of the 76 patients who were current smokers, 33/76 (43%) had more than one admission in the same year, vs 22/75 (29%) of never smokers (p=0.072). The frequency of smoking-associated diagnoses was higher for current smokers at 41% (31/76), as opposed to 28% (21/75) in never smokers (p=0.098).
Conclusion: There appears to be a disproportionate impact of smoking on recurrence of admission, and on smoking- associated disease as a reason for admission in our HIV cohort, although these differences were not statistically significant. Further training for HIV physicians on smoking cessation needs to be considered in light of these findings. The use of evidence based treatment, such as nicotine replacement products and Varenicline for nicotine dependence needs to be promoted in both in- and outpatient settings in order to improve the morbidity of our patients.

P112

Cigarette smokers in an HIV clinic: can we do more?

ER Pool[1], D Churchill[1] and J Schulkind[2]
[1]Brighton and Sussex University Hospital, Brighton, UK; [2]Brighton and Sussex Medical School, Brighton, UK

Background: Where ART is available, smoking will result in greater loss of life years for people living with HIV (PLWH) than HIV per se. Prevalence of smoking is higher for PLWH than the general population. The 2011 BHIVA monitoring guidelines recommend that smoking history is recorded two yearly and that cessation is "repeatedly encouraged"; the 2015 Treatment guidelines state that smoking cessation is "of critical importance", but neither specify further.
Aims: 1Describe smoking status in patients attending a single HIV clinic and compare to 20122Assess if cessation advice was documented.

Methods: 100 patient numbers were randomly selected at a large HIV clinic. Data were collected via review of case-notes and electronic records, and compared to a 2012 audit at the same clinic.
Results: Of the 100 patients; 88% were male, 80% were homosexual, median age was 49 years (range: 18–77 years) and 98% were on ART. Smoking status had been recorded for 96% (ever) and 83% (within 2 years) of patients. Smoking status for 2015 and 2012 are displayed in the table.
Median number of cigarettes per day (cpd) was12.5 cpd (range: 2–60 cpd). Median number of pack years smoking was 20 years (range: 1–99 years). Where current smoking was identified, cessation advice was documented in 50% of cases (n=19/38).
Discussion: Prevalence of current smoking in this sample has reduced since 2012 but remains higher than the local general population (38% vs 25%).

Smoking status	2015 (n = %)	2012 (n = %)	Change
Current smoker	38	43	↓ 5%
Ex-Smoker	25	–	
Never smoker	33	–	
Non-smoker (ex+never)	58	31	↑ 22%
Not recorded	4	26	↓ 22%

Encouragingly, recording has improved, but cessation advice was still documented in only half of patients.
Much greater emphasis on smoking cessation in PLWH is urgently needed, and has the potential to produce marked improvements in health and life expectancy.

P113

Hypertrophic anogenital herpes simplex infection in HIV–positive patients: should imiquimod be second–line therapy in patients who have failed acyclovir?

H Alexander, M Samuel and C Taylor
King's College Hospital, London, UK

Background: Atypical presentation of genital herpes simplex virus (HSV) has been described in patients with HIV particularly in the context of immunosuppression. The lesions may be recurrent and persist for prolonged periods. In particular atypical hypertrophic, ulcerative or pseudotumour forms may occur mimicking malignancy and making diagnosis more difficult. These atypical forms of HSV are often associated with acyclovir resistance making treatment challenging.
Methods: We conducted a retrospective paper and electronic note review of HIV positive patients attending an inner city HIV outpatient service between 1998 and 2015. Five patients who had presented with hypertrophic HSV and were subsequently treated with imiquimod were identified. Information regarding patient demographics, clinical presentation, histology and treatment history was collected.
Results: Four of the five patients were black African and one was black Caribbean, two were female. Mean age at HIV diagnosis was 40 (range 35–46). All five had had nadir CD4 counts of <200 (range <25 to 190). Three patients were not on combination antiretroviral therapy (cART) at presentation. The time on therapy for the two patients who were taking cART prior to developing HSV was 9 months and 10 years. HSV PCR was positive for HSV 2 in all cases. Histology was performed in all cases and there were no cases of malignancy or alternative diagnoses. Details of treatment prior to imiquimod (IMQ) and the natural history of HSV in each patient prior to and after treatment with

Case	Treatment			Follow up before IMQ (months)	Episodes HSV before IMQ	Longest episode HSV before IMQ (months)	Follow up post IMQ (months)	Recurrences HSV post IMQ
	ACV/ Valacyclovir	IV foscarnet	Topical cidofovir					
1	Yes	No	No	38	3	2	30	2
2	Yes	No	No	34	3	32	21	0
3	Yes	No	No	124	12	11	10	1
4	Yes	Yes	Yes	196	11	12	16	0
5	Yes	Yes	Yes	74	5	17	21	2

imiquimod are outlined in the table below. The patients responded to imiquimod at a median of 5 weeks (range 3–56 weeks).

Conclusions: We present five cases of hypertrophic anogenital herpes simplex in HIV positive patients who responded to treatment with imiquimod having failed treatment with acyclovir and foscarnet and cidofovir in two patients. Imiquimod treatment should be considered in HIV patients presenting with hypertrophic HSV particularly in those unresponsive to acyclovir.

P114

Review of malignant diagnoses in patients attending a South London HIV clinic between 2005 and 2015

E Dwyer and S Ratnakumar
Croydon University Hospital, London, UK

Introduction: HIV is associated with an increase in AIDS defining malignancy (ADM) and some non AIDS defining malignancies (NADM). We reviewed characteristics of those diagnosed with malignancy and the impact of this on clinical services.

Method: Retrospective notes review of patients with malignancy attending a South London HIV clinic between 1/1/05 and 1/1/15.

Results: 72/1000 patients identified with malignancy (7.2%). Notes analysed for 50/72 (69.5%)0.37/50 (74%) female. Median age 50.5 years (range 27–91). 22/50 (44%) Black African, 10/50 (20%) Black Caribbean and 10/50 White British.

5/50 had 2 primary malignancies.

19/50 (38%) had ADM (9 Kaposi sarcoma, 3 cervical cancer, 7 Non Hodgkin Lymphoma), 10/19 of whom were diagnosed after 2010. Most common NADMs were breast (5), prostate (4) and lung (3). 14/31 with a NADM were diagnosed after 2010.

6/50 had malignant diagnosis before HIV diagnosis (mean 2.83 years). Median CD4 count at HIV diagnosis =186. 1/6 had a previous ADM (cervical), indicating missed HIV testing opportunity.

21/50 diagnosed with HIV directly due to malignancy diagnosis. 16/21 had an ADM. Median baseline CD4 count =74.

26/50 had malignant diagnosis, including 3 ADM, at a mean of 7.56 years (range 1–29) post HIV diagnosis. Median baseline CD4 count 75. Median CD4 count at cancer diagnosis 241. 22/26 on antiretrovirals (ARVs) − 19/22 had an undetectable HIV viral load. Of the 4/26 not on ARVs, all had a CD4 count >200, and 2 had a CD4 count >400.

Patients with known HIV increased clinic visits from 2.3 to 5.1 in the 6 months following cancer diagnosis, vs same period the previous year. 4/26 were newly started or restarted on ARVs, and 5/26 were switched from current regimens. 14/50 died- 4 (21%) with an ADM, and 10 (32.3%) with a NADM.

Conclusion: Malignancy is common, affecting 7% of our cohort, and is a major cause of death. We continue to diagnose ADM, associated with late HIV diagnosis and a low baseline CD4, however NADM are more common, as expected in an ageing cohort, and we must remain vigilant to ensure timely diagnosis. Interestingly those with HIV later diagnosed with malignancy had a low median baseline CD4 count (75), potentially indicating that despite good immune recovery, low initial CD4 could increase the risk of future malignancy. Clinic attendances following malignant diagnosis more than doubled. As our cohort ages, we may see an increased level of age associated NADMs, increasing pressure on clinical services.

P115

A tale of two treatments – accommodating hepatitis C treatment in HIV

C McKenna, E Ayensu, T Whitfield and A Ustianowski
Northwest Infectious Diseases Unit (NWID), North Manchester General Hospital, Manchester, UK

Background: Hepatitis C (HCV) co-infection is common in HIV. One significant issue is the potential for drug interactions between hepatitis treatments and antiretrovirals (ARVs). We detail our experience of managing patients co-infected with HIV and HCV, particularly highlighting the frequency of medication switches to avoid such interactions.

Method: Retrospective review of all HIV-positive patients diagnosed or treated for HCV since 2013, focussing on medication switches prior to treatment, treatment course and outcomes.

Results: 82 co-infected patients identified (88% GT 1; 6% GT2; 4%GT3; 1% GT4; 1% Not detected). 53% (44/82) received treatment for HCV. 23% (19/82) are warehoused awaiting newer therapies in 2016. Of those treated or pending treatment 31% (20/63) switched ARVs prior to hepatitis C treatment; most commonly from Atripla to Truvada/Raltegravir (40%; 8/20), and Darunavir/Ritonavir/Truvada to Raltegravir/Truvada (20%; 4/20). 90% (40/44) of patients have completed treatment, with 68% (30/40) achieving SVR. 4 were still undergoing treatment at time of data collection. The most commonly used HCV regimens have altered over time – overall 22% (10/44) received Pegylated-Interferon with Ribavirin; and 22% (10/44) Sofosbuvir/Ledipasvir (Harvoni) & Ribavirin.

Conclusion: HCV treatment has been successful in the majority of patients treated. Potential drug interactions are frequent and around a third of patients had their ARVs altered to accommodate HCV treatment. The HCV treatments utilised have changed significantly over the last 2 years as new agents have become available.

P116

"Poppers maculopathy" in three HIV-positive patients

F Finnerty, R Rewsbury, E Hughes and A Clarke
Brighton & Sussex University Hospital, Brighton, UK

Background: Nationally, there are high rates of party drug use, including poppers, in the HIV positive MSM population. The chemical composition of poppers sold in the UK was altered in 2006 due to legislative changes. The main compound isobutyl nitrate was substituted for isopropyl nitrate.

Methods: Review of three patient case notes.

Case 1: Mr X is a 45 year old MSM with well controlled HIV on anti-retrovirals (ARVs). He was seen in clinic and complained of a 7/12 history of worsening vision. He regularly used poppers. He was referred to ophthalmology. Spectral domain optical coherence tomography (SD-OCT) showed retinal elevation of the inner segment (IS/OS) junction. Colour photographs showed a yellow spot at the fovea bilaterally consistent with poppers maculopathy. On stopping popper usage, his symptoms resolved.

Case 2: Mr Y is a 57 year old MSM with well controlled HIV on ARV's. He was referred to ophthalmology with a central blind spot for 6 weeks and "shimmering spots" in both eyes. He was known to use poppers. He was found to have elevation of the IS/OS junction on SD-OCT consistent with poppers maculopathy. He is awaiting further follow up.

Case 3: Mr Z is a 56 year old MSM with well controlled HIV. He was referred to ophthalmology with difficulty reading and a decline in distance vision. He was known to use poppers. He was found to have a yellow spot at the fovea and elevation of the IS/OS junction on SC-OCT. He reduced his popper usage but did not stop completely. His symptoms improved but did not completely resolve.

Conclusion: Cases of "poppers maculopathy" have been reported since 2006 including at least five cases in HIV positive patients in the last 10 years. Clinical features include impaired visual acuity, central scotomata, photophobia or distortion. Clinical signs on fundoscopy range from normal foveal appearance to yellow, dome shaped lesions at the foveola. The disruption or loss of the presumed IS/OS junction on SD-OCT is a characteristic feature. In the case reports previously published on this subject, some patients had complete resolution of symptoms on stopping poppers while others were left with long term ophthalmological sequelae."Poppers maculopathy" should be considered in patients with a history of popper inhalation and visual symptoms and an urgent eye review arranged. Health care professionals and patients need to be aware of this potentially sight threatening side effect of poppers.

Retinal photographs will be available.

P117

An analysis of bacteraemias in HIV-1-infected adults

A Bryce[1], Y Gilleece[1], C Sargent[1] and J Skittrall[2]
[1]Royal Sussex County Hospital, Brighton, UK; [2]Papworth Hospital, Cambridge, UK

Background: Following the introduction of cART, the risk of overwhelming opportunistic infections has decreased in HIV-1 positive individuals. However, invasive bloodstream infections (BSIs) still account for increased levels of morbidity and mortality in this population. The microbiological profile of BSIs also appears to differ when contrasted with HIV-1 negative controls. We

aimed to analyse whether these past findings held in a modern UK tertiary hospital.

Materials/Methods: HIV-1 infected adults were retrospectively identified by cross-referencing all positive blood cultures from the year 2014 (n=1075) with hospital reporting systems. To extrapolate our recruitment period, a clinical coding search was initiated over 5 years, with the terms HIV PLUS Sepsis/ Septicaemia or Bacteraemia (n=63). The results were amalgamated and analysed with contaminants and negative blood cultures excluded.

Results: Over a 5 year period, 26 occurrences of BSIs in HIV-infected adults were identified, including one new HIV-1 diagnosis. The mean age was 49.1 years with a male preponderance (22/26), consistent with the demographic of the local HIV-1 population. Mean length of stay was 15 days and 3 patients died within 90 days of discharge.

Streptococcus pneumoniae, *Klebsiella pneumoniae* and *Escherichia coli* were the most common bacteria implicated in infection (3/26 incidents each). Respiratory infections were the most frequent source of sepsis (8/26). *S. pneumoniae* in particular was associated with longer admissions (mean 39 days p<0.001), high mortality (2/3) and poor cART compliance (3/3).

5 patients (19.2%) had an underlying haematological malignancy at the time of BSI; all were neutropenic (<0.2) on admission. Renal impairment during BSI was also common, with 3 affected patients undergoing dialysis during admission.

Conclusions: Bloodstream infections amongst HIV-1 positive adults were less common in our cohort than previously reported, with only 26 occurrences in a 5 year period. *S. pneumoniae* appeared to correlate with increased morbidity and mortality in this population; in line with previous findings. A sizable proportion of identified BSIs occurred in those with coexisting haematological malignancy or renal impairment. This may reflect the changing burden of morbidity in the era of cART controlled infection. Further research in this area with a larger cohort would add further insight into the prevalence and mechanisms of immune compromise in HIV-1 infected adults in the UK.

P118

Exploring the value of routine anal cancer screening in HIV-positive MSM

C Isitt, L Ratnasekera, N Mackie, L Greene, D Lyons, J Vera and C Tipple
Imperial College Healthcare NHS Trust, London, UK

Background: Anal cancer has an 80× higher incidence in HIV-1 infected MSM than in the general population[1]. Anal cytology can be used as a screening test.

Our department instituted annual screening of MSM patients with Digital Anorectal Examination (DARE) and anal cytology in March 2013. Abnormal cytology is followed up with high-resolution anoscopy (HRA).

Methods: A retrospective notes review was conducted to determine the rates of screening in MSM during April 2014 and the outcomes of abnormal cytology between June 2014 and September 2015.

Results: Of 111 patients eligible for screening who attended clinic in April 2014, 29 underwent screening that day or in the 6-months either side. Most of the patients not screened (n=82) were not offered (n=67). Only 11 declined meaning 72.5% of those offered screening accepted.

Between June 2014 and September 2015 540 patients were screened with 160 abnormal cytology samples and 4 anal cancers on DARE. 126 patients had been seen in HRA by the time of audit. The majority were smokers (58.6%) with low grade dyskaryosis on cytology (n=107). Only 9 patients had high grade dyskaryosis (moderate or severe). The other patients had borderline or repeat inadequate cytology. At HRA 28 cases of AIN were found. Significantly more patients with low grade cytology were discharged following HRA than those with high grade (60.7% vs 22.2% p=0.03).

P119

A case of hereditary coproporphyria triggered by efavirenz

R Grimes[1], T Appleby[1], S Stockwell[1], NP Sander[1], T Sahabandu[1], Y Gilleece[1], D Bradshaw[1] and P Stein[2]
[1]Brighton and Sussex University Hospitals, Brighton, UK; [2]King's College Hospital, London, UK

Background: Reports of exacerbations of acute porphyrias precipitated by antiretrovirals are rare, with few data to inform safe prescribing in HIV-

positive individuals. We report the first case of hereditary coproporphyria triggered by efavirenz with full recovery following immediate replacement by a non-porphyrinogenic regimen.

Case report: A 25-year-old adopted Colombian male was diagnosed HIV-1 positive, with baseline CD4$^+$ count 415 cells/μL (28%), viral load 16,668 copies/mL. Antiretroviral therapy was commenced with tenofovir, lamivudine and efavirenz. He presented 2 weeks later with vomiting, constipation and abdominal pain. Blood abnormalities included sodium 133 mmol/L, alanine transaminase 71 iU/L, amylase 166 iU/L. Full blood count, renal function and autoimmune screens were normal, as were chest and abdominal radiographs and abdominal CT. Viral and bacterial stool cultures were negative, as were throat and rectal swabs for *Chlamydia Trachomatis and Neisseria Gonorrhoea* He was treated for a presumed viral gastroenteritis with supportive therapy, however did not improve clinically. His sodium decreased to 118 mmol/L, he developed dark red urine and auditory and visual hallucinations. Urine was positive for porphobilinogen, consistent with acute porphyria. Urine porphyrins were 156 nmol/mmol creatinine (normal range 0–30), and stool coproporphyrin was 13.2 (normal range <1.4). Plasma porphyrins were demonstrated by a positive fluorescence emission peak at 620 nm. Genetic testing confirmed heterozygosity for c.717T>A in the PPOX gene, predicted amino acid p.Cys239Tyr, a new mutation causing a nonsense change, premature termination of translation and reduced enzyme activity. The identification of this pathogenic PPOX mutation confirmed hereditary coproporphyria. Efavirenz was switched to raltegravir and he received four haem arginate infusions, leading to full resolution of the acute attack, including neurological symptoms. Five weeks post initiation of ART, CD4$^+$ cell count was 503 cells/μL (27%) and viral load <40 copies/mL.

Conclusion: Efavirenz is likely to have precipitated an acute attack of hereditary coprophorphyria. Symptoms such as abdominal pain and vomiting are easily attributed to viral gastroenteritis, however early consideration and testing for porphyria are essential to limit potential severe neurological compromise. Our case supports the strategy of an immediate switch to raltegravir as a safe agent in individuals with acute porphyria.

P120

Case review of two adult patients with trigger finger tendon pain after dolutegravir (as Triumeq fixed-dose combination) was initiated for the treatment of HIV

R Vincent, PH McGann and P Lewthwaite
Leeds Teaching Hospitals NHS Trust, Leeds, UK

Background: Dolutegravir is an integrase inhibitor, recommended by BHIVA for naïve patients alongside 2 nucleoside reverse transcriptase inhibitors as a preferred agent or an alternative for switches. It has been promoted as well tolerated with minimal drug-drug interactions. We describe 2 cases of a muscular/tendon problem affecting 2 patients associated with starting Triumeq and resolved on discontinuation.

Methods: Case review of both patients has been conducted analysing their side effects.

Patient 1 is a white British female aged 58 yr diagnosed with HIV in April 2015, presenting with PCP. Baseline viral load was 150,000 copies/mL. She was treated successfully as an inpatient with intravenous then oral co-trimoxazole as per BHIVA guidelines. She commenced Triumeq approved by our MDT. She was also taking pregabalin, B12 injections, folic acid, co-trimoxazole and azithromycin. In July, she complained of osteoarthritis type pain in small hand joints and a middle trigger finger. Patient 2 is a female African patient aged 46 yr diagnosed with HIV in 2012 and commenced on Kivexa and efavirenz. She was viralogically supressed. She requested a switch due to problems with efavirenz affecting her sleep and was started on Triumeq. In August she reported left hand middle finger locking and difficulty in straightening it with moderate pain.

Results: Patient 1 responded well with a viral load of 31 copies/mL 1 month later but had a raised urate level following starting Triumeq. Rheumatological screens were negative. Patient 2 had a raised urate level, plasma viscosity and elevated CRP; these were not checked in patient 1, but her viral load remained supressed. Neither woman had a previous urate level taken so their baseline is unknown.

Both patients have switched away from Triumeq after 6 months and reported resolution of their problems with urate levels reducing. Both patients were switched to Kivexa and efavirenz and both were virologically supressed. A literature review was undertaken and discussion with VIIV healthcare was

undertaken to establish any previous reports. No information in the SPC for Triumeq regarding musculoskeletal side effects or increased urate levels was found. Only non-specific joint pain had been reported previously.

Conclusion: Both patients had a rise in urate and new unusual small joint arthropathy with a "locking problem in their fingers;" temporarily associated with switch to/start of dolutegravir and resolved on ceasing.

HIV Testing, Epidemiology and Surveillance

P121

Retention in HIV care in the era of highly active anti-retroviral therapy (ART) for all HIV–1–infected individuals

S O'Connell[1], A Lynam[1], A O'Rourke[1], E Sweeney[1], C Sadlier[1] and C Bergin[2]
[1]St James's Hospital, Dublin, Ireland; [2]Trinity College Dublin, Dublin, Ireland

Background: Retention in HIV care is essential to meet targets outlined in the UNAIDS 90-90-90 plan. In an era of ART for all HIV-1 infected patients, a primary aim of this study was to describe prevalence and characteristics of patients disengaged from care at an urban ambulatory HIV clinic. A secondary aim was to measure the outcome of an intervention employed to re-link disengaged patients to care.

Methods: We conducted a retrospective cohort study. All patients who disengaged from care (defined as loss to follow up for at least 1 year) from 2007 to 2014 inclusive were identified. Patient charts were reviewed to collect demographics. Patients identified as disengaging from care were contacted by telephone by healthcare providers. Where contact was made, patients were counselled regarding importance of re-engaging in care and appointments made.

Results: 9.2% (n=254/2749) patients disengaged from care during the study period (60% male, 40% Irish, 36% from Sub Saharan Africa, 9% from South America). In those who disengaged, risk of acquisition of HIV was HS in 129 (51%) MSM in 82 (32%) and IDU in 41 (16%). 88.4% of HS risk group were non-Irish.

CD4 count at time of disengagement was <200 in 18 (7%), 200–350 in 42 (16.5%), 350–500 in 58 (22.8%), >500 in 131 (51.6%). 128 (50.4%) patients were taking ART at the time of disengagement. 12 (4.7%) who disengaged for greater than a 1 year period re-linked with care during the study period. At least 3 (1.2%) patients died.

Telephone follow up of 243/254 (96%) patients was undertaken. Successful contact was made with 47 (19.3%) of patients. When interviewed over the phone, 34 (72.3%) stated they were willing to return and 13 (39%) have re-engaged in care at our centre to date. A further 11 (23.4%) patients are now attending another centre and 2 (4.3%) did not disclose why they will not follow up for care.

Conclusion: From 2007 to 2014, 90.7% (n=2495/2749) of those who attended our ambulatory HIV clinic have been retained in care. Over 50% of patients were on ART at the time of disengagement, 12% of these had disengaged post-partum. An intervention to re-engage has proved successful for 72% of those with whom contact was made and 39% have re-attended to date. It is possible that many other patients are attending elsewhere. These findings add to our call for national disease registry for all HIV-infected patients. We are currently performing a nested case-control study to further characterise predictors of disengagement in HIV care.

P122

Ten–year national trends in HIV infections and late diagnoses among young people in the United Kingdom

S Okala, Z Yin, A Skingsley, P Kirwan, C Chau, M Hibbert and V Delpech
Public Health England, London, UK

Background: Adolescents and young adults may experiment in new behaviours, including sex and drug taking as they transition into adulthood, which can make them particularly vulnerable to HIV infection. In the UK, one in ten of all HIV diagnoses were among those aged between 16 and 24 during the last decade. We examine epidemic trends in HIV among young people and assess risk factors associated with late diagnosis.

Methods: Data on people aged 16–24 newly diagnosed with HIV in the UK between 2005 and 2014 were analysed by risk group. Univariate analyses using Stata 13.0 examined the factors associated with late HIV diagnoses observed among this group with 95% significant value.

Results: A total of 7571 new diagnoses were reported among 16–24 years-old with a decline from 945 in 2005 to 727 in 2014. The majority acquired HIV through sexual contacts; men who have sex with men (MSM) accounted for 50% of all new diagnoses and heterosexual sex for 39%. White MSM born in the UK represented the most important group accounting for 30% of all new diagnoses among young people. The proportion of new diagnoses among young MSM increased by 6% (p<0.05) per year. In contrast, new diagnoses among heterosexuals decreased by 15% (p<0.05) per year. Overall, the number of persons presenting late declined from 307 to 169 over the decade. Compared to MSM, heterosexual men and women were more likely to be diagnosed late (45% vs 26%, OR: 2.3, 95% CI:2.0–2.6), as were recipients of blood or tissue (61%, ORs=4.5, 95% CI:1.9–10.4), Black Africans vs persons of white ethnicity (51% vs 27%, ORs=2.7, 95% CI:1.5–5.0) and those born abroad (42% vs 27% born in the UK, ORs=2.0, 95% CI: 1.8–2.2).

Conclusion: Young white MSM carry the highest burden of HIV infection among young people and new diagnoses in this group are on the increase. Surprisingly high rates of late presentation were observed emphasising the need for earlier testing and HIV prevention programmes aimed at young people.

P123

A feasibility study for an electronic clinical decision support system (CDSS) prompting HIV testing: the HiTP–CDSS study

M Branch[1], D Chadwick[1], C Hall[2], C Rae[3], M Rayment[3], J Littlewood[3] and A Sullivan[3]
[1]Centre for Clinical Infection, James Cook University Hospital, Middlesbrough, UK; [2]Wolfson Research Institute, Durham University, Stockton on Tees, UK; [3]Chelsea and Westminster Hospital, London, UK

Background: Significant numbers of patients continue to present late with HIV infection and opportunities to identify such patients earlier are often missed. Computerised physician order entry (CPOE) systems such as WebICE offer opportunities for CDSS identifying patients at higher risk of HIV infection, and prompting an HIV test at the point of ordering other blood tests. This study was devised to assess the feasibility and acceptability of a prototype application prompting HIV testing in two clinical settings.

Methods: A prototype algorithm was devised, mainly based on doctors/nurses selecting certain tests on CPOE systems in a London hospital (Mysis) and Teesside primary care (WebICE) settings respectively. When tests such as monospot or hepatitis serology were selected, a screen "prompt" was triggered suggesting an HIV test was offered, with a single click box to add it to other tests ordered. The acceptability and usability of each system was evaluated by interviews with doctors or nurse practitioners in selected practices or hospital departments after a 3 month trial period. Frequency of prompt acceptance and changes in numbers of HIV tests ordered in each setting were calculated.

Results: There was general acceptance of the prompt and, in Teesside particularly, it was felt to be useful and educational (*aide memoire*), although nurses were less comfortable responding to the prompt and often felt that testing was not justified in common situations. There were some practical issues identified around the process of ordering tests at both sites, particularly with the prompt appearing late in the patient encounter. 1% (C&W) and 2% (Teesside) of all prompts were accepted; no positive HIV tests resulted from prompted requests. Numbers of HIV tests ordered were 6% higher in the trial period in Teesside compared to the previous 9 months (p=0.165).

Conclusion: This study has demonstrated the feasibility and broad acceptability of a CDSS to prompt HIV testing. Further development of the algorithms to incorporate other clinical data, including previous abnormal test results, is likely to improve its sensitivity and specificity in identifying patients at higher risk of infection. Other adjustments to improve the timing of the prompt and its incorporation into the clinician-patient interaction are needed. Future studies may be required to confirm its effectiveness however this CDSS concept is likely to be adopted in several clinical settings over the next few years.

[BHIVA Research Awards winner 2014: David Chadwick]

P124

Explaining variation in an HIV testing trial: a new model based on diffusion of innovations theory

H McMullen[1], C Griffiths[1], W Leber[1] and T Greenhalgh[2]
[1]Queen Mary University of London, London, UK; [2]Oxford University, Oxford, UK

Background: The UK National Guidelines on HIV testing 2008 recommended that in areas where more than 2/1000 people were living with HIV that new registrants in general practice were offered an HIV test. A recent cluster randomised controlled trial evaluated this recommendation by offering a rapid HIV test as a part of their new patient health check in a high prevalence borough. Some practices achieved high recruitment, offering many tests, whereas others found implementation difficult and had low levels of offer. We sought to explain this variation and gain insights on the implementation of complex interventions.
Methods: The trial included 40 general practices. The primary outcome was early detection of HIV, measured by mean CD4 cell count at diagnosis. Several hundred hours of ethnographic observation and 21 semi-structured interviews were undertaken along with the analysis of trial data (e.g., recruitment statistics). Qualitative data were analysed thematically using Greenhalgh et al.'s model of diffusion of innovations. Narrative synthesis was used to prepare case studies of four practices representing clinicians' interest in HIV (assessed by level of serological testing prior to the trial) and performance in the trial (high vs low recruiters).
Results: There was a universally perceived relative advantage in the access and speed of rapid testing. High-recruiting practices were, in general though not invariably, also innovative practices. Practices with good managerial relations, openness to change and available staff time tended to offer more HIV tests. Their front-line staff believed that patients might benefit from the test, were emotionally comfortable administering it, skilled at performing it and made creative adaptations to embed the test in local working practices. Positive test results increased enthusiasm. Low-performing practices appeared to have less time and resource for new innovations, discomfort with the test or with HIV, less good managerial relations with no positive test results.
Conclusion: The adaptation of Greenhalgh et al.'s model of the diffusion of innovations was an effective analytical tool for retrospectively exploring high and low performing practices in a complex intervention research trial of opt out population testing for HIV.

P125

Proposal for an enhanced case-definition of late HIV diagnosis – implication on MSM in the United Kingdom

Z Yin, A Aghaizu, A Skingsley, P Kirwan, S Croxford and V Delpech
Public Health England, London, UK

Background: The surveillance definition of late HIV diagnosis (LD) used in the UK is having a CD4 count<350 cells/mm^3 at diagnosis). CD4 decline models estimate that on average patients with a CD4 count <350 are likely to have been living with HIV for at least 4 years, which varies by age, ethnicity and exposure. LD is a key indicator in the Public Health Outcomes Framework aimed at promoting and monitoring testing efforts. Patients diagnosed during seroconversion (SC) with a CD4<350 and rapid progressors (RP) are currently misclassified as late presenters. In this study, we examine the impact of SC/RP on the proportion of MSM miss-classified as late presenters.
Method: We analysed a subset of all MSM diagnosed with HIV in England, Wales and Northern Ireland (E, W &NI) in 2014 with an available CD4 count within 91 days and a Recent Infection Testing Algorithm (RITA) test result, which accounted for 61% of all MSM cases diagnosed and were similar in age, ethnicity and country of birth. MSM with a CD4<350 at diagnosis were reclassified as "not-late" if they had: 1) evidence of recent infection through RITA or 2) a previous negative HIV test within 2 years of first positive test date indicating likely SC or RP.
Results: In total 2933 MSM were newly diagnosed in 2014 and 28% (821) had a CD4<350. Of the 1728 MSM with both RITA and CD4 reported, 489 had a CD4<350, of which, 18% (87/489) were reclassified as "not-late" due to a previous negative test within 2 years. This reduced the LD proportion to 23% (402/1728). Of the rest 402 MSM, RITA showed that 40 likely acquired HIV infection within 1 year. Reclassifying these cases further reduced LD proportion to 21% (362/1728).

Conclusion: Incorporating RITA and HIV testing history into the LD algorithm reduced the current LD rate by 25% (from 28% to 21%). As MSM without a previous HIV test may also be SC or RP we consider the 21% to be an upper estimate. The likelihood of MSM being diagnosis during SC has increased with improvements in testing uptake and frequency. The revised LD algorithm should be used and further developed to assess LD rates in this population.

P126

Quality of cause-of-death reporting in an on-going UK cohort study; 1996–2012

S Jose[1], T Hill[1], S Pett[1], C Sabin[1], F Post[2], A Arenas-Pinto[3], V Delpech[4] and S Croxford[4]
[1]UCL, London, UK; [2]King's College Hospital NHS Foundation Trust, London, UK; [3]Medical Research Council Clinical Trials Unit at UCL, London, UK; [4]Public Health England, London, UK

Background: Cause of death reporting has been vital to evidence declining AIDS and increasing non-AIDS mortality in people with HIV. However, quality of cause of death reporting is variable. We examine cause of death reporting from four different data sources used to assign a single cause of death in a UK cohort.
Methods: Cause of death information in the UK CHIC Study is available from 4 data sources in different formats (table). A mortality review group including 3 clinicians assigned a single cause of death to each reported cause from each data source using HICDEP codes. If there was information on a death from >1 data source, the assigned causes were compared and a single principal cause of death chosen. We discuss issues in assigning a principal cause of death due to missing data, variable data quality and inconsistencies between data sources.
Results: Of 4553 deaths between 1996 and 2012, 1550 (34%) had no information on cause of death. Information was most often missing in earlier years; 56.7% 1996–1999, 38.0% 2000–2003, 19.7% 2004–2007 and 15.1% 2008–2012 (p<0.001). Cause of death information was more often missing for those who died aged ≤30 years (42.3%), of unknown ethnicity (52.5%) and with heterosexual or unknown transmission risk (41.6% and 41.3%). The quality of information reported was sometimes poor (table), resulting in variable confidence in the chosen principal cause of death. Of 942 deaths with information from >1 data source, 409 (43.2%) showed disagreement in assigned cause of death. Disagreement between data sources was more likely for deaths in earlier years; 60.4% 1996–1999 vs 41.3% 2008–2012 (p<0.001).
Conclusion: Cause of death reporting was generally incomplete or inconsistent but improved in later years. More standardised reporting is needed to allow confident selection of cause of death, especially as these data are used to map changing illness patterns and subsequent allocation of healthcare resources.

Source	Time period of deaths	Cause of death format	Example of poor data quality
UK CHIC data	1996–2012	Single text field	HIV disease
Linkage to surveillance data (Public Health England)	1996–2012	Up to 6 text fields with ICD10 codes	(i) Cardiorespiratory arrest (ii) HIV disease with complications
CoDe forms	2004–2012	Direct cause Contributing (×2) Underlying	(i) ? Cardiac event (ii) (iii) (iv)
Linkage to ONS mortality data	2001–2008	Up to 6 text fields with ICD9 codes	(i) Bronchopneumoni unspecified

P127

Routine HIV testing in critical care

A Umaipalan, S Dakshina, P Khan, N Bunker and C Orkin
Barts Health NHS trust, London, UK

Background: National guidance recommends testing medical patients where the HIV prevalence is >2/1000. A prompt HIV diagnosis in critical care can be life-saving. Routine HIV testing was introduced for all Intensive Care Units (ITU) patients >18 years in 2012 at a London tertiary hospital. Those unable to consent were tested under "best interests" based on local prevalence ~6.25/1000. ITU HIV prevalence was 6/1000 in the first 6 month pilot. We present subsequent outcomes of 26 months of routine HIV testing in this London ITU.
Methods: All non-elective ITU admissions between October 2012- July 2015 were reviewed for HIV testing outcomes (number of tests and positive results). Data were collected on demographics, number of ITU admissions, length of stay and ITU outcomes. Data were analysed using SPSS.
Results: 4041 patients were admitted non-electively to ITU between October 2012-July 2015. Overall, 1171/4041 (29%) were tested; 465/899 (52%) during the 2012 6-month pilot phase, and 706/3142 (22%) over the next 26 months. There were 7 HIV positive tests. The HIV prevalence was 6/1000 (7/1171) consistent with local prevalence (~6.25/1000). 4 (57%) were new diagnoses, 1 (14%) was LTFU and 2 (28%) were HIV+ engaged in care; 5 (71%) had advanced disease, 3 (43%) died, and 4 (57%) were linked into to care. Patients were more likely to be tested with each additional admission to ITU (p<0.001), a longer stay (p<0.001) and if alive on discharge (p<0.001).
Conclusions: The prevalence of HIV in this ITU was 3 times higher than recommended threshold for testing. Although HIV testing rates dropped after the pilot phase, the average prevalence remained constant at 6 in 1000 making it an important place to test. All 5 "new" or LTFU patients presented with late disease, 3/5 survived and were linked to care.

P128

Should all HIV–positive patients have a baseline chest X–ray?

M Page, C Sewell and K Manavi
Queen Elizabeth Hospital, Birmingham, UK

Background: The BHIVA guidelines for the routine investigation and monitoring of adult HIV-1 infected individuals 2011 stipulate that, "routine baseline chest films should be performed in those with a history of previous chest disease. . . and may be considered in those at increased risk of TB and in those who have used intravenous drugs". For many years our HIV department has adopted a policy of performing baseline chest x-rays (CXR) on all newly diagnosed HIV positive patients including those transferred from other HIV centres.
Aim: This audit aims to identify the prevalence of abnormal chest radiographs in HIV infected individuals attending a large training HIV centre.
Methods: The reports of CXR investigations of all HIV infected individuals attending our department for the first time between 2010 and 2015 were reviewed. Abnormal CXR reports were defined as those with suspicious findings requiring further investigations. We stratified the abnormal CXR according to the HIV risk group, CD4 categories, sex and age groups.
Results: A total of 563 HIV infected individuals attended the department for the first time within the study period. Of these 43 (7.6%) CXRs were considered to be abnormal. This included 22 (51.1%) heterosexual individuals from countries with high prevalence for HIV and TB and 17 (39.5%) men who have sex with men (MSM). The difference between proportion of men and women with abnormal CXR was not significant (p=0.11). The difference between proportions of patients with CD4 counts >349 and <350 cells/mm^3 with abnormal CXR was also not significant (p=0.42).
Routine performance of baseline CXR on all HIV infected patients new to the department identified an additional 19 (44.2%) individuals with abnormal CXR that would have otherwise been missed.
Conclusions: Routine chest x-rays for all HIV infected individuals to the department may be helpful in identification and management of their co-morbidities. Baseline CXR may also provide invaluable information for future comparisons in patients living with HIV.

P129

Diagnosis, treatment and prevention – tackling the ongoing HIV endemic

J Leighton, C Ward and V Lee
Manchester Centre for Sexual Health, Central Manchester University Hospitals NHS Foundation Trust, Manchester, UK

Background: The number of people living with HIV (PLWH) in the UK continues to rise. In 2014, an estimated 17% of PLWH were unaware of their infection and are at risk of onward transmission. Late diagnosis remains a challenge with two in five new diagnoses having CD4<350.
Method: A retrospective case note review of new HIV diagnoses between 1/1/2010 and 31/12/2014 was conducted. Data including age, ethnicity, sexuality, previous testing practices and stage of HIV at diagnosis were collected.
Results: 623 patients were included. Most were male (83.9%) of whom 69.3% were men who have sex with men (MSM). Most were Caucasian (69.0%) and 22.2% Black African. Transmission by intravenous drug use accounted for 1.1% of diagnoses. Most diagnoses were made by GUM services but there is a slow increase of diagnoses being made by MAU, GP and through postal testing.

	2010	2011	2012	2013	2014
New diagnoses: n	116	152	120	106	129
Median age (range)	34 (20–76)	33 (16–60)	36 (17–64)	33 (17–61)	32 (18–71)
Male: n (%)	98 (84.5)	125 (82.2)	98 (81.7)	87 (82.1)	115 (89.1)
MSM: n (%)	76 (65.5)	97 (63.8)	86 (71.1)	76 (71.1)	97 (75.2)
Caucasian: n (%)	81 (69.8)	98 (64.5)	87 (72.5)	75 (70.8)	89 (69.0)
Black African: n (%)	28 (24.1)	41 (27.0)	27 (22.5)	21 (19.8)	21 (16.3)

Overall 63.4% of patients (73.8% of MSM, 42.0% of Black Africans) had a negative HIV test prior to diagnosis.
Recent infection (infection within 12 months) was diagnosed in 31.9% of patients, of whom 89.4% were MSM and 5.5% Black African. The number of early diagnoses for MSM has increased but remains consistently low for the Black African population.
Late diagnosis (CD4<350) was observed in 70.3% Black Africans and 37.7% MSM. An AIDS defining diagnosis was made within a year of diagnosis in 11.6% Black Africans, 5.8% MSM and 7.5% of patients overall.
Conclusion: The estimated number and proportion of people living with undiagnosed HIV has declined, but the number of new diagnoses remains similar. Late diagnosis and low testing uptake are key issues for the Black African population and other ethnic minority groups where stigma of HIV remains high. Targeted testing and prompt diagnosis is still a priority for heterosexuals living with HIV.
Despite increased awareness of HIV infection and testing coverage, the ongoing high rates of HIV transmission and acquisition among MSM emphasise the need for high impact, appropriately tailored combination prevention strategies (increased testing, education, test and treat, PrEP) to tackle the on-going HIV epidemic.

P130

Facilitators and barriers to active recall for HIV and STI testing of MSM: a mixed methods study

M Desai[1], F Burns[1], R Gilson[1], A Nardone[2] and D Mercey[3]
[1]University College London, London, UK; [2]Public Health England, London, UK; [3]CNWL NHS Foundation Trust, London, UK

Background: Key to reducing HIV incidence is increasing HIV testing rates among those most at risk, such as men who have sex with men (MSM) reporting unprotected anal intercourse. Reminders can improve reattendance and re-testing rates in sexual health clinics. We conducted a mixed methods study to assess the effectiveness of active recall reminders, the drivers and barriers to their acceptance, and their impact on reattendance/re-testing rates for HIV/STIs

among MSM. The study was underpinned by the Theory of Planned Behaviour to explore factors associated with intention and actual reattendance.

Methods: A cross-sectional survey and longitudinal observational cohort analysis of 406 MSM attending a sexual health clinic was performed. MSM were asked about their preferred type and frequency of reminder, attitudes to HIV/STI testing and reminders. Logistic regression was used to estimate the effect of attitudes to HIV/STI testing and reminders on intention to reattend. Sixteen survey respondents were purposively selected, based on their intention to reattend on receipt of a reminder, to take part in in-depth interviews (IDI) to explore the contextual factors influencing these attitudes to testing and reminders.

Results: Among MSM, preferring SMS reminders (p=0.024), liking being reminded to check health status (p=0.003), less concern about confidentiality (p=0.029), preferring to have a reminder to test (p=0.023) were all associated with intention to reattend in multivariable analysis, but not with documented reattendance. Concern about stigma was associated with reduced intention to reattend (p=0.028).

IDI suggested drivers for actual re-testing included easy access to testing facilities and the influence of peers or a regular male partner. Conversely, barriers included conflict with being in a trusting relationship, difficulty of accessing tests, fear/embarrassment and concerns about wasting resources. Convenience and confidentiality of the reminder, control over receipt and response to the reminder, and reminder persistence emerged as key themes.

Conclusion: This study showed a clear preference for SMS reminders. Although limited by size, it suggested recall procedures to increase HIV re-testing should be convenient, persistent and provide the recipient with control over how they access an appointment. Attitudes associated with increased intention to reattend should be assessed in larger longitudinal studies to determine how well they predict actual reattendance.

P131

What's age got to do with it?: HIV test coverage in genitourinary medicine (GUM) clinics in England

S Bell, T Doran, J Adamson and F Martin
University of York, York, UK

Background: Under BHIVA guidelines, HIV testing should be offered to all eligible GUM clinic attendees, irrespective of age. This recommendation aims to encourage testing in order to promote earlier HIV detection, which is associated with better health outcomes, reduced likelihood of HIV transmission and lower treatment costs.

The aim of this study is to explore the association between age and likelihood of offer and acceptance of HIV testing (test coverage) in GUM clinics in England.

Methods: We analysed HIV testing data for GUM clinics in England for 2014, derived from Public Health England. We measured associations between age and HIV test coverage by sexual risk group.

Results: There was a significant, strongly negative, linear correlation between age and offer of HIV testing (R_s −0.797; p 0.002). This association was found separately for heterosexual males (R_s −0.923; p<0.001), heterosexual females (R_s −0.958; p<0.001) and men who have sex with men (MSM) (R_s −0.897; p<0.001). Overall, rates of offer of testing were highest for the 25–29 age group (88.0%) and lowest for the 70+ age group (70.3%); a difference of 17.7%. Heterosexual females were least likely to be offered HIV testing at any age, with proportions dramatically declining in older adults; HIV testing was offered to 87.0% of attendees aged 20–24, but only 52.1% of attendees aged 70+ years. MSM were the group most likely to be offered a HIV test at any age; in this group, 86.9% of attendees aged 70+ years were offered testing.

Overall, there was no significant correlation between age and HIV test acceptance (R_s 0.547; p 0.065). Of the different risk groups, there was only a significant correlation for MSM, with older men less likely to accept testing (R_s −0.697; p 0.012). However, MSM had the highest levels of test acceptance across all age groups: for attendees aged 70 + acceptance rates were 92.9% for MSM, 78.8% for heterosexual males and 71.6% for heterosexual females.

Conclusion: With advancing age, eligible GUM attendees were less likely to be offered HIV testing. This suggests that age-related barriers to offering HIV tests may exist in GUM clinics. Age was found to have no significant association with test acceptance, with the exception of MSM. However, test coverage (i.e. testing both offered and accepted) was highest in MSM at all ages. The low level of HIV test coverage in older heterosexual females is an area of concern, warranting further exploration and action.

P132

Improving inpatient HIV screening on an Infectious Disease ward in an area of high HIV prevalence

S Clifford and C Mutch
Regional Infectious Disease Unit, Edinburgh, UK

Background: Current Prevalence of HIV in Edinburgh is 2.6 per 1000 as reported by Professor Goldberg from Health Protection Scotland. BHIVA guidelines recommend all general medical admission should be tested for HIV when the prevalence for HIV exceeds 2 in 1000 population. Routine testing is not currently NHS Lothian policy. Testing rates in Regional Infectious Disease Unit (RIDU) at the Western General Hospital were not deemed satisfactory. We introduced a ward round check list documenting testing status. The aim of this audit was to determine the testing rates in the unit before and after introduction of this intervention. The target testing level was 100%. The RIDU is a 33 single bed unit in a University Hospital. It is a paperless unit using TRAK care.

Methods: Snap shot analysis of all current inpatients' e-notes was performed to assess for HIV testing pre and post intervention. A successful testing episode was defined as a patient who had already been tested during the current admission or who had a test in progress. If a patient had had an HIV test in the past 12 months and there was a documented decision not to re-test, this was also counted as successful testing. All patients who had not been tested defined as unsuccessful. The intervention performed was adding an HIV checklist to the RIDU ward round pro-forma which is used for daily ward rounds.

Results:

	Pre-intervention (15-12-15) (n=33)	Post-intervention (11-1-2015) (n=28)	Post intervention (13-1-2015) (n=30)
Tested	17	26	27
Not tested	16	4	3
Percentage %	51	92	90

Conclusion: HIV testing rates were low at 51% prior to our intervention. Following the addition of an HIV checklist to our ward round entries, the percentage of patients being tested improved to above 90% on two separate occasions. We did not achieve the target levels of 100%. The next step in improving our testing rates is to provide all inpatients with an information sheet on HIV testing on admission. We plan to re-audit testing rates following this second intervention.

P133

Late HIV presentation – factors associated with a changing pattern over time

S O'Connell[1], J Enkelmann[1], C Sadlier[1] and C Bergin[2]
[1]St James's Hospital, Dublin, Ireland; [2]Trinity College Dublin, Dublin, Ireland

Background: Delayed diagnosis of HIV infection has negative clinical, economic and public health implications. The primary aim of this study was to identify changes in prevalence of late presentation to an urban ambulatory HIV clinic in Dublin Ireland from 2004 to 2014. The secondary aim was to identify factors associated with late presentation (LPS, CD4 count<350 cells/mm^3), moderate (MI, CD4 200–350 cells/mm^3) and advanced immunodeficiency (AI, CD4<200 cells/mm^3).

Methods: A retrospective cohort study was performed. Demographic data and CD4 count of new HIV diagnoses were recorded. Proportion of LPS and factors associated with late presentation were compared using the χ^2 test.

Results: The proportion of LPS has decreased during the study period (66.4% (2002), 63.7% (2007), 59% (2012) and 32.6% (2014), p = <0.0001). However, the proportion of those with AI remains unchanged (21% (2002), 21% (2007), 20% (2012) and 19% (2014), p=0.69) The overall proportion of male LPS has increased (63% (2002) vs 74% (2014), p=<0.001). The number of MSM LPS has increased (9% (2002) vs 47% (2014), p=<0.001) however the proportion of LPS in the MSM cohort has decreased over time (50% in 2002 vs 23% in 2014, p<0.001) reflecting increased frequency of HIV diagnoses in MSM in recent years. The proportion of heterosexual LPS has not changed significantly in the same time period (75% (2002) vs 57% (2014), p=<0.098).

LPS were older in 2014 vs 2002. (Mean age: 34 vs 39.8, p=<0.001) (Table 1) In 2014, 231 new patients attended for HIV care. 75 (32.6%) were LPS. Of these,

32 (43%) had MI and 43 (57%) had AI as defined by CD4 count. 17 (53.1%) patients with MI (n=32) had a previous negative HIV test, 50% in the prior 2 years. 27 (84.4%) patients with MI were diagnosed in GP/out-patient settings.

17 (39.5%) patients with AI (n=43) had a previous negative HIV test, 65% in the prior 2 years. 25 (58%) patient with AI were diagnosed in GP/out-patient settings.

Conclusions: The proportion of LPS defined by CD4 count remains high. Over 50% of LPS as defined by CD4 count had a negative HIV test in the preceding 2 years, suggesting the LPS definition needs to be revised. MSM are now less likely to present at a late stage, likely due to higher testing rates. Further targets for HIV testing include non-traditional risk groups including older patient cohorts and those attending GP practices/out-patient settings. To address this widespread routine HIV testing needs to be considered as a HIV prevention strategy.

P134

Systematic review and meta-analysis of HIV, HBV and HCV prevalence in people with severe mental health illness

E Hughes[1], SS Bassi[2], S Gilbody[2], M Bland[2] and F Martin[2]
[1]University of Huddersfield, Yorkshire, UK; [2]University of York, Hull and York Medical School, Yorkshire, UK

Background: Timely testing and treatment of HIV is the most efficient strategy to prevent death from and transmission of HIV but nationally HIV preventions strategies for severe mental illness (SMI) patients have not been implemented. The aim of this systematic review and meta-analysis was to obtain the estimated prevalence of HIV, Hepatitis B and Hepatitis C Virus infection in SMI patients with worldwide.

Methods: Cochrane library, MEDLINE, EMBASE, PsycInfo, CINAHL, and DARE were searched using 15 search terms, including: HIV, HBV, HCV, bipolar, shizophreni, psychosis from 01/01/1980- 30/12/15. Manuscripts were included following inclusion/exclusion criteria. Prevalence data were grouped by region and virus; estimated pooled prevalence was calculated through meta-analysis. Sensitivity analysis was undertaken.

Results: 93/1373 abstracts were included after quality assessment; none were from the UK. HIV in SMI patients (45 studies, n=8590 patients): Prevalence in Africa was 19% (95%CI 14.4 to 25.2), in North America 6% (95%CI 4.3–8.3), in Europe 1.9% (95%CI 0.8–4.4), in South America 2.7% (95%CI 0.8–8.2), in Asia 1.5% (95%CI 1.0–2.4), and was poorly mapped in Australia. HBV in SMI patients (19 studies, n=5075): Prevalence in Asia was 7% (95%CI 6.0 to 15.3), highest in Turkey (HB-s antigen 10%) and Taiwan (HB-s antigen 18%), in Europe 2.7% (95%CI 1.8–3.9), and was poorly mapped in North/South America and Australia. HCV in SMI patients (29 studies, n=8199): Prevalence in USA was 17.4% (95%CI 13.2–22.6), in Europe 4.9% (95%Ci 3.0–7.9), in Asian 5.5% (CI 4–8%), and was poorly mapped in South America and Australia. Co-infections were poorly reported. Infections were more prevalent in women with SMI living in Africa, and SMI patients reporting unsafe sex and injecting drug use.

Conclusions: HIV/HBC/HCV is prevalent in SMI patients but surveillance is poor. UK data was absent. In countries with low infection prevalence, pooled prevalence data were higher compared to general population (USA and Europe), but did not differ from general population data in countries with high prevalence (Africa for HIV, South-East Asia for HBV, HCV). Strategies need to be developed to reduce acquisition risk, increase testing and treatment of HIV/HBV/HCV in patients with severe mental health illness.

P135

Epidemiological analysis and health economical evaluation of scale-up of HIV testing and antiretroviral therapy among men who have sex with men (MSM)

M Chu, L Jiang and X Zhuang
Nantong University, Nantong, China

Background: To build the mathematical model of the HIV transmission mode for MSM in China, and predict the AIDS epidemic trends over the next 5 to 10 years (from 2016 to 2025) among MSM and whether the MSM in China will achieve the "90-90-90" target by 2020.

Methods: This study has collected the relevant parameters affecting the AIDS epidemic among MSM through various channels to establish the mathematical model fitting with the transmission mode of the HIV epidemic among MSM in China, and forecasted the AIDS epidemic trends over the next 5 to 10 years, and used the Monte Carlo method to evaluate the uncertainty of the mathematical model.

Results: The established mathematical model accurately reflected the past situation of the AIDS epidemic among MSM in China and the acceptance of ART. Mathematical model forecasts that China will maintain the current scale of HIV testing, ART and viral load monitoring and the HIV prevalence of the MSM in China will reach 14.01% (IQR=12.01–17.59%) by 2020, and reach 18.35% (IQR=16.04–23.19%) by 2025. Both of them will not meet the "90-90-90" target.

Conclusions: On the basis of maintaining the current scale of intervention, the AIDS epidemic among MSM in China will continue to rise in the next 5–10 years, and the "90-90-90" target, will not be able to achieved. HIV testing, ART and viral load monitoring are the important measures of preventing and controlling AIDS among MSM in China. Therefore, it is necessary to scale up HIV testing, ART and viral load monitoring to control the future AIDS epidemic among MSM and realize the target of "90-90-90".

P136

HIV testing in patients admitted with a diagnosis of Community Acquired Pneumonia (CAP)

P Sellers, R Dhairyawan and A Jayaratnam
BHR NHS Trust, Romford, UK

Background: Early diagnosis of HIV is paramount for improved response to HAART, improving morbidity and mortality as well reducing onward transmission. Located in an urban area with a high HIV prevalence (>2:1000) with high rates of late diagnosis, a recent trust audit revealed that 63% of new diagnoses were made late with a CD4 count <350. CAP is a specific HIV indicator condition, where patients should be offered and encouraged to accept HIV testing, according to UK guidelines.

Method: A retrospective review of 100 randomly selected patients aged ≥18 years who were admitted acutely to the trust with a diagnosis of CAP between 1st October and 31st December 2014. Electronic and paper records were reviewed as to whether the patients had 1) an HIV test during admission and 2) blood markers of HIV infection by looking for high globulins, high total protein and low lymphocytes.

Results: Of 100 adults selected, 86 (44 male, 42 female) patients were analysed after exclusions, (those that did not have a definitive diagnosis of CAP as well as duplicate records). The majority of patients were over 65 years old and white British ethnicity. Of these, only 3 patients (3.5%) were tested for HIV during their admission; all white British males with one aged <45 years and two aged >65 years. None were admitted to ITU. One HIV test sample came back as negative and the other samples were "clotted," with no repeat sample sent.

71 (83%) of patients had a marker of HIV on their bloods during their admission, yet only three patients (4%) were tested for HIV. Two patients with a marker of HIV had previously been tested (within 3 months of admission) with a negative HIV result. Of the 10 patients with severe CAP (admitted to ITU or CURB65 score3 +) none were HIV tested.

Conclusion: Despite recommendations from UK National guidelines, the majority of patients with a diagnosis of CAP are not being routinely tested for HIV, hence missing the opportunity for early diagnosis. Even more concerning is those patients with a marker of HIV during their admission, only 4% had an HIV test. This reveals a missed opportunity for over four fifths of patients admitted with a diagnosis of CAP for opportunistic HIV testing.

We recommend encouraging testing by educating our colleagues working in acute medical admissions and respiratory medicine about HIV testing guidelines and also adding an electronic alert to the pathology results system, recommending testing if HIV blood markers are present.

P137

"Media frenzy sparks HIV testing": can we report The Charlie Sheen Effect?

A Wolujewicz, M Hopkins, M Atkin, M Wood and M Lawton
Royal Liverpool University Hospital, Liverpool, UK

Background: The positive effect of the media on health-seeking behaviour has been described. In 2009, the "Jade Goody Effect" was reported after an increase in cervical cancer screening followed Jade Goody's death. In November 2015, Charlie Sheen, a Hollywood actor, publicly declared during an interview that he was living with HIV. This was followed by heightened media coverage and a United States clinic reported a dramatic increase in sales of home HIV-testing kits. Our walk-in sexual health clinic saw individuals who spoke about Charlie Sheen when requesting an HIV test. We sought to determine whether increased discussion about HIV in the media in November 2015 was associated with an increase in HIV testing.
Method: All laboratory HIV tests ordered in 2014 and 2015 at ten sexual health clinics in our region were reviewed retrospectively. HIV tests done in hospital settings and primary care were excluded.
Results: This table shows the total number of HIV tests done each month and % change from 2014 to 2015:
Overall, more HIV tests were done in 2015 than in 2014, with a 2.4% increase between years. In November 2015, there was a 10% increase in HIV testing compared with the same month of the previous year. Although not statistically significant, our data shows that more tests were done in November 2015 than in November 2014.
Conclusion: We report an increase in HIV tests done in November 2015 following a period of increased media coverage of Charlie Sheen's HIV status disclosure. The influence of the media on HIV testing is hard to elicit but a larger study may show a significant and sustained impact. National HIV Testing Week in November 2015 may also have influenced HIV testing behaviours. However, an increase in HIV testing was not observed following HIV Testing Week in 2014. Such high-profile discussion around HIV may have engaged more individuals in HIV testing and prevention.

P138

A retrospective review of admissions – what can we learn?

A Sornum, L Owen, CS Brown, R Malek and G Taylor
Imperial College Healthcare NHS Trust, London, UK

Background: Despite significant advancements in antiretroviral treatment (ART), HIV positive patients continue to be admitted to hospital for acute illness. We aimed to delineate the HIV inpatient cohort of our inner-city London hospital through a retrospective review of all inpatient adult admissions.
Method: Data was collected using patient notes and discharge summaries from July to December 2015. Admission parameters, investigations, diagnoses, length of stay, ART history and demographics were collated.
Results: There were 99 HIV inpatient admissions. The median age was 46 years (range 18–84 years). There were 11 new HIV diagnoses (11%), all presenting with AIDS–defining illnesses (Table), of whom 10 had a CD4 count of <200 (91%), and none had previously attended our hospital. 31 cases were admitted with AIDS-defining illnesses (31%). The mean inpatient stay was 14.8 days (range 1–130 days). A CD4 count <200 cells/μL, noted in 45 cases (45.5%), was associated with an admission of longer than 14 days (OR=1.74, 95%CI 0.76–3.99; p=0.19). Of those prescribed ART, 28 patients (33%) were non-adherent.

Table 1. Main diagnoses

AIDs defining illnesses	31	Other infections	21
Recurrent pneumonia	7	Chronic illnesses	17
Pneumocystis carinii pneumonia	6	Diarrhoeal diseases	7
Oesophageal candidiasis	5	Viral hepatitis	4
Pulmonary tuberculosis	3	Trauma	3
HIV encephalopathy	3	Sexually transmitted infections	2
B cell lymphoma	2	Other	14

42 (43%) cases had at least one previous admission within the last year; 25 of these (60%) had a viral load >200 copies/mL (OR=0.93, 0.42–2.07; p=0.87) and 15 (36%) had a CD4 count <200 (OR=2.11, 0.94–4.73; p=0.07). 11 (26%) patients had multiple admissions due to management of chronic diseases, while 27 (64%) had repeat admissions for AIDS-defining illnesses. 16 patients (16% of the cohort) had a CD4 count of <200 and more than one admission for an AIDS-defining illness; all were non-adherent to prescribed ART.
Conclusion: This review suggests that late diagnosis of HIV remains a significant problem. The lack of previous engagement with health services makes this difficult to redress. CD4 count is an important predictor for length of inpatient stay, and may be useful in guiding decisions in the admissions process. Despite targeted interventions, such as community support and close follow-up, there remains a significant cohort who are non-adherent to ART and are at high risk of re-admission with AIDS-defining illnesses.

P139

An analysis of late presentations of HIV-infected patients in semi-urban area

S Bhaduri[1], G Hughes[2], N Williams[2], S Green[2] and M Roberts[2]
[1]Worcestershire Health and Care Trust, Worcestershire, UK; [2]Worcestershire NHS Acute Trust, Worcestershire, UK

Background: Over the last 2 years, 67% of our cohort in this semi-urban area with newly diagnosed HIV presented with a CD4 count<350/mm^3. Furthermore, it is well described that outcomes from this subgroup remain less favourable. This prompted analysis of the demographics of "late presenters."
Methods: A retrospective analysis of this cohort over 15 years was carried out with respect to age at presentation, sexuality and in which setting the diagnosis was made. A further analysis by means of a patient questionnaire was undertaken.
Results: 85/289 (34%) were diagnosed as late presenters.32/85 (38%) were identified as men who have sex with men (MSM) or bisexual. 27/85 (31%) were diagnosed via GUM services, 24/85 (28%) following a diagnosis of Pneumocystis or TB or following referral from a General Physician, 12/85 (14%) via Primary Care, 11% by Haematology, 7% following partner notification and 7% after antenatal screening. The average age at presentation was 44.3 years. The range of CD4 count was between 4 and 344/mm^3, the average being 164/mm^3. 5% of the cohort studied have died at the time of this analysis. 53 questionnaire surveys were sent out. The age range was 23–74 years with 38 being male. 33 (62%) questionnaires were returned. 24/33 (73%) had seen a healthcare professional prior to being diagnosed. The most frequent symptoms reported were tiredness, weight loss and weakness. 11/33 (36%) did not consider themselves at risk of HIV.21/33 (64%) did not discuss risk factors for the infection with their GP or any healthcare worker.

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
2014	1630	1498	1575	1439	1315	1361	1518	1299	1504	1568	1491	1260
2015	1638	1545	1572	1443	1353	1472	1452	1250	1599	1591	1637	1321
% change	0.5	3	0.2	0.3	3	8	−4	4	6	1	10	5

Conclusion: Whilst efforts to encourage HIV test uptake in current venues should be encouraged including opt out screening, these strategies may not fully impact on reducing late diagnosis. Nevertheless, in some patients perceived risk remains low, therefore patient educational programmes should maintain their focus on this. The majority, however, of late presenters had had contact with healthcare professionals in respect to their symptoms of HIV prior to diagnosis. Hence, from the data above education of other healthcare professionals (e.g. primary care and general physicians) to encourage testing in patients with persisting and often vague symptoms is critical for earlier diagnosis of HIV, despite the absence of overt risk factors.

P140

HIV testing in acute medicine; assessing the rates and barriers to testing in a busy Scottish acute medical unit

A Ahmed, S Fattah, A Mccallum, C Wood, S Kane, A Fleck, D Beckett and K Abu-rajab

Forth Valley Royal Hospital, Larbert, UK

Background: Early detection remains the most important prognostic factor in improving outcomes in HIV infection. Clearly defined guidelines exist to educate clinicians to encourage earlier testing and facilitate higher rates of detection. Improving investigation of HIV in patients who meet testing criteria admitted to acute medical receiving units is a major point at which significant gains could be made. We evaluated the effect of providing unprompted tailored risk assessments on suitability criteria for HIV testing to clinicians reviewing new patients at a Scottish acute medical unit.

Methods: We provided a tailored risk assessment for all patients admitted to the acute admission over a 14 day period. Each admission was reviewed to determine whether they met criteria for HIV testing based on national eligibility guidelines. This assessment was detailed in the medical notes for the attending clinician to review and included a check box for the index consultant to decide whether to proceed with the HIV test. All clinicians were also provided with detailed lectures on the project and diagnostic process of determining HIV infection in a series of lectures and electronic correspondences before the study commenced.

Results: 77 out of 774 patients (9.9%) admitted to the receiving unit had a valid indication for HIV testing and were highlighted to medical staff. Only 12 of these 77 patients (15.6%) actually underwent testing; all of whom were negative. The most common indication to proceed was lymphopenia (45 patients; 59% of the identified total). Whilst the majority of patients who met criteria for further HIV testing were over 75 yrs, it was mostly the younger patients in this subgroup who underwent further HIV testing (9 of 30 eligible patients tested aged <75 yrs [30%] vs 3 of 47 eligible patients tested aged>75 yrs [6.4%]).

Conclusions: Despite attempts to raise awareness of HIV testing through general education and direct facilitation, uptake remains under-utilised by clinicians in the acute admissions setting. Reduced testing rates may potentially contribute to the lower prevalence of HIV in Scotland which could reflect systematic under-diagnosis. Uptake of HIV testing was particularly low in patients over >75 yrs of age despite all undergoing a specialist geriatrician review. Our study demonstrates that ongoing stigma, clinical inertia and physician education remain ongoing obstacles to early detection and optimisation of outcomes in HIV infection.

P141

A 9-year (2007–2015) audit of newly diagnosed HIV patients in Newcastle investigating late presenters with previous indicator disease

T Gentry[1], E Hurn[1], A Daniels[1], A Radford[1], P Falkous[1], I Bittiner[1], PY Tan[1], K Golds[1], N Sankar[2] and E Ong[2]

[1]Newcastle University Medical School, Newcastle upon Tyne, UK; [2]Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

Background: This audit aims to identify late presenters and missed opportunities for earlier HIV testing to assess the impact of BHIVA's screening guidelines introduced in 2008 since 2007.

Method: This 2015 study is a retrospective case note audit of 43 new HIV positive patients that have presented as compared to each year since 2007. Late presenters are defined as those presenting with a CD4 below 350 cells/μl or a current or previous AIDS diagnosis using the 1993 CDC criteria. Advanced presenters are defined as those with a CD4 below 200 cells/μl. To define the baseline CD4, viral load, presence of AIDS defining illness and previous indicator diseases the UK National Guidelines for HIV Testing 2008 have been undertaken.

Results: In 2015, there were 18 newly HIV positive patients that were seen in ID and 25 in GUM. Of the patients in ID, 12 (67%) presented late and of these, 4 had previous indicator disease without a HIV test. Of the 25 patients seen in GUM, there were 12 late presenters and 4 of these patients had a previous indicator disease.

Year	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
No. Newly Diagnosed with HIV	18	25	12	20	14	17	18	34	38	20	42	22	32	11	46	14	35	26
Late Presenters (N, %)	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, 38%
Presenters with Advanced Disease (n, %)	4, 22%	4, 16%	7, 58%	5, 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 (%)	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 (%)	56	80	17	70	43	76	17	82	42	80	12	68	38	91	35	79	17	54
White British (%)	56	76	42	55	57	88	71	94	61	75	64	17	59	82	54	79	37	65
Black African (%)	22	7	17	20	7	12	29	3	21	15	31	4	18	43	14	49	49	15
Median CD4 on Diagnosis (cells/u)	292	426	223	469	316	459	246	506	187	501	195	389	188	347	169	419	159	388
CD4 Range on Diagnosis (cells/u)	12-1442	975	62-809	10-1180	45-572	0-885	134-900	11-979	0-955	15-894	1145	851	0-833	1019	4-1042	38-953	0-671	61-809
Previous Indicator Disease (n, %)	4, 22%	4, 16%	4, 33%	5, 35%	5, 36%	6, 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 prior to Presentation (n, %)	3, 17%	0	3, 25%	0	1, 7%	0	4, 22%	0	11, 29%	0	11, 26%	0	8, 25%	0	13, 28%	0	11, 31%	0

Psychosocial Issues and Quality of Life

P142

Screening for Intimate Partner Violence in an HIV clinic: characteristics of those screening positive

C Smith[1], C Warren-Gash[1], J Baley[2], A Bartley[2] and S Madge[2]

[1]University College London, London, UK; [2]Royal Free NHS Foundation Trust, London, UK

Background: Intimate Partner Violence (IPV) is widespread and more prevalent in the HIV positive than the general population. There is little published work concerning IPV in this population in the UK. Health Care Workers have been identified as professionals to whom patients might choose to disclose IPV.

Methods: At our hospital there is a new post for an Independent Domestic and Sexual Violence Advisor (IDSVA). We established screening in an Out Patient HIV clinic and compared those screened with those not, and summarised the characteristics of those reporting current or previous IPV. Multidisciplinary staff were trained to ask this standardised question: "Have you ever been emotionally or physically hurt by your partner, ex-partner or family member?" Those who answered positively were assessed for current or past IPV by asking, "Are you still in contact with this person and are they still causing you and your family issues?" Screening took place over a 5 month period while the patient was alone in a private place. When necessary patients were referred to Safeguarding services and to the IDSVA. Data were collected on a standardised sheet and linked to the HIV database by hospital number and then anonomysed.

Results: 10% (348/3383) of the current clinic population was screened. Those screened had similar demographics and HIV markers to those not screened. 30%(103/348) of participants had ever experienced IPV, and were more likely to be female (p=0.01) with a trend towards heterosexual risk group (p=0.085) and a detectable viral load (p=0.088). 35/348 (10%) of those screened were experiencing current IPV or were given contact information for future self-referral. 14/348 (4%) agreed to be referred to the IVDSA. Ten were women and 7/14 had Black ethnicity. Other variables were similar to the whole population except seven of those referred had detectable viraemia (50% vs 15%). This suggests a relationship between adherence and access to medication, which could be further explored.

Conclusion: HIV positive patients experience a high lifetime risk for IPV and warrant further investigation as a high-risk group. A Clinic setting appears to be an appropriate venue for screening and referral by a variety of Health Care workers using this tool and pathway. The possible relationship between viral load and current IPV merits further exploration and further screening. Detectable viraemia might be a trigger for discussion about IPV in the HIV clinic.

P143

"Clean" or "dirty": the changing experiences of care and support among MSM diagnosed with HIV

H Ward[1], J Bruton[1], T Rai[1], C Higgs[2] and J Rowlands[2]
[1]Imperial College London, London, UK; [2]Chelsea and Westminster NHS Foundation Trust, London, UK

Background: The development of effective and streamlined HIV therapies has transformed the treatment of patients following diagnosis. Clinical care is simplified and normalised with fewer appointments and less holistic support. We explore how the experience of diagnosis, care and support has changed for men who have sex with men (MSM).

Methods: In-depth interviews with 34 HIV-positive MSM from two clinics in London. Participants were purposively selected from four "HIV generations," based on antiretroviral therapy development – those diagnosed pre-1996, 1997–2005, 2006–2012, and since 2013. Framework was used to analyse the data.

Results: Men diagnosed in earlier generations described greater access to professional and non-statutory support in the period after diagnosis. Compared to later generations, they felt they had opportunities to "tell their story" and seek support. Those diagnosed more recently perceived a lack of time and space within the clinical setting to share their stories, though all described a period of adjustment, of differing lengths of time, which included different points in their journey when they "faced mortality." Simultaneously, support from within the MSM community appears to have diminished. Indeed many men are reluctant to test or disclose their status in the face of persistent stigma where terms such as "dirty" are used to describe those with HIV, with some parallels to the stigma around homosexuality that many had already experienced.

Conclusion: In the efforts towards "normalising" HIV, clinical care is becoming more remote or "virtual," and people are encouraged to take more responsibility. This approach underestimates the evolving social politics of HIV within the MSM community and how interaction between these two phenomena impacts on testing behaviour and the care pathways following a positive diagnosis.

P144

Accuracy of reporting undetectable HIV viral load among people with HIV on antiretroviral treatment

J Sewell[1], M Daskalopoulou[1], F Nakagawa[1], FC Lampe[1], A Speakman[1], AN Philllips[1], AJ Rodger[1], S Edwards[2], N Perry[3], E Wilkins[4], R O'Connell[5], M Jones[6] and S Collins[7]
[1]UCL, London, UK; [2]Central and North West London NHS Foundation Trust, London, UK; [3]Brighton and Sussex University Hospitals NHS Trust, Brighton, UK; [4]The Pennine Acute NHS Hospitals Trust, Manchester, UK; [5]Newham University NHS Hospital Trust, Barts Health, London, UK; [6]Eastbourne Sexual Health Centre, Eastbourne, UK; [7]HIV i-base, London, UK

Background: In people with HIV, knowledge of current HIV viral load (VL) and CD4 count levels is important to support self-management and inform decisions about sexual behaviour and condom use.

Methods: We used data from ASTRA, a cross-sectional, questionnaire study of 3258 individuals from 8 UK HIV clinics in 2011–2012. Information on demographic, socio-economic, HIV, and lifestyle factors were collected. Participants were asked to self-report their latest VL level (undetectable ≤50 cmL or detectable >50 c/mL) and CD4 level (<200, 200–350, or >350/mm^{3}). Latest VL and CD4 were obtained from clinic records. Agreement between self-report and clinic records was assessed among individuals on ART. Factors associated with disagreement were assessed by modified poisson regression adjusted for gender/sexuality, age, ethnicity, time on ART.

Results: Of 2672 people on ART, 2239 (83.8%) self-reported a VL level in agreement with clinic records and 433 (16.2%) self-reported a VL that was discordant with clinic record (125; 4.7%) or did not know their VL (308; 11.5%). Of the 345 participants with a clinic-recorded detectable VL, 77 (22.3%) reported an undetectable VL. However, of all 2133 participants who reported undetectable VL, only 3.6% (n=77) had a clinic-recorded detectable VL.

Disagreement between self-report and clinic VL was higher among heterosexual men and women vs MSM, those of non-white ethnicity, and those who recently started ART. Other factors associated with disagreement were: financial hardship (not enough money for basic needs vs always enough:

[adjusted prevalence ratio (CI 95%): 2.4 (1.9, 3.1)]); non-UK born/poor English [4.4 (3.2, 6.0)]; non-university education[1.7 (1.4, 2.1)], non-employment [1.6 (1.3, 1.9)]; unstable housing [2.0 (1.5, 2.7)]; ART non-adherence [1.4 (1.2, 1.7)]; depression symptoms (PHQ-9 score >=10) [1.8 (1.5, 2.1)], p<0.001 for all. For self-report of CD4 count (n=2733), 2050 (75%) reported a value consistent with clinic records.

Conclusion: There is a high level of accurate self-knowledge of VL and CD4 level in people with HIV on ART in the UK, suggestive of good engagement in care. A minority of individuals were unable to correctly self-report whether their VL was undetectable, which may relate to lower engagement in care, or issues with communication from healthcare professionals. Identification of those who require greater support, potentially those with socio-economic disadvantage, poor ART adherence and poor mental health, is needed.

P145

High rates of financial crisis, food insecurity and detectable viral loads in those referred for nutrition support

SP Burn[1], S Robinson[1], H Jones[1] and A Duncan[2]
[1]The Food Chain, London, UK; [2]Guy's and St Thomas' Hospital, London, UK

Background: Research from the USA suggests an association between food insecurity and incomplete viral suppression. We investigated relationships between nutritional and socio-economic factors with viral load (VL) in the UK using data from an HIV nutrition charity which provides individually tailored services.

Methods: Data provided by referrers or self-reported by service users was anonymised and analysed using Microsoft Excel and SPSS; Chi-squared tests explored relationships between variables. An undetectable VL was classified as <50 copies/mL; BMI was grouped as underweight (<18.5 kg/m2), normal (18.5–24.9) and overweight (≥25.0). Other covariates included: years since diagnosis, number of previous referrals, antiretroviral (HAART) status, household income, income sources, employment status, accommodation stability, UK residency status, and number of dependants at same address.

Results: 132 participants were included in the analysis: 59.8% male; 26.5% White British; 17.4% White Other; 40.9% Black African; 9.1% Black Caribbean; 6.1% other; mean age 42.7 (± 6.7); mean years since diagnosis 9.2 (± 6.7); 87.9% treated with HAART; 34.4% had a detectable VL; mean BMI was 25.3 (± 6.0) with 7.6% underweight and 43.6% overweight; 37.1% had no income; 44.7% received benefits; 18.2% were waged or relying on partner; 21.2% had no leave to remain in the UK; 50% lived alone; 60.2% in stable accommodation; 67.2% had no dependants. HAART use was associated with an undetectable VL (p=0.006). Overweight was correlated with African ethnicity (p<0.001). Underweight was significantly correlated with male gender, stable accommodation, and food insecurity (p<0.001, 0.002 and 0.02 respectively) and a trend to correlation with receipt of benefits (p=0.06). A detectable VL was not significantly independently associated with any factor, however those with a constellation of low BMI, White ethnicity and male gender were most at risk.

Conclusion: Differing health and social care in the UK and USA may explain contrasts in relationship between viral suppression and food insecurity. However in the UK with 37.1% receiving no income and at high risk of food insecurity, there is potential to negatively impact VL, with nutrition support being used as a preventative measure. Additionally with 43.6% being overweight, education supporting a healthy diet is a priority.

P146

Improved function, strength, quality of life and goal attainment in people living with HIV attending a specialist physiotherapy–led group rehabilitation intervention in the UK

D Brown[1], R Harding[2] and A Claffey[3]
[1]Chelsea and Westminster NHS Foundation Trust, London, UK; [2]King's College London, Cicely Saunders Institute, London, UK; [3]London South Bank University, School of Health and Social Care, London, UK

Background: A specialist HIV outpatient physiotherapy service, located in a specialist HIV centre, provides individual treatment (1:1) and group treatment (Kobler rehabilitation class). The Kobler rehabilitation class combines

physiotherapy-led group exercise and education, twice week for 10 weeks. We evaluated referral patterns, rehabilitation goals, adherence and measurement change.

Methods: Over 24 months commencing September 2012, 92 patients were measured for functional capacity (6 minute walk test; 6MWT), flexibility (sit and reach test), upper and lower limb strength (1 repetition max) and health related quality of life (HRQOL) using Functional Assessment of HIV infection (FAHI). Adherence was defined as attending ≥8/20 sessions. Rehabilitation goals were themed and progression quantified using Goal Attainment Scale. Reasons for non-adherence were identified by retrospective telephone interview.

Results: At baseline, referrals were for musculoskeletal (25%), oncological (20%) or cardio-metabolic (19%) reasons among a male (82%), Caucasian (71%) and ageing (mean 51.5 years) cohort. Themed rehabilitation goals included improving body image, participation, mobility, health/fitness and function. Adherence was achieved by 46%, with open access utilised by 37%; returning (n=19) or restarting when non-adherent (n=15). Reasons for non-adherence, identified in 21 (42%) of 50 non-adherent patients, were related to physical and mental health, individual factors like exercising independently, or class features such as time and location.

Post-intervention measurement in 37 (40%) demonstrated improvements in 6MWT distance (p<0.001), flexibility (p<0.001), strength in triceps (p<0.001), biceps (p<0.001), lattisimus dorsi (p<0.001), shoulder-press (p<0.001), chest-press (p<0.001), and leg-press (p<0.001). HRQOL improved in total score (p<0.001), physical (p<0.001), emotional (p<0.001) and functional (p=0.065) subscales. Goal Attainment Scale quantified 83% goals scoring "expected" (n=57), "somewhat more" (n=31) or "much more" (n=14) level of achievement.

Conclusion: This Kobler rehabilitation class improved functional capacity, strength, flexibility, quality of life and goal attainment, among those completing the intervention. Sub-optimal adherence likely relates to episodic disability, highlighting the importance of rehabilitation interventions to be flexible in nature, allowing individuals to attend dependent on their episodes of health and disability.

P147

"Moving to another world": understanding the impact of clinical trial closure on HIV–positive participants in Uganda

S Nalubega[1], C Evans[1], K Cox[1] and H Mugerwa[2]
[1]University of Nottingham, Nottingham, UK; [2]Joint Clinical Research Centre, Kampala, Uganda

Background: Rapid advances in Human Immunodeficiency Virus (HIV) treatment has been made possible through large numbers of clinical trials, many of which are conducted in low income settings. Previous research has indicated an evidence gap regarding the experience of trial closure for HIV positive trial participants in resource poor countries. This paper reports the experiences of transitioning from a research to a non-research care context among HIV positive trial participants in Uganda.

Methods: A grounded theory study was conducted with adult HIV post-trial participants using in-depth interviews, between October 2014 and August 2015. Ethical approval was gained from the UK and Uganda.

Results: Twenty one post-trial participants were included from three distinct trials. Three themes emerged regarding the experiences of transitioning from research to non-research care:

An abrupt cut off: Participants experienced trial closure as an abrupt cut off from the research centres. This was associated with a sense of loss of services and relationships which had been highly valued, and was not matched by the alternative options.

Making decisions: Participants underwent a complex decision making process regarding where and how to seek care after trial closure. This process was influenced by participants' particular healthcare needs, psychosocial and economic situation, and was characterized by fear, uncertainty and worry.

Starting a new thing: Trial closure involved a difficult process of being re-established into potentially new care contexts within "usual care" HIV facilities. These were likely to be characterised by new healthcare staff, new peers, new clinic structures and services. Many participants anticipated/faced significant difficulties in the re-establishment process.

Conclusions: Transitioning from research to usual care is a complex process requiring psychological, social and economic adjustments. Previous ethical debates/guidelines on HIV trial closure have focused on the need to ensure access to drug treatment after the closure; however, this paper underscores

the need for a comprehensive approach towards managing the holistic care needs of trial participants as they transition from research to non-research care contexts. This includes the careful facilitation of re-establishment into the new care contexts.

P148

Internalised stigma, in the age of undetectability

L Thorley
Stigma Index 2015 FPA, London, UK

Justification for this research: In the age of undetectability and wide usage of ART, the 2015 Stigma Index indicates that stigma – felt, anticipated, or enacted – remains a persist feature in the lives of almost half of the people living with an HIV diagnosis. This is often internalised and manifests through feelings of guilt, self-blame, low self-esteem and shame. As a result, the quality of life for people who are living with HIV (PLWHIV) is negatively affected. This research, which is a continuation of the quantitative data formulated by the 2015 Stigma Index, aimed to ask why people who are living with HIV experience stigma in this way.

Methods employed: 40 semi-structured interviews were carried out with a representative sample in relation to geographical location, gender, ethnicity, and sexuality. Interviewees came from a sample of people who had previously completed the online 2015 Stigma Index survey. Interviews were conducted either in person, viva skype or over the phone. The researcher who conducted these interviews is HIV positive which afforded her a degree of insider status and shared experience with interviewees. The methods employed in the analyses of the data were pre-determined themes and inductive analyses.

Findings: This research found that felt, anticipated or enacted stigma is a complex process. It varies over time and is manifested in various situations, ranging from disclosing status to a new partner to discussing diagnosis with healthcare professionals. Those who live in rural areas where there are limited services are more likely to experience feelings of isolation and anticipated stigma. The research indicated a lack of awareness amongst PLWHIV about what it means to be undetectable, insofar as many were unaware of the partner study. Sometimes this was because of a lack of interaction with the sector, whilst other times consultants were failing to inform patients of new developments. Furthermore, the findings demonstrate a general sense of frustration amongst the HIV+ community, about general levels of ignorance related to conceptions of what it means to live with HIV in the contemporary era.

Conclusions: This research demonstrates that PLWHIV are still experiencing stigma, even in the era of undetectability and wide ART usage. PLWHIV are fearful that they will be judged for having a sexually transmitted illness. Furthermore, this research clearly shows that if the general public were aware of what it means to be living with HIV, then those who have HIV would experience less stigma. This research has the possibility to not only influence how voluntary organisations address the needs of those living with HIV, but also to inform national policy. It also proposes that there should be a unifying voice from the medical community when discussing what it means to be undetectable.

P149

"Listen to us, learn from us, work alongside us": UK findings from a global participatory survey among women living with HIV

S Strachan[1], S Bewley[1], L Shentall[1], M Sachikonye[1], A Namiba[2], A Welbourn[2] and L Orza[2]
[1]Sophia Forum, London, UK; [2]Salamander Trust, London, UK

Background: Women living with HIV are vulnerable to gender-based violence (GBV) pre- and post-diagnosis, in multiple settings, and experience more mental health (MH) issues also. A values and preferences survey of women with HIV explored how GBV and MH issues affect their sexual and reproductive health and human rights (SRH&HR), determined priorities, and then assessed implications for policy-makers.

Methodology: A global community-based, participatory, user-led, mixed-methods study was conducted on SRH&HR of women with HIV in 94 countries. The study was based on an appreciative enquiry approach. The women's life-

cycle experiences were researched by online survey and focus group discussions. Simple descriptive frequencies were used for quantitative data. Thematic coding of open qualitative responses was performed and validated with key respondents. The UK results are analysed separately here.

Results: Of 95 participants from, or now living in, the UK, 64 (67.4%) responded to each of two optional sections on GBV and MH. 79.6% reported having experienced at least one form of violence. 83% of UK respondents cited experiences of depression and feelings of rejection, with over three quarters reporting self blame (78%), anxiety (77%) and insomnia (75%), and 70% or over reporting very low self esteem (74%), body image issues (72%) and loneliness (70%). In all categories, HIV diagnosis appears to be a major trigger for MH challenges. In comparison with global survey data, UK-based women experience less violence overall (80% vs 89%), but similar levels of mental health issues (such as depression at 83% for the UK and 82% globally). Qualitative recommendations from open-ended questions included "Empowerment, counselling and support", "Support and more support" and, "Be in their shoes".

Conclusions: The complex needs and rights of women living with HIV require a stronger health-sector response. HIV diagnosis acts as a trigger for GBV – especially in community and healthcare settings – and for MH issues among women with HIV in the UK. Measures of GBV must be sought and monitored, particularly within healthcare settings that should be safe. Respondents offered policymakers a comprehensive range of recommendations to achieve their SRH&HR goals. Interventions addressing intersecting stigmas, and any especial impacts of diagnosis during pregnancy, are required to ensure women's SRH&HR. National policy guidelines regarding women with HIV must address mental health and GBV.

P150

Exploring shared decision making in HIV nursing care

M Croston[1], C Evans[2] and J McCluskey[2]
[1]Manchester Metropolitan University, Manchester, UK; [2]Nottingham University, Nottingham, UK

Background: Shared Decision Making (SDM) is an important part of promoting self-management and empowerment for patients with long term health conditions. There has been little empirical research on the nature and practice of SDM in HIV care, in spite of national guidelines promoting the approach.

Research aim: This research project aimed to explore current views and practices amongst UK HIV nurses regarding SDM in order to identify training and support needs.

Methods: This was a mixed methods study. Part 1 was a qualitative study in which 4 focus group discussions (15 participants in total) were held to explore HIV nurses' views and practises around SDM. These were thematically analysed and the results were used to develop Part 2, an on-line survey that was sent to all members of the National HIV Nurses Association (NHIVNA). The survey sought to identify knowledge, challenges, gaps and training needs in relation to SDM. The survey received 64 responses out of a possible 258 – response rate of 25%.

Results: Qualitative data showed that nurses are supportive of SDM and strive to implement it in everyday practice. Nurses understand SDM as a collaborative process but one that must be negotiated not only with the patient but also with the wider MDT. Nurses face several patient-related, organisational and health system challenges in implementing SDM. The on-line survey identified a need for more training on SDM (especially in supporting complex patients) and a need for more resources/decision aids to help facilitate SDM.

Conclusion: SDM is an important aspect of nursing care for people living with HIV. Nurses need more training and resources to implement SDM effectively. In order to develop such training and resources and to better understand the meaning of SDM in HIV care, there is a need for research on patient perspectives and experiences in this area.

P151

It's just like diabetes: a qualitative study, exploring views about distinguishing features of HIV/AIDS as a manageable, chronic long-term condition from multidisciplinary HIV specialists in Liverpool

P Jelliman
Liverpool Community Health NHS Trust, Liverpool, UK

There is a general consensus that HIV treatment and care is at a juncture, being reclassified from a fatal infection to a long term, manageable condition, often likened to diabetes. This is mainly due to major advances in treatment and care, reducing mortality and morbidity. However, HIV/AIDS remains complex, presenting unique characteristics distinguishing it from other long term conditions (LTC). This questions the timeliness of the transition, and the place for HIV specialists.

This qualitative study aims to explore distinguishing features of HIV/AIDS, by gathering the views and experiences of multidisciplinary HIV specialists in Liverpool. The study strives to refresh, expand and enrich existing evidence. Three focus groups were conducted across two sites, totalling twenty four participants consisting of HIV specialists in nursing, social work, support work, trainers, managers and commissioners. Data was analysed using thematic analysis.

The results identified a variety of key features, clearly distinguishing HIV/AIDS from other LTC. Data was categorised into four main themes, each generating a range of sub themes:

1 Stigma, as a result of negative media reporting.
2 Challenges to service delivery for HIV specialists.
3 Lack of public/professional knowledge relating to HIV.

Additional distinguishing features.

The study reaffirms that progression towards HIV rebranding to a LTC is hindered because of distinguishing features, despite seismic advances in effective medication. The study provides an understanding of the non-medical complexities of HIV, which distinguish it from other LTCs, which may contribute to enabling effective commissioning, planning and delivery of future services. It is hoped the evidence presented in this study will help improve the health and well-being, of people living with HIV ensuring that their needs are effectively met.

P152

People living with HIV present with worse health status than elderly people at risk of hospitalisation, when referred to specialist HIV outpatient physiotherapy in the UK

D Brown[1], M Nelson[1], M Bower[1] and R Harding[2]
[1]Chelsea and Westminster NHS Foundation Trust, London, UK; [2]King's College London, Cicely Saunders Institute, London, UK

Background: EQ-5D-5L health status measures 5 dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. A specialist HIV outpatient physiotherapy service, located in a specialist HIV centre, provides individual treatment (1:1) and group treatment (Kobler rehabilitation class).

Methods: Over 24 months commencing October 2013, EQ-5D-5L was completed in all referred patients. Change in EQ-5D-5L was evaluated with paired t-test at the end of 1:1 physiotherapy.

Results: We reviewed 137 patients; male (83%), median age 52 (range 29–77), HIV diagnosed >10 years (80%) and undetectable viral load (97%). Pre-intervention EQ-5D-5L values (table 1) and index (0.44), demonstrate worse health status compared to UK population, HIV outpatients and elderly people at 12 month hospitalisation risk. 76 (56%) patients received 1:1 physiotherapy alone (n=15, 11%) or in combination (n=61, 45%) with other interventions. Data was excluded if patients DNAd (n=29, 21%) or treatment continued (n=11, 8%). EQ-5D-5L was repeated in 22 (16%) at cessation of 1:1 physiotherapy alone (n=15, compliance 100%) or combination interventions (n=7, compliance 11%). Post-intervention EQ-5D-5L observed significant improvement in mobility (p=0.002), usual activities (p=0.01), pain/discomfort (p=0.001) and anxiety/depression (p=0.03) with improved median scores (table 1) and index (0.68).

Table 1. EQ-5D-5L distribution: n (%)

	Mobility	Self-care	Usual activities	Pain discomfort	Anxiety depression
Pre-intervention					
No problem	27 (20)	60 (44)	26 (19)	14 (10)	25 (18)
Mild	34 (25)	40 (29)	33 (24)	26 (19)	32 (23)
Moderate	49 (36)	29 (21)	54 (39)	46 (34)	41 (31)
Severe	25 (18)	8 (6)	19 (14)	40 (29)	29 (21)
Extreme or unable	2 (1)	0 (0)	5 (4)	11 (8)	10 (7)
% any problem	80	56	81	90	82
Median level	3.0	2.0	3.0	3.0	3.0
Post-intervention					
No problem	10 (45)	14 (64)	10 (46)	6 (27)	11 (50)
Mild	7 (32)	4 (18)	6 (27)	7 (32)	6 (27)
Moderate	3 (14)	3 (14)	5 (23)	6 (27)	4 (18)
Severe	2 (9)	1 (5)	1 (5)	3 (14)	0 (0)
Extreme or unable	0 (0)	0 (0)	0 (0)	0 (0)	1 (5)
% any problem	55	37	55	73	50
Median level	2.0	1.0	2.0	2.0	1.5

Conclusion: There is high prevalence of poor health status in adults with HIV attending specialist HIV physiotherapy. Significantly improved health status was observed in mobility, usual activities, pain/discomfort and anxiety/depression, in patients completing 1:1 physiotherapy alone or in combination with group treatment. Specialist HIV physiotherapy, located in specialist HIV centres, can support multi-dimensional care to optimise health and well-being.

P153

Confidentiality remains the most important factor for patients taking part in HIV–related medical research

J Bosa and A Duncan
Guy's and St Thomas' Hospital, London, UK

Background: Recruitment to HIV-related medical research is challenging, and in particular, female patients and those of non-White ethnicity remain under-represented. The aim of this study was to explore enablers and barriers to research participation amongst HIV patients.
Methods: As part of the NIHR-funded STOP Diabetes in HIV study, patients at risk of developing type 2 diabetes attending three South London HIV clinics were invited to participate in semi-structured interviews. Ethical approval was granted to invite to interview those who declined to take part in a 6-month research intervention, as well as those who participated. Informed by a literature review, the initial topic guide included a series of prompts regarding factors related to participation in medical research; additional questions were added iteratively as new themes emerged from interim analyses. Interviews were digitally recorded, transcribed, and entered into NVIVO to aid coding and thematic analysis.
Results: Twenty-three patients consented to be interviewed, 4 of whom had declined to take part in the 6-month research intervention. Participants were aged between 40 and 71 years, 5 were female, and 10 were of non-White ethnicity. Two frequently-mentioned enablers to participation in HIV research included altruism, and the opportunity to potentially improve one's own health, particularly driven by a fear of developing other illnesses when already dealing with the consequences of HIV. A theme common to those of non-White ethnicity was the desire to help future generations. Being approached by non-clinical staff to introduce ideas regarding research participation, and reimbursement of travel expenses were also cited as enablers. The principal barrier to participation identified irrespective of gender, ethnicity or active research participation was the potential for breach of confidentiality and disclosure of HIV status. Other barriers included logistic constraints, a lack of knowledge regarding research in general, poor communication particularly in terms of printed materials, ill-health, lack of feedback of results, and a concern that participation in HIV-related research would be a constant unwelcome reminder of status.
Conclusions: HIV patients remain highly concerned regarding confidentiality and potential disclosure of HIV status. Recruitment may be improved if researchers pay attention to enablers and barriers when designing HIV-related medical studies.

P154

Early experience with development of a dedicated clinic to screen for cognitive defects in HIV–positive patients

T Whitfield, M Croston, S Rutter, S Ahmad and E Wilkins
North Manchester Infectious Diseases Department, Manchester, UK

Background: The HIV associated neurocognitive disorder (HAND) clinic was set to offer screening to a large HIV cohort of over 2000. Patients identified as having possible cognitive impairment were referred to our clinical psychologist for further assessment. Screening was performed using Montreal Cognitive Assessment (MOCA) and Frontal Assessment Battery (FAB) for cognitive impairment, Hospital Anxiety and Depression Scale (HADS) for anxiety and depression, and an in-house QoL questionnaire. Patient and HIV demographics were collected on all referrals.
Method: The clinic was set up in 2013 and is run by a designated specialist registrar and specialist nurse. Patients who stated they had general thinking or memory problems were accepted. Patients scoring below a threshold on the MOCA or FAB, or where the QOL questionnaire demonstrated a significant effect on activities of daily living were referred for further neuropsychological (NP) assessment.
Results: 47 patients have been referred for assessment with an age range of 24–65 years, of whom 26 attended clinic. All had plasma viral load of ≤40 c/mL and CD4 count range 84–976 × 10^6/L. Seven patients scored <26 (significant) on MOCA whilst only 1 was <12 on FAB. 16 scored >10 for anxiety or depression on HADS. Two became too distressed in consultation to complete the assessments. Five progressed to an LP (one had a detectable VL [c/mL]) and 10 had an MR brain of which 2 had white matter abnormality. 14 were referred for formal cognitive testing, 7 were referred for psychological therapy, and a further 3 had established diagnoses to explain their memory problems.
Conclusions: Early results revealed a high rate of depression and anxiety requiring NP referral. Over 50% of patients were referred for formal cognitive assessment. Subsequent service developments have included a patient satisfaction questionnaire, a dedicated cognitive rehabilitation group, and initiating a texting service to prompt clinic attendance after identifying a high DNA rate.

P155

Indicators of complex social needs in a small cohort of HIV+ adults

A Barnes and B Karpf
Body & Soul, London, UK

Background: Adults living with HIV may have complex practical needs that contribute to their overall wellbeing and productivity. Recent changes in social services provision in the UK due to austerity measures may have impacted the social wellbeing of this population. The purpose of this service-related needs assessment is to utilize several factors to explore complex needs of adults aged 20 + living with HIV.
Methods: A survey comprising multiple choice and short-answer questions was administered to a convenience sample of 107 adults aged 20 + whilst they accessed a third-sector support service. Questions were structured to capture basic indicators around social wellbeing, and participants were able to opt out of the survey or specific survey questions. 100 participants met inclusion criteria. Results were then analysed and used to inform service improvements.
Results: 52% of respondents were female. 19% of respondents were aged 20–29 years, 19% aged 30–39, 28% aged 40–49, and 29% aged 50 + (5% no response). The majority of respondents self-identified as Black-African ethnicity. 50% of respondents reported not being able to work due to health, immigration, or other factors. Older adults aged 50 + were more likely to report an employment barrier than adults younger than 40 (75.9% vs 27%). Younger adults were the group most likely to be looking for work, and also most likely to be concurrently enrolled in education programmes. 26% currently had a social worker, 24% previously had a social worker, and 12% have never had a social worker but their children either currently or previously

have been under social care. Only 1/3rd reported that it was easy to access support services like benefits advice, counselling, or other advocacy, in their local area. Amongst respondents, 34% have been homeless, 45% regularly do not have enough money for food, 25% do not feel safe in their neighbourhoods, and 76% report being worried about their future. 51% feel like people treat them differently because of their HIV status.

Conclusions: Adults living with HIV may have practical barriers to wellbeing and productivity. This service-improvement related needs-assessment highlights several practical challenges faced by this cohort. Social support services in the UK need to recognize and respond to the complex needs of this group. Further, better-powered research is needed to identify factors that contribute to these needs.

P156

What women want – social characteristics of a cohort of women living with HIV, their current support and preferences for additional support

S Wielding and A Scott
Chalmers Centre, NHS Lothian, Edinburgh, UK

Background: 229 women attend Chalmers Centre (a city-centre integrated sexual health centre) for their HIV care and treatment. Local third sector agencies provide peer support but anecdotally it is not well utilised and some demographic groups are under-represented. The study aims to gain better understanding of the background social characteristics of these women, to ascertain what issues they are affected by, and to better identify additional support required and how this should be facilitated.

Methods: An anonymous self-completion questionnaire was developed and all women attending HIV clinics between July and November 2015 were given the opportunity to participate. Additional data were accessed from the National Sexual Health (NaSH) database on cohort size and gender based violence (GBV) enquiries.

Results: 44 women living with HIV (WLWH) completed the questionnaire representing 53.7% of women attending the service during the study period. 25% are unemployed. 84.6% had a combined household income of <£30,000 per annum. 16.7% do not know anyone else, and 59.5% know only one other person, who is living with HIV. 32.6% would like to meet other/more WLWH, 25.5% were unsure if they did. Of those who would, 42.9% would prefer a one-to-one setting, 42.9% would prefer a group setting. 64.3% would prefer to meet off NHS premises. 26.8% were interested in discussion groups for women, 31.7% were unsure. The most popular suggestions for discussion group topics were stress/anxiety (9), HIV disclosure (8), diet and nutrition (7), and pregnancy and childbirth (6). 26.8% were interested in attending a "womens clinic" staffed by female staff, the same number were unsure if they would utilise this service or not. 50% of women had, at some point experienced GBV. Of the 13.5% currently experiencing GBV, 4 have children living with them. From NaSH records only 15.7% of the cohort had ever been asked about GBV.

Conclusion: Respondents were demographically representative of our whole cohort. 75% are in employment but it appears that the majority of these women are likely to be earning lower than the national average income. To improve holistic support for these women and facilitate peer support we need to be flexible in our approach. GBV appears to be disproportionately affecting WLWH in Lothian and as a team we are failing to routinely enquire about it. Robust referral/signposting pathways should be developed for women after GBV disclosure.

P157

HIV community virtual clinic

P Jelliman[1], R Downes[1], T Mannix[1], E Foote[1] and M Chaponda[2]
[1]Liverpool Community Health NHS Trust, Liverpool, UK; [2]The Liverpool Royal & Broadgreen University Hospital Trust, Liverpool, UK

Since 1993, the HIV specialist community nursing team (HSCNT), the first outside London has supported people living with HIV (PLWHIV). In the pre-HAART era the core functions of the team were to facilitate end of life care or optimise quality of life. Post 1996, the team have supported patients with barriers to adherence and/or who struggle to engage with secondary care. The HIV community virtual clinic (HCVC) has been developed to formalise and

support this arrangement. The HSCNT therefore remotely manages patients in the community supervised by an HIV consultant. The HSCNT hold honorary contracts with the hospital enabling sharing of sensitive information.

The HCVC has been developed so that PLWHIV receive timely, safe, appropriate care whilst being managed remotely. This improves health, wellbeing and quality of life for those patients who cannot attend clinic, aligning with BHIVA care standard 2 (BHIVA 2013).

HCVC aims to; reduce hospital admissions, prevent complications due to disease progression and comorbidities, guarantee medication and adherence review, facilitate a holistic MDT approach enabling retention in care.

HCVC inclusion criteria are; not attended clinic for 12 months or more, identified as needing additional support, or barriers to attending HIV clinic in hospital such as; physical disability, social isolation, prisoner, financial constraints, psychological issues or behaviour that challenges.

HIV consultant (ID or GUM) and HSCNT meet monthly to discuss existing and potential patients. Each patient is reviewed; individualised care plans are formulated and agreed with the patient at home. Additional factors which influence care or engagement are presented for discussion. A consultant and community nurse undertake a joint domiciliary visit annually to review the patient.

Discussion and subsequent actions are documented in the patients' record, HARS, and community clinical system via iPad during the HCVC.

To date 66% of patients allocated to HCVC have psychological issues. Outcomes have been; improved adherence, initiation of HAART in a patient's home environment, improved monitoring, robust communication and increased patient satisfaction.

Recommendations are to further develop a collaborative care model which supports patients who cannot attend traditional HIV clinics. The model strongly promotes the value of home visits, and care closer to home, involving non-medical prescribers supporting and maintaining consultant led care.

Service Development, Education and Training

P158

What factors influence engagement in HIV care? A qualitative investigation

A Howarth[1], F Burns[1], S Michie[1], C Sabin[1], V Apea[2], R O'Connell[2], A Evans[3] and M Sachikonye[4]
[1]UCL, London, UK; [2]Barts Health NHS Trust, London, UK; [3]Royal Free Hospital, London, UK; [4]UK-CAB, London, UK

Background: The individual and public health benefits of HIV treatment can only be realised when people living with HIV (PLWH) are aware of their status and engaged in care. Patient engagement is a major challenge with little evidence available on the factors that need to be addressed. We investigated this as part of the REACH project.

Methods: We undertook a cross-sectional, qualitative study using face-to-face, in-depth interviews with a purposively selected sample of 33 PLWH, recruited from five London HIV clinics and via community outreach. Interviews were based on a topic guide developed with reference to the COM-B system. This identifies Capability, Opportunity and Motivation as necessary conditions for enacting behaviour (in this case, engaging in HIV care). We used Framework to analyse the data.

Results: We interviewed 10 regular attenders (all appointments attended in past year), 13 irregular attenders (one or more missed appointments in past year) and 10 non-attenders (previous absence from care of a year or more). They included 9 MSM, 8 heterosexual men and 16 women; 16 under 40 years old; and 13 of black African ethnicity. The following factors were identified as influencing engagement in HIV care.

Capability: Feeling unwell or forgetting about appointments undermine patients' ability to engage whereas empowerment through knowledge has a positive influence.

Opportunity: Financial difficulties, work and caring responsibilities, homelessness and immigration issues reduce the opportunity to engage. Opportunity is also shaped by social influences such as fear of disclosure of HIV status when attending clinic, while peer and community support foster engagement in care. Relationships with partners and healthcare professionals can both encourage and deter engagement.

Motivation: Denial, feeling well, depression, poor self-esteem and poor adherence to ART create barriers to engagement. Motivation to engage can be reinforced by familiarity with the clinic and strong self-efficacy.

Conclusion: The COM-B system suggests that patients need the capability, opportunity and motivation to engage in HIV care. Our interviews have identified multiple factors associated with these necessary conditions that may result in disengagement from care, as well as factors that may facilitate engagement. Our findings suggest no one-size-fits-all method of improving engagement and support the use of a range of approaches to uncover and address these factors.

P159

Developing and sustaining an HIV nursing workforce: insights from a national study

H Piercy[1], G Bell[2], C Hughes[2], S Naylor[2] and C Bowman[2]
[1]Sheffield Hallam University, Sheffield, UK; [2]Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

Background: The changing needs of HIV care and increasing financial constraints highlight the need to maximise the contribution of HIV specialist nurses to service delivery. Achieving this will depend on developing a sustainable HIV specialist nursing workforce.
Methods: These findings are drawn from two stages of a multi-method qualitative national study:
  1 19 semi-structured interviews with representatives of three key stakeholder groups: service providers, commissioners and service users.
  2 42 semi-structured interviews with nurse/physician pairs from 21 purposively selected HIV services (13% of total in England).
Results: A common route into HIV specialist nursing was from sexual health nursing/health advising. 80% had worked in HIV for over 10 years and 33% for over 20 years, many of whom were approaching retirement. Two thirds had prescribing qualifications and one third had a master's degree.
Respondents reported substantial challenges in developing a sustainable workforce to meet the expanding need for specialist nurse-led care. The lack of a clearly defined career pathway and recognised professional qualification in HIV care impacted adversely on role development, which was largely dependent on clinical supervision from senior physicians. There was variable support for professional development through generic academic training at master's level and attendance at educational meetings.
Conclusion: The separation of HIV and sexual health commissioning threatens recruitment to HIV specialist nursing roles. A strategic approach to workforce development that addresses this concern and includes succession planning is urgently required. There is a need for HIV specific educational opportunities and a clear career pathway.

P160

A survey to evaluate the provision of specialist services for older adults with HIV in the UK

F Cresswell[1], D Churchill[1] and T Levett[2]
[1]Brighton and Sussex University Hospitals NHS Trust, Brighton, UK; [2]Brighton and Sussex Medical School, Brighton, UK

Background: Over a quarter of people accessing HIV care in the UK are over 50 years old. This group may experience problems due to ageing such as complex comorbidities and polypharmacy. Some HIV centres are establishing dedicated clinics to address such issues however it is not known how widespread this practice is. Outside of specialist services it is unclear whether clinicians feel that a service is needed or whether they are adequately supported by existing services and BHIVA monitoring and treatment guidelines. We aimed to answer these unknowns by conducting a survey of HIV clinics nationally.
Methods: We sent an on-line questionnaire to all UK HIV centres (circa 130), with questions on current specialist HIV-ageing services, perceived need for services, screening for age-related problems and opinions on dedicated guidelines for monitoring and treatment of HIV in older adults.
Results: 102 clinics with wide geographical spread completed the survey, of which only two have an existing specialist service. The first runs an age-based weekly clinic lead by an HIV physician with an interest in ageing, offering a one-off review. In contrast, the second is a bimonthly, needs-based (polypharmacy, multimorbidity, complexity) service staffed by an HIV physician and geriatrician. Where no specialist service exists, the majority (n=63, 64.29%) felt there is no current need, citing inadequate population,

sufficient support from other services or barriers in infrastructure/funding as key reasons. 20% (n=20) however described a need for a specialist service though were not currently developing one and at present three centres have services in development. The majority of respondents (n=65, 68.42%) would like BHIVA to produce dedicated guidance on monitoring of adults over 50 but fewer (n=39, 41.49%) felt that specific antiretroviral guidelines were needed.
Conclusion: The high number and broad geographical spread of responses should reasonably represent the national picture and opinion on specialist services for older adults with HIV. A fifth of respondents felt they currently lack and need a specialist service, highlighting that age-related problems are an area where extra clinical support is needed. Dedicated or expanded guidelines on monitoring in the over fifties could be considered by BHIVA in the future.

[BHIVA Research Awards winner 2014: Tom Levett]

P161

Is there a role for a network–wide Kaposi sarcoma clinic in 2015? A review of transfers and clinical outcomes

S Dakshina, R Rieu, T Richards, C Cottrill and C Orkin
Barts Health NHS Trust, London, UK

Background: Since ART, the incidence of Kaposi sarcoma (KS) has fallen, however, it remains the commonest AIDS-defining malignancy causing cutaneous, muco-cutaneous or visceral disease. BHIVA Malignancy guidelines recommend referral of HIV+ individuals with malignancy to a specialist centre and initiation of ART and, for advanced disease, anthracycline-based chemo and/or radiotherapy. We report outcomes from the HIV/KS clinic serving NE London and Essex.
Methods: Electronic patient records between 01/2012 and 12/2015 were reviewed on patients referred to the HIV/KS clinic; demographics, type of KS, CD4 count, investigations, treatment offered and analysed on Excel. An online staff (tertiary and local) survey of the KS clinic (referral system, time of referral) and views on management was done.
Results: Sixty-five patients were referred; median age 45 years, 54 (83%) male; 33 (51%) Caucasian, 24 (37%) black African/Caribbean, 4 (6%) Asian, 4 (6%) other/unknown. 63 (97%) attended and were managed in the clinic. 31 (48%) were tertiary referrals; 67% by letters, 46% by emails and 33% by phone calls.
33 (52%) had cutaneous KS, 28 (43%) had muco-cutaneous plus visceral KS, 1 (%) visceral KS alone, 1 (2%) were found not to have KS, 1 (2%) unknown. 3 (5%) had co-existing Castlemans disease. CD4 count at referral: <200 cells 27 (42%), 201–499 cells 28 (43%), >500 cells 5 (8%), 5 (8%) unknown. 58 (89%) of referrals had HIV viral load (VL) test documented: 12 (21%) had VL <40 c/mL, 46 (79%) VL not suppressed (median VL was 42,264 c/mL).
All were started on ART: 9 (14%) treated with ART alone, 36 (55%) received chemotherapy, 8 (12%) received radiotherapy (RT), 3 (5%) received chemo-RT; 7 not treated/treated elsewhere/other. 50/63 (79%) were in complete remission after treatment for single episode of KS, 10 (16%) had more than one recurrence and 2 (3%) died from causes unrelated to KS.
24 referrers from NE London/Essex responded to the online questionnaire. 48% (10) reported patients were seen <2 weeks, 17 (74%) rated the management as excellent and 92% use this as their sole KS referral centre.
Conclusions: Despite effective ART 14 (22%) new referrals occurred over the past 2 years with 63 patients being followed up. 27 (42%) patients were severely immunosuppressed (CD4<200), of whom a third have advanced KS disease. However, half the cases occurred at CD4>200. Almost half the referrals were from tertiary centres, emphasising the need for a specialist centre.

P162

Patient perspectives on the HIV treatment cascade in the United Kingdom

H Ward[1], J Bruton[1], T Rai[1], C Higgs[2] and J Rowlands[2]
[1]Imperial College London, London, UK; [2]Chelsea and Westminster NHS Foundation Trust, London, UK

Background: Figures for the UK's HIV treatment cascade are among the best worldwide with over 95% retention once in care, however guidelines and

service models are changing. We examine perspectives on each stage of the cascade among four generations of patients.

Methods: In-depth interviews with 48 HIV-positive adults from two clinics. Participants were purposively selected from the four "HIV generations," based on ART development – those diagnosed pre-1996, 1997–2005, 2006–2012, and since 2013. Framework was used to analyse the data.

Results: *Diagnosis:* Participants from the pre-treatment era were diagnosed on the development of AIDS-defining symptoms, or following a partner's diagnosis. Late diagnoses more recently were because patients underestimated their own risk or failures of healthcare professionals to spot indicator conditions.

Linkage with care: Earlier generations sometimes disengaged with care for a period following diagnosis, dismayed by limited treatment options. In contrast, those diagnosed since 2005 linked to care promptly and felt they received appropriate medical attention.

Retention in care: Across the generations, once linked to care participants were committed to attending appointments and taking medications. Occasional lapses were explained by external issues such as drug misuse or household disruption, rather than their relationship with the clinic. Some reported concern at the recently reduced frequency of appointments, and the increasing role of primary care.

Viral suppression among those on ART: Most participants on ART had undetectable viral load and good adherence. Actual or anticipated co-morbidities worried them more than HIV; however, wider discussions about NHS cost-cutting have raised patient anxiety about accessing the "best" treatments.

Conclusion: The high standard of UK's HIV treatment cascade reflects strong relationships between patients and staff, which service changes could undermine. Being sensitive to how patients experience different stages of decision-making and the wider influences on their behaviour is vital towards sustaining high retention along the cascade.

P163

Service improvements in HIV: Changing to named blood samples to improve integrated working

L Short, E Street and C Nixon
Calderdale and Huddersfield NHS Trust, Huddersfield, UK

Background: HIV is a chronic condition and we wish to improve communication and engagement with both primary and secondary care in management of HIV and its co-morbidities. Our patients are getting older and accumulating other conditions requiring input from a variety of specialities. Continued isolation of the HIV service is doing a disservice to our patients, increasing clinical risk and duplication of tests. Patients currently have anonymised blood tests under a GUM number unless they are pregnant or have requested specific bloods under their name. Negative feedback from both primary and secondary care with respect to not being able to access up to date results as well as poor patient experience requiring multiple attendances at GP practices spurred us on to change practice. We were aware of patients concern about loss of confidentiality by removing anonymised blood results. We surveyed all patients attending an HIV service split across 2 clinics within one NHS Trust about changing to named monitoring bloods. This service is currently integrated within a GUM clinic.

Methods: Patients completed a survey on the issues related to switching to named blood samples in December 2015. If patients agreed to the switch this was implemented for their subsequent bloods.

Results: Our cohort size is 394 2/3rd are male and over half MSM. So far 45 patients have completed a questionnaire.

Initial results show 93% of patients have consented to changing to named bloods with a generally positive approach to this change. We will present the results looking at the differences between those that consent and those that do not.

Conclusions: Preliminary results suggest patients are not concerned about loss of anonymity through switching to named blood samples. They understand the rationale particularly in relation to avoiding duplicate tests. We have switched to named blood samples for all patients who have consented and will continue to support and work with those who decline. The ability to offer anonymised samples when HIV and Sexual health services are separated may be more difficult in the future with disintegration of services.

P164

Will the next generation of rehabilitation professionals be ready to treat people living with HIV?: Results of a survey of UK higher education institutions

R Rich[1], E McDonnell[2], D Brown[2], W Chegwidden[3], K Hamilton[4], C Hawkins[5], K Loughran[6], E Stevens[7] and C-A Wood[8]
[1]Rehabilitation in HIV Association, London, UK; [2]Chelsea and Westminster Hospital NHS Foundation Trust, London, UK; [3]University College London Hospitals NHS Foundation Trust, National Hospital for Neurology and Neurosurgery, London, UK; [4]NHS Greater Glasgow and Clyde, Glasgow, UK; [5]Mildmay UK, London, UK; [6]Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle, UK; [7]Heart of England NHS Foundation Trust, Birmingham, UK; [8]Guy's and St Thomas' NHS Foundation Trust, London, UK

Background: Increasing co-morbidities in an aging HIV population increases the need for rehabilitation. Rehabilitation is commonly provided by physiotherapists and occupational therapists in both HIV specific and, increasingly, more generic settings. Future generations of therapists will require knowledge and skills to effectively treat people living with HIV. This study aims to examine the current provision of HIV education in pre-registration courses in the United Kingdom (UK).

Methods: We contacted 16 higher education institutions (HEIs), completing a telephone interview with the Course Leader, or equivalent, for any pre-registration physiotherapy or occupational therapy courses they provide. In total, 9 occupational therapy (OT) and 17 physiotherapy courses were reported on. The questions included a description of the nature of HIV related education provided and the amenability to expanding HIV content in future.

Results: Of the 26 courses reported on, 10 (38%) include formal HIV teaching content. Formal teaching lasted between 2 and 3 hours and in 6 instances were provided by HIV specialists, in 2 by internal lecturers and in 2 by students. Of the courses that offer no formal teaching content, most reported some opportunity to address HIV as part of project work or preparation for placement. All of the respondents reported that they had interest in an online module. Five respondents cited insufficient capacity within the curriculum for new subject matter. The survey process generated three invitations to provide face to face teaching.

Conclusion: Results from this preliminary study suggest considerable variance in the provision of HIV related education across the UK in OT and physiotherapy pre-registration courses, with a trend towards limited content in many courses. This is at odds with the projected increase in need and the tendency for many HEIs to provide condition-specific education for other conditions. Further work is required to establish a coordinated strategy.

P165

Models of HIV specialist nursing provision identified from a national study

H Piercy[1], G Bell[2], S Naylor[2], C Hughes[2] and C Bowman[2]
[1]Sheffield Hallam University, Sheffield, UK; [2]Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK

Background: There is widespread recognition that HIV specialist nursing makes a significant contribution to HIV care. The nursing provision within HIV services has developed incrementally in response to perceived local need contributing to substantial variability across the country. There is a need to review current models of HIV nursing to inform ongoing service development.

Methods: Forty four semi-structured interviews with nurse/physician pairs from 21 purposively selected HIV services (13% of services in England). Data interpreted using framework analysis approach.

Results: There is specialist HIV nursing provision in both hospital and community settings where complementary roles range from delivering nurse-led clinics and psychosocial/adherence support to caseload management and care co-ordination. Community care is particularly directed towards the minority of vulnerable patients with complex needs.

We identified four distinct models of HIV specialist nursing provision:

1 HIV specialist nurses working in hospital settings only.
2 HIV specialist nurses working in hospital settings with occasional community visits.
3 HIV specialist nurses working across hospital and community settings.
4 Two separate HIV specialist nursing teams: one based in hospital and the other based in the community.

These indicate significant variability in the amount of community nursing provision across the country.

Conclusion: There is a lack of HIV community nursing provision in some areas. This raises concerns about the ability of services in those areas to care for their most vulnerable patients. The potential impact on health outcomes for those patients and the associated cost implications are substantial.

P166

A prospective analysis on patients starting on antiretrovirals at a large London teaching hospital

S Noone, K Liu, T Barber and S Sonecha

Chelsea and Westminster Hospital NHS Foundation Trust, London, UK

Background: The number of patients who are starting antiretroviral therapy (ART) in the UK is increasing. London-wide treatment guidelines are available for initiating patients on ART. We undertook a review of our patient cohort to evaluate outcomes following ART initiation.

Methods: Prospective data collection identified all patients who started ART from 1/12/2014 to 28/2/2015. Electronic HIV patient notes were used to analyse the virological outcomes of all patients starting ART and to ascertain the reason(s) for switching to a different regime.

Results: 193 patients were commenced on ART of which 156 (81%) patients continued on their initial regimen, 37 patients (18%) switched treatment once and 1 patient switched three times.

Initial ARV regimen	No. of patients on regimen	No. switched
Efavirenz+Truvada or Kivexa	76	15 (20%)
Raltegravir+Truvada or Kivexa	54	11 (20%)
Darunavir+Truvada or Kivexa	25	5 (20%)
Eviplera	16	1 (6%)
Triumeq	8	0 (0%)
Stribild	7	1 (14%)
Atazanavir+Truvada or Kivexa	4	1 (25%)
Dolutegravir+Truvada	1	0 (0%)
Other regimen	2	2 (100%)

Reasons for switch included ease of compliance 18 (50%), adverse drug reaction (ADR) in 15 patients (41.7%) and other reasons in 3 patients (8.3%). From the 18 patients who switched due to ease of compliance, 55.6% of patients were switched from a BD regimen and 44.4% were switched from a multi-tablet regime. Of the 15 patients who switched due to ADR(s), 14 patients (93.9%) experienced side effects from efavirenz. Atripla was most common ART switched off accounting for 35% and Truvada and raltegravir accounted for 26.3%. 16 patients did not have a full virological history recorded so have been excluded from this analysis. Out of the remaining 177 patients, 79% had an undetectable viral load (VL) within 6 months of starting ART, a further 29 patients had an undetectable VL by 10 months (96%). Six patients were not undetectable (3%) at time of analysis.

Conclusion: The majority of patients initiated on ART continued on the same regime however a significant proportion of patients (18%) switched within 6 months of starting therapy. A high proportion of patients were undetectable within 6 months of treatment. Our rates of switch were higher than expected and this may be driven by having more alternatives available and a lower threshold to report side effects which may have previously gone unreported.

P167

BHIVA on Twitter: new strategy increases social media activity for a wider audience

A Wolujewicz[1] and D Raha[2]

[1]Royal Liverpool University Hospital, Liverpool, UK; [2]Chalmers Centre, Edinburgh, UK

Background: BHIVA is one of the world's leading professional HIV associations. It currently has 2936 followers on Twitter. This is a free, online social networking service that enables users to send and read short 140- character messages called "Tweets." These are quick and easy to read. Twitter is a powerful tool that can influence change across a wide audience. Current BHIVA Twitter followers include other professional organisations, for example, The European AIDS Clinical Society, sexual health clinics with their own Twitter accounts and individuals in Mexico and Denmark. Twitter keeps health professionals and patients informed about key published research and relevant headline news. For example, recent Twitter themes have included discussion about PrEP, HIV testing and sex education. Twitter is also useful for sharing more practical information such as conference deadlines and scholarships. In November 2015 BHIVA recruited four healthcare professionals specialising in HIV to "Tweet" on behalf of BHIVA. The aim of this was to increase the presence and influence of BHIVA on social media. We have looked at the impact of this change on BHIVA's Twitter activity.

Methods: Using Twitter analytics, a tool embedded within Twitter, data was obtained on the number of Tweets and Tweet Impressions in the last 4 months. Tweet Impressions are counted as the number of times each Tweet is seen. The number of visits to BHIVA's Twitter profile was also noted. Mentions by other Twitter users and the number of new BHIVA account followers were also counted. The table below shows 2 months before and 2 months after escalation of BHIVA's Twitter activity in November 2015:

Results:

Month	Tweets	Tweet impressions	Profile visits	Mentions	New followers
Sept 2015	5	9638	589	65	76
Oct 2015	4	6374	326	20	88
Nov 2015	41	21,600	1273	116	93
Dec 2015	45	25,500	973	82	74

Conclusion: Since a new BHIVA Twitter team was created, BHIVA's Tweet Impressions increased over 3-fold and profile visits increased over 4-fold. This suggests that the BHIVA Twitter feed is now reaching a larger audience and continues to attract new followers. Monitoring Twitter analytics over the next year will show whether the current increase in activity is maintained. All individuals working in HIV should consider using Twitter to engage with patients and a wider professional network.

P168

Papering over the cracks – delivering a seamless HIV patient record over multiple sites and trusts

R Thomson-Glover and J Evans-Jones

East Cheshire NHS Trust/Countess of Chester Hospital NHS Foundation Trust, Chester, UK

Background: People living with HIV have ongoing sexual and reproductive health needs and require access to both sexual health and HIV care. Historically these have been co-located. Since the separation of commissioning for these services some areas have care provided by different NHS trusts, over several sites, by the same clinical team. IT and organisational barriers between trusts mean that maintaining seamless, integrated, confidential HIV health care records in these settings is difficult. This project, in an area where sexual health and HIV services have become fragmented, outlines how one service is rising to that challenge.

Methods: In 2015, changes in providers meant that whilst the HIV service remained at the original trust, the sexual health service transferred to another trust and moved to a new site one mile away. Despite the service being run by the same clinical team and using the same software provider, access to records across different organisations was not possible. Particular issues included: patients diagnosed with HIV in sexual health clinic needing follow up care, accessing STI results in HIV clinic and HIV clinicians being off site. These difficulties prompted a review of how the service used patient records.

Results: The journey to achieve seamless HIV patient records involved engagement with multiple departments in both trusts. Discussions were held with trust service managers and IT departments to outline what could be achieved across trust boundaries. Close involvement with information governance was essential to maintain standards of confidentiality in patient records. Remote reciprocal server access was developed allowing clinicians' access to sexual health and HIV records at both trusts. HIV clinic letters to GPs will become part of the general hospital record, with patient consent, allowing hospital's care teams to access up to date HIV patient information, even if HIV

clinicians are not on site. HIV patient records are being moved from paper to Electronic Patient Record for a more integrated and accessible service. Patient consultation occurred through the local HIV patient support service, Body Positive.

Conclusion: Trust IT and organisational barriers can seem insurmountable particularly with fragmentation of services and commercial pressures. Co-operation within departments and across trusts can overcome challenges allowing high quality HIV patient records to be maintained across both sexual health and HIV services.

P169

Retrospective service evaluation – disengagement with care is a key factor in mortality of HIV-infected patients

L Halliday, T Wingfield, J Delaney, I Nixon and FJ Vilar
North West Infectious Diseases Unit, North Manchester General Hospital, Pennine Acute Hospitals NHS Trust, Manchester, UK

Background: HAART has reduced the mortality of HIV but AIDS has not disappeared. Every year a similar number of patients with HIV will die in the UK. A significant proportion (42%) of patients diagnosed with HIV present late (CD4 count $<350 \times 10^6$/L), leading to increased mortality. Disengagement from care also leads to treatment interruptions and worsens outcomes. The BHIVA standards of care guidance (2013) state that clinical HIV services must have mechanisms in place to follow-up people with HIV who disengage from services.

Methods: A retrospective service evaluation was conducted analysing all deaths of HIV positive patients receiving care from a tertiary referral infectious diseases unit between 1/4/13 and 7/4/15. Data was only analysed from the unit's records and not from external service providers. Amongst other data collected, we identified patient demographics, date of HIV diagnosis, missed opportunities for earlier diagnosis, duration of treatment, disengagement, and cause of death.

Results: 49 patients were identified. Median age at death was 49 years [IQR 41–54 years]. Causes of death were as follows: AIDS and AIDS-related malignancies (39%), non AIDS-related malignancies (16%), other non-AIDS-related causes (20%), and unknown (24%). CD4 counts at diagnosis were available for 22/49 (45%), of whom 86% presented with a CD4 count $<350 \times 10^6$/L (i.e. late diagnoses). Of these late diagnoses, 37% died within 12 m of diagnosis with causes of death being: AIDS and AIDS-related malignancies (47%), non AIDS-related malignancies (21%), other non-AIDS related causes (11%), and unknown (21%). 35% of patients disengaged from care with the average duration of disengagement being 65 m (median 78 m [IQR 29–92]). Of those who disengaged, median age at death was 45 years, and causes of death were as follows: AIDS and AIDS-related malignancies (41%), non-AIDS related malignancies (6%), other non-AIDS related causes (41%), and unknown (24%).

Conclusion: Disengagement is one of the most important contributing factors to HIV mortality, together with late diagnosis. HIV services must work harder to prevent disengagement in line with BHIVA guidelines. A combination of specialist Nurses, cross-sectorial networks, and coordinated multi-disciplinary care is key in achieving this.

P170

The transfer times and outcomes of a tertiary in-patient HIV ward

S Marwaha[1], S Dakshina[2], A Umaipalan[2], T Pasvol[2], G Baily[2] and C Orkin[2]
[1]Barts and the London School of Medicine and Denistry, London, UK; [2]Barts Health NHS Trust, London, UK

Background: Despite dramatic reductions in opportunistic infections (OI) in patients suppressed on ART, OIs remain common in newly diagnosed immunosuppressed inpatients and those lost to follow-up (LTFU). BHIVA standards recommend transfer within 24 hours for patients in non-designated HIV beds to reduce early mortality/morbidity. We describe transfer times and outcomes for our network-wide inpatient unit.

Method: Between 03/2014 and 11/2015 data from electronic records were collated on all inpatient referrals: demographics, number and duration of admissions, referral source (within-Trust vs tertiary), time from referral to transfer, diagnosis status (new, known or LFTU), clinical diagnoses (OI, HIV-related and non HIV-related), CD4 count and outcomes (home, rehab unit or died). Data were analysed using Excel.

Results: Data were available on 152/163 (93%) referrals: 99 (65%) male; age: 27 (18%) <35 years, 122 (80%) 36–65 years, 3 (2%) >65 years. Ethnicity: 68 (45%) black, 36 (24%) Caucasian, 8 (5%) Asian, 40 (26%) unknown (Uk). 101/123 (82%) admitted once, 14 (11%) twice; 8 (6%) ≥3 times. 87 (57%) were tertiary referrals, 65 (43% within-Trust). 82 (54%) of referrals were for OI, 40 (26%) HIV-related and 30 (20%) non-HIV related. CD4 count (cells/mm^3) was <200 in 83 (55%), 201–499 cells 35 (23%), >500 cells 23 (15%), 11 (7%) Uk. New HIV diagnoses comprised 28 (18%) of referrals, 52 (34%) were LTFU, 65 (43%) HIV+ and engaged, 7 Uk. 123 (81%) of referrals were transferred, 60 (49%) of those transferred were tertiary referrals. Time to transfer was ≤24 hours in 95 (77%), <48 hours 8 (7%), <1 week 11 (9%), >1 week 9 (7%). Within-trust referrals were more likely to occur within 24 hours [60/63 (95%)] than tertiary referrals (35/60 (58%)] [RR 1.6; (95% CI 1.3–2.0, p<0.001)]. 29 (19%) were not transferred: 11 (38%) known HIV+ LTFU, 3 (10% new, 7 (24%) HIV+ engaged, 7 Uk. Reasons for failed transfer: bed pressure 12 (41%), 12 (43%) discharged pre-transfer and 4 (14%) patient choice. Admission duration: <5 days 40 (33%), <2/52 38 (31%), <1/28 26 (21%) and >1/28 19 (15%). Outcome: 71 (58%) were discharged home, 39 (32%) transferred to rehab unit, 9 (7%) died and 4 (3%) homeless.

Conclusion: Tertiary referrals represented 57% of in-patient referrals but only 49% of admissions. Within-Trust referrals were 60% more likely to meet the 24 hour target. Bed pressure was the main reason for failed transfer making negotiating bed capacity an HIV network priority. Late disease/diagnosis remain key reasons for admission.

P171

The utility of a specialist joint Neurology/Infectious Diseases outpatient clinic in managing neurological and infectious disease in HIV-infected patients

C Fernandez, S Odunsi, A Bonington and A Varma
North Manchester General Hospital, Manchester, UK

Background: Our hospital runs a monthly NeuroID clinic, where patients are seen jointly by a Neurologist and Infectious Diseases physician. This clinic was set up in 2005 to provide comprehensive management to patients with infection/s (the majority HIV-infected) and suspected direct neurological infections, infection-related neurological syndromes and/or comorbid neurology.

Methods: We conducted a retrospective case review of all patients attending the NeuroID clinic between the 1st of January 2011 until the 31st of December 2012.

Results: 61 patients were seen in the NeuroID clinic during the dates studied. 40 (66%) of these patients were HIV positive.

Patients with HIV infection were older, had more comorbidities, but had fewer known neurological conditions, compared to those without HIV. Of those with HIV infection, epilepsy, peripheral neuropathy and memory impairment were the most common neurological comorbidities.

The majority of patients had good HIV control, 63% had a CD4 count >500 cells/mm^3 and 89% had an undetectable HIV viral load. All patients were receiving antiretroviral therapy at the time of their first clinic appointment.

Patients with HIV infection were mainly referred due to undiagnosed neurological symptoms, most commonly neuropathic sounding pain, focal motor symptoms and paraesthesiae.

HIV positive patients had more investigations (mean of 2.6 compared to 0.9) and were more likely to have magnetic resonance imaging, nerve conduction studies and specialist blood tests compared to HIV negative patients. They were also more likely to be discussed at the local neuroradiology MDT and have neurocognitive assessments.

83% of HIV positive patients had at least one new diagnosis made in the NeuroID clinic, with an average of 1.8 diagnoses per patient with at least one new diagnosis (range 1–4). Common new diagnoses in HIV positive patients were movement disorders, HIV associated neurocognitive disorder (HAND), and myeloradiculopathy. Many newly diagnosed conditions in this HIV positive cohort were a direct consequence of HIV infection or antiretroviral therapy.

Conclusion: At least one new diagnosis was made in 83% of HIV-infected patients in the NeuroID clinic demonstrating the benefit of a specialised integrated approach incorporating a neurologist and ID physician in managing HIV-infected patients with associated neurological involvement.

P172

A review of a quality improvement intervention to increase documentation of flu vaccination status in a large HIV unit

D Selway, K Liu, S Sonecha, A Sullivan and D Asboe

Chelsea and Westminster NHS Foundation Trust, London, UK

Background: BHIVA Standards recommend influenza vaccination for all patients with HIV. The 2015 BHIVA monitoring audit revealed this was not met nationally (57.3%) or locally (4.6%) and BHIVA encouraged centres to undertake a quality improvement initiative (QI) to improve their performance against the standard of 95% via their newsletter.

Method: Our QI intervention consisted of a multi-pronged approach: a staff memo was circulated (12th Nov 2015), reminders were given in meetings, direct patient advice by the pharmacist when dispensing ARVs which was enhanced by patient information leaflets & posters. Staff members were directed to record flu vaccination status in the electronic patient record (EPR) and advise patients how to access providers. Data was collected from EPR (HIV consultation and GP letters) from three clinics; 50 patients were randomly selected, proportionally from the three clinics at different time periods, preliminary data from two of the time periods pre and post-intervention (12–16th Oct 2015 and 23–27th Nov 2015) is presented here. Only patients who had attended a regular HIV clinical appointment were included.

Results: We report here on 100 patients, 50 each from 525 pre-intervention and 639 post-intervention attendances. Pre-intervention 7 (14%) patients had status or "advice given" documented compared to 21 (42%) post-intervention. Documentation was solely by Doctors pre-intervention but post intervention involved the multi-disciplinary team (MDT): Doctors (76%), Pharmacists (19%) and Nurses (4%).

Conclusion: The QI intervention resulted in a 300% improvement; however the BHIVA standard was not met. Inclusion of the MDT and frequent reminders are likely contributory factors, along with senior support. The audit only focused on entries made on the date of the patient's appointment and did not factor other ways of recording the intervention such as documentation on the prescription or previous entries. Feedback from the MDT has suggested that developing an IT solution to capture outcomes could lead to further improvements in this important preventative intervention.

P173

HIV disclosure and communication with primary care – how well are we doing?

B Robinson[1], L Cunningham[2] and R Drayton[2]

[1]Cardiff University, Cardiff, UK; [2]Cardiff Royal Infirmary, Cardiff, UK

Background: Current BHIVA guidelines advise that health professionals recommend patients to disclose their HIV status to the GP. This allows for better communication between primary and secondary care. We aimed to evaluate the proportion of patients attending our urban, sexual health clinic based, HIV outpatient service, who had consented to disclosure of their HIV status to their GP, and the subsequent correspondence with primary care.

Method: A retrospective case notes review was carried out on the first 100 patients that attended our HIV clinic from January 1st 2015. Results were analysed by calculating p-values, using chi-squared test.

Results: 98 case notes were located and reviewed. Of these, 91 patients had consented to GP disclosure; 86% had letters sent to their GP in the preceding 12 months, whereas 6% had no letter sent to their GP in the preceding 5 years. 7 patients had not consented to GP disclosure, 6 being men who have sex with men (p=0.113). GP disclosure had been raised again during the preceding 12 months in 6/7 of those who had previously refused. 14 patient notes did not have clear documentation regarding consent to GP disclosure; however, GP disclosure was assumed due to evidence of GP letters.

Conclusion: The number of patients who agreed to GP disclosure is promising, and the issue had been recently revisited in most of those who had withheld consent. Following this service review, a clinic proforma has been introduced, including a section on GP disclosure and communication, with the aim of ensuring these areas are clearly documented at each clinic visit. The effectiveness of this will to be assessed in the future. Further evaluation focusing on primary care and their correspondence with HIV professionals is needed in order to attain a more rounded outlook on communication.

STI, Reproductive Health, Contraception and Sexual Dysfunction

P174

Age at menopause in HIV-positive and HIV-negative women in the UK: an interim analysis of data from the POPPY Study (Pharmacokinetic and Clinical Observations in People over 50)

S Tariq[1], C Sabin[1], M Boffito[2], F Post[3], J Vera[4], I Williams[5] and A Winston[6]

[1]University College London, London, UK; [2]Chelsea and Westminster NHS Foundation Trust, London, UK; [3]King's College Hospital NHS Foundation Trust, London, UK; [4]Royal Sussex County Hospital, Brighton, UK; [5]Mortimer Market Centre, London, UK; [6]Imperial College London, London, UK

Background: Despite increasing numbers of older women accessing HIV services in the UK, there remains a paucity of data on HIV and the menopause. We explore, for the first time in the UK, the association between HIV status and (i) menopausal status, and (ii) age at menopause in women aged ≥50.

Methods: The POPPY study is a prospective cohort comparing people living with HIV (PLWH) aged ≥50 (n=1000) with control populations of PLWH aged<50 (n=500) and HIV-negative people aged ≥50 (n=500). From the first 540 subjects recruited to POPPY, we assessed women aged ≥50 with data on menstrual cycle (n=67). Women who reported that they had stopped menstruating were defined as "post-menopausal". We used Chi-square and Kruskal-Wallis tests to compare categorical and continuous variables respectively.

Results: Among the 67 women included, median age was 56 (interquartile range [IQR]:51–69). Other characteristics are presented below. Thirty-seven (55%) were women living with HIV (WLWH); median CD4 count was 640 cells/μL and the majority (29/37) were on antiretroviral therapy.

	HIV-negative (%), n=30	HIV-positive (%), n=37	p-value
Median age (years, IQR)	56 (51, 64)	55 (51, 66)	0.89
Ethnicity			
Black African	4 (13)	26 (70)	<0.001
Caucasian	26 (87)	11 (30)	
Ever smoked			
No	14 (47)	25 (68)	0.09
Yes	16 (53)	12 (32)	
Drug use in past 6 months			
No	29 (97)	34 (92)	0.41
Yes	1 (3)	3 (8)	

Overall, 84% of women were post-menopausal. There was no difference in the proportion of HIV-positive and HIV-negative women aged ≥50 who were post-menopausal (87% vs 80% respectively, p=0.48). Among women who were post-menopausal, median age at last menstrual period (LMP) was 49 (IQR: 39, 53) in WLWH and 51 (IQR: 46, 53) in HIV-negative women (p=0.09). Six WLWH and one HIV-negative woman were <45 at the time of their LMP (p=0.09).

Conclusion: Within this small cohort, we found no association between HIV-status and either menopausal status or age at menopause. Analyses of data from the final POPPY cohort, when we will have more women enrolled, will allow us to explore this with greater power.

P175

Does PEPSE reduce high-risk sexual activity? A comparison of the rates of sexually transmitted infections at the time of PEPSE and at subsequent screening

J Cheaveau and K Manavi

University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

Background: Earlier data on post exposure prophylaxis after sexual exposure (PEPSE) suggested a reduction in the rate of high risk sexual activity in short term follow up. Long term data on the effect of PEPSE on high risk sexual activity are limited. We investigated the rates of sexually transmitted infections (STI) at the time of and subsequent to start of PEPSE in a group of men who have sex with men (MSM).

Methods: Observational study on a group of MSM who attended a sexual health clinic for start of PEPSE between 2013 and 2015. We identified those who underwent repeat STI screening after their PEPSE in our department. The results of STI screening at baseline (start of PEPSE) and on follow up (first STI screening after completion of PEPSE) were recorded.

Results: 225 MSM who started PEPSE during the study period were identified. 204 had a negative HIV test at baseline. 160 patients underwent an HIV testing 4 months after initiation of PEPSE; five tested positive. At baseline, 138 patients underwent STI screening; chlamydia, gonorrhoea and primary syphilis were diagnosed in 18, 14 and 2 patients respectively. Repeat STI screening data for 143 patients after a median of 172 (IQR 117, 366) days were available. On follow up STI screening, 28 cases of gonorrhoea, 17 cases of chlamydia and 11 cases of primary syphilis were identified.

Conclusion: Our data suggest that MSM starting PEPSE may continue to engage in high risk sexual activity after PEPSE course. The reasons for failure to seek further PEPSE course in these patients needs to be investigated.

P176

STI screening in HIV–positive men who have sex with men receiving care at a regional infectious diseases unit

S Wielding[1], J Paterson[1] and L Panton[2]
[1]Chalmers Centre, NHS Lothian, NHS Lothian, UK; [2]Regional Infectious Diseases Unit, Western General Hospital, NHS Lothian, UK

Introduction: In NHS Lothian approximately 1500 people living with HIV (PLWH) access their care from either GUM physicians based at an integrated sexual health centre, or from hospital-based Infectious Diseases (ID) physicians. A weekly GUM clinic has been run at the ID unit offering STI screening and treatment to PLWH. Referrals to this service were low and DNA rates were high. It was unclear whether routine STI screening was being done at routine review, whether it was not being prioritised in busy clinics, or whether PLWH attend GUM services for screening. As a priority group, the uptake of STI screening among MSM attending the ID unit was surveyed.

Methods: 100 men were randomly selected from the cohort of 202 MSM. Database and laboratory records were examined for the 5 years prior to the most recent routine HIV clinic review, or since registration with the service. The date of the last STI (Chlamydia/Gonorrhoea) screen was recorded, along with sampling site(s), grade of the requesting clinician, and any positive results. GUM records were cross-examined to ascertain if MSM were attending there for STI screening.

Results: 40% had no record of STI screening in the study look back period. For those who had, the range of time from last screen to latest routine review was −56 months to +9 months, with an average of −8.4 months. 71.7% of screens carried out sampled 3 sites – first void urine (FVU), rectal and pharyngeal, 16.7% had FVU only. 18.3% of the screens were requested by a consultant, 23.3% by a specialty doctor, 30% by a specialist nurse and 16.7% were not ascribed to an individual. 11.7% were requested from the weekly GUM clinic. 4 STIs were diagnosed – all in different men. Only 2 of those with no STI screen recorded had attended GUM for screening.

Discussion: Only 60% of MSM living with HIV receiving their care at this ID unit had had an STI screen. All grades of clinician appear to be requesting STI screens although the accuracy of this data may be questioned. Fewer STIs were diagnosed at the last screen than expected from this cohort, again implying that not enough tests are being carried out. Very few MSM utilise the local GUM clinic for STI screening. This review has led to several changes in service; test ordering has been simplified, clinicians have been reminded of the importance of sexual history taking and clinic staff have been retrained in guiding patients to take self-taken samples. A repeat audit is planned for 2016.

P177

Investigation of the adherence to the national recommendation for annual cervical smear testing of women living with HIV

J Chigiga and K Manavi
University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

Background: HIV infected women are at higher risk of invasive cervical cancer that is also considered as an AIDS defining malignancy. Current UK guidelines recommend annual cervical smear testing for all HIV infected women. In the UK, most of the cervical smear tests are carried out by the general practitioners (GP). The results are managed through a national network. The aim of the present audit was to investigate the rate of cervical smear testing within a 12 month period in a group of HIV infected women.

Methods: Consecutive HIV infected women who attended a large HIV clinic at least once between 2012 and in 2014 were identified. Their records in the national database for cervical smear testing (Open Exeter) were reviewed. Dates of last and penultimate cervical smear tests for each woman was recorded. The results of the last smear test were also documented.

Results: The cervical smear test results of 460 women infected with HIV infection were reviewed. A total of 457 women had a report of cervical smear test in the national database and within a median of 534 (IQR 267, 1083) days of the date of their previous smear test. A total of 195 (42%) women had a cervical smear test within 12 months. Only four women had not disclosed their HIV state to their GPs. The review of the smear results showed that two women had invasive SCC, two had CIN3, and five had CIN 2.

Conclusion: Similar to that of general population, a significant number of women with HIV underwent cervical smear testing. Annual cervical smear testing was not carried out for a significant number of women living with HIV. This may be because of primary care clinicians' lack of awareness of the national guidelines. Further education of the primary care colleagues may be improve the proportion of HIV infected women undergoing annual cervical smear testing.

P178

Prevalence of STIs in HIV–infected pregnant women in Uganda

E Mabonga[1], C Taylor[1], C Gaydos[2], Y Manabe[2], J Kisakye[3] and R Parkes-Ratanshi[3]
[1]King's College Hospital, London, UK; [2]Johns Hopkins University, Baltimore, MD, USA; [3]Infectious Diseaes Institute, Kampala, Uganda

Background: Globally sexually transmitted infections (STIs) affect around 500 million people per year. STIs can increase the risk of HIV acquisition and contributes to poor outcomes in neonates. Management of STIs in sub-Saharan Africa utilizes syndromic management. This approach has poor sensitivity for the presentation of vaginal discharge (29–86%) and will miss asymptomatic infections. We sought to determine the prevalence of STIs in both symptomatic and asymptomatic HIV infected pregnant women attending an integrated antenatal and HIV care clinic in Uganda.

Methods: HIV positive pregnant women attending the Sexual and Reproductive Health Clinic at an urban HIV clinic in Uganda between the 18th of March and 31st July 2015 were offered an STI screen. Asymptomatic women were not examined and provided a urine sample to detect Neisseria gonorrhoea (NG) and Chlamydia trachomatis (CT) by nucleic acid amplification testing (NAAT). Symptomatic women were examined and had a physician-obtained sample (cervical or vaginal) for NG/CT NAAT in addition to microscopy for Trichomonas vaginalis (TV). All women were offered testing for syphilis (STS). Data was analysed with SPSS v16.

Results: 110 women were screened; 93 (84.5%) were asymptomatic and 17 (15.5%) were symptomatic. The median age was 28 years (range 20–43); median CD4 482 cells/μL (range 75–1368) with 97.3% being on antiretrovirals. 59.1% of patients had an uninfected or partner of unknown HIV status; 3.6% (4) women had more than one partner. The commonest presentation was vaginal discharge and itching 64.5% (11). Overall, 11 women were diagnosed with 15 STIs giving a prevalence of 10%. Prevalence of each STI: NG 4 (3.6%), STS 3 (2.7%), genital warts 3 (2.7%), TV 2 (1.8%), genital ulcer disease 2 (1.8%) and CT 1 (0.9%). 6 patients had a single infection, 2 dual and 1 had 3 concurrent STIs. 2 (1.8%) had an asymptomatic STI (STS and NG). Of the symptomatic patients, 53% had an STI. None of the patients who were diagnosed with CT, NG or TV had their contact partner present.

Conclusion: There was a moderate prevalence of STIs in this group of patients with the majority presenting with symptoms which supports the syndromic approach to treatment. However we found just under half of symptomatic patients did not have an STI which would lead to overtreatment, and 10% of asymptomatic STI positive patients who would have been missed. Notification and treatment of partners continues to be a challenge.

Author Index

Dedicoat, K — P44
Delamere, S — O9
Delaney, J — P169
Delpech, V — O1, O2, O13, P50, P52, P68, P83, P122, P125, P126
Denford, S — P48
Desai, M — O24, P130
Desai, N — P16
Desai, S — O1
DeSilva, T — O11
Devitt, E — P80
Dhairyawan, R — P136
Dhoot, S — P83
Dieterich, D — P73
Dockrell, D — O10
Doran, T — P131
Dosani, M — P23
Doshi, S — P17, P25
Downes, R — P157
Doyle, N — P13
Drayson, M — P38
Drayton, R — P173
Duncan, A — P78, P145, P153
Dunn, D — O24, O26
Dunworth, J — O5
Dvory-Sobol, H — P73
Dwyer, E — P114
Edelstein, M — O1
Edwards, K — P102
Edwards, Sarah — P102
Edwards, Simon — P17, P25, P103, P144
Egan, D — P10
El Bouzidi, K — P104
Elford, J — O18
Elliot, E — P55
Elliott, C — P2
Else, L — P10
Enkelmann, J — P133
Evans, A — P158
Evans, C — P147, P150
Evans-Jones, J — P168
Everitt, A — P67
Fadzillah, NM — P59
Falkous, P — P141
Farnworth, S — P80, P91
Fattah, S — P140
Faustini, S — P38
Fearnley, J — P56
Fedele, S — P91
Fernandez, C — P171
Fernandez, T — P23
Fernando, I — P108
Ferraro, C — P50, P52
Fidler, S — O25, P4, P15, P28, P39, P43, P46, P65, P66, P109
Field, N — O13
Figueroa, J — O27, P58
Finnerty, F — O16, P116
Fisher, M — P70
Fleck, A — P140
Flegg, P — P16
Foote, E — P157
Fordyce, M — P2, P3, P5
Ford-Young, W — O6
Forni, J — O6, P84

Foster, C — P11, P39, P62, P63, P65, P66, P67
Fox, J — O24, O25, P10, P15, P82, P105, P109
Foxton, M — P90
Francis, K — P61
Fraser-Taliente, T — P63
Frater, J — O25, P4, P15, P43, P109
Freedman, A — O20
Froude, S — O20
Fun, A — P41
Gallant, J — P3, P12
Gartland, M — P22
Gaydos, C — P178
Gazzard, B — P92
Gentry, T — P141
George, S — P111
Geurtsen, G — O12
Gilbody, S — P134
Gill, N — O24
Gilleece, Y — O16, P8, P26, P70, P75, P87, P111, P117, P119
Gilson, Rebecca — P60
Gilson, Richard — O24
Gilson, Richard — P130
Gilson, Richard — P1
Girometti, N — P141
Golds, K — P105
Goodman, A — P36
Goodman, C — O29, P32, P103, P105
Grant, A — P21
Green, P — P139
Green, S — P118
Greene, L — P58, P124
Greenhalgh, T — O10
Greig, J — P22
Griffith, S — P58, P124
Griffiths, C — P119
Grimes, R — P27
Grover, D — O4
Guallar, C — O29
Guarad, S — P40
Guo, J — P42
Haidari, G — P97
Haigh, K — P25
Hales-Owen, J — P123
Hall, C — P169
Halliday, L — P164
Hamilton, K — P43
Hamlyn, E — P83, P106, P146, P152
Harding, R — P8, P26
Hardweir, V — P47
Hardy, G — P20
Hatley, A — P164
Hawkins, C — O30
Hay, P — P42
Hayes, P — P36
Healy, B — P66
Heaton, N — P17, P25
Hedley, L — P47
Herasimtschuk, A — P103
Herbert, S — P69
Hernandez, N — P10
Herrera, C — O13, P122
Hibbert, M — P37, P80, P91
Hicks, G — P143, P162
Higgs, C

Hill, E — P70
Hill, T — P126
Hilton, L — P34
Hodson, J — P38, P44
Holmes, P — P76, P80, P84
Holt, S — P70
Holyoak, H — P99
Hope, VD — O17
Hopkins, E — O25, P4
Hopkins, M — P137
Horsley, A — P53
Howarth, A — P158
Howe, B — P97
Htun, K — P35
Huang, J — P22
Hudson, A — P50, P52
Huezo, M — P69
Hughes, C — P159, P165
Hughes, Ed — P116
Hughes, Elizabeth — P134
Hughes, Gareth — P139
Hughes, Gwenda — O13
Huhn, G — P3
Hunt, BJ — P43
Hunt, F — P59
Hunter, A — P27
Hunter, L — O21
Huq, F — P46
Hurn, E — P141
Hussey, J — P97
Hussey, M — P11
Hutchinson, S — P23
Hyland, R — O14
Hynes, AM — P81
Ibrahim, F — P82
Ilozue, C — P97
Imami, N — P47
Ingiliz, P — O14
Ireland, G — P68
Isitt, C — P118
Ivens, D — P27
Jackson, A — O14, P6, P10, P69, P73
Jakob, R — O5
Jaleel, H — P34
Jamal, Z — P49, P50, P52
Jaspal, R — P49
Jayakumar, A — P94
Jayaratnam, A — P136
Jefferies, J — P50, P52
Jelliman, P — P151, P157
Jenkins, C — O13
Jewsbury, S — P20
Jiang, L — P135
Jiang, S — P5
Johnson, AM — O18
Johnson, M — O26, O30, P17, P23, P25, P27, P74, P102, P19, P30
Jones, C — P145
Jones, H — P23, P144
Jones, M — P13
Jones, Rachael — P64
Jones, Rachel — P126
Jose, S — P42
Joseph, S — O1
Kall, M — P54
Kaminskiy, G — P140
Kane, S — P140

BHIVA/BASHH Mentoring Scheme

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

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

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

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

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

BHIVA Scholarships

BHIVA is offering a number of scholarships in collaboration with sponsors and other external organisations.

Visit the BHIVA website www.bhiva.org to see if you might qualify to apply for an award.

BHIVA Smartphone App
for BHIVA Guidelines

Access to BHIVA guidelines at your fingertips!
BHIVA now has the following guidelines available to access using your smartphone:
- HIV in pregnancy
- Opportunistic infections in HIV
- Post-exposure prophylaxis
- TB co-infection
- HIV associated malignancies
- Hepatitis co-infection
- Investigation and monitoring of HIV
- Antiretroviral treatment
- Immunization

To download the app, go to: www.bhivaguidelines.org

Joint BHIVA/BASHH One-day Revision Course for the Diploma in HIV Medicine

**Thursday 1 September 2016
South Wing Lecture Theatre,
St Thomas' Hospital, London**

This course has been developed by both Associations in order to help prepare candidates for this important examination. It is open to those candidates sitting the examination in autumn 2016.

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

Key Dates

BHIVA Autumn Conference
incl CHIVA Parallel Session

13–14 October 2016 · QEII Centre, London

BHIVA Annual General Meeting 2016

Friday 14 October 2016 · QEII Centre, London

Preceded by:

Seventh Annual BHIVA Conference for the Management of HIV/Hepatitis Coinfection in collaboration with BASL and BVHG

Wednesday 12 October 2016 · QEII Centre, London