IDSI Infectious Diseases Society of Ireland

11th Annual Scientific Meeting

Infectious Diseases in 2018 - Focus on Prevention

Thursday, 10th – Saturday, 12th May 2018

Aula Maxima, NUI Galway

PROGRAMME & BOOK of ABSTRACTS

Galway University Hospitals
Ospidéil na h-Ollscoile Gaillimh
UNIVERSITY HOSPITAL GALWAY
MERLIN PARK UNIVERSITY HOSPITAL

NUI Galway
OÉ Gaillimh

Welcome

Dear Colleagues,

On behalf of the organising committee, I am delighted to welcome you back to Galway for the 11th Annual Scientific Meeting of the Infectious Diseases Society of Ireland.

The IDSI ASM again brings together a distinguished and diverse panel of international speakers who are at the forefront of Infectious Diseases research and management. The complement of invited speakers and abstract sessions focus on old infections such as TB and more recently recognised infections such as Lyme's disease and HIV. However, the common theme is that of prevention, be it by risk reduction, antibacterial or antiviral treatment, or vaccination. The agenda again highlights the diversity of infectious diseases as a specialty and our close collaborations with our colleagues in Genito - Urinary Medicine, Medical Microbiology, Hepatology, Public Health Medicine and Respiratory Medicine.

This meeting is an opportunity for our research community to present new and important developments in the field of Infectious Diseases in Ireland. In addition to attending the abstract presentations, I encourage you to visit and review the posters, the numbers and array of which reflect the growth of our specialty and Society in the eleven years since its foundation. The meeting has been accredited for 12 CPD credits by the Royal College of Physicians in Ireland.

I would like to take this opportunity to thank our corporate sponsors once again for their very generous and ongoing support of the IDSI Annual Scientific Meeting

Finally I hope that you enjoy your time in Galway. We are very privileged to be able to host this meeting in the Aula Maxima which was completed in 1845, and is a reminder of the short duration that the specialty of infectious diseases has been contributing to patient care in Ireland.

Dr Catherine Fleming
President

Organising Committee

Dr. Catherine Fleming, Galway University Hospital/NUIG, President IDSI
Dr. Helen Tuite, University Hospital Galway/NUIG, Secretary IDSI
Professor Colm Bergin, St. James's Hospital, Dublin/Trinity College Dublin
Professor Karina Butler, Our Lady's Hospital for Sick Children/Temple St. Children's Hospital
Dr. Susie Clarke, St. James's Hospital, Dublin
Dr Aoife Cotter, Mater Misericordiae University Hospital, Dublin/University College Dublin
Dr Eoghan de Barra, Beaumont Hospital Dublin/RCSI
Dr. Eoin Feeney, St. Vincent's University Hospital, Dublin/University College Dublin
Professor Mary Horgan, Cork University Hospital/University College Cork/RCPI
Dr. Arthur Jackson, Cork University Hospital/Mercy University Hospital, Cork
Dr. Patrick Mallon, Mater Misericordiae University Hospital, Dublin/University College Dublin

KEYNOTE SPEAKERS

Prof. Karina Butler

Prof. Butler is UCD Clinical Professor of Paediatrics, Consultant Paediatrician and Infectious Diseases Specialist at Our Lady's Children's Hospital Crumlin and Temple Street Children's University Hospital. She is a member of the national tuberculosis and scientific advisory committees of the Health Protection Surveillance Centre and a steering committee member of the Paediatric European Network for Treatment of AIDS and Infectious Diseases (PENTA-ID).

Prof. Butler's clinical research has focused on prevention and management of HIV infection in children and adolescents. As Chair of the National Immunisation Advisory Committee she is committed to the prevention of infectious diseases using safe and effective vaccines, thus protecting the health of our population.

Dr. Charles L. Daley, M.D.

Dr. Daley is Professor of Medicine at National Jewish Health (NJH) and the University of Colorado, Denver. He is Chief of the Division of Mycobacterial and Respiratory Infections and Director of the Nontuberculous Mycobacteria (NTM) Center of Excellence at NJH.

Dr. Daley works closely with the World Health Organization (WHO) and the Stop TB Partnership in the global control of drug-resistant tuberculosis. He is immediate past-Chair of the Strategic and Technical Advisory Group (STAG)-TB for WHO and Chair of the Global Drug Resistance Initiative, a working group of the Stop TB Partnership and advisory body to the WHO Global TB Department. He has served on expert panels for the WHO, Centers for Disease Control and American Thoracic Society. He is Chair of the ATS/IDSA/ERS/ESCMID NTM Guidelines revision committee and serves on the guideline committees for the diagnosis of TB, treatment of TB and treatment of MDR-TB for both the ATS and WHO.

Dr. Daley has been recognized as one of the "Best Doctors in America" by U.S. News & World Report and Castle Connolly and he recently received the World Lung Health Award given by the ATS. Dr. Daley was previously Associate Editor of the American Journal of Respiratory and Critical Care Medicine and is currently Associate Editor of The European Respiratory Journal. His academic interests include global health policy and clinical and translational research in tuberculosis and NTM.

Dr Emma Devitt MB BCh BAO BA MD DFSRH FRCPI

Dr. Devitt is a Consultant Physician at the Chelsea and Westminster Hospital NHS Foundation Trust in London, UK. She graduated from the University of Dublin, Trinity College in 2000. She completed her specialist training in Infectious Diseases and General Internal Medicine in Ireland in 2009. She was awarded her MD in Hepatitis C by University College Dublin.

She has been working at Chelsea and Westminster since 2009 where she has a specific interest in the medical complications of HIV and management of viral hepatitis. She does outpatient clinics at 56 Dean Street Clinic in Central London which is Europe's busiest Sexual Health clinic with large numbers of new HIV, Hepatitis C and bacterial STI diagnoses annually. Her outpatient work includes HIV and viral hepatitis management along with HIV prevention (PreP) and outreach clinics to high risk patients in the local community including homeless individuals. Her inpatient work is on a dedicated 19 bed HIV and HIV Oncology ward at the Chelsea and Westminster Hospital.

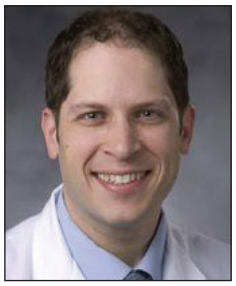
Professor Jon S. Friedland

Professor Jon Friedland is Director of the Hammersmith Campus of Imperial College London and Head of Section, Infectious Diseases and Immunity. He is also an honorary consultant in Infectious Diseases at Imperial College London Healthcare NHS Trust.

His major research focus is in innate immune responses and particularly in the role of matrix metalloproteinases in the immunopathology of tuberculosis with a view to development of novel host- directed therapies. He has a longstanding research interest in migrant health as well as in new TB diagnostics. He has published over 210 peer-reviewed papers, invited editorials and reviews and has edited 3 books.

In 2010, Jon Friedland was elected FRCPI. He was President of the British Infection Society (2007-09). He was a member of the Joint Committee on Vaccination and Immunisation (2005-13) and the Chief Medical Officers National Expert Panel on New and Emerging Infections (2007-12). In 2005, he was awarded the RCP(Lond) Weber-Parkes Prize Medal for research in tuberculosis. In 2008, Jon Friedland was elected Fellow of the Academy of Medical Sciences and in 2017 he was awarded an inaugural Fellowship of the European Society of Clinical Microbiology and Infectious Diseases.

Dr. Paul M. Lantos, MD, MS GIS, FIDSA, FACP, FAAP



Dr. Lantos is Associate Professor in the divisions of Pediatric Infectious Diseases and General Internal Medicine at Duke University School of Medicine and the Duke Global Health Institute. Dr. Lantos completed his MD and an Internal Medicine-Pediatrics residency at the University of Connecticut. He then completed a fellowship in Pediatric Infectious Diseases at Boston Children's Hospital and Harvard Medical School, and was a research fellow at the Harvard School of Public Health. Dr. Lantos's research expertise is in the spatial epidemiology of infectious diseases using geographic information systems (GIS) and spatial statistical analysis.

Dr. Lantos has also received a Master's of Science in GIS from Johns Hopkins University. He currently has active research studies in the geospatial analysis of Lyme disease, congenital cytomegalovirus, zoonotic influenza, dengue, and social and demographic health disparities. He has received a grant to train public health personnel in China and Mongolia in GIS software and spatial analysis. His research makes use of geocoded electronic health records and public health data to identify spatial and spatiotemporal patterns in human disease risk, employing cluster analyses, geostatistical point pattern analyses, generalized additive models, and Bayesian spatial analytical methods.

Dr. Lantos was the lead author of the 2010 Lyme Disease Guideline Review Panel report for the Infectious Diseases Society of America. He now co-chairs a 30-member Lyme disease guideline panel being authored by the American Academy of Neurology, American College of Rheumatology, and Infectious Diseases Society of America. Dr. Lantos has worked internationally in both research and clinical capacities, including in The Gambia, Senegal, Ghana, Tanzania, Mongolia, China and the Peruvian Amazon.

Professor William Powderly, M.D.,

Prof. Powderly is the Dr. J. William Campbell Professor of Medicine and the Larry J Shapiro Director of the Institute for Public Health at Washington University in St. Louis. He is also Chief of the Division of Infectious Diseases at the Washington University School of Medicine. From 2005 to 2012, he was Dean of Medicine and Head of the School of Medicine at University College Dublin.

Dr. Powderly has been actively involved in HIV-related clinical research for thirty years. He has been a member of numerous advisory groups on HIV and infectious diseases for the National Institutes of Health (NIH), the U.S. Centers for Disease Control and Prevention, the Canadian Institute for Health Research, and the European Medicines Agency. He is the author of over 400 original manuscripts, reviews and book chapters.

He is a Fellow of the Royal College of Physicians In Ireland, and the American Association for the Advancement of Science, and was, in 2017, President of the Infectious Diseases Society of America.

IDSI Annual Scientific Meeting
10th-12th May 2018
PROGRAMME

Thursday 10 May 2018 Aula Maxima, The Quadrangle, NUI Galway	
16.30	**Registration, Tea/Coffee, Exhibition**
17.00 – 18.00	Sponsored Symposium ***PK update in clinic: Integrase Inhibitors, Tenofovir pro-drugs and Boosters*** **Prof. Giovanni di Perri, University of Turin**
18.00 – 20.00	Co-chairs: Dr. Arthur Jackson, Infectious Diseases Consultant, Cork University Hospital/Mercy University Hospital Dr. Patrick Mallon, Head, HIV Molecular Research Group, UCD School of Medicine, Consultant in Infectious Diseases, Mater Misericordiae University Hospital, Director Wellcome Trust-HRB Irish Clinical Academic Training (ICAT) Programme
18.00 – 18.40	Keynote Presentation: ***Challenges in Infectious Diseases - What we can learn from IDSA*** **Prof. Bill Powderly,** Professor of Medicine and Director of the Institute for Public Health, Washington University, Chief of Division of Infectious Diseases, Washington University School of Medicine, 2017 IDSA President
18.40 – 20.00	**SpR Clinical Case Presentations** ***Out of Africa*** **Dr. Niamh Allen** ***Even just the sound of it is something quite atrocious*** **Dr. Colm Kerr** ***TNFa Mutant Ninja Turtle*** **Dr. Niamh Lynn** ***A Cavitary Conundrum*** **Dr. Cathal O Broin** ***Things Fall Apart*** **Dr. Liam Townsend**

Friday 11 May 2018 Aula Maxima	
08.00	**Registration**
09.00 – 09.05	**Annual Scientific Meeting Welcome : Dr. Catherine Fleming,** President, Infectious Diseases Society of Ireland, Consultant, Galway University Hospital/NUI Galway
	Co-chairs: Dr. Eoghan de Barra, Infectious Diseases Consultant, Beaumont Hospital Dr. Eoin Feeney, Infectious Diseases Consultant, St. Vincent's University Hospital
09.05 – 9.45	Keynote Presentation: ***Treatment of Difficult NTM Cases*** **Prof. Charles Daley,** Professor of Medicine, University of Colorado, Chief, Division of Mycobacterial and Respiratory Infections, National Jewish Health, Denver
9.45 – 10.25	Keynote Presentation: ***Challenges in Tuberculosis*** **Prof. Jon Friedland,** Director, Hammersmith Campus Imperial College London, Head, Infectious Diseases and Immunity, ICL
10.30 – 11.00	**Coffee/Tea, Poster Viewing, Exhibition**
11.00 – 13.00	Co-chairs: Dr. Eoghan de Barra, Infectious Diseases Consultant, Beaumont Hospital Dr. Eoin Feeney, Infectious Diseases Consultant, St. Vincent's University Hospital
11.00 – 11.30	**Review of Difficult Infectious Disease Cases** Prof. Charles Daley, Prof. Jon Friedland
11.30 – 12.30	Sponsored Symposium **HCV Therapy - How Far Have We Come?** Chair: Dr Catherine Fleming, Infectious Diseases Consultant, University Hospital Galway/ NUIG **Prof Jürgen Rocktroh,** Professor of Medicine, Head of the HIV Outpatient Clinic , University of Bonn, Germany
12.30 – 12.45	**Assessment of the Safety and Immunogenicity of a Heterologous Prime-boost Hepatitis C Vaccine Strategy in HIV-1 Seropositive Adults on Antiretroviral Therapy** Ciaran Bannan, Stefania Capone, Anthony Brown, Felicity Hartnell, Antonella Folgori, Pietro L. Vernazza, Colm Bergin, Bethany Turner, Ellie Barnes, Lucy Dorrell, Matthias Hoffmann; on behalf of the PEACHI Consortium
12.45 – 13.00	**Universal Opt-Out Screening for HIV, Hepatitis B and Hepatitis C: Viability, Yield and Linkage-To-Care** C Grant, C Bannan, S O' Connell, A Moriarty, S Norris, B Crowley, D Shiels, H Tuite, L Darby, C Bergin GUIDe Dept. St. James's Hospital
13.00 – 13.30	**Lunch, Poster Viewing, Exhibition**

13.30 – 14.30	Sponsored Symposium: **Models of care for 2018 and beyond** Chair: Prof. Colm Bergin, St. James's Hospital/Trinity College Dublin ***HIV & Ageing: What is Normal?*** - **Dr. Patrick Mallon**, Head, HMRG UCD, Consultant in Infectious Diseases, MMUH, Director Wellcome Trust - HRB ICAT Programme ***Debate: HCV treatment in the community. Can it work?*** **Dr. Ciaran Bannan,** Infectious Diseases Consultant, St. James's Hospital **Dr. Eoin Feeney,** Infectious Diseases Consultant, St. Vincent's University Hospital
14.30 – 15.45	Co-chairs: Dr. Ciaran Bannan, Infectious Diseases Consultant, St. James's Hospital Dr. David Gallagher, Infectious Diseases Consultant, Galway University Hospital
14.30 – 15.15	Keynote Presentation: ***Diagnosis and Management of Lyme Disease*** **Prof. Paul Lantos,** Assistant Professor, Internal Medicine & Pediatrics, Duke Children's Hospital, Duke University School of Medicine, Duke Global Health Institute, North Carolina
15.15 – 15.30	**Use of Outpatient Parenteral Antimicrobial Therapy (OPAT) for Spinal Infections – an Analysis of a Tertiary Referral Centre** Aoife Lacey[1], Willard Tinago[1], Collette O'Connor[2], Jim Woo[2], Bijan Ghavani-Kia[2], Alan J. Macken[1], Noelle Cassidy[3], Paul Connolly[3], Seamus Morris[3], Ashley Poynton[3], Keith Synnott[3], Marcus Timlin[3], Damian McCormack[3], John S. Lambert[2], G Sheehan[2], Aoife G. Cotter[1, 2], Patrick W.G. Mallon[1, 2] 1 HIV Molecular Research Group, School of Medicine, University College Dublin, Ireland; 2 Department of Infectious Diseases, Mater Misericordiae University Hospital, Dublin, Ireland; 3 Department of Orthopaedic Surgery, Mater Misericordiae University Hospital, Dublin, Ireland
15.30 – 15.45	**Retrospective Analysis of Influenza Infected Patients 2017-2018: Lessons Learned from a Cohort Ward in a Tertiary Hospital** A. Conway[1], K. O'Hare[1,2], M. Connolly[3], A. Kelly[2], B. O'Kelly[1], C. Doran[1], J. Harte[1], C. McNally[1], S. McConkey[1,2], D. McEnroy-Mullins[4], E. de Barra[1,2] 1Infectious Diseases Department, Beaumont Hospital, Beaumont Rd., Dublin 9; 2Royal College of Surgeons in Ireland; 3Jervis Ward, Beaumont Hospital, Beaumont Rd., Dublin 9; 4Endocrinology Department, Beaumont Hospital, Beaumont Rd., Dublin 9
15.45 – 16.00	**Tea/Coffee, Poster Viewing, Exhibition**
16.00 – 17.00	Co-chairs: Dr. Geraldine Moloney, Infectious Diseases Consultant, Cork University Hospital Dr. Andrea Holmes, Infectious Diseases Consultant, Bon Secours Hospital, Galway
16.00 – 16.15	**Irish Recreational Water Consistently Contaminated with Carbapenemase-Producing *Enterobacteriaceae*** B. Mahon[1], C. Brehony[1], E. McGrath[2], M. Cormican[1, 2, 3], S. Ryan[1], P. Ryan[1], P. Hickey[4], S. Keane[4], A. Dolan[5], and D. Morris[1,3] 1. Antimicrobial Resistance and Microbial Ecology Group, School of Medicine, National University of Ireland, Galway; 2. Carbapenemase-Producing Enterobacteriaceae Reference Laboratory, Department of Medical Microbiology, University Hospital Galway, Galway; 3. Centre for Health from Environment, Ryan Institute, National University of Ireland, Galway; 4. Environmental Health Service, HSE West, Galway; 5. Galway County Council, Galway

16.15 -16.30	**Hospital Effluent and Municipal Wastewater as sources of Carbapenemase-producing Enterobacteriaceae** N. Cahill[1], L. O'Connor[1], B. Mahon[1], A. Varley[1], E. McGrath[2], P. Ryan[1], M.Cormican[1,2], D. Morris[1] 1. Antimicrobial Resistance and Microbial Ecology Group, School of Medicine, National University of Ireland, Galway; 2. Carbapenemase-Producing Enterobacteriaceae Reference Laboratory, Department of Medical Microbiology, University Hospital Galway, Galway, Ireland
16.30 – 16.45	**Use of Lipid Lowering Therapy (LLT) and Achievement of Recommended Targets in an Aging Cohort of People Living with HIV** W Tinago, H Kaur-Gill[1], C Boyle[2], N Power[2], A Macken[1], A Lacey[1], J Lambert[1,2], G Sheehan[1,2], AG Cotter[1,2], PWG Mallon[1,2], the UCD ID Cohort Study 1HIV Molecular Research Group, School of Medicine, University College Dublin, Ireland; 2Department of Infectious diseases, Mater Misericordiae University Hospital, Dublin, Ireland
16.45 – 17.00	**Performance of Recommended Antimicrobial Investigations for Patients with Community Acquired Pneumonia admitted under a General Medical Service** A Rice, D Hare, B O'Connell, D Byrne, J Browne St. James's Hospital, Dublin
17.00 – 17.30	Sponsored State of the Art Presentation ***A clinical update on dolutegravir since IDSI 2017*** **– Adam Stubbs** MSc. PhD
Saturday 12 May 2018 Aula Maxima	
09.00-10.00	Co-chairs: Dr. Catherine Fleming, President IDSI, Dr. Helen Tuite, Secretary IDSI **"Flash" Poster Presentations** (see abstracts, pp 17-20)
10.00 – 11.00	Sponsored Symposium Chair: Prof. Colm Bergin, Consultant in Infectious Diseases, St. James's Hospital/TCD ***Focus on HIV Prevention*** **Prof. Chloe Orkin,** FRCP (UK), Consultant Physician, Lead for HIV and HIV/Hep C Research Ambrose King Centre, Royal London Hospital, and Chair, British HIV Association
11.00 – 11.20	Tea/Coffee, Poster Viewing, Exhibition
11.20 – 13.25	Co-chairs **Prof. Colm Bergin,** Infectious Diseases Consultant, St. James's Hospital/Trinity College Dublin **Dr. Eavan Muldoon,** Infectious Diseases Consultant, Mater Misericordiae University Hospital
11.20 – 12.00	Keynote Presentation: ***Getting to Zero….. The Dean Street Model*** **Dr. Emma Devitt,** Infectious Diseases Consultant, Chelsea and Westminster Hospital, London

12.00 - 12.15	**Change in Soluble Glycoprotein VI (sGPVI) when Switching from ABC/3TC to TAF/FTC** Patrick W. Mallon[1], Robert T. Maughan[1], Alejandro A. Garcia[1], Willard Tinago[1], Aoife Lacey1, Andrew Lovell[2], Eimear Dunne[3], Elena Alvarez-Barco[1], Alan Winston[2], Frank Post[4], Dermot Kenny[3], Mingjin Yan[5], Moupali Das[5], Martin Rhee[5], for the GS-US-311-1717 Platelet Sub Study Team 1. University College Dublin, Dublin, Ireland, 2. Imperial College London, London, UK, 3. Royal College of Surgeons in Ireland, Dublin, Ireland, 4. King's College Hospital NHS Foundation Trust, London, UK, 5. Gilead Sciences, Inc, Foster City, CA, USA
12.15 – 12.30	**Platelet Function upon Switching to TAF versus Continuing on ABC: a Randomised Substudy** Patrick W. Mallon[1], Alan Winston[2], Frank Post[3], Dermot Kenny[4], Colm Bergin[5], Robert T. Maughan[1], Elena Alvarez-Barco[1], Willard Tinago[1], Eimear Dunne[4], Mingjin Yan[6], Moupali Das[6], Martin Rhee[6] 1. University College Dublin, Dublin, Ireland, 2. Imperial College London, London, UK, 3. King's College Hospital NHS Foundation Trust, London, UK, 4. Royal College of Surgeons in Ireland, Dublin, Ireland, 5. St. James's Hospital, Dublin, Ireland, 6. Gilead Sciences, Inc, Foster City, CA, USA.
12.30 – 12.45	**Cost Minimisation Analysis of a Preferred ARV Prescribing Pathway for Treatment-naïve HIV-positive Patients** Colm Kerr, Niamh Allen, David Moynan, Miriam Moriarty, Colm Bergin St. James's Hospital, Dublin
12.45– 13.25	Keynote Presentation: ***The Rocky Road to HPV Prevention*** **Prof. Karina Butler,** UCD Clinical Professor of Paediatrics, Consultant Paediatrician and Infectious Diseases Specialist, Our Lady's Children's Hospital and The Children's Hospital, Temple Street
13.25-13.30	**Presentation of Best Clinical Case, Best Oral Presentation, Best "Flash" Poster Presentation and Best Poster Prizes, Close of Meeting** Dr. Helen Tuite, Secretary, Infectious Diseases Society of Ireland
13.30 – 14.00	**IDSI Annual General Meeting**

Oral Presentations
(in order of programme)

O1
Assessment of the safety and immunogenicity of a heterologous prime-boost hepatitis C vaccine strategy in HIV-1 seropositive adults on antiretroviral therapy

Ciaran Bannan, Stefania Capone, Anthony Brown, Felicity Hartnell, Antonella Folgori, Pietro L. Vernazza, Colm Bergin, Bethany Turner, Ellie Barnes, Lucy Dorrell, Matthias Hoffmann; on behalf of the PEACHI Consortium

Background: Because of shared transmission routes HIV/HCV co-infection is common and associated with significant morbidity/mortality. Although direct-acting antiviral (DAA) therapy for HCV has resulted in high cure rates, they do not prevent against re-infection. Currently no vaccine exists for HCV prevention. This is the first study to examine the safety and immunogenicity of vaccine candidates eliciting a T-cell immune response against HCV non-structural (NS) regions in HIV-1 seropositive individuals.

Methods: 20 HIV-1 seropositive and 8 healthy individuals were enrolled in phase I studies. Vaccines were delivered intramuscularly in a prime–boost (AdCh3NSmut1, week 0; MVA-NSmut, week 8) regimen. Clinical adverse events (AEs) were assessed by a diary card. Immunogenicity was determined using NS overlapping peptide pools in ex-vivo IFN-γ ELISpot assays.

Results: HIV-1 seropositive individuals (all male, median age 42 years (range 27-60) had a median CD4 cell count of 718/mL (IQR 560-856) and were suppressed (<40 copies/mL) on antiretroviral therapy for a median of 3 years (IQR 2-6). Median CD4 nadir was 306/mL (IQR 270-373). Both vaccines were well tolerated. AEs were typically short-lived and self-limited. AEs after MVA-booster vaccination were reported to be more severe. The most common AEs were local pain and fatigue, followed by myalgia. Priming with AdCh3NSmut induced T cell responses after 2 to 4 weeks (mean 477 ±584 SFU/106PBMC) that were markedly enhanced following MVA boost (mean 3094 ±2376 SFU/106PBMC). There was a trend of lower peak responses compared to healthy individuals (mean 3975 ±2457 SFU/106PBMC) that was not significant (p= 0.3, Mann-Whitney U test). The immunodominant T cell response was elicited to NS3.

Conclusion: This proof of concept study shows that AdCh3/MVA vaccination delivered in a prime-boost regimen to HIV-1 infected patients with a recovered CD4 T cell count on ART are safe and can induce peak T-cell responses measured by IFN-γ secretion.

O2
Universal Opt-Out Screening for HIV, Hepatitis B and Hepatitis C: Viability, Yield and Linkage-To-Care

C Grant, C Bannan, S O' Connell, A Moriarty, S Norris, B Crowley, D Shiels, H Tuite, L Darby, C Bergin
GUIDe Dept. St. James's Hospital, Dublin

Background: Screening for transmissible Blood-Borne Viruses (BBVs) such as HIV, Hepatitis B (HBV) and Hepatitis C (HCV) is currently limited to select groups such as patients attending sexual health clinics and pregnant women attending antenatal clinics. To date, there are no published outcome data of universal screening of the general public. Prompt diagnosis of BBVs allows for treatment, transmission-risk reduction strategies and contact tracing. However, these potential benefits of screening require the linkage-to-care of new patients.

Since July 2015, universal opt-out screening for HIV, HBV and HCV has been in place in the emergency department of St. James's Hospital.

We aimed to evaluate whether opt-out screening of the general public for BBVs in an emergency department setting was feasible and to determine its yield and outcomes.

Methods: We analysed the data contained within the screening database. Using the electronic patient record (EPR), linkage and outcome data for patients were obtained. All data between 01/07/2015 and 15/01/2018 were included in the analysis.

Results: In 30 months, 232 new diagnoses of transmissible BBVs were made in 226 people as a result of universal opt-out testing in our emergency department (mean 1.8 new diagnoses per week).

35 new diagnoses of HIV were made. 32 are linked to care.

42 new diagnoses of HBV were made. 40 are linked to care.

155 new diagnoses of HCV were made. 81 were PCR positive. 57 were referred to our outpatient clinic (41 have attended to date) and 20 were referred to other services.

19 of 41 who attended our clinic have commenced on DAAs to date. 14 of these have a documented Sustained Virological Response (SVR), 1 is on treatment, 1 awaits SVR12 bloods (SVR4 achieved), 1 did not attend SVR12 bloods (SVR 2 achieved), 1 RIP and 1 had virological relapse.

In addition: 3 of 6 unlinked patients with known HIV were relinked; 13 of 17 unlinked patients with known HBV were relinked; 94 of 117 unlinked patients with known PCR positive HCV were relinked.

19% of positive samples fell within 6 months of a previously positive screening sample.

Conclusion: Universal opt-out screening for BBVs in the emergency department was accepted by the patient population. Screening picked-up approximately 7.7 new BBV diagnoses per month, the vast majority of who were subsequently linked to care. It also served as an opportunity to relink the majority of 'known' patients who were not linked-to-care. Opt-out screening for BBVs was viable and likely reduced the transmission of BBVs.

O3
Use of Outpatient Parenteral Antimicrobial Therapy (OPAT) for Spinal Infections – an analysis of a tertiary referral centre

Aoife Lacey[1], Willard Tinago[1], Collette O'Connor[2], Jim Woo[2], Bijan Ghavani-Kia[2], Alan J. Macken[1], Noelle Cassidy[3], Paul Connolly[3], Seamus Morris[3], Ashley Poynton[3], Keith Synnott[3], Marcus Timlin[3], Damian McCormack[3], John S. Lambert[2], G Sheehan[2], Aoife G. Cotter[1, 2,] Patrick W.G. Mallon[1, 2]
1 HIV Molecular Research Group, School of Medicine, University College Dublin, Ireland; 2 Department of Infectious Diseases, Mater Misericordiae University Hospital, Dublin, Ireland; 3 Department of Orthopaedic Surgery, Mater Misericordiae University Hospital, Dublin, Ireland

Background: With expansion of OPAT Programmes, we aimed

to determine the safety of management of spinal infections as OPAT and also determine kinetics of CRP responses in this condition.

Method: Patients enrolled to the UCD-ID Cohort Study treated for spinal infection between 2008 and 2015 were included in this analysis. Clinical, radiological, laboratory and microbiology data was collated and descriptive summary measures used to describe this cohort's characteristics.

Results: 71 patients were recruited, median age at treatment was 60 (43-68) years, 73.2% of those treated were male. Discitis(50.7%) and vertebral osteomyelitis (35.2%) were the commonest radiological diagnoses, although epidural(25.4%), psoas (11.3%) and paravertebral(8.5%) were also reported. Most infections involved the lumbar spine (71.8%), followed by thoracic (25.4%), sacral (21.1%) and cervical (11.3%). Primary infection represented 33.3% of cases, 47.8% were post-operative device-associated and 18.9% post-operative non-device-associated infections. 24 (22.8%) individuals had more than one radiological diagnosis.

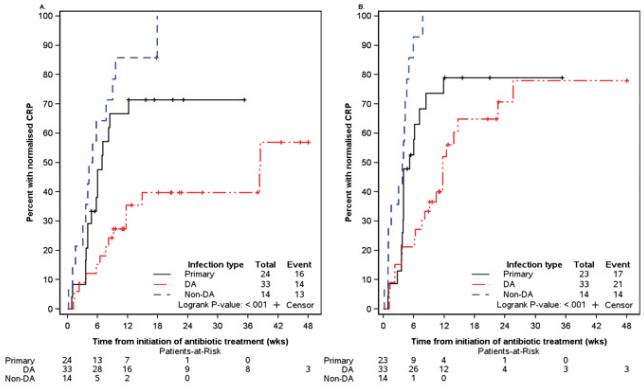
There were 25(35.2%) culture negative infections and 12(16.9%) polymicrobial. Of culture positive infections, 49(69.0%) were Gram positive, most commonly Staphylococcal species (18 (25.4%) MSSA, 6(8.5%) MRSA and 13(18.3%) coagulase negative Staphylococci), 16(22.5%) were Gram negative, 3(4.2%) Fungal and 1(1.4%) TB.

Most commonly used antibiotics included Beta-lactams (46.5%), Cephalosporins (64.8%), Glycopeptides (70.4%) and Antifungals (4.2%). 33.8% of patients received antibiotics of other classes, including tigecycline(19.7%), meropenem (19.7%), ciprofloxacin (4.2%), gentamycin (2.8%), metronidazole (2.8%), clindamycin (2.8%) and linezolid (1.4%) Median duration of antimicrobial treatment was 45 (41.25-61.75) days. 65 (91.55%) patients received subsequent oral antibiotics. 29 (40.9%) patients required surgical intervention, most commonly removal of metalwork (16.9%). 17 (23.9%) treatment failures occurred, median time to relapse was 46 (9-5-173.5) days with post-operative device-associated infections accounting for 7 (63.6%) of these relapses Overall cure was obtained in 62 (87.3%) patients, with 7 (9.9%) remaining on long-term oral antibiotic prophylaxis. 1 individual died during admission for infection relapse and 1 was lost to follow-up.

43 (60.6%) patients achieved CRP <5mg/L and 52 (73.2%) CRP<10mg/L by 48 weeks after initiation of antibiotic therapy. All 14 (100%) patients with post-operative non-device-associated infection normalised their CRP to <5mg/L within 12 weeks of initiation of treatment, whereas patients with primary and device-associated infections took longer for CRP to normalise and had a higher incidence of CRP remaining >5mg/L and >10mg/L at 48 weeks post-antibiotic initiation as illustrated in Figure 1.

Conclusion: Use of OPAT is safe and effective for treatment of spinal infections. Although relapses do occur, overall cure rates are high. Further studies are required to identify the ideal length of treatment for specific types of spinal infections, and the cause of prolonged abnormal CRP levels in some spinal infection patients.

Figure 1: Kaplan-Meier curves showing the percentage of patients achieving CRP<5 mg/L (Panel A) or CRP<10 mg/L (Panel B) after initiation of antibiotic treatment, classified type of infection (primary, device associated and non-device associated)



O4

Retrospective Analysis of Influenza Infected Patients 2017-2018: Lessons Learned from a Cohort Ward in a Tertiary Hospital

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Background: During the 2017-2018 influenza season, patients who tested positive for Influenza A or B in the Emergency Department or acquired influenza nosocomially within a large tertiary Dublin Hospital, were transferred to a single 35 bed Influenza cohort ward. Patients were managed either by the Infectious Diseases or a General Medical team. Both teams had specific beds/patients assigned under their care and were independently clinically managed.

Aim: To describe the epidemiology, clinical course, complications and practical implications of running a dedicated Influenza ward. To review antimicrobial decisions of the admitting team and compare the two ward teams, examining potential stewardship targets.

Methods: Patients were prospectively enrolled into the study following establishment of an Influenza cohort ward at outset of the seasonal outbreak on 01/12/18. Patients were sub-cohorted as Influenza A or B. Parameters collected: initiation, dosage and length of treatment of oseltamavir and any concurrent antimicrobial treatment; length of stay, patient co-morbidities, re-admission rates, associated complications and discharge outcome. Presenting symptoms, radiological and clinical laboratory findings were also recorded. Chest X rays were classified as; normal, abnormal or acute infection. Data were recorded from hospital electronic laboratory, radiology and discharge summary systems along with medical charts and admission notes.

Results: 146 Influenza infected patients comprised of: Influenza A 69 (47.3%) and Influenza B 77 (52.7%) . Community acquired infection (CAI) 109 (74.6%) patients, of which Influenza A 52 (47.7%) and Influenza B 57 (52.3%). The mean length of stay for 77 of the CAI cases was 12 days (median 11 days; range 1-60 days), with eleven patients having a stay > 30

days. Observed mortality rate was 8/146 (5.5%). 111 patients had a chest x-ray at the time of confirmed influenza infection. Of these, 47 (42.3%) were normal, 39 (35%) patient x-rays showed acute infection; with the highest rate in patients with CAI, 25 (64%). 25 patients (22.5%) had abnormal x-rays (Eg: COPD). 6 of the 111 (5.4%) patients had focal consolidation on chest x-ray. All 6 of these were classified as nosocomial infections. Greater than 90% of patients had a CRP > 10 mg/L and > 50% had a lymphopenia on admission.

Conclusions: The formation of a dedicated Influenza ward was associated with a drop in nosocomial cases; however, the diversity of patients represented challenges for medical, nursing and paramedical staff. Patients admitted with CAI are likely to have additional complex medical issues and prolonged length of stay. This should inform future planning and resource allocation.

O5
Irish Recreational Water Consistently Contaminated with Carbapenemase-Producing Enterobacteriaceae

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Background: The rapid, global dissemination of carbapenemase-producing Enterobacteriaceae (CPE) poses a significant threat to human health. We recently reported the detection of New Delhi metallo-beta-lactamase (NDM)-producing Enterobacteriaceae in Irish recreational waters between July 2016 and January 2017 (Euro Surveill. 2017; 22(15): pii = 30513). Findings indicated that the source of the CPE was human sewage, which is released untreated in the vicinity of the recreational waters. The aim of this study was to determine if the areas ('Beach A' and 'Beach B'), which are nearly one kilometre apart, continued to be contaminated with CPE.

Materials/methods: A total of 17 samples were collected between February and September 2017. Seawater sampling locations included: Beach A (n=7) and Beach B (n=2). Freshwater sampling locations included; the mouth of a river which flows into Beach B (n=2) and four points further up the river, which were each sampled once. The sewage system, which is believed to be the source of CPE was also sampled (n=2).

As per the original study, 30L samples of water were taken and filtered using the CapE filtration system. Approximately 200mL samples of sewage were taken. Samples were examined for CPE using Brilliance CRE agar (Oxoid). Isolates were tested for susceptibility to 16 antimicrobial agents in accordance with EUCAST criteria. Suspect CPE were examined for carbapenemase encoding genes by real-time PCR.

Results: NDM-producing Enterobacteriaceae were detected in 6/7 of Beach A samples, with NDM-producing Klebsiella pneumoniae detected in 4/7 and NDM-producing E. coli in 3/7 samples. One sample contained both NDM-producing E. coli and K. pneumoniae. NDM-producing K. pneumoniae were detected in 2/2 of Beach B samples. Both samples that were taken at the mouth of the river were positive for NDM-producing K. pneumoniae, while the four samples taken further up the river (beyond the point where the local village meets the river) were negative for CPE. NDM-producing K. pneumoniae were detected in 2/2 of sewage system samples.

Conclusions: This study reveals consistent contamination of recreational water with CPE for a period exceeding 14 months. These findings highlight the need to accelerate programmes to cease discharge of untreated sewage into the environment.

O6
Hospital effluent and municipal wastewater as sources of carbapenemase-producing Enterobacteriaceae

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Background: Antibiotic resistance is a major public health risk. Carbapenemase-producing Enterobacteriaceae (CPE) represent a significant health threat as some strains are resistant to almost all available antibiotics. The aim of this research was to examine hospital effluent (HE) and municipal wastewater from an urban area in Ireland for the presence of CPE.

Methods: Samples of HE (n=5), and wastewater pre (n=5) and post (n=4) entry of the effluent to the wastewater stream were collected over a 9 week period (May-July 2017). Samples were examined for the presence of CPE using Brilliance CRE agar (Oxoid). Suspect CPE were identified using Matrix Assisted Laser Desorption/Ionization – Time of Flight Mass Spectrometry (MALDI-TOF), and tested for susceptibility to 16 antimicrobial agents, in accordance with EUCAST criteria. Following antibiotic susceptibility testing, all suspect CPE were examined for the presence of carbapenemase-encoding genes; blaKPC, blaOXA-48, blaNDM, blaVIM and blaIMP, by real-time polymerase chain reaction (PCR).

Results: CPE was detected in samples of HE (n=5), pre-hospital wastewater (n=1) and post-hospital wastewater (n=3). A total of 15 CPE were detected in HE. 13/15 harboured a single carbapenemase-encoding gene; (3 Klebsiella pneumoniae (2 blaOXA-48, 1 blaIMP), 1 Klebsiella oxytoca (1 blaOXA-48), 4 Citrobacter freundii (2 blaKPC, 2 blaOXA-48) and 5 Enterobacter cloacae (3 blaOXA-48, 1 blaIMP, 1 blaVIM)), while the remaining 2, (both Enterobacter cloacae) harboured two genes; blaIMP and blaOXA-48. During the same period, in the hospital where HE was collected, 8 blaOXA-48, 4 blaVIM and 1 blaIMP were detected in clinical samples. In post-hospital samples, 8 CPE were detected (2 Klebsiella pneumoniae (1 blaOXA-48, 1 blaIMP), 1 Klebsiella oxytoca (blaVIM), 3 Citrobacter freundii (2 blaKPC, 1 blaOXA-48), and

2 Enterobacter cloacae (both blaOXA-48)). In contrast, only 1 CPE (NDM producing E. coli) was detected in pre-hospital samples.

Conclusion: Hospital and post-hospital wastewater routinely contains a diverse range of CPE, whereas, pre-hospital wastewater does not, indicating a contrast between hospital, post-hospital and general urban wastewater. Testing of hospital effluent may have applications in monitoring for unrecognised CPE dissemination in healthcare settings.

O7

Use of lipid lowering therapy (LLT) and achievement of recommended targets in an aging cohort of people living with HIV

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Background: Statins are used in prevention of cardiovascular disease (CVD), which occurs more frequently in people living with HIV (PLWH). We aimed to examine the proportion of aging PLWH on antiretroviral therapy (ART) currently prescribed statins and whether recommended lipid-lowering targets were achieved.

Methods: In a cross-sectional analysis of PLWH >40 years enrolled in the UCD-ID Cohort we collated demographic, clinical and treatment data, including lipids (total cholesterol(TC), high-density lipoprotein(HDL), low-density lipoprotein(LDL) and triglycerides(TG)) and statin-use, categorised (high, medium, low-intensity) according to the American College of Cardiology/American Heart Association (ACC/AHA) guidelines, accounting for impact of concurrent boosted protease inhibitor(PI/r) use. For those on statins, we assessed attainment of LDL-targets according to European Society of Cardiology and ACC/AHA guidelines and categorised the degree of dyslipidaemia according to the National Cholesterol Education Program-Adult Panel III(NCEP-ATPIII). We used ACC/AHA Pooled Cohort Equations to estimate the 10-year risk of atherosclerotic cardiovascular disease(ASCVD). We compared between-group data using Mann-Whitney and chi- square tests.

Results: Of 432 subjects aged >40 years, 409(94.7%) had lipids recorded of whom 78(19.1%) were on statins and 114(27.9%) were on PI/r (60% darunavir, 38% atazanavir). Those on statins were older, more often male and less likely to be intravenous drug users (all p<0.0001). Statin-use comprised atorvastatin (58 (74.4%)), rosuvastatin (17 (21.8%)) and pravastatin (3 (3.8%)). Although TC and HDL were similar in those prescribed and not prescribed statins (p=0.30, p=0.44 respectively), LDL was significantly lower (p=0.05) and triglycerides significantly higher (p=0.003) in those on statins. Graded by NCEP-ATPIII, there were significant differences in the distribution of those prescribed and not prescribed statins within triglycerides grades (p=0.03) but no difference for TC, HDL and LDL.

Only 35(44.9%) and 14(17.92%) PLWH on statins achieved recommended LDL-targets<2.6 and <1.8mmol/L respectively. Although the majority (26/35(74.3%) and 12/14(85.7%)) of these were on medium-intensity statins, there was no association between statin intensity and achieving a target LDL<2.6 or <1.8mmol/L. In 184 subjects not on statins with data for evaluation of CVD-risk, 4(2.2%) had diabetes mellitus, 3 of whom had 10-year ASCVD-risk ≥7.5%. Among the 180 with no diabetes, 28(15.6%) and 35(19.4%) had 10-year ASCVD-risk ≥7.5% and between 5-7.5% respectively.

Conclusion: Of PLWH using statins, <50% achieve recommended LDL targets <2.6mmol/L despite medium intensity statin use and almost 16% of statin eligible patients were not receiving statins, underlying the need for better application of recommendations and further research to ascertain the optimum statin dose required to maximise CVD-risk reduction in PLWH.

O8

Performance of Recommended Antimicrobial Investigations for Patients with Community Acquired Pneumonia admitted under a General Medical Service

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Background: Community Acquired Pneumonia (CAP) is a significant cause of morbidity and mortality. Appropriate microbiological investigations are key to guiding antimicrobial therapy. The British Thoracic Society guidelines for management of Community Acquired Pneumonia (2009) recommend that blood cultures prior to antimicrobial therapy, sputum culture and Pneumococcal urine antigen (PUA) be performed for patients with moderate-severe CAP. Legionella urine antigen (LUA) tests should be performed for patients with high severity CAP.

Aims: To assess if appropriate microbiological investigations are carried out for suspected Community Acquired Pneumonia in the AMU.

Methods: A retrospective analysis of AMU records, ED patient records, Electronic Patient Records and Laboratory Information System (LIS) data between 1st April 2017 and 30th September 2017 was performed. Patients were selected from a list of admissions to AMU compiled daily. Patients admitted from the community with symptoms consistent with a lower respiratory tract infection, as well as an infiltrate on chest imaging within 48 hours of admission were included. Epidemiological data and data regarding microbiological specimens sent were recorded, and a CURB-65 was calculated for each patient. Those patients with a diagnosis of aspiration pneumonia, hospital acquired pneumonia or an alternative diagnosis explaining their chest infiltrate were excluded, as were patients admitted directly under the Respiratory, Oncology or Infectious Disease teams.

Results: 59 patients admitted through met the inclusion criteria in this period. Of these patients, 29 (49%) were female and mean age was 68 years. 30/59 patients were classified as 'mild' CAP (CURB-65 of 0-1), 17 were classified as 'moderate' (CURB-65 of 2) and 12 were severe (CURB-65 of 3-4). Of the patients with moderate and severe CAP, 18/29 (62%) of patients had blood cultures sent, of which 11/29 (38%) were sent prior to commencing antibiotics. 5/29 (17%) of patients

had sputum cultures sent during their admission, of which none were taken prior to commencing antibiotics. 5/29 (17%) of patients had pneumococcal urinary antigens sent, and of the patients with severe CAP, 2/12 (17%) had legionella urinary antigens sent. See Table 1. No patients with moderate-severe CAP had all the recommended microbiological tests sent as per BTS guidelines.

Conclusion: At present, patients being investigated for suspected CAP admitted under general medical services often do not have all the recommended microbiological investigations performed. This is particularly evident with reference to sputum, legionella and pneumococcal antigen testing in those with moderate or severe CAP.

Table 1

CURB-65	No.	Blood Cx	Sputum Cx	PUA	LUA
0,1	30	12	14	11	12
2	17	10	2	2	3
3,4	12	8	3	3	2

O9
Change in Soluble Glycoprotein VI (sGPVI) when Switching from ABC/3TC to TAF/FTC

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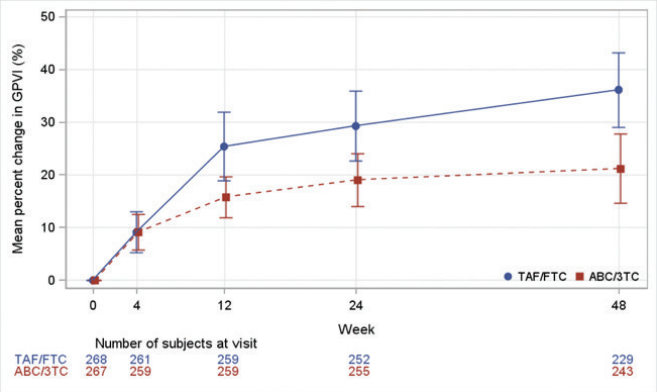
Background: Exposure to abacavir (ABC) has been associated with increased risk of cardiovascular events with altered platelet function implicated. Glycoprotein VI (GPVI), expressed on and shed from platelets, regulates platelet activation in response to collagen exposure. We previously demonstrated increases in soluble GPVI (sGPVI) in virologically-suppressed people with HIV-1 (PWH) switching from ABC to tenofovir disoproxil fumarate (TDF) and recently showed decreased platelet reactivity in response to collagen and increases in GPVI expression on platelets upon switching from ABC / lamivudine (ABC/3TC) to tenofovir alafenamide / emtricitabine (TAF/FTC). Changes in sGPVI when switching from ABC/3TC to TAF/FTC have not been determined.

Methods: In a platelet function substudy within a randomized, double-blind, active-controlled trial of virologically suppressed PWH on ABC/3TC who were randomized to switch to TAF/FTC or remain on ABC/3TC, we quantified sGPVI in platelet-poor plasma taken at weeks 0, 4, 12, 24 and 48 by electrochemiluminescence. The primary endpoint was change in sGPVI to week 48 with the between-group difference compared using mixed effects models with repeated measures.

Results: Of 556 subjects enrolled in the study, 545 (98%) had samples available for analysis. Mean (SD) age was 51 (9.3) years, 82% male, 72% white. Baseline CD4+ count was 712 (284) cells/mm and 99% had HIV-1 RNA <50 copies/ml. Baseline sGPVI (ng/mL, median [IQR]) were similar between groups: TAF/FTC 0.736 (0.520, 1.270) versus ABC/3TC 0.846 (0.527, 1.451), P=0.18. The TAF/FTC group had a significantly greater increase in sGPVI to week 48 (figure), with a +14.7%, (95% CI 4.1, 26.3) difference between groups in change in sGPVI to week 48 by mixed effects models (P=0.005).

Conclusion: Switching away from ABC/3TC to TAF/FTC was associated with greater increases in sGPVI. In combination with the previously demonstrated decreases in platelet reactivity and re-expression of GPVI on platelets in PWH switching from ABC/3TC to TAF/FTC, these data suggest a reversible, inherent platelet dysfunction with ABC/3TC, centered on GPVI function, which may contribute to increased risk of cardiovascular events observed in PWH exposed to ABC.

Figure 1. Mean (SE) percent change in sGPVI



O10 Platelet Function upon Switching to TAF versus Continuing on ABC: a Randomised Substudy

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Background: Abacavir (ABC) use has been associated with increased risk of myocardial infarction (MI), with altered endothelial and platelet function as proposed underlying mechanisms. We hypothesized that a switch from ABC to tenofovir alafenamide (TAF) would result in decreased platelet reactivity.

Methods: In a platelet function substudy of a randomized double-blind trial of virally suppressed, HIV1-positive individuals on ABC/lamivudine (3TC), randomized to switch to TAF/emtricitabine (FTC) or remain on ABC/3TC while continuing their 3rd agent, we measured platelet aggregation (PAg) at baseline (BL), week (wk) 4, and 12 in response to increasing concentrations of five agonists: collagen (Col), thrombin receptor-activating peptide (TRAP), adenosine diphosphate (ADP), epinephrine (Epi) and arachidonic

acid (AA). We compared population-derived agonist concentrations inducing 50% platelet aggregation (EC50) between-groups at BL, wk4 and 12 by four parameter logistic regression. We measured platelet surface expression of the GPVI receptor, CD42b and P-selectin (P-sel) by flow cytometry and compared between-group differences at BL and wk12 pre- and post-stimulation with collagen-related peptide (CRP) by Wilcoxon rank sum test.

Results: The 61 participants (29 in TAF/FTC and 32 in ABC/3TC group) were well matched at BL. Although baseline PAg in response to Col, TRAP and ADP was similar between groups, wk4 PAg with Col, TRAP and ADP was significantly lower in the TAF/FTC arm (reflected by greater EC50) compared to the ABC/3TC arm (Table 1). Reduced PAg in response to Col persisted through wk12, while differences in PAg with TRAP and ADP were no longer significant at wk12. PAg with Epi and AA did not differ between groups at any time point. Expression of the collagen receptor GPVI, which mediates endothelial-platelet interactions, was higher at wk12 in the TAF/FTC group (P=0.031) while wk12 GP42b and P-sel were similar between groups (P=0.10, P=0.8). There were no between-group differences in GPVI shedding or induction of P-sel with CRP activation (all P>0.1).

Conclusions: Within a randomised trial, switching from ABC/3TC to TAF/FTC was associated with significantly lower platelet reactivity to TRAP and ADP at wk 4 and Col through to wk 12. Together with higher surface GPVI expression, these observations suggest improvements in measures of platelet function involving endothelial-platelet pathways with a switch from ABC/3TC and point to a potential underlying mechanism for increased risk of MI with ABC.

Table 1. Demographics and platelet function

	TAF/FTC (n=29)	ABC/3TC (n=32)	P value
Age (yrs)	50 (43, 53)	49 (38, 54)	-
Male (n (%))	21 (72.4%)	22 (68.8%)	-
CD4+ count (cells/mm^3)	659 (503, 833)	616 (512, 774)	-
Caucasian n(%)	15 (51.7%)	19 (59.4%)	-
Current smoker	5 (17.2%)	7 (21.9%)	-
Col EC_{50} W4 (mg/mL)*	**0.027 (0.022, 0.033)**	**0.017 (0.014, 0.022)**	**0.005**
TRAP EC_{50} W4 (umol/L)	**2.25 (1.99, 2.55)**	**1.75 (1.55, 1.96)**	**0.004**
ADP EC_{50} W4 (umol/L)	**1.56 (1.33, 1.87)**	**1.22 (1.05, 1.42)**	**0.03**
GPVI BL (10^3/platelet)	5.27 (4.16, 6.63)	5.28 (4.11, 6.05)	0.7
GPVI W12 (10^3/platelet)	**5.52 (4.51, 6.52)**	**4.49 (4.06, 5.61)**	**0.031**
%GPVI shed W12** (%)	-46.6 (-50.5, -41.5)	-46.9 (-49.4, -40.3)	0.47

Data are median (IQR) unless specified. EC50 = concentration of collagen required to induce 50% platelet aggregation. W = week. BL=baseline. *data are mean (95% confidence internal). **%GPVI shed after exposure to CRP.

O11

Cost minimisation analysis of a preferred ARV prescribing pathway for treatment-naïve HIV-positive patients

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Background: There were 266 new attendees to the HIV clinic of St. James' Hospital in 2016. HIV care is expensive and the modeled lifetime cost of treating one HIV-positive patient in the UK is estimated at £360,800, with ARVs accounting for 68% of the cost (Nakagawa et al., 2015). Trusts in the NHS prescribe ARV regimens based on a cost-banding approach (Hivbirmingham.nhs.uk, 2017). In contrast, there are no cost-based guidelines for the prescribing of ARVs in Ireland. This audit aims to assess potential savings in ARV spend if a cost-based prescribing approach was adopted for suitable treatment-naïve patients of the clinic.

Methods: A retrospective analysis of newly attending HIV-positive patients attending the HIV Clinic in 2016 was undertaken. Treatment-naïve patients were identified. ARV drug acquisition costs were obtained from the St. James' Hospital Finance department and the cost of first-line ARV regimens (as recommended by the 2017 EACS guidelines) were calculated. Treatment-naïve patients were evaluated for their suitability for the lowest-cost, first-line ARV regimen by analysing their baseline viral loads, CD4 counts, resistance patterns, renal function, bone health and HLA B5701 status. The price difference between their prescribed regimens and the most cost-effective first-line regimen was then calculated.

Results: Of the 266 new patients to the clinic, 155 were treatment-naïve. The most commonly prescribed regimens were Triumeq (n=41), Genvoya (n=33) and Stribild (n=18). Regimens composed of Eviplera, Truvada + PIs and Truvada + INSTIs made up most of the remainder. 27 patients had clinically significant HIV mutations at baseline. There was a cost difference of €390 per month between the most expensive and least expensive first-line ARV regimens. The monthly cost of prescribed ARV regimens was €146,830.26. A cost-based preferred-prescribing approach of first-line ARV regimens would yield monthly savings of €20,628.31 (yearly saving of €247,539.68). The predicted cost of prescribing preferred first-line ARV regimens that utilise generic TDF/FTC (pending its introduction) was calculated to lead to annual savings of up to €900,000.00

Conclusion: This audit outlines the potential cost-effectiveness of a preferred ARV prescribing pathway for suitable treatment-naïve patients that also adheres to best clinical practice guidelines. It potentially opens the door to negotiation between the hospital and pharmaceutical companies to further rationalise ARV costs. This audit can serve as a template in the construction of a pathway for the safe and cost-efficient switching of regimens for patients already on established regimens when generic ARV medications become available in Ireland.

"Flash" Poster Presentations
In order of Presentation

1
Standard of HIV Care Delivery in an Evolving HIV Demographic in Ireland

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Background: In the era of highly active combination anti-retroviral therapy (HAART), HIV is becoming a chronic disease, requiring long-term follow up, management of co-morbidities and treatment-related complications. Guidelines have been endorsed by international bodies to guide the provision of high quality HIV care. We undertook this study to describe patient demographics, to assess baseline clinical parameters, to review adherence to prescribing guidelines and to benchmark quality of care provided to international standards in newly diagnosed HIV positive patients.

Methods: A retrospective analysis of all newly diagnosed/ newly attending patients attending the HIV Clinic in St. James's Hospital in 2016 was undertaken. Data were collected using the Electronic Patient Record System (EPR), anonymised, and analysed using STATA. We describe patient demographics, examine concordance with standards of care and treatment choices with reference to international guidelines.

Results: From January-December 2016 there were 266 new attendances; 234/266 (88%) male, median age 35 (range 18-69, IQR 30-42). Reported modes of acquisition were: MSM-200/266 (75%), heterosexual- 48/266 (18%), IDU- 13/266 (5%). Regions of origin were; South America -84/266 (32%), Ireland -79/266 (30%), Sub-Saharan Africa (SSA) -34/266 (13%). Transfers into the service (known diagnosis) accounted for 107/266 (40%) of the cohort.

Regarding standards of care: 257/266 (97%) patients were retained in care, 238/266 (89%) had at least two CD4 count measurements over a one year period. Baseline median CD4 cell count was 379 (range 7 - 1297, IQR 225-587) in the ART naive cohort. Baseline STI screening (CTNG) was performed in 223/266 (84%); 249/266 (94%) had syphilis screening. Baseline CXR was done in 169/266 (64%). All patients had HBV/ HCV screening; 19/266 (7.2%) patients had active HCV co-infection, 4/266 (1.5%) HBV co-infection. Influenza vaccine was given to 82%, HBV vaccination -101/123 (82%) of non-immune patients. Of the new patients 107/ 159 (67%) received Pneumococcal conjugate vaccine, 86/ 159 (54%)- Pneumococcal polyvalent vaccine. 8/8 patients with CD4 <200 received PCP prophylaxis. ART was prescribed for 258/266 (97%) of patients; 83% achieved viral suppression > 6 months later. Baseline resistance profiles were done for 120/159 (75%) of new patients. 151/159 (95%) newly diagnosed patients commenced ART; 144/151 (95%) of prescriptions were in line with EACS/ DHSS guidelines.

Conclusion: Our data give clinical context to the 2016 reported national data, highlighting changing patient demographics, especially regarding mode of acquisition and geo-origin. Concordance with international standards of care is high though our data highlight areas in which delivery of care should be improved.

2
Impact of BCG vaccination on regional incidence of Mycobacterial Infections in Southern Ireland (HSE South) from 2003-2016

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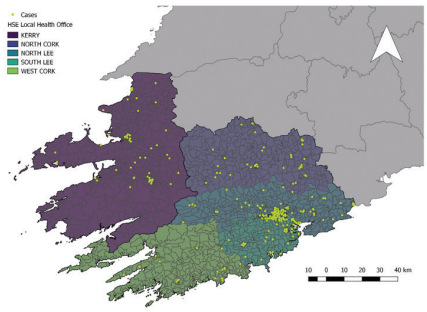
Background: Mycobacterium tuberculosis (MTB) is a major, and potentially preventable, cause of morbidity and mortality worldwide. Bacillus Calmette-Guerin (BCG) remains the only licensed vaccine for TB, and while efficacy has been demonstrated in some populations, many uncertainties remain. Three BCG vaccination policies were implemented across bordering geographical regions in Southern Ireland from 1972; neonatal vaccination (vaccinated region-a), vaccination of children aged 10-12 years (vaccinated region-b) and no vaccination (unvaccinated region-c). The aim of this study was to investigate the impact of BCG vaccination on incidence of MTB during the study period.

Materials/methods: Laboratory surveillance data was used to identify all Mycobacterium tuberculosis complex (MTC) isolates from 2003-2016. Demographic data was recorded and residential addresses for each case were geocoded using the Google Maps API. Case locations were spatially linked to 2011 census population data and to Local Health Offices (LHO) BCG coverage data for study regions a-c. The 13-year incidence of TB was calculated assuming a steady-state population. Using SatScan (v9.4.4), spatial clusters were identified at the small area level with the spatial scan statistic based on the discrete Poisson probability distribution.

Results: Of 638 MTC infections identified (621 MTB, 16 M. bovis, 1 M. africanum), 510 occurred in study regions a-c (Median age (range) 42 years (4 months - 94 years, x% male). Overall incidence of MTB infection during the study period was 77/100,000 (95%CI 70 - 84). The incidence of MTB was higher in the unvaccinated population 93/100,000 (95%CI 85 - 100) versus vaccinated region-a 46/100,000 (95%CI 36-58) and region-b 37/100,000 (95%CI 24-57). A single high-risk cluster of 138 cases within a population of 46,000 was identified in unvaccinated region-c (relative risk 4.94 (95%CI 4.03 - 5.96).

Conclusions: Prevention and treatment of TB remains a significant challenge worldwide. Our study demonstrates significant differences in incidence of MTC infection in demographically similar populations based on BCG immunization policy and thus further supports efficacy of BCG for prevention of tuberculosis infection.



3
Human Papillomavirus Testing in the Management of Women Following Treatment for Cervical Intraepithelial Neoplasia

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Background: Cervicalcheck, the national cervical screening programme recommends that cytology and Human Papillomavirus (HPV) status are tested at 6 and 18 months following treatment for Cervical Intraepithelial Neoplasia (CIN). The current guideline is that women who have negative cytology but are still positive for HPV at 6 months following treatment require a repeat colposcopic assessment.

Objective: The aim of this study is to analyze the outcome in women whose first test of cure (TOC) reported a positive HPV test in the absence of cytological abnormality six months following treatment for CIN.

Methods: The six month and 18 month post-treatment cytology and HPV test results of women who underwent a treatment at our colposcopy clinic between 2012 and 2016 were reviewed.

Results: Of the 3079 women who were treated, 2280 (74%) had a LLETZ and 799 (26%) had cold coagulation. 276 (11%) women had negative cytology but were HPV positive six months after treatment. To date, 254 of these women have had a colposcopic assessment. A colposcopically directed punch biopsy was done in 33 (13%) of whom six (1.8%) had histological evidence of CIN 2. Five of these subsequently had a LLETZ, the results of which showed no abnormality in three and CIN 1 in two. One woman with CIN 2 on biopsy was managed expectantly. Eighteen months following treatment, 65 of the 276 women who were HPV positive at six months remained HPV positive.

Conclusion: The rationale of recommending repeat colposcopy for women with a negative smear and a positive HPV test following treatment is to avoid the possibility of significant disease being overlooked. Based on our observations over a five-year period, we question the need for recommending repeat colposcopy for women whose first test of cure shows no cytological abnormality in the presence of HPV positivity. The current strategy is leading to repeat colposcopy visits and biopsies for a significant number of our patients with the associated anxiety and distress of this practice. Furthermore, we question the usefulness of HPV testing 6 months following treatment as our data supports the observation that there is slow clearance of HPV after treatment.

4
Antiretroviral Stewardship in a Tertiary Irish Hospital, 2017

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Background: The expansion of the use of antiretroviral therapy (ART) since the World Health Organisation "Treat All" initiative in 2015 has seen a pharmaceutical drive towards better, more acceptable treatments with decreased pill burden. Boasting lower side effect profiles and the promise of a single tablet, these modern agents seem an attractive option for patients, yet believed to be costly to the system. Until recently, the main reasons for ART modification or switch were drug toxicity or treatment failure in many cases. Recently with the advent of new safer and more convenient drugs, reasons for switching varied. In this audit we are investigating clinical indications, success and cost implications of switching ART regimens at a single HIV clinic.

Methods: We retrospectively reviewed HIV patients attending our clinic who had a change in their ART over a study period of six months, from January to July 2017. Pharmacy dispensing record was used initially to identify those patients. Information was gathered from medical charts and clinic pro-formas looking at initial and subsequent ART regimens, switch rationale, renal and bone profile, and finally cost analysis. We observed one hundred and fifty nine ART switches over the study period. Four patients required a second switch. The vast majority of switches were from multi-tablet regimens to single-tablet regimens: most commonly Genvoya (53/159) 33%, followed by Odefsey (41/159) 25.7%. Reasons for switching varied, with most of them being made pre-emptively with concerns regarding renal and bone complications.

Results: Cost implications for the most common switches in our study estimated a saving of €17,986.59 per month. Only 8% of switches were to more expensive ART prescriptions.

Conclusion: The audit demonstrated the common indications for switching ART regimen. Single combined tablet was preferred in most of cases with Genvoya being commonly prescribed. Reasons varied between convenience, safety, and compliance. Surprisingly a very significant cost reduction observed during the period of the audit. With the data we've collected in this study we hope to draw up a hospital guideline for the initiation of ART in patients naïve to treatment. This guideline would address patient satisfaction issues by commencing highly acceptable regimens and, by prioritising regimens with lower pricing, represent a potential avenue of cost savings for the hospital.

5
Evaluation of the Sentosa® SQ Genotyping Assay in the Irish Diagnostic Setting

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Background: New HIV diagnoses have been increasing in Ireland since 2013. To inform the appropriate use of effective antiretroviral therapy for HIV treatment and prevention, baseline antiviral resistance testing is routinely conducted. This study evaluates the CE-marked Sentosa® SQ HIV Genotyping Assay system for use in the routine diagnostic environment, to assess whether the extra sensitivity gained by using Next Generation Sequencing translates into better outcomes for patients.

Methods: Forty-four samples, all of which had previously been tested for antiviral drug resistance using a laboratory-developed (LDT) Sanger sequencing assay, were tested using the Sentosa® SQ HIV Genotyping Assay system. A wide range of viral loads (2.6 - 5.9 log10 c/ml) was tested, with 8 samples below the Sentosa® stated limit of detection (3.0 log10 c/ml). Samples representative of the subtypes seen in

the Irish HIV-1 population were selected, and included new HIV diagnoses and patients with apparent treatment failure. **Results:** The Sentosa® assay successfully generated 44 sequences for Protease and RT gene segments, and 43 Integrase gene segments. The subtype data were 100% concordant. A pairwise comparison of the variants flagged in the Sentosa® report versus the LDT report (with sequence interpretation carried out using the Stanford online tool) identified differences in the Protease region in 2/44 individuals, and in the RT region in 12/44 individuals. Interpretation of the integrase sequences was 100% concordant. For 12/14 patients, increased numbers of resistance mutations were reported by the Sentosa® system, primarily due to the detection of additional DRM, present below a frequency of 6%. One individual's ART regimen was changed based on the new results. In one sample, the Sentosa® assay clearly identified the presence of a mixed-subtype infection which was not apparent in the Sanger data. **Conclusions:** The Sentosa® NGS assay performed well in our patient cohort, and represents a significant improvement on our current assay, through quantifying the detection of minor variants, and providing data on dual/mixed infections, thereby informing both treatment of the individual, and enhancing HIV surveillance at the population level. In the absence of clinical guidelines, however, it is not yet clear how best to interpret the relevance of DRM present at low levels and clinical input will be required prior to launching this assay.

6
Outcomes of Direct Acting Antiviral Regimens: Mono-Infected Versus HIV Co-Infected

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Background: Direct Acting Antivirals (DAAs) against Hepatitis C have success rates higher than 90% reported in the international literature. St. James's Hospital has one of the largest cohorts of patients with Hepatitis C in Ireland. Since February 2015, patients have been receiving DAAs at our clinic in the Genito Urinary Medicine and Infectious Diseases department (GUIDe). Our aim was to describe the baseline characteristics and outcomes of mono-infected and HIV co-infected patients attending the GUIDe department who received DAAs.

Methods: We retrospectively analysed the data contained within the electronic DAA treatment registry at our clinic for information on all patients who received DAA treatment. Using the electronic patient record (EPR), we extracted outcome data including Sustained Virological Response (SVR), laboratory and radiological markers of disease progression, and data relating to morbidity and mortality. We compared pre-treatment and post-treatment Fibroscan scores and AST-to-Platelet-Ratio-Indexes (APRI) for all patients with 'pre-' and 'post-treatment' data available.

We also performed a subgroup analysis comparing the baseline characteristics and outcomes of mono-infected against HIV co-infected patients. **Results:** 225 courses of DAA therapy were initiated in 224 patients between 17/02/2015 and 20/07/2017. 216 of the 225 courses of DAAs were completed. In 198 out of 216 completed courses, SVR was confirmed (91.67%). In addition, 12 patients who completed DAAs did not attend for SVR bloods, 1 patient completed DAAs but died before SVR could be confirmed and 5 patients had virological treatment failure. The mean APRI reduction for those with available data (n= 68) was 0.92 (p=0.000068). The mean Fibroscan score reduction for those with available data (n= 55) was 3.886kPa (p=0.000 018).

Comparing HIV positive and HIV negative patients, there was no significant difference in APRI reduction (0.9 vs 0.93, p=0.961) or in Fibroscan score reduction (3.372kPa vs 4.785kPa, p=0.416).

Although similar proportions of co-infected and mono-infected patients completed their DAA therapy (95.8% vs 96.4%, p=0.825), 95.6% of co-infected patients versus only 85% of mono-infected patients had a documented SVR (p=0.0066). Mono-infected patients were significantly more likely to miss their appointments to confirm SVR compared with their HIV co-infected counterparts (10.8% vs 2.1%, p=0.0051). **Conclusion:** Internationally comparable SVR rates were achieved at our centre. Significant improvements in disease-markers (APRI and Fibroscan score) with treatment were demonstrated. Mono-infected patients were just as likely to finish treatment as HIV co-infected patients, but less likely to attend for SVR-confirmatory bloods. Similar disease-marker improvements were seen in co-infected and mono-infected patients.

7
Investigating the effect of antiretroviral switch to tenofovir alafenamide on lipid profiles in people living with HIV within the UCD ID Cohort

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Background: Whilst reporting improved renal and bone safety profiles, studies have noted changes in lipid profiles among people living with HIV (PLWH) receiving antiretroviral therapy (ART) switching away from tenofovir disoproxil fumarate (TDF) to tenofovir alafenamide (TAF). This study aimed to characterise changes in lipids observed after switching to TAF-containing ART in a real-world setting. Methods: We analysed lipid values from PLWH enrolled in the UCD ID Cohort study who switched to TAF-containing ART from January 2016 to 31st July 2017. Routine laboratory data, ART history and use of lipid lowering therapy (LLT) were analysed pre and post switch. Lipids were stratified using NCEP-ATPIII 2016 criteria to assess severity of dyslipidaemia. Between-group differences were compared by Wilcoxon and McNemar tests. Data are median (IQR) unless stated. Logistic regression analyses were performed to identify factors associated with worsening dyslipidaemia.

Results: Of 775 PLWH enrolled in the cohort, 238 switched to TAF, of whom 194 had both baseline and follow-up lipids measured a median (IQR) 168 (100-286) days post-switch.

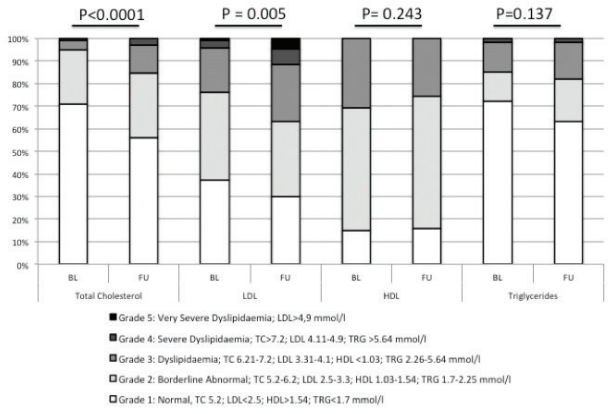
Of the 194 analysed, age was 46 (39, 53) years, duration

of known HIV was 10 (4.25, 15) years, CD4 count 621 (400, 812.75) cells/ul, 90.2% had HIVRNA<40cps/ml and 19.6% were HCV co-infected. 70.6% were male, 69.1% Caucasian, 25.8% African and 37.1% reported heterosexual, 33.5% MSM and 21.1% IVDU as HIV acquisition risks. Most common ART backbones pre-switch were TDF (85.1%) and abacavir (11.3%) with 23.7% on LLT at baseline and 4 (2.1%) commencing LLT post switch.

Although total cholesterol (TC), LDL and HDL all significantly increased post-switch (+0.300 (-0.200–0.900) mmol/l, p<0.0001; +0.200 (-0.100–0.700) mmol/l, p<0.001; +0.065 (-0.090–0.190) mmol/l, p=0.003 respectively), TC:HDL ratio did not significantly change. However, when stratified, there were significant increases in the proportions of PLWH with more severe dyslipidaemia for TC and LDL (p<0.0001 and p=0.005 respectively). In logistic regression, use of LLT at baseline significantly attenuated the risk of worsening TC (0.23 (0.053-1.035), p= 0.06) or LDL (0.23 (0.079-0.688), p = 0.01) levels post-switch (Table 1).

Conclusion: Although lipid profiles worsened post switch to TAF, , use of LLT pre-switch attenuated the risk of worsening lipids. How these changes will impact on cardiovascular risk in PLWH remains to be determined.

Figure 1: Stratified Lipid Profiles by NCEP ATP III 2016 criteria Pre- and Post-TAF switch



8
"PrEP'ed and ready to go": The GMHS PrEP clinic experience - 3 months on

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Background: Pre exposure prophylaxis (PrEP) has been proven to be highly effective in preventing HIV transmission in at risk populations. The Gay Men's Health Service started its first PrEP clinic mid-November 2017.

Methods: The new service was advertised on social media; hook up apps, gay bars, clubs and social venues, Gay Community News etc. The clinic is a weekly walk-in service. All patients have a rapid HIV test, full STI screen, renal profile, serum phosphate and urinalysis. Weight, past medical history and concurrent medications (both OCT and recreational drugs) are recorded. While PrEP dispensing is not available attendees have an in-depth consultation around suitability for PrEP, safe sex practices and correct dosing of PrEP. Patients who fulfil criteria to commence PrEP are given a prescription to purchase the medication in the form of a generic brand at a local pharmacy at a cost of €80 per month plus prescription fee.

Results: In the first 3 months of this initiative 132 patients attended the service, 51% were Irish, 12% Brazilian with the remaining 37% coming from 25 other geographic locations. 37% aged between 22 – 30, 31% aged 30 - 40, 21% aged 40 – 50, 11% over 50 with 2 patients > 70 yrs.

In the previous 3 months 32% had > 10 sexual contacts, 13% had 20 or more contacts and 2% had 50 to 60 contacts. While only 5% self-reported an STI in the previous 3 months 65% reported condom less anal sex within that time frame. 25% reported chemsex in the previous 12 months while 24% had accessed PEP during that time also. 31% of all attendees reported ordering PrEP online although only 28% reported already having started PrEP and were taking the drug for between 1 and 18 months. Two thirds of these were taking the drug daily with the remainder using event based dosing. 42% reported fear of contracting HIV as reason for taking PrEP while 20% reported sex with casual partners as the reason. There were 11 STI's diagnosed to date (no blood borne viruses).

Conclusion: The majority of patients self-presenting to the GMHS PrEP clinic have appropriate suitability for PrEP as per national and international guidelines. This initial three months of the PrEP clinic has been a huge success with numbers attending increasing week on week. Further expansion of the clinic will be necessary in order to meet the increasing demands for this critical service.

Poster Presentations

BASIC SCIENCE

P1

Hepatitis C Avidity as a tool for Detection of Acute HCV Infection

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Background: The prevalence of hepatitis C infection (HCV) in Ireland is approximately 0.3% with the circulating HCV genotypes predominantly 1 and 3. The ability to distinguish between acute and non-acute HCV infections is clinically important because early treatment of infected patients leads to high rates of sustained virological response. In addition, identifying acute infection should help to direct prevention initiatives, identify outbreaks, inform public health policy and allow an estimation of the HCV incidence in Ireland to be determined. Currently there are no commercial assays to measure HCV avidity.
Methods: We developed an HCV IgG avidity assay by modifying the Ortho 3.0 HCV enzyme linked immunoassay. Cohort sera from HCV infected patients tested comprised clinically acute (n=15) and non-acute which included chronic (n=29) and resolved (n=30) patients.
Results: A significant correlation was observed between the Architect anti-HCV assay and the Ortho anti-HCV EIA ($r=0.79$, $p<0.0001$). Urea (6M) and Citrate buffer (0.1M) were investigated as putative dissociation agents to disrupt the low avidity antibodies and both were found to correlate significantly ($r=0.74$, $p<0.0001$), however, avidity indices were consistently lower in the presence of citrate buffer. Significant differences were observed when the avidity index between acute and non-acute samples using citrate (mean ± SE: 25.78 ± 7.5 vs 60.53 ± 4.7, $p<0.0001$) and urea (58.46 ± 9.06 vs 87.45 ± 2.63, $p<0.0001$) were compared. However, using an avidity index cut off of 30%, citrate correctly identified 73% of samples as recent compared to 27% when urea was used. In contrast, use of urea in the non-acute patient samples identified 95% as established infection compared to 69.5% when citrate was used.
Conclusions: The findings in this study suggest that avidity based assays may have the capacity to discriminate between acute and non-acute HCV infection. However, further studies are required to optimize and validate this modified HCV avidity assay.

P2

Rapid identification of *Staphylococcus aureus* (SA) and Methicillin-resistant *Staphylococcus aureus* (MRSA) directly from positive blood cultures using the Cepheid GeneXpert MRSA/SA BC assay

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Background: Coagulase Negative *Staphylococcus* (CoNS) and *Staphylococcus aureus* are the most commonly isolated Gram positive bacteria from a blood culture sample. Blood culture bottles with Gram-positive cocci in clusters (GPCC) pose a dilemma for clinicians, as the morphologic feature under light microscopy could represent Coagulase Negative *Staphylococcus*, which is often due to contamination, or clinically significant *Staphylococcus aureus* bloodstream infection (BSI). Therefore the clinician must to be able to differentiate between a true *Staphylococcus aureus* BSI and a contaminant. Early microbial identification and detection of antimicrobial resistance directly from positive blood cultures can facilitate a more targeted antimicrobial therapy being administered for the patient, resulting in improved patient outcome, and reduce cost for the health service.
Materials/Method: In this study, the Standard of care testing (SOC) (fresh culture/MALDI-ToF MS and disc diffusion Antimicrobial Susceptibility Testing) in our laboratory was compared with the Cepheid Gene Xpert MRSA/SA BC assay. The Cepheid Xpert MRSA/SA Assay performed on the GeneXpert System is a qualitative in vitro diagnostic test designed for rapid detection of *Staphylococcus aureus* (SA) and Methicillin-resistant *Staphylococcus aureus* (MRSA) from patients with positive blood cultures, with a turnaround time of 67 minutes. The test utilizes automated real-time PCR to detect MRSA/SA DNA. The primers and probes in the Xpert MRSA/SA blood culture assay detect sequences for the *staphylococcal* protein A (spa), the gene for Methicillin/oxacillin resistance (mecA), and the *staphylococcal* cassette chromosome mec (SCCmec).
Results: A total number of 43 GPCC positive blood cultures were included in this study, in which of the total culture confirmed MRSA samples tested (n=8), 100% were correctly identified using the Cepheid GeneXpert MRSA/SA BC assay. Of the total culture confirmed Methicillin sensitive *Staphylococcus aureus* (MSSA) samples tested (n=10), 100% were correctly identified by the Cepheid GeneXpert MRSA/SA BC assay. All of the cultured confirmed CoNS samples tested (n=25) resulted as "SA Negative" on the Cepheid GeneXpert MRSA/SA BC assay, which correlated with cultured results.
Conclusions: This assay is rapid, easy to use and a reliable method for identification which can aid in a more targeted antimicrobial therapy for genuine *Staphylococcus aureus* BSI. By doing so it is capable of having a positive impact on the healthcare system, by allowing clinicians to reduce empirical treatment and length of stay for the patient.

CLINICAL CARE, HIV, HEPATITIS

P3

A Perfect Storm: The Additional Impact of Nadir CD4 Count On The Impact of HIV/Age Related Co-morbidities

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Background: In the era of antiretroviral therapy (ART), the life expectancy of HIV positive patients and the burden of age related co-morbidities have increased. Almost 500 of 2290 HIV-positive patients engaged in care in St James's Hospital are over the age of 50. This HIV-positive cohort is at higher risk of age-associated co-morbidities and drug-related toxicities. ART does not restore full immune system function and health status remains characterised by accelerated aging and chronic immune activation. Low nadir CD4 cell count

has been associated with increased prevalence of sensory polyneuropathy, cognitive impairment, chronic renal disease and hypertension. Prevention, screening and early intervention and potentially targeting specific personalised care pathways in those at higher risk will result in better outcome.
Method: This was a single Centre retrospective case control study. We included all HIV infected patients over the age of 50 attending St James's Hospital's GU medicine and infectious diseases (GUIDE) clinic in 2017. Data was collected using the patients' electronic patients records. Patients were divided into two groups, those with nadir CD4 count below 250 and those with CD4 count above or equal to 250. The aim of the study was to determine any possible associations between nadir CD4 cell count and age-related co-morbidities including malignancy, vaccine responsiveness and the incidence of clinical events.
Results: 461 HIV infected patients were reviewed. 282 (61%) had nadir CD4 count below 250. Patient characteristics were recorded including current CD4 count, HIV viral load, hepatitis co-infection status, and the duration of time for which CD4 count was below 250. The prevalence of malignancy, cardiovascular events, diabetes mellitus, hypertension, dyslipidemia, chronic kidney disease and osteoporosis/osteopenia was recorded for both groups. Significant difference between the 2 groups was noted in the prevalence of malignancy 67/282 (23.7%) vs. 18/179 (10%) and diabetes 56/282 (19.8%) vs. 13/179 (7.3%) for those with low nadir CD4 and those with nadir CD4 count above 250, respectively. Co-factors for the latter finding including prior ARV choice need to be considered. Among those with nadir CD4 count below 250, 71/282 (25%) received hepatitis B vaccine. 24/71 (34%) did not respond to the vaccine. while in the control group, 66/179 (36.9%) received hepatitis B vaccine with only 5/66 (7.6%) not responding to the vaccine. The number of documented clinical events (admissions) over a 10-year period (2008-2017) for both groups was collected. There were 257 events recorded in the group with low nadir CD4 count (0.9 event/patient/10yr). In contrast, there were only 58 events recorded in the control group (0.16 event/patient/10yr).
Conclusion: Nadir CD4 count below 250 might confer an increased risk of malignancy and diabetes in HIV infected individuals and is associated with poorer response to vaccination. Presumably this vaccine responsiveness may extend to other vaccines for which there is no serological marker of response which significantly impact the aging population i.e. influenza infection and pneumococcal disease. Rates of clinical events secondary to these infections in this cohort will be calculated. The low nadir group had significantly more documented clinical events contributing to increased morbidity. Targeted surveillance, more frequent review, self-management and risk factor modification need to be planned for this aging cohort.

P4
The contribution of HIV to reduced bone mineral density (BMD): the POPPY Study

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PWG Mallon, CA Sabin for the POPPY Study Group
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Introduction: The relative contribution of HIV and/or antiretroviral treatment (ART) to reduced BMD in older people living with HIV (PLWH) remains ill-defined. We describe the contribution of HIV/associated factors to BMD levels in the POPPY study.
Methods: The POPPY study includes three groups: i) PLWH aged >50 years, ii) lifestyle/demographically-matched PLWH aged 50 years. BMD, measured by dual Xray absorptiometry at lumbar spine (LS) and femoral neck (FN), was compared between groups using Kruskal-Wallis/Chi-squared tests. Linear regression models determined the association between HIV status and BMD at each site, before and after adjustment for potential confounders (Table).
Results: 649 older PLWH (88% male, 87% white, median (interquartile-range) age 53 (51-57) years), 353 younger PLWH (80% male, 79% white, 43 (37-47) years) and 291 HIV-negative controls (63% male, 89% white, 58 (53-63) years) had BMD measured. PLWH were more likely to be current smokers, to have recently used recreational drugs, to be homosexual and to be co-infected with hepatitis C. Median (range) absolute FN BMD was 0.870 (0.466-2.469), 0.917 (0.558-1.455) and 0.917 (0.557- 1.335)g/cm2 in older PLWH, younger PLWH and HIV-negative controls respectively (P=0.001); LS BMD was 1.060 (0.613-1.688), 1.072 (0.697-1.645), 1.134 (0.717-1.756)g/cm2 , respectively (P=0.001). Older PLWH had lower BMD compared to both other groups, although the difference between older and younger PLWH was greater at FN than LS (Table); estimated differences changed only slightly after adjustment for known confounders. Among PLWH, BMD at both sites was highest in those with lower CD4 counts, in those with HIV RNA >50 copies/ml, and in those not currently receiving ART.
Conclusion: Our findings suggest that HIV-positive status is an independent risk factor for lower BMD, particularly at LS, in younger and older PLWH. Possible treatment and immune-mediated mechanisms require further investigation.

Table. Unadjusted and adjusted associations with BMD

	Lumbar Spine BMD		Femoral Neck BMD	
	β-coef. 95%CI	p-value	β-coef. 95%CI	p-value
All participants				
i) Unadjusted				
PLWH >50 years	Ref.	0.001	Ref.	0.001
PLWH <50 years	0.022 (-0.002,0.046)		0.055 (0.033,0.077)	
HIV-negative >50 years	0.069 (0.043,0.094)		0.045 (0.021,0.069)	
ii) Adjusted for demographic and lifestyle factors[1]				
PLWH >50 years	Ref.	0.001	Ref.	0.001
PLWH <50 years	0.027 (0.003,0.050)		0.055 (0.034,0.076)	
HIV-negative >50 years	0.076 (0.047,0.106)		0.062 (0.036,0.089)	

P5

Is HIV infection a predictor for increased fracture risk?

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Background: HIV infection and low bone mineral density (BMD) are risk factors for fractures. We describe the fracture rate in HIV-positive and HIV-negative individuals in the POPPY study.

Methods: The fracture rate in the five years leading up to study entry was compared between the three POPPY groups (people living with HIV (PLWH) aged >50 years, PLWH aged 50 years) using Poisson regression models, before and after adjustment for gender and smoking, Femoral neck (FN)BMD and body mass index (BMI.

Results: The study included 699 older PLWH (88% male, 86% white, median (interquartile-range) age 57 (53-62) years, median (interquartile-range) BMI 26 (23-29) kg/m2), 374 younger PLWH (81% male, 80% white, 43 (37-47) years, 25 (23-28) kg/m2) and 304 HIV-negative controls (64% male, 90% white, 58 (53-63) years, 27 (24-30) kg/m2). The median (interquartile-range) FN BMD for the three groups was 0.870 (0.754-0.971), 0.917 (0.808-1.039) and 0.917 (0.801-1.041). There were 131 fractures over the 5-year period (78, 32 and 21 in the three groups respectively of which 16, 6 and 3 were at an osteoporotic site). Fractures occurred at the ribs [n=19], wrist [18], toes [16], foot [13], fingers [11], ankle [9], upper arm [5], hand [4], hip [2], head [1], pelvis [1], and other upper [17] or lower [15] extremities. Fracture rates (/100-years) were 2.23 (95% confidence interval 1.74-2.73), 1.71 (1.12-2.30) and 1.38 (0.80-1.97) in the three groups respectively (global P=0.04). After adjusting for gender and smoking, the differences in fracture rates between both groups of PLWH and HIV-negative controls were reduced and became non-significant. Adjustment for FN BMD, itself strongly associated with fracture risk, further attenuated the differences, although additional adjustment for BMI did not modify these associations further.

Conclusion: Our findings suggest that differences in fracture risk between PLWH and HIV-negative controls are primarily explained by lower FN BMD and male gender; ongoing analyses will investigate the role that antiretroviral therapy and other HIV-related factors play in this reduced BMD. Whilst the observational nature of the study and retrospective fracture recall limits our ability to determine causality, given the higher fracture rates in PLWH, interventions to tackle loss of BMD may result in fracture risk reduction.

P6

Change in fat/lean mass in HIV positive and negative subjects; data from HIV UPBEAT

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Background: Changes in body composition with antiretroviral therapy (ART) initiation have been well defined but long-term body composition changes in people living with HIV on stable ART compared to people without HIV remains unclear. With concerns regarding fat gain and sarcopenia in older PLWH, we aimed to compare changes in fat and lean mass in a large cohort of HIV+ and HIV- individuals.

Methods: In HIV UPBEAT, a prospective cohort of HIV+ and HIV- subjects from similar demographic backgrounds, subjects had annual dual energy Xray absorptiometry (DXA) to measure total and regional (arms, legs, trunk) fat and lean mass and provided clinical, demographic and laboratory data. We determined the absolute change in log-transformed body composition variables with longitudinal mixed effects models. Time-updated variables were included in models and removed if no difference in slope was determined. Data are presented as median (interquartile range) or %change (95% C.I.) unless otherwise specified.

Results: From February 2011 to June 2014, 462, 367 and 262 subjects provided DXA data at 3 annual visits respectively. Compared to the HIV- group, the HIV+ group were younger (38.5 (33.3, 46.1) vs 41.7 (34.6, 48.4) years, P=0.03; 13.7% and 20.0% aged >50 respectively, P=0.07), more likely male (58.0% vs 43.4%, P=0.002) and of African ethnicity (39.2% vs 24.9%, P=0.001). While arm fat increased by +4.95(3.51, 6.41)% per year (P<0.0001), there were no significant changes in the leg, trunk or total fat and no significant differences in annual %change in arm (+0.92 (-1.86, +3.75)%), leg (-0.46 (-2.57, +1.86)%), trunk (-0.69 (-3.75, +2.09)%) or total fat (-0.09 (-0.03, +2.33)%) between HIV+ and HIVgroups.

Arm lean mass increased by +1.62 (+0.93, +2.10)% per year (P<0.0001) but there was no significant change in leg, trunk or total lean mass. There was no significant difference in the annual %change in arm (+0.23(-0.93, +1.39)%), leg (+0.46(-0.23, +0.93)%), trunk (-0.69 (-2.09, +0.93)%) or total lean mass (+0.23(-0.23, +0.69)%) between HIV+ and HIV- groups. Conclusions were unchanged after adjustment for age, gender or ethnicity.

Conclusions: While we observed increases in arm fat and lean mass in the cohort overall, there were no differences between HIV+ and HIV- groups. We observed no significant change in other parameters of fat or lean mass either in the entire cohort or between groups. These data are reassuring; alterations in body composition in this cohort of PLWH reflect those observed in a relevant HIV- control group.

P7

The Acceptability of Pharmacy Based PrEP Delivery in Preventing HIV Transmission among African American MSM

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Background: In the US, African American (AA) men who have sex with men (MSM) have a 50% lifetime risk of contracting HIV. Pre-exposure prophylaxis (PrEP) can reduce HIV infection risk by over 90% when taken daily as an oral tablet. CDC estimates 1,232,000 persons with indications for PrEP, warranting multiple avenues of care delivery. Pharmacies are a feasible and financially viable alternative to clinic based care, providing consultation, lab tests, and medication dispensing in one setting.

Objectives: To examine the acceptability of pharmacy based PrEP care in the context of motivators and barriers to this care among AA MSM PrEP patients.

Methods: We conducted qualitative phone interviews among 23 study participants. Interviews were audio recorded, transcribed and double coded using NVivo10. Recruitment was from the Washington University PrEP Clinic. Inclusion criteria were AA, MSM, ≥18 years, taking PrEP for ≥ 1 month. Outcomes included 1) concept and purpose of pharmacy 2) acceptability of care 3) barriers and facilitators to care. Results: Study participants had a median age of 29, IQR (24-30). 22% had a primary care physician. Participants held a limited view of pharmacies as primarily places to fill prescriptions. However, pharmacy PrEP care was acceptable. Reduced personal connection, less credible care and decreased familiarity were prominent barriers to care. Increased access, receiving all care in one setting and reduced stigma were facilitators to care. **Conclusions:** Pharmacy based PrEP care was acceptable among African American MSM. Key findings suggest pharmacies can make PrEP more accessible, and should be included in current PrEP implementation efforts.

P8

HIV Ambulatory Service Effectiveness and Performance in University Hospital Limerick (UHL)

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Background: Antiretroviral therapy and expert human immunodeficiency virus (HIV) standardized care management transformed HIV care around the world over the last 2 decades. HIV-related quality measures developed by a consortium with the National Committee for Quality Assurance have been endorsed by the National Quality Forum and incorporated into Medicare's Physician Quality Reporting System (PQRS) in the United States. This study examined conformity of our HIV ambulatory service in UHL to published HIV Quality Measures. **Methodology:** A retrospective review of HIV case records was performed. Inclusion criteria were clinic attendance at least once in 2016; retention in care was defined as a subsequent minimum visit in 2017. Data on 144 patients were entered into an Excel database analysed for demographic, viral load (VL), CD4 count, vaccination and STIs screening. **Results:** 144 patients attended Ambulatory HIV services at UHL from January to December 2016. 94(65%) patients were male. Age Range was 21-71 and Median (IQR): 46(35, 47) years. Mode of acquisition included 75(52%) heterosexual, 59(41%) MSM, 3(2%) IVDU, 1(1%) Vertical and 6(4%) were unknown. 65(45%) patients were Irish, 46(32%) were from Sub-Saharan Africa, 7(5%) were European and 6 (4%) were Asian. 129(90%) patients were Retained in Care over 2016. 2(1%) did not attend in 2017, 3(2%) transferred to another centre and 1(1%) died. Years attending the clinic ranged from 1-16 years. CD4 count of those attending ranged from 27-1341: Median (IQR): 421(409,758). Of 143 patients on ART, 130(90.3%) patients had an undetectable VL and 2(1%) had VL of <200 copies/ml. 144(100%) patients had a CD4 count done at least every 6 months. 144(100%) of patients had CT/NG testing during at least one visit in 2016. 113(78%) patients had undergone one-time TB screening and 31(22%) had no documentation of prior TB screening. 144(100%) patients were screened for Hepatitis B and C infection. 5 patients have chronic hepatitis B infection and 3(2%) are hepatitis C antibody positive/ PCR negative. 139(97%) patients received the flu vaccine in winter 2016. 142(98.6%) have had Pneumococcal vaccination and 125(87%) have had full Hepatitis B vaccination.

Conclusion: Results show good adherence rates with International Guidelines for ambulatory HIV care. However, certain elements of HIV care delivery need to be improved upon, including better TB screening for our cohort. Results have been presented at our regular Clinic Meeting and staff are now aware to opportunistically consider TB screening of all patients attending.

P9

NS5A Resistance-Associated Substitutions in Patients Failing Direct Acting Antivirals: Emergent or Baseline?

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Background: Direct Acting Antivirals (DAAs) have revolutionised the treatment of Hepatitis C. Despite high success rates, up to 10% fail treatment. Mutations in Hepatitis C Virus (HCV) RNA conferring resistance to DAAs are one cause of treatment failure. Most clinically important are substitutions in the NS5A region which can cause high levels of resistance to NS5A inhibitors and persist long after the end of treatment. Baseline resistance testing is not routine practice, as is the case for HIV. The proportion of Resistance-Associated Substitutions (RASs) detected in cases of DAA failure that are present at baseline is not well understood.

We aimed to determine what proportion of patients failing DAAs had RASs at failure, and identify if these RASs were detectable in baseline samples. **Methods:** We searched the DAA treatment database at our clinic for incidents of virological treatment failure. All patients commencing HCV therapy had a stored baseline sample retained in the Irish National Virus Reference Laboratory (NVRL). For all cases of treatment failure, HCV sequence analysis was performed by the NVRL on treatment failure samples and on samples taken prior to initiation of DAA therapy to evaluate for the presence of RASs. Using the electronic patient record system (EPR), a description of the clinical course of these patients was obtained. **Results:** 91.67% of patients completing DAAs achieved a sustained virological response (SVR). 5 patients had virological treatment failure. In all 5 cases, NS5A RASs were detected in post-failure samples. One of these patients, who had emergent NS5A RASs, was previously described in a case study. Of the remaining 4 patients with NS5A RASs, half had these mutations detectable in baseline samples. **Conclusion:** Two-Fifths of patients failing DAAs had clinically significant NS5A RASs present at baseline. Had our patients been screened prior to the commencement of DAA therapy, an alternative or prolonged regimen could have been chosen. There may be an argument for offsetting the comparatively insignificant cost of having baseline RAS tests performed against the cost of a therapy regimen that has an increased chance of failure. The cost-effectiveness of systematic or targeted baseline HCV RAS analysis needs further study.

P10
A survey of hospital doctors in the care and management of HIV patients

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Background: Over a 3 month period 10 patients with a known diagnosis of HIV were admitted to Beaumont Hospital. It is current policy at Beaumont Hospital, that all patients admitted with HIV are managed primarily by the Infectious Disease team, with input from other specialties as required. Of the 9 admissions, 2 were via the HIV clinic, and 8 through the general medical take.

It was noted over the course of the three months that there was significant variation in the management of these patients particularly in regard to medication prescribing, and differential diagnoses on admission, with a heavy assumption toward opportunistic infections as the primary issue. This despite well controlled viral loads and health CD4 counts. As such a survey was put together to assess the comfort of doctors of all grades and specialities in approaching and managing patients with HIV whom they may come across in their practice.

Methods: The cases were assessed to see where issues had arisen in management. Discussion had with ID Consultants and specialist nurses to highlight any areas they had previously identified as lacking within the hospital, and also whether there was any information they were keen to gather data on to utilise in the future. The resulting questions covered the general demographics of the responder, how they felt about their ability to manage patients with HIV, and also looking at potential future policies within the hospital and society, how they felt about the broad application of HIV testing to medical admissions.

Results: Total of 55 responses. These were almost divided by specialty; 34 from medicine, 8 from surgery, 3 from anaesthetics/ITU, 1 from psychiatry, 5 from emergency medicine and 4 from radiology. They were further divided by grade; 18 consultants, 15 SpR/Regs, 13 SHO's and 9 interns. Results showed an overall discomfort in management of HIV patients with a particular focus on medication prescribing. We asked further questions regarding the potential for testing all medical admission which divided the responses evening between agree (22), disagree (17) and unsure (15).

Conclusion: Overall the responses indicated that the majority did not feel comfortable in their current approach to the management of HIV patients within an inpatient or outpatient setting. However, there was an overwhelming request by all responders for further education and greater availability of advice and guidance in the forms of clinicians and also written policies.

P11
Drug-Drug Interactions In The HIV Patient

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Background: The potential for clinically significant drug interactions (CSDIs) involving patients on ritonavir and cobicistat is high as a consequence of their powerful pharmacokinetic effect on the cytochrome P450 enzyme system, most notably their inhibitory effect on CYP 3A4. An audit was conducted to ensure this patient cohort was not unnecessarily exposed to potential drug toxicities as a consequence of a CSDI.

Methods: All individuals attending our clinic who were receiving the pharmacokinetic enhancers ritonavir or cobicistat were interviewed to determine a full medication history including medications prescribed by their GP, over the counter medicines, herbal remedies and recreational drugs.

Results: Of the 173 patients who admitted to taking a comedication, 66 of whom were taking a medication or medications which had no significant drug interaction associated with them. 107 patients had at least one medication which had an interaction which could potentially require a dose adjustment, close monitoring or a recommendation that these agents should not be coadministered. Only 27 % of these comedications were identified in the normal course of an outpatient visit.

Conclusion: As a consequence of the audit we have highlighted the importance of CSDIs amongst our patient cohort and medical team. We have implemented several innovative strategies to capture the most accurate medication histories and avoid drug toxicities associated with drug interactions.

P12
Limited Utility of Existing Cardiovascular Risk Scores in a Population of Malawian Adults

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Background: HIV is associated with increased cardiovascular disease (CVD) risk. Despite the high prevalence of HIV in low income sub-Saharan Africa (SSA), there are few data on the assessment of CVD risk in in the region. We aimed to compare the utility of existing CVD risk scores in a cohort of Malawians adults and to assess to what extent they correlate with carotid intima media thickness (IMT) and pulse wave velocity (PWV).

Method: WHO/ISH, SCORE, FRS, ASCVD, QRISK2 and DAD scores were calculated individually for 389 Malawian adults (279 HIV-infected, 110 HIV-uninfected). The number of participants excluded due to demographic or laboratory factors was recorded. Univariate correlation of 10-year CV risk score with IMT and PWV was assessed using Spearman's rho.

Results: Median (IQR) age, systolic blood pressure and total cholesterol were 36 (31-43) years and 122 (110-130) mmHg and 4.0 (3.3 – 4.5)mmol/L respectively. 201 (51.7%) patients were male and 2 (0.5%) patients had diabetes. The median(IQR) cfPWV and cIMT were 7·3(6.5-8.2) m/s and 0·59(0.56-0.67)mm respectively. The proportion of patients classified with a moderate or high 10-year CVD risk were: DAD 37%, SCORE 24%, ASCVD 8%, FRS 4%, WHO 2%, QRISK2 0%.

Large numbers of participants were excluded from ASCVD, SCORE and WHO scores due to a cut off for age [246 (63%), 247 (63%) and 246 (63%) respectively] and cholesterol [29 (7%), 39(10%) and 36(9%) respectively]; and from SCORE and WHO scores due to a cut off for systolic BP [45 (12%) and 41 (11%)]. FRS and QRISK2 correlated most closely with both IMT [r2 0.51, p<0.0001 and r2 0.47, p<0.0001 respectively] and PWV [r2 0.47, p<0.0001 and r2 0.5, p<0.0001 respectively]. The DAD, a risk score specific for HIV-infected patients, also significantly correlated with IMT and PWV [r2 0.46, p<0.0001 and r2 0.41, p<0.0001 respectively].

Conclusion: Current CVD risk scores correlate well with physiological measure of cardiovascular risk in Malawian adults. However, most models have a lower age cut off which limits use in younger HIV-infected cohorts. The DAD score may be the most useful tool to identify young adults with HIV at higher risk for CVD in low income SSA, but modification is required to allow for the lack of availability of cholesterol monitoring.

P13

Relationships between bone density, bone quality and reported fractures within the HIV UPBEAT cohort

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Background: Increased fracture rates are reported in people living with HIV (PLWH). We previously demonstrated decreased bone mineral density(BMD) and decreased bone quality (trabecular bone score(TBS)) in PLWH within the HIV UPBEAT cohort. We aimed here to explore factors associated with prior history of fracture within this cohort.

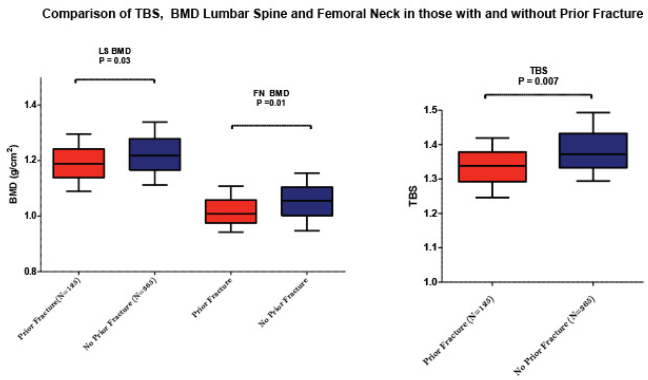
Methods: HIV UPBEAT recruited HIV+ and HIV- subjects from similar demographic backgrounds. At baseline demographic, clinical and fracture history were recorded. BMD was measured by dual Xray absorptiometry (DXA) and TBS derived from DXA using Insight Software. Data are presented as median [IQR] with between-group differences assessed by chi-square or Mann-Whitney. We used logistic regression to explore factors associated with prior fracture, P< 0.05 was considered significant.

Results: 474 subjects were included; 209 HIV+ (58% male, 39% African, age 39[33, 46] years) and 265 HIV- (43% male, 24% African, 42[34, 49] years). Of 125 reported fractures, 30% occurred in HIV+ and 23% in HIV- groups, P=0.15. Those reporting prior fractures had signficantly lower TBS, lumbar spine (LS) and femoral neck (FN) BMD (Figure). In the HIV+ group smoking rates were higher (36% vs 17%, P< 0.0001) and secondary causes of osteoporosis (OP) more common (16% vs 4% P=0.02).

Prior fracture was more likely in men [OR 2.8, C.I (1.85, 4.40), P< 0.001], current smokers [OR 2.23(1.42, 3.50),P< 0.001] and in those reporting secondary causes of OP [OR 2.38 (1.17, 4.84), P= 0.02]. In analysis adjusted for sociodemographic factors and HIV status, TBS [OR 0.22 (0.05, 0.95), P=0.04] but not LS BMD [OR 0.50 (0.10, 2.45), P= 0.49] or FN BMD [OR 0.32 (0.04, 2.25), P=0.26] was associated with prior fracture.

Conclusion: Although prevalence of fractures was similar between HIV+ and HIV- subjects, lower bone quality(TBS) rather than BMD was associated with prior fracture within this cohort, acknowledging the limitations of the analysis to determine causality, this finding however suggests an important role for bone quality in determining fracture risk.

Figure1:



P14

A Review of Prescribing Practices in ART Naïve Patients following Updated International Guidelines

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Background: In 2017 a retrospective audit of the prescribing of ART in treatment naïve HIV infected patients who were newly attending the GUIDe outpatient clinic in St. James's Hospital was undertaken. This followed the publication of updated international guidelines in 2015 which recommended ART initiation in all people living with HIV irrespective of CD4 count and which updated the recommendations on preferred and alternative first-line regimens. We sought to re-audit patients attending our weekly new persons clinic against these updated guidelines and to describe any changes in prescribing patterns compared with a similar audit undertaken in 2014.

Methods: All HIV+ treatment naïve outpatients who attended our new persons clinic between 08/05/17 and the 14/07/17 (10 week period) were identified via the data manager.

Using EPR, the pharmacy recording system and information from the data manager, a retrospective case notes review on these patients was undertaken and information regarding patient demographics , prescribed regimens, acquisition risks etc were obtained.

Results: 24 new patients were included.

22 were ART naïve and were initiated on Anti-retrovirals. 1 was a transfer on ART. 1 was initiated as an inpatient. 19(86%) male,3(14%)female. 17(77%) MSM, 5(23%) Heterosexual.

100% of patients were initiated on Anti-retroviral therapy and the choice of regimen in all cases was in accordance with published guidelines. 14% of patients were initiated on a Protease Inhibitor

a similar percentage to those prescribed a PI in 2014. 18% were prescribed an NRTI/NNRTI, a decrease of approximately 40% from 2014.
45% were prescribed an NRTI / INI, an increase of approximately 15% from 2014.
A combination of NRTI/INI/PI was initiated in 23% of cases. For these patients therapy was initiated before the results of resistance testing became available as there was a requirement for immediate treatment. In all cases the regimen was adjusted to remove the PI once the resistance test became available.
Conclusion: All patients who attended the new persons clinic in this 10 week period were initiated on Anti-retrovirals in accordance with published guidelines. Significant changes in prescribing patterns can be seen in in the GUIDe clinic with a move away from NNRTI prescribing and a move towards Integrase prescribing in our treatment naïve patient cohort with over 68% of our patients prescribed an integrase inhibtor. The low rate of side effects, dosing simplicity, durable safety and efficacy,and the relative infrequency of transmitted drug resistance make Integrase Inhibitors attractive options for initial ART.

P15

Renal Function and HIV Therapy: An Audit of Practice in a Major Irish Hospital on Screening for and Monitoring Renal Impairment in Accordance with European AIDS Clinical Society (EACS) Guidelines

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Background: HIV infection is now a chronic disease, with an emerging array of complications from the disease process itself and the cumulative toxic effects of drugs. Renal impairment in HIV infection is higher in prevalence than in the general population and thought to be multi factorial, with co-morbidities and specific ARVs contributing. Tenofovir disoproxil fumarate (TDF), a pro-drug of tenofovir, is extensively renally excreted and renal toxicity has been reported, while its novel prodrug, tenofovir alfenamide fumarate (TAF), is thought to be less renal toxic. EACS recommends the screening for renal impairment in all HIV-positive patients prior to ARV commencement and at least yearly thereafter by measuring estimated glomerular filtration rate (eGFR) and urinary protein/creatinine ratio (UPCR).
Methods: A retrospective analysis was performed of all newly diagnosed HIV-positive patients attending St. James's Hospital HIV clinic in the year 2016 (n=266), examining their initial screening for renal impairment and the subsequent anti-retroviral regimen chosen for those who were ARV naive. Data was collected using the Electronic Patient Record System (EPR), anonymised and analysed using STATA. Results were compared to a similar study presented previously, to complete the audit cycle.
Results: 88% were male with a median age of 35 (range 18-69), 27 were aged >50 years. 159/266 (60%) patients were ARV naïve. 100% of patients had an eGFR measured on their first visit (median 79mL/min, range 45-90mL/min) with only 23% of patients having a UPCR in the year following the commencement of ARVs (median 8, range 3-240). This rate of UPCR screening was lower than the 41% reported UPCR screening rate in our HIV-positive cohort, though in a differing patient subpopulation. Analysis was performed on patients prescribed TDF (n=147) and TAF (n=46). 68/147 (46%) of patients on TDF and 5/46 (11%) on TAF had UPCR measurement. In patients with abnormal eGFR (<90mL/min), 20/117 (17%) were on TAF, 66/117 (56%) on TDF, however analysis demonstrates that there is no statistical difference between eGFR in patients on TDF or not (p= 0.6).
Conclusion: Screening for renal impairment in HIV infection can be improved greatly, particularly in the setting of ARVs known to be nephrotoxic, with the identification of persistent proteinuria vital for detection of tubular dysfunction. Crucially, in the setting of an ageing cohort, screening for and managing of end-organ damage will become an increasingly important aspect of HIV care.

P16

Efficacy of Tenofovir Alafenamide in HIV/Hepatitis B co-infected patients in Beaumont Hospital, a descriptive analysis

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Background: Tenofovir disoproxil (TDF) has been a mainstay drug of both Hepatitis B and HIV treatment. Manufacturers of Tenofovir alafenamide (TAF) have reported a non-comparative cohort study of 72 patients with HIV/Hep B coinfection using TAF combined with Elvitegravir/Cobicistat/Emtricitabine showing it to be efficacious in this group. Here we present data of HIV/Hep B co-infected patients in a single centre of over 600 hundred HIV patients, 51 of which are co-infected with HIV and Hepatitis B. We present evidence of efficacy of TAF regimens in this gro up.
Method: Patients with HIV and Hep B co-infection were identified using the clinic electronic database. Serology testing and viral loads of HIV and Hepatitis B were acquired for each patient using an electronic portal to the National Virus Reference Laboratory Database. Patient chart review collecting patient demographics, antiretrovirals and date of commencement was performed.
Results: Seven patients were identified on TAF regimens. All patients were HBsAg positive and three were HBeAg positive prior to commencing TAF. Five patients had a direct switch from a TDF/FTC regimen to a TAF/FTC regimen, all had undetectable HIV viral loads. One patient was treatment naïve. One patient had previously been treated with TDF/FTC but had stopped taking ARVs and was restarted on TAF/FTC Four patients had undetectable Hep B viral loads and sustained Hep B viral load suppression post commencing TAF. One patient had active Hepatitis B on a TDF regimen with a viral load of 1128317 copies/ml log 6.05. Eight weeks post switching to TAF this was found to be 317927 log 5.5.
In the treatment naïve patient Hep B viral load was 2413 log 3.38 prior to commencing TAF/Emtricitabine. Follow up Hep B viral load is not yet available for this patient. The remaining non-compliant patient previously on TDF/FTC regimen had a Hep B VL >1000000 log > 9.0 which decreased to 648665 log 5.81 at 10 weeks on TAF/TFC.

ALT levels were raised in two patients at twice the upper limit of normal and had not corrected at 8 and 10 weeks post commencing TAF regimens. ALT was within normal limits for all other patients.

Conclusion: In this retrospective cohort analysis, seven patients were identified as having HIV/Hep B coinfection on a TAF regimen. TAF when used with Emtricitabine in combination ARV regimens appears to be efficacious in sustaining suppression or reducing Hep B copy number in those without suppression prior to starting TAF.

P17

Review of HAART switches on HIV patients in Cork, Ireland between 2000 and 2015

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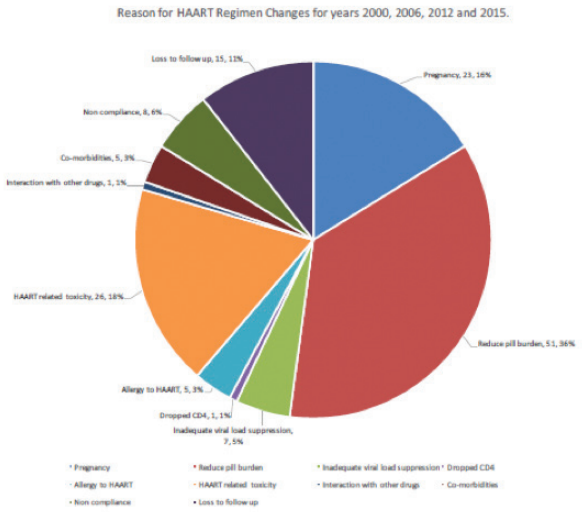
Background: The increase in HAART drug classes and agents over recent years has dramatically improved the management of patients living with HIV (PLWH). Historically, adherence was a major factor influencing accurate interpretation of HAART's effect, with up to 50% of HIV patients estimated to be non-adherent with their treatment. Switching to newer agents and single tablet regimens (STR) has increased compliance overall thus demonstrating the efficacy of HAART in numerous studies. Our study's primary objective was to collect data on patient's respective HAART regimen, related toxicities experienced, changes in their HAART regimen and rationales for those changes.

Methods: 30 consecutive HIV-seropositive patients who attended the CUH HIV outpatient clinic in Year 2000, 2006, 2012 or 2015 were recruited. File audits of 124 HIV-seropositive patients were performed, recording year of diagnosis, HAART's initiation date, type of initial HAART, any subsequent changes and reasons, duration on each regimen and toxicities experienced.

Results: For HAART regimen changes, 22.6 %(n=28) remained on their initial HAART regimen and 39.5 %(n=49) were either on their second or third HAART regimen. The most common reason for HAART regimen changes was for pill burden reduction (36%, n=51) followed by HAART-related toxicity (18%, n=26). Only 5 %(n=7) of switches were due to inadequate VL suppression. 16 %(n=23) of changes were due to requirement for pregnancy-suitable regimen. 5 %(n=7) of changes were due to inadequate VL suppression, demonstrating HAART's efficacy. Primary reason for HAART changes shifted across the study, from being due to pregnancy (n=14) in 2000 to pill burden reduction in 2006(n=21) and 2015(n=13). During this period, STR was increasingly initiated on ART-naïve patients, accounting for 28.1 %(n=9) in 2015 23.3%(n=29) of this study's population experienced HAART-related toxicity with 60 reported incidences. The commonest HAART-related toxicities were psychiatric and neurological (20.2%, n=25), with Efavirenz most commonly implicated in this category (64%, n=16). Gastrointestinal toxicities (16.9%, n=21) is the second commonest HAART-related toxicity, with metabolic and cardiovascular toxicities being third (6.5%, n=8).

Conclusion: The most common reason for HAART regimen changes shifted across the study, from being due to pregnancy in 2000 to pill burden reduction in 2015. Only 5% of switches were due to inadequate VL suppression illustrating efficacy of HAART. This study also demonstrates a gradual switching of patients to STR for pill burden reduction and possibly improved outcomes in patients attending the HIV-specialist outpatient clinic in CUH.



P18

Immunological and virological outcomes of HIV patients in Cork, Ireland with advances in HIV care between 2000 and 20 15

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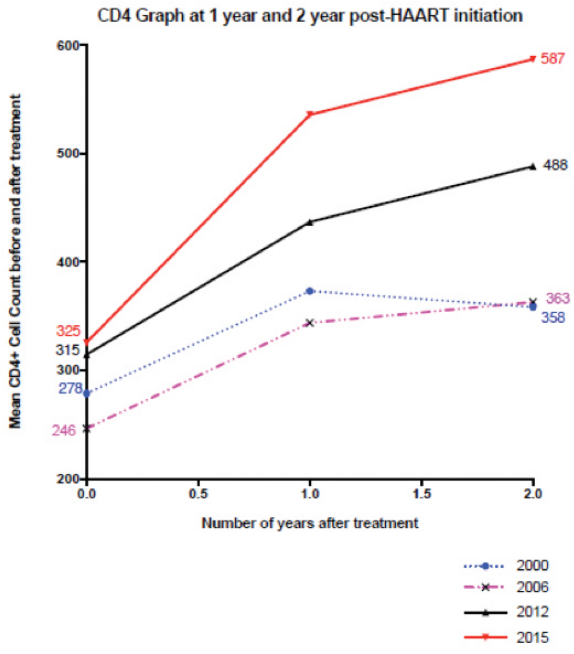
Background: HIV care experienced tremendous changes since Highly Active Anti-Retroviral Therapy (HAART)'s initial introduction in 1990's. HAART was prescribed as a multiple-tablet regimen (MTR) until mid-2000's. This high pill burden was associated with lower adherence, reduced viral suppression and increased morbidity. In 2006, he first single tablet regimen (STR) was introduced and recommended as a first-line treatment. STR lowered pill burden, improved viral suppression, increased patient satisfaction and crucially, doubled patient's adherence. The aim of our retrospective study was to determine the impact of the newer HAART regimens on patients who attend the HIV-specialist outpatient clinic in Cork University Hospital (CUH).

Methods: 30 consecutive HIV-seropositive patients who attended the CUH HIV outpatient clinic in Year 2000, 2006, 2012 or 2015 were recruited. File audits of 124 HIV-seropositive patients were performed, recording their HAART regimen initiated, viral load, CD4+ cell counts. The commonest type of HAART initiated for each period of interest was identified. The primary endpoint of the study was patient's 2-year outcome of percentage CD4 changes and viral suppression.

Results: The type of HAART regimen initiated varied considerably across the different periods of interest. In 2000, Combivir/Nevirapine (55.2%, n=16) and by 2015, Truvada/

Dolutegravir (31.3%, n=10) was most favoured. During this period, an increasing proportion of individuals are also initiated with single tablet regimens(STR) increasing from 0% in 2000 to 28.1%(n=9) in 2015. A decline in proportion of individuals initiated on regimens such as Combivir/ Nevirapine is observed decreasing from 55.2%(n=15) in 2000 to 0% in 2015. Conversely, the proportion of individuals being initiated on Truvada-containing regimen increased from 0% in 2000 to 50% in 2015. HAART in 2000 increased mean CD4+ cell count two years post by 28.7%, in 2015 increased mean CD4+ cell counts two years post HAART by 80.6%. In 2015, 90.6%(n=29) achieved VL suppression at one and two years post-HAART initiation while in 2000, only 48.3%(n=14) and 41.4%(n=12) achieved VL suppression at the same point post-HAART respectively. A oneway ANOVA test was performed, and a statistically significant relationship was established between pill count and percentage of patients being virally suppressed at one year ($F(10,87) = 8.558$, $p<.001$) and two years($F(10,83)=57.79$, $p<.001$) post-HAART.
Conclusion: This study observed that HAART in 2015 is significantly more efficacious in raising CD4+ cell counts and causing viral suppression over the first 2 years compared to HAART in 2000.



P19

Implementation of Changing Pneumococcal Immunisation Recommendations for HIV+ Patients

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Background: Pneumococcal vaccination is recommended for all patients with HIV due to the increased risk of developing pneumococcal pneumonia, invasive pneumococcal disease (IPD) and the increased risk of poor outcomes. The incidence of IPD in HIV+ patients attending St. James's Hospital 2005-2016 was 283/100,000. Polysaccharide pneumococcal vaccine (PPV) uptake in the cohort was documented at 91% in 2016. Pneumococcal vaccination schedule guidelines for HIV+ patients were updated in 2015, recommending a prime boost immunisation strategy combining conjugate pneumococcal vaccine (PCV) followed by PPV23 in pneumococcal vaccine naïve patients. PCV13 uptake in a subgroup of HIV-HCV co-infected patients within the cohort was reported at 54% in 2016.
Methods: A retrospective review was undertaken to calculate (1) the uptake of PCV 13 and (2) the completion of the prime-boost strategy with PPV23 in new attendances in 2016. We also measured uptake of PCV13 in patients previously vaccinated with PPV23.
Results: Approximately 2,400 HIV+ patients attend the clinic. 266 HIV+ patients attended the department for the first time in 2016. Notably a significant number of patients especially those migrating from other countries had previously attended HIV services and may not have been pneumococcal vaccine-naïve. 183 patients received PCV13 (69% on ITT), 64% of these patients completed the prime-boost vaccine sequence representing 44% of the total cohort (ITT). Notably 29% (ITT) received neither vaccine in our unit but may have received vaccine prior to migration. We calculated that 70% of the established HIV+ cohort, previously vaccinated with PPV23, received a single booster of PCV13 as advised in the updated immunisation guideline.
Conclusion: Uptake of the new PCV13 pneumococcal vaccine among newly diagnosed HIV+ patients seen in the St. James's Hospital is improving however more work is required to ensure completion of the vaccine schedule. Critically there is a need to confirm vaccine status in newly-attending known HIV+ patients and a need to improve PCV13 uptake in the established cohort of patients previously vaccinated with PPV23. We propose to re-evaluate the incidence of IPD in our cohort over a 5 year period post the introduction and uptake of the new prime-boost vaccine schedule.

P20

The Inflammatory Neurodegenerative Continuum in HIV-Related Cognitive Impairment. Follow up Neurocognitive Characteristics

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Background: HIV associated neurocognitive disorders (HAND) remain very common (50%) despite the introduction of highly-active antiretroviral therapy (HAART).
Methods: A St. James's Hospital based cohort of HIV+ patients, who had a positive screen for cognitive impairment which was followed by detailed clinical and neuropsychological (NP) testing (n=104), have recently completed follow up assessments (n=79). These involved NP testing including: Repeatable Battery for the Assessment of Neuropsychological

Status (RBANS), Addenbrooke Cognitive Examination Revised (ACE-r), Montreal Cognitive Assessment (MoCA), Frontal Assessment Battery (FAB), Hospital Anxiety and Depression scale, functional status and clinical assessment to evaluate for changes of NP status and natural course of HAND. RBANS assessment result was used to determine the diagnosis of HAND for each individual. Results of follow up NP assessments were correlated with clinical data: CD4 counts and HIV viral load.
Results: Of the original 104 HIV+ cohort, 79 participants completed the follow up testing and 25 (24%) were lost to follow up. Overall, the cognitive status remained stable. Of the 79 participants, 45 (57%) met the diagnostic criteria for HAND at follow up: 20 (25%) – for Asymptomatic Neurocognitive Impairment (ANI); 22 (28%) – for Mild Neurocognitive Disorder (MND) and 3 (4%) – for HIV associated Dementia (HAD). Of those who met criteria for HAND at follow up, six were new/incident diagnoses of HAND. Only two patients declined from normal to cognitive impairment range on ACE-r test. Improvements were noted in attention, immediate and delayed memory, with language and visuospatial/constructional domains remaining stable.
Conclusion / Discussions: Initiation and compliance with HAART can stabilise or even improve cognitive status in HIV+ individuals and possibly delay progression to HAD. Improvements observed in attention, immediate and delayed memory could be due to practice effects and other NP test related factors; and are consistent with improvements in published normative data in healthy population. It is possible that a higher proportion of true decliners were amongst those lost to follow up.

CLINICAL CARE, INFECTIOUS DISEASES

P21

Kingella kingae osteoarticlar infection: clinical experience in a tertiary hospital in Ireland

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Introduction: Kingella kingae is reported as an emerging cause of osteo-articular infection (OAI) in young children and can cause daycare outbreaks. Molecular testing has improved identification of OAI organisms. We report our experience of K. kingae OAI in children attending two Irish tertiary paediatric centres.
Methods: Retrospective study of children with K. kingae identified by PCR or culture of bone or joint fluid. Patients were identified by interrogation of the microbiologic laboratory systems. Demographics, clinical, laboratory parameters, course and outcome were examined.
Results: From Jan 2004 - Dec 2017, inclusive, 15 patients (10 in the last 3 years) had K. Kingae OAI; 10 males, median age 19 (9–72) months. K. kingae were identified in joint fluid (13) or bone (2); by culture (5), PCR (8), or culture & PCR(2). Affected sites included hip(3), knee(7), ankle(2), tibia(1) calcaneus(1) talus(1). Symptoms included limb swelling (13/15), non-weight bearing (8/15), limp (7/15), fever (8/15, 10/15 afebrile at admission, T max 38.5). 87% had a preceding URTI. Median WCC was 11x10^9/l (range 3.8-16.2), CRP 32 mg/dl (range12-92), ESR 55 (range 30-71) mm/hr. Empiric therapy was appropriate in all. Median hospitalisation was 9.5 days(6-15) days, with medians 8 (range 5-21) days parenteral and subsequent 21 (22-28) days oral therapy. 3/4 PCR+/Culture- patients had preadmission antibiotics. All recovered.
Conclusion: Additional PCR testing increases diagnostic sensitivity for Kingella OAI. Reported increases in incidence may in part reflect better diagnostics rather than epidemiologic change. Clinical and laboratory manifestations can be less acute than with other OAI. Consideration of K. kingae in choice of empiric therapy for POI in young children, especially those with preceding URTI, is warranted.

P22

Trends in clinical biomarkers, symptom severity and length of stay in a ward cohort of Influenza Virus Positive Admissions in a Tertiary Irish Hospital

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Background: Influenza virus remains a significant cause of morbidity and mortality in all age groups and is a major contributor to the national trolley crises during winter months. The most recent Influenza season yielded an unexpected increase in the number of cases of Influenza B virus not covered by the seasonal flu vaccine.
Aim: To audit and evaluate trends in clinical biomarkers (CRP, White Cell Count, Neutrophil levels, lymphocyte count and Sodium levels), length of stay, co-infections and vaccination rates in Influenza A and B positive admissions in a ward cohort.
Methods: A retrospective snapshot audit was carried out to assess Influenza positive admissions over 17 weeks. Data was obtained from a ward cohort of Influenza virus A & B positive patients. Clinical and laboratory data was collected by means of the patient notes and the hospitals electronic 'PIPE' system. Patients who fulfilled the following inclusion criteria were included: 1. Admission through the ED during the period 04/10/17 - 30/1/18 2. Laboratory confirmed Influenza A or B infection 3. Clinical data was available on patient's clinical biomarkers for duration of admission. Patient data was handled discreetly and privately to protect patient confidentiality. Average scores were calculated for each clinical data category and then further evaluated for each Influenza type (A or B).
Results: The review of patient data who satisfied the audit inclusion criteria spanned 17 weeks and totalled 109 patients. The following anomalies in patients clinical biomarkers were noted: 91.74% of patients had an elevated CRP, 33.94% of patients had leukocytosis, 43.11% of patients had neutrophilia, 56.88% had lymphopenia and 27.52% of patients had hyponatremia.
Interestingly, Influenza B infections were associated with the majority of all biomarker anomalies, accounting for 54% of all elevated CRP levels. Furthermore, Influenza B accounted for 56.76% of all counts of leukocytosis, 62%, of all counts

of neutrophilia , 51.62% of all counts of lymphopenia and 56.66% of all counts of hyponatremia.
Conclusions: Thus far, rates of positive Influenza B virus cases have been greater in this Influenza season than previous years. Patients diagnosed with Influenza B virus demonstrated greater anomalies in their clinical biomarkers as well as having symptoms of greater clinical severity requiring hospitalisation and prolonged durations of stay.

P23
Risk Factors for *Pneumocystis jivorecki* Pneumonia in HIV negative Patients

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Background: Pneumocystis jirovecii pneumonia (PJP) is an important cause of morbidity and mortality in HIV uninfected immunosuppressed patients. To evaluate the epidemiology and risk factors for PJP in patients attending Galway University Hospital (GUH), we reviewed all cases diagnosed between January 2013 and December 2015.
Methods: GUH has an inhouse qualitative PCR assay. All patients with positive P. jirovecki PCR result from either bronchial washings or sputum were identified by the Microbiology Department. HIV infected patients and those in whom a clinical determination was made that the result represented a false positive were excluded from the study.
Results: 30 patients with positive P. jirovecki PCR results were identified. In 5 of 30 (17%) cases the result had been assessed as a false positive and patient was not treated for PJP. 2/25 (8%) PJP cases were HIV infected. 23/25 (92%) cases were HIV negative and were included in the following analysis. The mean patient age was 61.4 years (range 33-81 years). 13/23 (57%) cases occurred in females and 10/23 (43%) in males. All patients were immunocompromised; 17/23 (74%) cases had an underlying malignancy of whom 14/17 (82%) were on active treatment. In patients without underlying malignancy (n=6), 4 cases were associated with corticosteroid exposure alone while two further cases occurred in patients receiving a combination of methotrexate and biologic therapy. In patients with an underlying malignancy, 12/17 (71%) cases were in patients with solid organ involvement; breast cancer accounted for 6/17 (35%), lung cancer 3/17 (18%), pancreatic cancer 2/17 (12%) and sarcoma 1/17 (6%). Haematological malignancies accounted for 5 of 17 cases (29%). 53% (8/17) of patients with underlying malignancy had documented recent corticosteroid exposure- four of these had breast cancer. The most frequent indication for steroid use within this group was nausea. 4/23 patients died (27%), all had an underlying malignancy.
Conclusion: Underlying malignancy and associated treatment was the most frequent risk factor for PJP seen in our cohort. The highest proportion of cases occurred in patients undergoing chemotherapy for solid organ malignancies, in particular breast cancer. Within the group with solid organ malignancy the main risks appear to be chemotherapy and corticosteroid exposure. Frequently the documented indication for corticosteroid use was nausea, suggesting that anti-emetic prescribing may be an important modifiable risk factor for PJP in this setting.

P24
Adherence to Neuroimaging Guidelines in the setting of Meningitis

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Background: Early treatment for bacterial meningitis has been shown to be associated with favourable outcomes. Lumbar puncture (LP) is the diagnostic procedure in the setting of meningitis, and aids appropriate treatment choices. There are certain situations in which brain CT should be conducted prior to lumbar puncture, as set out in the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) guidelines. A CT is recommended in patients with any one of GCS <10, new-onset seizures (within one week), arm or leg drift, or history of HIV, organ transplant, or receiving severe immunosuppressive treatment. This study set out to determine our adherence to the ESCMID guidelines. We did this by retrospectively examining the cases of infective meningitis (bacterial, fungal and viral) admitted under the medical services in St James's Hospital in the period January 2017-October 2017.
Methods: Retrospective laboratory review was used to select the cases of infective meningitis (bacterial, fungal and viral) admitted under the medical services in St James's Hospital in the period January 2017-October 2017. These patients had their electronic records reviewed to assess if a CT had been carried out, and the time at which it took place. The clinical information provided on the scan request was recorded. The timing of lumbar puncture was recorded, and compared to timing of CT in order to establish a timeline of events. The clinical information provided for the CT scan was compared with the ESCMID criteria to assess guideline adherence.
Results: Laboratory records showed that there were 22 cases of meningitis. These patients had their electronic records reviewed. Of the 22, one patient met ESCMID criteria for CT scanning prior to LP, as he was HIV positive. All 22 underwent CT scanning at some point during their admission. 16 patients had their CT scan performed prior to their LP. 15 of these patients (94%) did not meet the ESCMID criteria.
Conclusions: The use of CT in the investigation of meningitis in our institution is not in line with international guidelines. The overuse of CT delays diagnostic lumbar punctures and increases cost. The next stage will be to assess the time from referral to antibiotic delivery.

P25
The Utility of Screening for Coccidioidomycosis in Recipients of Anti-Tumor Necrosis Factor-α Therapy

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Background: Tumor necrosis factor-α inhibitors (TNF-I) are commonly used to treat a wide variety of immune-mediated disorders. These medications are linked to an increased risk of mycobacterial, viral, and fungal infections, and some society guidelines recommend screening for tuberculosis, hepatitis B and C, human immunodeficiency virus prior to initiating TNF-Is.

Patients are also commonly screened for coccidioidomycosis in Arizona, though there is no published evidence upon which to base this practice. The aim of this study was to compare outcomes of cohorts of selected TNFI recipients who were screened for coccidioidomycosis with those who were not screened, to determine the number of patients presenting with symptomatic coccidioidomycosis in each group, and to describe outcomes of patients with abnormal coccidioidal screening.

Methods: We electronically searched for all patients at our institution receiving TNF-I from9/4/2010 to 9/26/2016, and included patients who were prescribed TNFI for dermatologic, rheumatologic, or gastroenterologic purposes. We then categorized patients by whether or notthey had undergone any serological testing for coccidioidomycosis, whether such testing was for screening or diagnostic purposes, and whether or not such studies were positive.

Results: From 9/4/2010 through 9/26/2016, 2793 patients had a TNFI prescribed, of whom 1951 met inclusion criteria for study; Among the 1951, 1025 (52.5%) had never had any screening coccidioidal serology performed, and 926 (47.5%) had coccidioidal serologies performed either prior to initiation of TNFI (baseline screen) and/or at an established time thereafter (annual screen). Among the 1025 TNFI recipients without any coccidioidal screening, 35 (3.4%) developed symptomatic coccidioidomycosis. Among the 926 patients who had undergone screening for coccidioidomycosis, 53 (5.7%) were identified as having an abnormal screen (7 probable infection, 11 possible infection, 18 asymptomatic seropositive, and 17 EIA IgM only). Twelve of 926 (1.4%) developed symptomatic coccidioidomycosis after the screen. When compared with the screened cohort, the unscreened cohort was significantly more likely to develop symptomatic coccidioidomycosis (35/1025 versus 12/873, p=.0045).

Conclusions: Within the Coccidioides-endemic area, screening for asymptomatic coccidioidomycosis allowed the identification and management of coccidioidomycosis prior to initiation of TNFI in 5.7% of patients. There was significantly less symptomatic coccidioidomycosis among the screened than unscreened cohort. These results provide guidance in the approach to patients starting TNFI in Coccidioides-endemic regions.

P26

OPAT in St James's Hospital – A Year in review 2017

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Background: OPAT has been available through the national OPAT Program in SJH since 2013. The local model of care is that all referrals are initially reviewed by the OPAT nurse, and an ID consult is obtained. All patients are co-managed by the referring team and ID teams. All patients are followed up in the weekly OPAT review clinic. This review looks at all aspects of the OPAT program in SJH in 2017.

Methods: The data is collected prospectively on a secure database. Data presented includes patient who received OPAT through the national OPAT program and through private health providers.

Results: In 2017 there were 163 successful OPAT discharges with 41 (25%) SOPAT. There was a total saving to the hospital of 3028 Bed days, averaging 18 BDS per referral. 19% of all referrals did not use the national OPAT program but private insurance providers – such patients were also reviewed in the weekly OPAT clinic.

A further 62 patients (25% of the total referred) did not receive OPAT after assessment by the ID team – the most common reasons included the patient being switched to oral antibiotics, patient unsuitability, further work-up needed prior to discharge, no availability of the SOPAT service.

An internal audit of the OPAT clinic has shown a 98% attendance rate with all patients having appropriate blood work performed. The top three antibiotics prescribed were ceftriaxone, Daptomycin, and Ertapenem. The most common OPAT diagnoses were Diabetic Food Infection, osteomyelitis, and urosepsis.

There were 17 hospital readmissions (10% of all OPAT referrals), of which 9 patients were due to a direct failure of OPAT therapy, 8 unrelated to OPAT. The overall success rate/treatment response rate was 88%.

Conclusion: There was a reduction in SOPAT referrals in 2017 compared to previous years which was due to a significant reduction in availability of the SOPAT service from Baxter. This should improve from April 2018. The high (25%) number of patients who were referred to the OPAT team for OPAT but who did not receive it, reiterates the importance of the OPAT nurse and ID clinical team in the initial patient assessment pre OPAT discharge.

Areas for us to concentrate on in 2018 include increased use of the 23hour Flucloxicillin pump, improved SOPAT usage, fewer readmissions, and targeting the ED and AMU who have been very resistant to directly use the OPAT service to date.

P27

Cefazolin use within the National OPAT programme

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Background: The Irish National OPAT programme was established in 2013with a view to improving patient experience and improving efficiency within the healthcare service. Intravenous Antibiotics administered on an outpatient basis have shown to be safe and efficacious. The convenient dosing, favorable pharmacokinetics, narrow spectrum of activity, excellent tolerability, and lower cost have all contributed to the increased use of cefazolin.

Methods: This was a retrospective analysis of patients enrolled on the national OPAT programme who received cefazolin between January 2016 and December 2017. All patients who received cefazolin solely or part of their treatment were included in the analysis. Patients with cystic fibrosis were excluded.

Results: Since January 2013 until Dec 2017, a total of 7334 referrals have been accepted on the National OPAT programme. 1040 (14.1%) were discharged on cefazolin as part of their ongoing treatment. In 2013 11.8% of all OPAT referrals were for Cefazolin scripts. This rose to 15.7% in

2014 and has remained between 13% and 15% since then. Between January 2016 and December 2017, 3103 OPAT referrals were accepted to the National OPAT programme. 456 (14.7%) of these had been discharged on cefazolin as part of their ongoing treatment. 291(63.8%) male, 165 (36.2%) female. Mean age of 58 ranging from 14 to 101. 194 (42.3%) had three daily doses, 124 (27.2%) had twice daily dosing and 138 (30.3%) had once daily dosing (in conjunction with probenacid). Average treatment duration was 13.6 days ranging from 1 to 40 days. 262 (58.3%) were treated for skin and soft tissue infections (SSTI), 146 (32%) treated for Bone and Joint infections, 11 (2.4%) were treated for abscess, 7 (1.5%) each for Bacteraemia and Cardiovascular system and 23 (5%) had another diagnosis. There was an estimated 6223 bed days saved (BDS). The total number of BDS for SSTI was 1666 with an average of 6.3 BDS per patient and 4557 DBS for all other diagnosis with an average of 23.6 DBS. Readmission rates for all OPAT users was 199 (6.4%) and 22 (4.8%) for the number of cefazolin readmissions.

Conclusion: The favourable profile of cefazolin has made it a popular choice for skin and soft tissue infections (with probenacid) and bone and joint infections. Until recently in Ireland cefazolin could only be administered through HOPAT, but since January 2018 is also available as compounded drug. This is likely to increase its use in regions with limited access to HOPAT.

P28

Characteristics and outcomes of an Infectious Diseases specialist led Outpatient Parenteral Antimicrobial Therapy (OPAT) service in Southern Ireland

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Background: OPAT has been demonstrated to be a safe, efficacious and cost-effective method of treating a wide variety of infections. It offers several advantages, including reduction in hospital bed-day utilization, decreased risk of nosocomial infection and increased patient satisfaction. The aim of this study was to examine clinical characteristics, outcomes and associated bed-day savings in patients treated by an Infectious Diseases specialist led OPAT programme in Southern Ireland.

Methods: Consecutive patients referred for OPAT from January 2015 to August 2017 were included in the study. Data on patient diagnosis, microbiology, antimicrobial therapy, duration, complications and clinical outcomes were sourced using a prospectively maintained OPAT database in combination with clinical and laboratory record review. Treatment success was defined as cure or a major improvement and the absence of relapse within 28 days of cessation of OPAT.

Results: Of 451 patients referred, 295 (65%) were deemed suitable for OPAT during the study period. 179 (60%) were male with a median age of 61 years. 150 (51%) had home-OPAT while 145 (49%) had self-OPAT. Most commonly noted diagnosis was bone and joint infection accounting for 53% (n=158) of OPAT episodes (58% (n=91) comprising of osteomyelitis, 28% (n=45) prosthetic joint infections, 14% (n=22) septic arthritis).

Blood stream infection accounted for 8% (n=25), CNS infections 7% (n=20), skin and soft tissue infections 7% (n=20) while endocarditis accounted for 5% (n=15) of OPAT episodes. Ceftriaxone was the antimicrobial used in 103 (35%) patients, daptomycin in 64 (22%), meropenem in 35 (12%) and flucloxacillin in 49 (17%). Successful treatment outcome was documented in 90% (n=266) of patients. The OPAT programme resulted in a cumulative total of 6004 bed day savings during the study period.

Conclusion: We report a high cure (90%) rate for patients treated by an Infectious Diseases specialist led OPAT programme across a broad range of infections. The OPAT model resulted in significant hospital bed day savings during the study period. OPAT is a safe and effective model of care for providing parenteral antimicrobial therapy to selected patients.

P29

National Early Warning Score Audit in a Tertiary Adult Referral Hospital

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Background: In Ireland, an estimated 60% of all deaths had a diagnosis of sepsis or an infection. Early detection of sepsis has been proven to decrease the morbidity and mortality in sepsis. The Early Warning Score (EWS) is used as a trigger for the screening of sepsis on the wards. National guidelines recommend the completion of the sepsis 6 within one hour of trigger. Our goal was to measure the receiver operating characteristics, sensitivity and specificity of the EWS for early identification of sepsis, against the gold standard of a retrospective determination of sepsis. In addition, we aimed to collect data regarding sepsis management in a large tertiary referral hospital.

Methods: This study was a prospective audit with the aim of collecting data throughout a patient's admission. Patients who scored an EWS of 4 (or 5 with supplementary oxygen) and were admitted into the 4 wards that participated were entered into the study. The study was carried across 6 weeks in 2017 and ran simultaneously on all 4 wards. Multiple variables were collected for all patient, including completion of sepsis 6, time to medical review and time to first antibiotics were collected. Data was also collected for blood cultures, intensive care unit admission and outcomes. A retrospective assessment of the sensitivity and specificity of the EWS was done. We also attempted to compare the quick Sequential Organ Failure Assessment score (qSOFA) as a predictor of severe sepsis.

Results: A total of 86 patients were included in the study across medical and surgical specialties. Completion rate for sepsis 6 was 84.13% for suspected sepsis cases with the average time of completion at 86.7 minutes. The median

time to first antibiotics was 59 minutes. There were 33 (38.37%) confirmed, 26(30.23%) probable and 15(17.44%) refuted cases of sepsis after retrospective review, with 12 cases deemed uncertain. Respiratory infection accounted for 67.12% of sepsis cases followed by urinary tract infections (44.07%) and abdominal infections (5.08%). Specificity of EWS for sepsis was 77.63%. The qSOFA was insufficiently sensitive in our study.

Conclusion: There was a good standard to management of sepsis during our study period. EWS remains the most useful screening tool for sepsis on the inpatient ward but there may be a role for other scores to be used in combination with the EWS.

EPIDEMIOLOGY & PUBLIC HEALTH

P30

Longitudinal Analysis of Quality of Life (QOL) in HIV-positive and HIV-negative Subjects Enrolled to the UPBEAT Cohort Study after 5 Years of Follow-up

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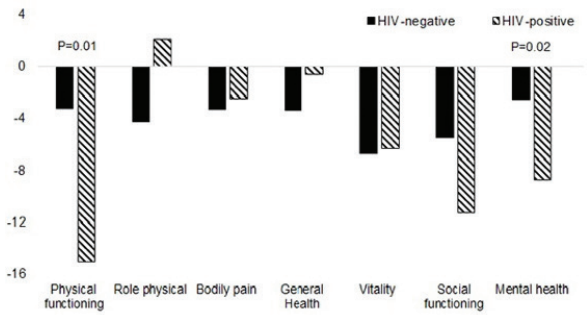
Background: With ART, the life expectancy of people living with HIV (PLWH) is approaching that of the general population, however, less is known about how these populations compare in terms of quality of life (QoL). We aimed to assess differences in QoL in HIV-positive (HIV+) and HIV-negative (HIV-) subjects over time.

Methods: QoL was assessed at study entry and year-5 in the HIV UPBEAT (Understanding the Pathology of Bone Disease in HIV Infected Subjects) cohort study, a prospective cohort including HIV+ and HIV- subjects from similar demographic backgrounds. Physical and emotional SF-36 sub-scales were scored from 0-100, with higher scores indicate better health. Within and between-group comparisons of the various physical/emotional SF-36 sub-scales were assessed using Wilcoxon signed rank and Mann-Whitney/ Chi-square tests, with associations between HIV status and changes in QoL explored using multivariable linear regression.

Results: Of 449 subjects, 181 (114 HIV+, 67 HIV-) had completed year-5 visit by 05/2017. The HIV+ group was younger (median (IQR) age 47 (40-52) vs 50 (43-56) years, P=0.09), more likely male (83.6% vs 46.5%, p=0.0001) and of African origin (29.9% vs 13.5%, P=0.01). All the HIV+ were on ART, 97% had undetectable HIV-RNA and median CD4+ count was 674 (513-853) cells/mm3. There were no between-group differences in education level (36.5% vs 38.1% without 3rd level education) or current employment (68.1% vs 76.6%), but HIV+ had lower income (73.3% vs 43.0% earning less 575eur/week), were more likely to smoke (25.4% vs 7.0%), use recreational drugs (22.4% vs 2.6%), and have other co-morbidities (25.4% vs 13.2%) (all P< 0.05). Although QoL scores declined over time in both groups, the HIV+ group had greater declines in physical functioning (PF) (between-group differences in absolute change on PF: -15.1 vs -3.3, p=0.01), mental health (MH) (-8.8 vs -2.6, p=0.02) and Social Functioning (SF) (-11.3 vs -5.5, p=0.13). After adjustment for demographic and socio-economic variables, recreational drug use and presence of co-morbidities, HIV+ status remained associated with reduced PF and MH (estimate (95%CI) -11.7 (-21.8, -2.3), p=0.01 and -6.1 (-12.2, 0.0), p=0.05, respectively) but not with SF (-5.7 (-14.9, 3.5), p=0.22).

Conclusion: Over five years, greater declines in physical and mental health components of QoL were observed those with HIV despite effective treatment. The means by which declines in QoL impact clinical outcome requires further investigation.

Figure 1. Differences in absolute change in QoL scores from baseline to year 5 between HIV+ and HIV- subjects



P31

Analysis of Quality-adjusted life year (QALY) in HIV-positive and HIV-negative subjects enrolled to the UPBEAT cohort

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Background: With effective antiretroviral therapy (ART), people living with HIV (PLWH) are living longer. Quality Adjusted Life Years (QALY) measures impact of morbidity covering both quality (QoL) and quantity of life lived. We aimed to compare QALYs between HIV-positive (HIV+) and HIV-negative (HIV-) subjects.

Methods: Cross-sectional analysis in PLWH and HIV- controls enrolled in the HIV UPBEAT (Understanding the Pathology of Bone Disease in HIV Infected Subjects) cohort, a prospective cohort study including subjects from similar demographic backgrounds. QALYs were calculated using the SF-6D

(derived from the SF-36 Health survey), as a measure of health utility, multiplied by the expected remaining lifespan, with life expectancy estimated from national statistics (http://www.cso.ie): 78.4 years for men and 82.8 years for women. SF-6D and QALY data are mean (SD). Between groups differences were assessed using Mann-Whitney/ Student's T test and Chi-square tests. Impact of HIV status on QALY was assessed using multivariable linear regression.
Results: Of 244 (106 HIV+, 138 HIV-) subjects included in the analysis, those with HIV were younger, more likely male and of African origin (Table 1). All PLWH were on ART, 98% had HIV-RNA<40 cps/ml, median (IQR) CD4+ count was 662 (513, 851) cells/mm3 and median time since HIV diagnosis was 11.0 (9.0, 14.0) years. Despite PLWH reported lower health quality (SF-6D 0.75 (0.10) vs 0.82 (0.08), p=0.001), the calculated unadjusted QALYs were similar between HIV+ and HIV- (24.4 (7.6) vs 24.6 (8.34)). However, after correcting for differences in age, HIV+ status was independently associated with a mean reduction of 2.8 QALYs (95% Confidence Interval -3.7, -1.8, p<0.0001). Further adjustment for other demographic and socio-economic parameters minimally impacted on the observed association (- 2.0 (-3.0, -1.0), p<0.0001.
Conclusions: In our cohort, HIV+ subjects on effective ART reported lower health quality values compared to HIV-, with HIV+ status associated with a loss of 2 QALYs after controlling for age and other potential socio-demographic confounders.

Table 1. Characteristics of HIV-positive and HIV-negative

Socio-demographic variables N (%) unless specified	**HIV-positive (N=106)**	**HIV-negative (N=138)**	**P value**
Age, median (IQR)	47.9 (41.3, 53.6)	51.6 (43.8, 57.0)	0.002
Male	74 (73.3)	66 (47.8)	<0.0001
African	33 (34.4)	17 (12.6)	<0.0001
Third Education level	54 (65.9)	79 (61.7)	0.56
Currently Employed	50 (73.5)	91 (78.4)	0.47
Income ≤575 euros/week	53 (72.6)	51 (43.6)	<0.0001
Current smoker	24 (24.0)	13 (9.6)	0.006
Use of recreational drugs	21 (21.9)	4 (3.0)	<0.0001
Other comorbidities	19 (19.0)	16 (11.8)	0.14
QALY assessment (mean (SD))			
Health utility score (SF-6D)	0.75 (0.10)	0.80 (0.07)	0.001
Survival men	30.8 (9.3)	27.7 (8.8)	0.06
Survival women	36.7 (6.7)	33.4 (9.6)	0.06
QALY	24.4 (7.6)	24.6 (8.3)	0.82

Percentage of those with reported data

P32

Many Hands Make Light Work - A Sexual Health Outreach Testing Programme

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Background: The Sexual Health Clinics at University Hospital Limerick Group had 6391 patients attend from January to December 2017. This group is comprised of multiple weekly sexual health clinics at University Hospital Limerick, Ennis and Nenagh General Hospitals.
An STI Outbreak was declared in December 2016, when 7 people at University of Limerick were diagnosed with N. Gonorrhoea infection. In response to this, an outreach testing programme took place in February 2017. Results showed 21 positive tests from 367 patients tested (5.7%). The decision was made to repeat the outreach testing in Winter 2017.
Methods: Resource limitations at University Hospital Limerick Microbiology Laboratory for extended testing were identified. Staff arranged to outsource testing for C. Trachomatis and N. Gonorrhea infection with high vaginal self-taken swabs and first void urine testing. The process of results governance and follow up was formalized. A 2-week turnaround time was agreed upon.
Following consultation and agreement with Primary Healthcare Staff at University of Limerick, a suitable clinical space for triage and testing was identified at the University. Messages were sent to students on social media to alert them of the time, date and site of free testing. Based on outreach testing uptake numbers in February 2017, 400 sample kits (200 male, 200 female) were ordered.
Process of attendance and testing was agreed upon by the STI team.
Results: On 16th November 2017, 366 students attended for self-testing from 10am to 2pm. Staff members met with attendees on entry to the clinical area. Patients were advised asymptomatic testing was taking place and if they had any symptoms or concerns to attend for further testing and vaccination as appropriate at UHL STI clinic.
29(8.2%) of patients tested were diagnosed with C. Trachomatis or N.Gonorrhoea infection. See table 1 for distribution of positive tests. All tests taken were accounted for and results were received on all tests taken. Of those with positive test results, 28 (97%) have attended for treatment and contact tracing.
Conclusion: Despite the era of widespread free sexual health screening and social media information, a high uptake rate for testing at University of Limerick was seen. A high rate of positive tests was found with a high follow-up rate. These figures demonstrate the feasibility of such a programme and the requirement for ongoing free testing in such high-risk cohorts. The use of a longstanding concept of outreach testing has proven successful. This is a valuable public health intervention that reinforces the need for sexual health awareness in a high-risk cohort.

Table 1: Distribution of Positive STI Tests University of Limerick 2017

	Feb 2017 n (%) Total =367		Nov 2017 n (%) Total = 366	
	Chlamydia	Gonorrhea	Chlamydia	Gonorrhea
Male	5(1.4)	1(0.3)	6(1.6)	2(0.6)
MSM	0	0	0	0
Heterosexual	5	1	6	2
Female	16(4.4)	0(0)	20(5.5)	1(0.3)

P33

STI rates as a marker of appropriate population selection in early clinical trial-based PrEP access

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Background: Pre-exposure prophylaxis (PrEP) for HIV became available in Ireland on December 1st, 2017. PrEP is targeted at individuals at high risk of acquiring HIV, and consists of a single co-formulated tablet of tenofovir disoproxil (TDF) and emtricitabine. A clinical trial, which commenced in early 2017, is currently underway examining the efficacy of tenofovir alafenamide versus standard TDF for PrEP. We describe the rates of sexually transmitted infections (STIs) in three populations; the PrEP clinic in The Clinical Research Facility, St. James's Hospital, the Gay Men's Health Service (GMHS) asymptomatic screening clinic and the MSM screening in HIV clinics in St James's, in order to evaluate whether the appropriate high-risk population was being targeted by the clinical trial. These clinics were chosen as comparators as they represent real-world STI prevalence in this high-risk population.

Methods: Results of STI screening from all three clinical sites was collected retrospectively, anonymized and entered into an excel database. Data from 2017 was used for both the PrEP clinic and HIV clinic attendees, while 2016 data was used for the GMHS attendees as 2017 data has not been analysed to date. Descriptive column statistics were used for data analysis.

Results: In 2017, there were 27 infections in 34 MSM on the PrEP trial; 13 gonorrhoea, 13 chlamydia and 1 acute hepatitis C. Of the 957 patients from GMHP who had results analysed, 15% had an acute STI. 15% had positive serology: n=5 HIV +, n =1 Acute Hepatitis A, n =1 Hepatitis C PCR+ and n =14 Syphilis +. The MSM screens done in the HIV clinic in GUIDe had a positive rate of 16% (51.9% CT, 48.1% GC).

Conclusions: The STI rates in the PrEP cohort are broadly aligned with those seen in high-risk MSM populations engaged in other sexual health services. This suggests that a representative cohort has been recruited to the clinical trial.

P34

Use of Whole Genome Sequencing to Identify Sources of Extended-Spectrum-Beta-Lactamase- Producing *Escherichia coli* in Recreational Water

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Background: Extended spectrum beta-lactamase producing-E. coli (ESBL-PE) are associated with human infections. Studies indicate that they are widespread in the aquatic environment. Recreational water can become contaminated with antimicrobial resistant bacteria via several different routes, including outflows from rivers, freshwater streams and wastewater discharges. The aim of this study was to use whole genome sequence (WGS) analysis to identify the route of transmission of ESBL-PE to recreational waters.

Methods: A total of 25 ESBL-PE were selected from a collection of 44 environmental ESBL-PE, for WGS (Illumina). Isolates were obtained between May 2016 and March 2017, and originated from the following sources; seawater; 'Beach A' (n=3) and 'Beach B' (n=3), freshwater; 'Stream A' (n=1), 'Stream B' (n=8) and 'River A' (n=4), sewage; 'Sewage A' (n=3), 'Sewage B' (n=1), 'Sewage Storage Tank' (n=1) and 'Sewage Outflow Point' (where human sewage is released untreated into the sea) (n=1). Isolate genomes were hosted in and analysis was performed using BIGSdb. Core genome multi-locus sequence typing was used to compare isolates at 2513 loci.

Results: A total of 10 seven locus sequence types (ST) were identified. ST131 and ST90 (both 6/25) which are strongly associated with human infection were the most prevalent. The most common blaCTX-M genes identified were blaCTX-M-15 (11/25) and blaCTX-M-27 (10/25). Overall, significant diversity was found within the collection, with differences at up to 2417 loci. However, high levels of homology were also found between several ESBL-PE originating from different sources. Three ST131 ESBL-PE (from 'Sewage A', 'Sewage B' and 'Beach B') were identical at all 2513 loci. Six ST90 ESBL-PE (from 'River A', 'Beach B' and 'Stream B' outflow) matched at between 2505-2513 loci. Of three ST44 ESBL-PE (from 'Stream B' and 'Stream B' outflow) two were identical, and the other matched at 2512 loci. Two ST2003 ESBL-PE (from 'Sewage Storage Tank' and 'Beach A') matched at 2512 loci.

Conclusions: These findings suggest that environmental contamination with ESBL-PE in this setting is likely from human sewage, which may contribute to further dissemination of ESBL-PE within the human population. Further studies including contemporary human and animal isolates are required.

P35

An Analysis of STIs in Men, with a Particular Focus on Homosexual Males, in a Cork-Based G.U.M/S.T.I. Clinic from January 2014 to March 2017

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Background: The prevalence of STI's in Ireland is rising. Transmission and human behaviour are intrinsically linked. Despite a growing LGBT inclusive society, data is limited on the prevalence of STI's in homosexual me.

Method: A retrospective chart-review, examining data from diagnoses in male patients who attended a Cork clinic (January 2014-March 2017 inclusive). The objective was to identify population-specific infections, demographics and risk factors linked to diagnoses in MSM (men who have sex with men), using MSW (men who have sex with women) as a reference. Descriptive statistics were generated using SPSS. Multivariate logistic regression and Mann Whitney testing were used to compare MSM (n=287) to MSW (n=751.

Results: HPV was the most common diagnosis in MSM (38.89%) and MSW (57.66%). MSM were more likely to have gonorrhea and syphilis and less likely to have chlamydia (Mann-Whitney $p<0.05$).

MSM were significantly younger (M=22) than MSW (M=27) at diagnosis but older at their first age of sexual intercourse. MSM were more likely to always wear condoms and less likely to never wear condoms. MSM were more likely to have presented for an asymptomatic screen. MSM had higher numbers of sexual partners. Unemployment, the presence of symptoms and partner numbers in the last three months were predictors for contracting more than 1 STI in MSM ($p<0.05$). Smoking, alcohol and oral illicit drugs weren't of predictive value.

Conclusion: Significant differences in infections identified are important to ensure targeted screening protocols are comprehensive, specifically for gonorrhea and syphilis (MSM). Education campaigns targeting the high-risk, younger MSM may be beneficial.

P36

Review of the epidemiology of HIV patients in Cork, Ireland between 2000 and 2015

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Background: According to WHO, 36.7 million individuals were estimated to be HIV seropositive since the epidemic was recognised in 1981 with 1.8 million individuals were newly infected in 2016. In Ireland, there are approximately 8000 HIV seropositive individuals with 512 new diagnoses in 2016. Notifications among men who have sex with men (MSM) have increased over three-fold since 2003. Notifications among heterosexuals decreased sharply between 2003 and 2010 and have since stayed stable. We reviewed the epidemiology of patients attending the HIV specialist outpatient clinic in Cork University Hospital (CUH) and compared it to national trends.

Methods: 30 consecutive HIV-seropositive patients who attended the CUH HIV outpatient clinic in Year 2000, 2006, 2012 or 2015 were recruited. Age at diagnosis, nationality and route of infection was recorded. A comparison will be made between Cork and the Irish national trends from the Health Protection Surveillance Centre (HPSC) to establish any differences between the epidemiology of HIV patients, allowing for future public health efforts in Cork. The collected data was collated into table summaries for organization according to years of interest and relevant collected data. SPSS IBM statistical software was used for data analysis.

Results: A total of 124 files were analysed, of which 61.3 %(n=76) were male and 45.2 %(n=56) were Irish. Their ages at HIV diagnosis ranged from 1 month old to 65 years old, with a mean age of 32.7. Heterosexual transmission route was the most common accounting for 65.3 %(n=81) followed by MSM accounting for 29%(n=36). MSM was the predominant HIV transmission route amongst men in 2012, accounting for 71.4 %(n=15). A shift in demographics of HIV patients was noticed, from being female-predominant (55.2%, n=16) in 2000 to being male-predominant (65.6%, n=21) in 2015. The median age of HIV diagnosis increased from 29.0 years old in 2000 to 34.6 years old in 2015. The proportion of HIV diagnoses being Irish increased from 37.9 %(n=11) in 2000 to 50% (n=16) in 2015.

Conclusion: The predominant transmission route in Cork is found to differ from Irish national average. In Cork, heterosexual transmission remains the most common route amongst individuals of African and Irish nationalities. MSM was the predominant transmission route nationwide in 2015, and one could anticipate possible increasing MSM incidences in Cork in future.

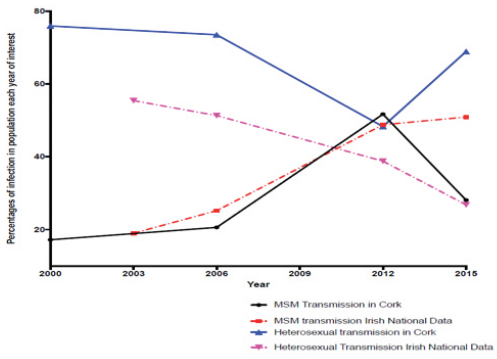

Figure 2: Route of infection via MSM and Heterosexual Transmission in Cork Vs Irish National Data[17].

P37

Current Developments in the Prevention and Screening for Congenital CMV: A Systematic Review

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Background: Cytomegalovirus (CMV) is the commonest intrauterine infection worldwide and the leading cause of non-genetic sensorineural hearing loss. This was demonstrated in the Irish population by a 2018 review of the aetiology of Permanent Childhood Hearing Impairment (PCHI) at Cork University Hospital from 2011 to 2016. Further,

with a 37% seroprevalence in Irish women of reproductive age, significant neurodevelopmental morbidity in affected children, and reduced morbidity with early treatment, it is not surprising that the management of congenital CMV is developing at a rapid pace. This study aims to evaluate the recent literature regarding current developments in the prevention of transmission and means of screening for congenital CMV.

Methods: A series of systematic searches of online databases were conducted in accordance with strictly defined inclusion and exclusion criteria relevant to the research question in human studies. Five original research articles met all criteria and were included in this review.

Results: Overall, the articles cover three main themes: screening, preventing transmission, and vaccination. Four of the articles focus on the development of effective and affordable methods of screening for congenital CMV. Targeted screening with saliva and dried blood spot testing of babies who did not pass newborn hearing screening was effective at identifying babies with CMV-related sensorineural hearing loss (SNHL) at birth, but ineffective for asymptomatic infants who developed SNHL later in infancy. In seemingly healthy newborns, urinary CMV copy number was associated with severity of SNHL and central nervous system (CNS) damage. Urine has been the gold standard material for the detection of CMV DNA by polymerase chain reaction (PCR). In comparison to urine, screening with umbilical cord blood showed poor sensitivity, while saliva had comparable sensitivity and specificity with greater ease of collection.

From the angle of prevention, one study evaluated the efficacy of hyperimmune globulin in reducing intrauterine transmission of CMV, which did not significantly alter the course of the infection in pregnancy. Vaccines that reduce CMV infection show promise in the coming years in a significant number of animal studies.

Conclusion: Current developments in the prevention and screening of congenital CMV are broad and innovative. Once suitable consensus methods are developed, considerable work will remain in advocating for the acceptance and implementation of these modalities in practice to reduce the morbidity of congenital CMV. Exploration of barriers and their solutions, including policy and cost, will be worthwhile for a condition with such significance to newborn health worldwide.

PHARMACOLOGY & THERAPEUTICS

P38

A Phase 3b Open-Label Pilot Study to Evaluate Switching to Elvitegravir / Cobicistat / Emtricitabine / Tenofovir Alafenamide (E/C/F/TAF) Single Tablet Regimen (STR) in Virologically-Suppressed HIV-1 Infected Adults Harboring the NRTI Resistance Mutation M184V and/or M184I (GS-US-292-1824)

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Background: Switching to a once-daily STR of E/C/F/TAF in HIV-1 infected patients was shown to be effective and safe through 144 weeks. No data exist evaluating the efficacy of E/C/F/TAF in subjects whose HIV-1 harbours the M184V/I resistance mutation.

Methods: 1824 is an ongoing, prospective, single arm, multicenter study evaluating the efficacy and safety of switching to E/C/F/TAF in subjects receiving a stable regimen (≥6 months) of FTC/TDF or ABC/3TC plus a third agent. Subjects had a historical genotype showing M184V/I and no evidence of previous virologic failure or resistance to boosted PIs or INSTIs. At screening, HIV-1 RNA <50 copies/ mL was required as well as sequencing of integrated HIV DNA (GenoSure Archive Assay, Monogram Biosciences) with no presence of other NRTI or PI mutations. The pre-specified primary objective is to evaluate the efficacy of switching to E/C/F/TAF in maintaining HIV-1 RNA <50 copies/mL at Week 12 using pure virologic response (PVR). Subjects with discontinuation or missing values were considered responders if last HIV-1 RNA <50 copies/mL.

Results: 37 subjects were enrolled, mean age was 50 years (range 22-76), 73% White, 22% women and median CD4 count 724 cells/µL. All subjects had HIV RNA <50 copies/mL at baseline. Prior to switching, the regimens at screening were 2 NRTIs plus boosted PI (54%), INSTI (32%), NNRTI (11%), and INSTI+NNRTI (3%). All subjects had the M184V, M184I or both mutations and 51% (19/37) had NNRTI resistance mutations on historic resistance tests. Archive DNA resistance testing found 43% (16/37) of subjects had either M184V, M184I or both, 5%(2/37) had only NNRTI resistance and 51%(19/37) had wild type virus.

All participants (100%) maintained virological suppression by Week 12. Three subjects discontinued prior to Week 12 with the last recorded HIV-1 RNA <50 copies/mL. There were no virologic failures or cases of emergent resistance. Four serious adverse events (AEs) occurred were not considered study drug-related: 1 each of squamous cell carcinoma, acute kidney injury (due to poorly controlled hypertension and diabetes), transient proteinuria which resolved while on study drug and pulmonary embolism. Nineteen percent (7/37) of subjects experienced a study drug-related AE; none were grade 3 or 4. One subject experienced an AE (muscle spasms) leading to E/C/F/TAF discontinuation.

Conclusions: In this primary analysis, 100% of subjects with baseline M184V/I mutations who switched to E/C/F/TAF maintained HIV suppression at Week 12 with no emergent

resistance. Subjects will be followed for 48 weeks to establish the durability of HIV suppression on E/C/F/TAF.

P39

Switching to bictegravir/FTC/TAF from DTG and ABC/3TC

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Background: bictegravir, a novel, unboosted INSTI with a high barrier to resistance and low potential for drug interactions, has been coformulated with the recommended NRTI backbone of emtricitabine and tenofovir alafenamide (B/F/TAF) as a fixed-dose combination (FDC). We report the primary Week (W) 48 efficacy and safety Phase 3 results of switching to B/F/TAF from dolutegravir plus abacavir/lamivudine (DTG+ABC/3TC) or FDC of DTG/ABC/3TC.

Methods: HIV-infected adults virologically suppressed on DTG/ABC/3TC or DTG plus ABC/3TC (DTG/ABC/3TC group), with estimated glomerular filtration rate (eGFR) ≥50 mL/min were randomized 1:1 to switch to B/F/TAF (50/200/25 mg) once daily or continue current regimen as DTG/ABC/3TC through week 48 in a double-blinded fashion. Primary endpoint was proportion with HIV-1 RNA ≥50 copies/mL (c/mL) at W48 (FDA snapshot). Noninferiority was assessed through 95.002% confidence intervals (CI) using a margin of 4%. Secondary endpoints were proportion with HIV-1 RNA <50 copies/mL and safety (adverse events [AEs], laboratory results, bone mineral density [BMD], and renal biomarkers).

Results: 563 participants were randomized and treated (B/F/TAF n=282, DTG/ABC/3TC n=281): 11% women, 22% Black, median age 46 years (range 20-71). At W48, 1.1% switching to B/F/TAF and 0.4% continuing DTG/ABC/3TC had HIV-1 RNA ≥50 c/mL (difference 0.7%; 95%CI -1.0% to 2.8%, p=0.62), demonstrating noninferiority. At W48, proportion with HIV-1 RNA <50 c/mL was 93.6% on B/F/TAF and 95.0% on DTG/ABC/3TC. No participant developed resistance to any study drug. The most common AEs were upper respiratory tract infection (10% B/F/TAF, 10% DTG/ABC/3TC), diarrhoea (9%, 5%), nasopharyngitis (7%, 8%) and headache (7%, 7%). Few participants (6 [2%], 2 [1%]) had AEs leading to premature study drug discontinuation. Mean BMD increased similarly in both groups. Percentage changes from baseline in renal biomarkers were similar between treatment groups (Table). Lipid parameters were similar between groups with the exception of a small decrease in triglycerides seen in the B/F/TAF group.

Conclusion: Switching to B/F/TAF was noninferior to continuing DTG/ABC/3TC with low rates of W48 virologic failure, high rates of maintained virologic suppression, and no resistance. B/F/TAF was well tolerated, with a similar bone and urine protein safety profile to DTG/ABC/3TC.

Table.

Change from baseline at Week 48	B/F/TAF (n=282)	DTG/ABC/3TC (n=281)	P value
Median % changes in Renal Biomarkers, median			
Urine Albumin: Creatinine Ratio	14%	9%	0.74
Urine Retinol Binding Protein: Creatinine Ratio	20%	29%	0.31
Urine Beta-2-Microglobulin: Creatinine Ratio	21%	17%	0.53
Median change in eGFR (mL/min)	1	-1.8	<0.001
Mean % changes in BMD, mean			
Spine	0.69	0.42	0.33*
Hip	0.16	+0..30	0.47*
Median change in Lipid parameters			
Total cholesterol (mg/dL)	0	2	0.77
LDL cholesterol (mg/dL)	1	2	0.42
HDL cholesterol (mg/dL)	-1	0	0.13
Total Cholesterol:HDL ratio	0	0	0.56
Triglycerides (mg/dL)	-5	3	0.028

* p-values were from the ANOVA model including treatment as a fixed effect and all the other p-values were from the 2-sided Wilcoxon rand sum test to compare the 2 treatment groups.

P40

A prospective audit of antifungal therapy in adult inpatients admitted to a tertiary hospital haematology ward

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Background: Invasive fungal infections (IFI) cause morbidity and mortality among patients with haematological malignancies. Diagnosis is challenging, as culture-based methods may not yield pathogens and obtaining relevant clinical specimens can be challenging. This audit aimed to evaluate therapeutic antifungal use in a tertiary hospital adult haematology ward.

Methods: A prospective audit of all inpatients admitted to a 14 bedded haematology ward who commenced antifungal treatment from August to December 2017 was performed, with epidemiological data collected and analysed using Microsoft Excel. A weekly multi-disciplinary team meeting between haematology and clinical microbiology guides antimicrobial management of a complex patient cohort, supported by 24/7 access to microbiologist advice, as needed.

Results: Fifteen patients were included. The median age was 64 (range = 22 – 82) and 60% were female (n=9). The majority had an underlying diagnosis of acute myeloid leukaemia (n=11; 73%). The most common reason for starting empiric antifungal treatment was persistent febrile neutropenia, despite broad spectrum empiric antibacterials (n=13; 86%) and two patients had radiological features suggestive of pulmonary IFI. All patients were accommodated in an environment with a high efficiency particulate (HEPA) filtered air supply for the duration of their admission to the ward and five were already prescribed antifungal prophylaxis prior to escalation to empiric antifungal therapy (33%). The median interval from admission to starting antifungal therapy was 11 days (range = 2 – 30) and the median duration of empiric antifungal treatment was 12 days (range = 2 – 36). Caspofungin was the most commonly prescribed agent (n=11; 73%), with four patients prescribed liposomal amphotericin (27%). Fungi were not cultured from any patient during the

study period. Twelve patients were discharged following a median length-of-stay of 34 days (range = 15 – 58) and three patients died, with one of those who remained on antifungals up to date of death.

Conclusions: Antifungal treatment was entirely empiric, as fungi were not cultured from any patient specimen in this audit period, which highlights diagnostic challenges in this patient cohort. Antifungal stewardship is in place to optimise use and expense.

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Time to First Dose Antibiotics in Febrile Neutropaenia – A Retrospective Audit

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Background: In adults, febrile neutropaenia is associated with high in-hospital mortality. One large study estimated an average mortality of 9.5%1. Local guidelines for the management of adult febrile neutropenic patients in Galway University Hospitals (GUH) were implemented in July 2014 and were used as the standard for this audit. These guidelines recommend a 'door to needle time' of 60 minutes or less for administration of broad-spectrum intravenous (IV) antibiotics in patients with febrile neutropaenia2.. The purpose of this audit was to assess if this standard was being met for patients admitted through the Emergency Department (ED) of Galway University Hospital.

Methods: This retrospective audit included patients admitted to the haematology service through the ED of GUH between July and December 2017. The criteria necessary for inclusion consisted of neutropenia less than 0.5 x 109L with concurrent temperature of greater than 38 degrees at the time of hospital presentation.

Results: In total 11 cases were found to be eligible for inclusion in this audit. The mean 'door to needle time' to first dose IV antibiotics was 128.8 minutes (median 157 minutes, range 26-189 minutes). In 18% of cases the target of IV antibiotic administration within 60 minutes was achieved. All patients received piperacillin-tazobactam as per guideline recommendations. Guidelines in GUH also recommend a single dose of gentamicin for this cohort of patients if renal function permits. 27% (3/11) of cases in this study received gentamicin on admission. 4 patients included in the audit had central access, 2 of these received vancomycin on admission. 73% cases had a venous lactate checked at presentation.

Conclusion: This audit indicates that the goal of 60 minutes or less to administration of IV antibiotics in febrile neutropaenia is not being met in the majority of cases for emergency department haematology admissions. Given the high mortality associated with neutropaenic sepsis the delay identified in the administration of first-dose IV antibiotics needs to be addressed. Further investigation will examine delays between check in and triage, NCHD awareness of current guidelines and barriers to prompt administration of antibiotics.

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P42

Pharmacist-Directed Quality Improvement of Vancomycin Prescribing, Administration and Monitoring at St. James's Hospital

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Background: The Antimicrobial Stewardship Committee of St. James's Hospital (SJH) considers therapeutic drug monitoring (TDM), including vancomycin therapy, a key priority. A previous internal audit has identified suboptimal TDM practice. Clinical pharmacist - led interventions have proven successful in optimising therapy with other TDM drugs in acute care settings.

Pharmacist direction of vancomycin dosing and monitoring was investigated in this study with the aim of optimisation of therapy for individual patients.

Methods: Over a fourteen-week period an antimicrobial pharmacist was available to five wards specifically for consultation regarding vancomycin therapy between 08.30 – 16.30 Monday to Friday. Where possible, the pharmacist was contacted before initial prescription to agree a therapeutic strategy. Trough levels were deemed in range if they were between 10 - 20mg/L. This intervention data was then compared to a previous (observational) SJH vancomycin audit. Chi-square tests were used to compare outcome variables between the two studies, with significance level chosen as $p < 0.05$.

Results: There were 34 patients included in the intervention study, who were prescribed 36 courses of vancomycin. There were 14/36 (39%) vancomycin courses initiated between 08.30 - 16.30. In total, 486 vancomycin doses were administered; 423 (87%) were compliant with local guidelines.

Pre-first dose pharmacist intervention occurred for 13/14 vancomycin prescriptions.

In the intervention study, 61% patients were prescribed initial vancomycin doses which were guideline compliant vs 30% in the observation study ($p<0.05$).

Equal proportions of correctly timed vancomycin trough levels reached therapeutic range in each study. However, there was a significant increase in the proportion of correctly timed trough samples: 58% (observation) to 80% (intervention; $p < 0.001$). There was a trend towards better timing of first trough levels for those with pre – first dose pharmacist guidance (77%) vs intervention after the first dose (52%).

Variations were noted in the proportions of different staff members (doctors, nurses and phlebotomists) measuring vancomycin levels in terms of the number and accuracy of levels taken between both studies.

Conclusion: Combination of appropriate first dose and early antimicrobial pharmacist intervention positively affected the quality of prescribing and TDM. Significant improvement was

observed in compliance with hospital guidelines in relation to dosing and trough level monitoring. These results support the implementation of a pharmacist-directed TDM programme, which could incorporate pharmacist prescribing, in the setting of inpatient infection management.

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Pre-Authorisation of a Restricted Antimicrobial: An Audit of a Meropenem Prescription Pre-Authorisation pathway.

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Background: Antimicrobial resistance is recognised as a major global health threat. The inappropriate use of broad-spectrum antibiotics, including the broad spectrum beta-lactam antibiotic Meropenem, is a significant contributor to the development of resistance. To the best of our knowledge this hospital is the first to implement national HSE policy with a pre-authorisation system for all Meropenem inpatient prescriptions. Pre-authorisation is obtained by contacting the Microbiology team, who are available 24 hours a day, or the Infectious Diseases team, who alert the pharmacy via a dedicated mobile phone dubbed the "Red Light Phone". An emergency supply of Meropenem (3 doses) is available at each ward, but is locked in the controlled drug press. This study audits this new pathway from its initiation in July 2017 until September 2017.

Methods: This audit was a retrospective chart review. Pharmacy data were used to identify all patients who received Meropenem within the study period from July to September 2017. The chart review recorded pre-authorisation of Meropenem use, the clinical indication for its use, details of individual prescriptions including: dosing; frequency; duration of treatment; extent of follow-up by the pre-approving department and patient clinical outcome.

Results: A total of 100 patient records were examined. Forty-six (46%) percent of patients were female, with a mean age of 68 years (15-100), without a significant difference in age between male and female patients. Of the 100 courses of Meropenem treatment, 7 were unauthorised. Seventy-three (73%) percent received Meropenem empirically rather than culture based and sixty-two (62%) percent received other concurrent antimicrobials. The median duration of therapy was 7.0 (1-24) days. Advice from the pre-authorisation team as regards on-going management was followed by the primary team in all but one case and included advice on: duration, de-escalation and concurrent antimicrobial use. The median number of days until discharge was 14.5 days and these data were available for 96 patients. 37% were discharged within 10 days, 21% between 10 and 20 days and 38% were discharged more than 20 days later. Twenty-one patients died.

Conclusions: This study shows that 93% of Meropenem prescriptions were pre-aunthorised during this period. In nearly all cases the primary team followed the recommendations made by the Infectious Diseases or microbiology team. This institution has successfully implemented HSE national policy on the restriction of Meropenem and has now established a Meropenem prescription pre-authorisation pathway and will aim to continue to review the appropriate use of this important antibiotic.

NOTES