FIS HIS INTERNATIONAL 2020

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9-11 NOVEMBER 2020 ONLINE

Abstract supplement (invited speaker abstracts)

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Talks are ordered chronologically by session and by room/lecture theatre.

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Monday 9 November

Lowbury Lecture: Linking infection control to clinical management of infection to overcome antimicrobial resistance

Professor Evelina Tacconelli, Infectious Diseases, Department of Diagnostic and Public Health, University of Verona

10:00, Lowbury Auditorium

Overcoming antibiotic resistance can be achieved only with a multidisciplinary, coordinated effort that is underpinned by a solid link between infection control interventions and patients' clinical management. Due to the complexity of factors directly and indirectly contributing to the development and the global spread of antibiotic resistant bacteria, an effective approach must consider patients, bacteria, drug, and environment characteristics and be implemented with locally calibrated and a patient-personalised approach.

Preventing catheter-associated urinary tract infections – what needs to change and how do we change it?

Sally Palmer, Nurse Consultant Infection Prevention and Control, Sherwood Forest Hospital NHS Foundation Trust

11:00, Lowbury Auditorium

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

OneTogether to prevent surgical site infection

Kathryn Topley, Scientific Affairs Manager, Medical Solutions Division, 3M UK PLC

11:15, Lowbury Auditorium

OneTogether is a unique partnership which was formed in 2013 by leading professional organisations which have an interest in reducing SSIs. The founding members are the Royal College of Nursing, Infection Prevention Society, Association of Perioperative Practice and the College of Operating Department Practitioners and 3M. The group has recently welcomed a new partner, the Central Sterilising Club.

This session will describe the challenges to delivering consistent best practice and the resources the OneTogether partnership has delivered to support reducing the risk of surgical site infection.

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Defining an optimal infection prevention service

Dr Emma Burnett, Associate Dean International, University of Dundee

11:30, Lowbury Auditorium

The aim of this study was to describe what an optimal infection prevention and control (IPC) service looks like in different settings within the UK, what the team do and how they achieve it so that recommendations can be made to help IPC teams in the development of their service. This presentation focuses on the findings from phases 1 (survey questionnaire), 2 (policy document analysis) and 3 (focus groups) with IPC leaders and practitioners and discusses some of the implications for IPC teams.

PJI diagnostics – The EBJIS perspective

Dr Alex Soriano, Head of Infectious Diseases Department, Hospital Clínic of Barcelona

11:00, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

The contemporary surgical treatment options for PJI

Professor Hamish Simpson, Professor of Orthopaedics and Trauma, University of Edinburgh

11:15, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Difficult to treat organisms in PJI: enterococci

Dr Marjan Wouthuyzen-Bakker, Infectious Disease Specialist, University Medical Centre Groningen, the Netherlands

11:30, JD Williams Theatre

Enterococci are considered as a difficult to treat microorganism in periprosthetic joint infections (PJI). In this lecture the prevalence and patient population in whom enterococcal PJI are most common will be highlighted. In addition, the role of duotherapy and evidence for the best surgical approach will be discussed.

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Improving diagnosis and AMS using biomarker-guided algorithms

Professor Enitan Carrol, Professor of Paediatric Infection, University of Liverpool and Alder Hey Children's NHS Trust

11:00, Barnet Christie Theatre

Biomarkers may be useful in improving discrimination between bacterial and viral infection and guiding antibiotic prescribing decisions both in initiation and discontinuation. At presentation, host protein biomarkers combined with rapid molecular diagnostics, at the point of care, may allow antibiotics to be withheld if no evidence of bacterial infection. If serial measurements are low, then intravenous antibiotics can be de-escalated to oral antibiotics, or discontinued. Conversely, if biomarkers remain elevated, then this prompts a search for source control, or escalation of intravenous antibiotics. Biomarker-guided antimicrobial stewardship not only reduces antimicrobial resistance, adverse drug reactions and complications, but also enhances patient care and the patient experience. Ultimately, biomarker guided RCTs with embedded health economics and qualitative research, will provide definitive answers.

How do we "de-label" antibiotic allergy?

Dr Jason Trubiano, Director of Antimicrobial Stewardship and Drug and Antibiotic Allergy Services, Austin Health, Melbourne, Australia

11:20, Barnet Christie Theatre

Antibiotic allergy is frequently encountered in healthcare - up to 1 in 4 hospitalized patients. This antibiotic allergy "label" is associated with inferior patient, microbiological and health outcomes. This is despite more that 90% of antibiotic allergies being negative on formal testing. This session will discuss new and novel approaches to antibiotic allergy delabeling in the hospital setting, focusing on risk assessment and whole-of-hospital strategies.

How can we improve the efficacy of penicillins?

Dr Richard Everts, Department of Medicine, Nelson Hospital, New Zealand

11:40, Barnet Christie Theatre

Flucloxacillin is the most prescribed antibiotic for methicillin-susceptible *Staphylococcus aureus* (MSSA) infections in New Zealand. Based on the pharmacokinetics (PK) of flucloxacillin, pharmacodynamic (PD) targets, and Monte Carlo simulation, previous authors have identified optimal IV and oral regimens for MSSA infections. Unfortunately, no oral flucloxacillin-alone regimen is predicted to reliably treat moderately severe MSSA infections caused by strains with MICs approaching the MIC_{90} (0.5 mg/L). Probenecid reduces the active renal tubular secretion of many beta-lactams. A volunteer study of oral flucloxacillin 1 g with and without oral probenecid 500 mg is presented, showing probenecid markedly increases free flucloxacillin exposure. Monte Carlo simulation shows co-administration of oral flucloxacillin 1 g plus probenecid 500 mg, with or without food, achieves PK/PD targets for mild MSSA infections (30% $fT_{>0.5}$) when given twice daily and for moderately severe MSSA infections (50% $fT_{>0.5}$) when given three or

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four times daily. Oral flucloxacillin 1 g plus probenecid 500 mg given four times daily in this study has higher $fT_{>0.5}$ than flucloxacillin alone dosed IV at 2 g 6-hourly in other studies.

For 8 years the author has given flucloxacillin 1 g with probenecid 500 mg three or four times daily, with food, to outpatients on discharge with proven or likely moderately severe MSSA infections. Serum flucloxacillin test results from 237 clinical cases are presented, showing marked inter-individual variation. Creatinine clearance (CLCr), but not BMI, affected serum flucloxacillin concentrations. Of 128 proven MSSA infections (43 with osteomyelitis, 27 native joint septic arthritis, 56 prosthetic joint infection, 21 spinal infection, 44 with bacteraemia and 10 with endocarditis), only 9 (7%) failed during oral treatment. In 3 of these 9 failures, poor flucloxacillin exposure may have contributed. Nausea (8%) correlated with reduced CLCr and was probably caused by probenecid accumulation. Liver toxicity (3%) did not correlate with flucloxacillin concentration. Overall, probenecid-boosted oral flucloxacillin seemed effective and well-tolerated in this case series.

A volunteer study of oral cefalexin 1 g with and without probenecid 500 mg by the author and colleagues is presented. The probability of target attainment for a moderately severe MSSA infection (70% $fT_{>8}$) and 6-hour dosing approached 100% for cefalexin + probenecid while for cefalexin alone it was <15%. Oral cefalexin 1 g plus probenecid 500 mg given three or four times daily in this study has higher target attainment than IV cefazolin 2 g plus oral probenecid given 24-hourly in other studies.
Co-administration of probenecid with oral flucloxacillin or cefalexin may expand the clinical benefits of these antibiotics. Such oral antibiotic regimens have cost and potential toxicity advantages over intravenous regimens.

Surgical site infection surveillance and COVID-19, a tale of perseverance!

Sid Mookerjee, Imperial College NHS Trust

11:00, FIS Theatre

Falling CDI rates over the past 10 years are beginning to plateau and more needs to be done to continue a downward trend into the next decade. Using optimal laboratory diagnostic and typing methods, as well as the most up-to-date treatment options, for patient management is key to achieving this. Discussion around employing the best available techniques and therapeutic guidance will be presented alongside a supporting clinical case presentation.

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Hand hygiene – the evidence base and changing practice

Atiya Kamal, Birmingham City University

11:18, FIS Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Behaviour change techniques to improve antibiotic prescribing

Professor Michael Borg, Head of Departments of Infection Control & Sterile Services, Mater Dei Hospital, Malta

11:34, FIS Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

The One Health approach – why is it so important?

Professor Martyn Jeggo, Adjunct Professor, Geelong Centre for Emerging Infectious Diseases (GCEID), Deakin University, Geelong, Australia

14:00, Lowbury Auditorium

One Health as a concept is not new but gained international prominence and approval following the extensive outbreak of avian influenza (H5N1) in the early 2000's. Recognising that the health of humans, animals and the environment are intrinsically linked, that some 70% of new diseases in humans arise in animals and that the risks in this area are growing, it has been proposed that a new approach is required to tackle health issues. Based on a trans-disciplinary approach with extensive trans-sectoral integration, the One Health takes a systems approach to tackling those "wicked" problems of human health including foodborne diseases, infectious disease and antimicrobial resistance (AMR). This presentation will demonstrate the importance and success of this approach through examples around avian influenza, salmonellosis and AMR.

Insights from the 2019 Spanish listeria outbreak

José Miguel Cisneros Herreros, Clinical Unit of Infectious Diseases, Microbiology, and Preventive Medicine, Institute of Biomedicine of Seville (IbiS), University of Seville/CSIC/University Hospital Virgen del Rocío

14:20, Lowbury Auditorium

In the summer of 2019 Andalusia suffered a large outbreak of listeriosis due to the consumption of contaminated meat.

In this presentation I will show the main epidemiological, microbiological and clinical characteristics of the outbreak, together with the control interventions and the diagnostic and treatment protocols used.

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Finally I will present the results achieved and compare them with those described in other outbreaks.

Toxigenic corynebacteria from animal to man

Dr Norman K Fry, Laboratory Surveillance Lead – Vaccine Preventable Bacteria, Public Health England – National Infection Service

14:40, Lowbury Auditorium

The genus *Corynebacterium* is diverse and contains more than 120 species. Approximately 50% of *Corynebacterium* species have been isolated from humans and ca. 40% from animals, causing a spectrum of infections, but only a few species have been reported as zoonotic.

There are only three potentially toxigenic species in the genus, *Corynebacterium diphtheriae*; *C. ulcerans* and *C. pseudotuberculosis*. All three are capable of causing diphtheria when toxigenic, i.e. when carrying the diphtheria toxin gene (*tox*)and expressing diphtheria toxin. Diphtheria can present as a respiratory or cutaneous infection. Treatment includes diphtheria antitoxin and antibiotics and prevention is by immunisation with diphtheria toxoid-containing vaccines.

Corynebacterium diphtheriae is not generally considered zoonotic, but has been isolated from equine wounds. *Corynebacterium pseudotuberculosis* is an important animal pathogen. It is found worldwide in major sheep and goat production areas and is the aetiological agent of a rare zoonotic infection lymphadenitis. *Corynebacterium ulcerans* has the widest host range of all the species and has been isolated from domestic, wild, captive and research animals.

Diphtheria is a notifiable disease and potentially toxigenic corynebacteria are referred to the National Reference Laboratory (NRL), Public Health England – National Infection Service, London for toxigenicity testing. In April 2014, a multiplex real-time PCR was introduced as the front-line test for putative toxigenic corynebacteria to inform public health action. All isolates which are PCR *tox* positive are further characterised by the phenotypic Elek test to confirm diphtheria toxin expression.

Analysis of isolates submitted to the NRL reveal a much higher rate of toxigenicity of *C. ulcerans* strains (ca. 60%) compared to *C. diphtheriae* (ca. 5%) in the UK.

Major risk factors for diphtheria are: absent/ incomplete or unknown immunisation status; for *C. diphtheriae* travel to endemic areas and for toxigenic *C. ulcerans* contact with animals (especially companion animals). Effective management of a *C. ulcerans* case can be complex and requires good coordination between clinical, public health and animal health professionals.

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C. difficile: Diagnosis, management and whole genome sequencing

Michael Perry, Deputy Lead Scientist, UK Anaerobe Reference Unit (UKARU), Public Health Wales, Cardiff, Wales

14:00, JD Williams Theatre

Falling CDI rates over the past 10 years are beginning to plateau and more needs to be done to continue a downward trend into the next decade. Using optimal laboratory diagnostic and typing methods, as well as the most up-to-date treatment options, for patient management is key to achieving this. Discussion around employing the best available techniques and therapeutic guidance will be presented alongside a supporting clinical case presentation.

Update of antimicrobial susceptibility testing of anaerobic bacteria

Sarah Copsey-Mawer, Senior Biomedical Scientist, UK Anaerobe Reference Unit (UKARU), Public Health Wales, Cardiff, Wales

14:25, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

ARUMIC – The UKARU online MIC database for anaerobic bacteria

Trefor Morris, Lead Biomedical Scientist, UK Anaerobe Reference Unit (UKARU), Public Health Wales, Cardiff, Wales

14:50, JD Williams Theatre

The UKARU provides reference level anaerobic microbiology services to the UK and beyond. During the last decade, an increase in demand for antimicrobial susceptibly testing (AST) to monitor the development of resistance has prompted several service changes. Since 2016, we have utilised agar dilution as our primary methodology as it remains the gold standard for anaerobic AST. The data collected allows us to monitor trends amongst a wide range of anaerobic bacteria. The potential utility of this data presented via an online platform is shown here for discussion.

The technical support available for infection control specialists

Andrew Birch, Authorising Engineer (Decontamination), Central Sterilizing Club

14:00, Barnet Christie Theatre

A talk about the automated processes used in the decontamination of surgical instruments and endoscopes, including the validation, tests and checks performed to ensure safe and compliant function and the problem areas that might come to the attention of Infection Prevention and Control Teams.

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Basics of decontamination

Karen Tweed, Deputy Operations Director (Decontamination), Sheffield Teaching Hospital Trust, Sheffield Teaching Hospital, NHS Foundation Trust

14:15, Barnet Christie Theatre

- Basics of decontamination using Spaulding
- Sterile vs Disinfected vs Clean
- The roles and responsibilities for decontamination practices in a healthcare setting
- Aspects of decontamination and multi-stake holder responsibilities
- Methods of decontamination and reproducibility
- Automated vs manual

How do we know about outbreaks linked to decontamination breaches?

Dr David Jenkins, Lead Infection Prevention Clinician, University Hospital Leicester

14:30, Barnet Christie Theatre

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Bespoke infection training – how and why?

Dr Becky Wilson, Consultant Microbiologist and IPC Doctor, NHS Grampian/NHS Orkney; National TPD for combined infection training

Dr James Price, Consultant IPC and Antimicrobial Stewardship and Honorary Senior Lecturer Imperial College Healthcare NHS Trust

Dr Bethany Davies, Senior Lecturer in Infection, Brighton and Sussex Medical School, Consultant in Infectious Diseases, Brighton and Sussex University Hospitals Trust

Dr Vicki Parris, Consultant in Infectious Diseases and Acute Medicine, London North West University Healthcare NHS Trust

Dr Nikunj Mahida, Consultant Microbiologist, Nottingham University Hospitals NHS Trust, Editor for Journal of Hospital Infection and Infection Prevention in Practice

14:00, FIS Theatre

The interactive session will provide an exciting opportunity for supervisors and trainees to be inspired to create, challenge and take risks in developing 'integrated' infection training; employers and new consultant post applicants to stay connected with novel perspectives in meeting some of the harsh demands of current clinical, science, education and humanitarian infection practice.

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DEBATE – The COVID-19 aerosol vs droplet smoking gun

15:30, Lowbury Auditorium

Dr Raymond Tellier, Associate Professor, Division of Infectious Diseases, Dept of Medicine, McGill University Canada

Droplets with diameters falling within a wide range are produced from the fluid lining the respiratory tract, in health and in sickness. When the subject is infected with a respiratory virus such as SARS-Cov-2 or influenza, droplets of several different sizes are exhaled, contain viruses shed in the fluid. Particles with diameters way above the canonical size of 5-10 um classically defined as aerosols are carried by air jets, beyond the standard 2m highlighted in several infection control guidelines. The smaller end of the spectrum (< 5-10 um) deserves some special attention as they will linger in the air for up to several hours and when inhaled can penetrate all the way to the lower respiratory tract. Aerosol inocula of influenza viruses are associated with more severe illness and require a smaller amount of delivered virus to initiate an infection. There are several lines of evidence supporting aerosol transmission of the emerging coronaviruses SARS-CoV-1 and MERS-CoV.

SARS-CoV-2 has been detected in aerosol samples from patient rooms and found to be still infectious. Long range transmission events in poorly ventilated indoor settings have been documented. Exposures at close range would involve particles over the whole size spectrum including smaller aerosols. Experimental infections by aerosols in animal models have been achieved.
Therefore, in addition to an interruption of transmission by direct/indirect contact and “large droplets”, a complete approach to pandemic mitigation also requires the interruption of aerosol transmission, chiefly through proper ventilation and adequate personal protective equipment.

Professor John Conly, Professor of Medicine, Department of Medicine (Infectious Diseases), Cumming School of Medicine, University of Calgary and Alberta Health Services

The available clinical and epidemiologic evidence supports that the predominant route of human-to-human transmission of SARS-CoV-2 is through respiratory droplets and contact routes. There are several lines of evidence to support this contention including the report by the World Health Organization (WHO) Joint Mission on Coronavirus Disease 2019 (COVID-19) in China where the vast majority of the investigated infection clusters occurred within intra-familial clusters with a household secondary attack rate (SAR) varying between 3-10%, supported by multiple other studies finding a mean SAR of 15%, a non-household mean SAR of 4.0%, a healthcare worker SAR of 0.7%, and a reproduction number (R_0) of 2.2-2.7, compatible with other respiratory viruses associated with a droplet/contact mode of transmission. In addition, these latter observations and the use of droplet-contact precautions (gloves, gowns, surgical masks and googles) with high adherence and excellent hand hygiene by healthcare workers (HCWs) in preventing hospital-acquired transmission collectively represent findings that are not compatible with airborne transmission as the predominant route of transmission. In conjunction with appropriate hand hygiene, personal protective

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equipment (PPE) used by health care workers caring for patients with COVID-19 must be used with attention to detail and precision of execution to prevent lapses in adherence and active failures in the donning and doffing of the PPE.

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Tuesday 10 November

JD Williams Lecture – British Infection Association: Pathogen genome sequencing, do we really need it for the management of infectious diseases?

Professor Judith Breuer, Professor of Virology Institute Child Health and Consultant Virologist Great Ormond Street Hospital, Institute of Child Health, University College London

10:00, Lowbury Auditorium

Professor Judith Breuer is Professor of Virology at UCL and Clinical lead for Virology at Great Ormond Street Hospital for Children. Her research interests include the development of high throughput pathogen sequencing directly from clinical material for the analysis of pathogen evolution and identification of pathogen genetic determinants of clinical disease.

Professor Breuer has worked for many years on varicella zoster virus and its vaccine. Her work has elucidated many aspects of VZV natural history and pathogenesis. Professor Breuer's use of combined host and viral transcriptomics uncovered the requirement of VZV replication for keratinocyte differentiation and identified new epidermal signalling pathways associated with replication not only of VZV but other skin viruses. The application of enriched transcriptomics to early post mortem human trigeminal ganglia led her group to discover the canonical VZV latency transcript. More recently Professor Breuer has applied different genomic approaches to the diagnosis of infections. In particular she has developed metagenomic methods for pathogen discovery in patients with undiagnosed infections of the brain, widening this recently to other samples. Her work on pathogen genome sequencing to investigate nosocomial transmission of viruses has culminated in the the COG-UK Hospital Onset Covid Infection trial, which will measure the impact of sequencing on IPC management of SARS-cpV-2 outbreaks in hospitals. Professor Breuer chairs the Joint Committee on Vaccines and Immunisation Varicella zoster vaccine subcommittees and the Immunocompromised Working Group.

Professor Breuer is a member of the MHRA Expert working group on Covid vaccines, the SAGE subcommittee on Hospital Onset Covid Infection and the COG-Uk steering group.

Managing Hepatitis C in 'hard to reach' populations

Dr Peter Moss MD FRCP DTMH, Consultant in Infectious Disease, Hull University Teaching Hospitals, Honorary Senior Lecturer, Hull York Medical School

11:00, JD Williams Theatre

There have been huge advances in the therapeutics of hepatitis C infection over the past few years, and most people can be cured with a relatively straightforward and readily available (at least in this country) course of oral treatment. Despite this the incidence of infection is rising, and there remain about 80,000 people chronically infected in England. Many of these people will go on to develop liver disease. There are

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significant challenges in getting treatment to the people who need it, and we need to find innovative methods of service delivery to achieve the goal of eliminating hepatitis C as a public health problem.

HCV and elimination

Professor Graham Cooke, Professor of Infectious Diseases, Imperial College London

11:15, JD Williams Theatre

The talk will give a brief update on the rapid advances in HCV treatment over recent years and how this has contributed to a renewed national and international effort to achieve elimination of viral hepatitis as a public health threat. Specific UK microelimination efforts will be highlighted as one part of broader elimination strategies.

Hepatitis C genomic diversity and resistance to direct-acting antivirals

Professor Emma Thomson, Professor of Infectious Diseases, MRC-University of Glasgow Centre for Virus Research

11:30, JD Williams Theatre

The hepatitis C virus is one of the most diverse viruses that infect humans, particularly in low- and middle-income countries (LMICs), likely reflecting its origins in sub-Saharan Africa and Asia. While resistance to direct-acting antivirals (DAAs) is rare in strains that occur in high-income countries, response to treatment can be more variable in strains common in LMICs. Genotypes 4r and 1l, occurring in East/Central and West Africa respectively, have a lower than desirable response to treatment with some DAAs. Elimination of HCV is achievable by 2030 but may require careful planning in individual member states.

Waterless ICUs: Is this the future?

Dr Joost Hopman, Consultant Microbiologist, Radboud, University Medical Center, Netherlands

11:00, Barnet Christie Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Learning from mistakes: How to get hospital water system design right

Dr Mike Weinbren, Consultant Microbiologist, Sherwood Forest Hospitals NHS foundation trust

11:20, Barnet Christie Theatre

This talk will explore why despite there being good technical guidance this does not deliver a safe built healthcare environment.

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Hospital pools (hydrotherapy; birthing pools etc) the good, the bad and the downright disgusting

John V Lee, Director, PWTAG, Leegionella Ltd

11:35, Barnet Christie Theatre

The therapeutic uses of water were recognised in ancient civilisations in Europe and Asia. Therapy can range from immersion of parts of the body to full body immersion with exercise. This talk will concentrate on pools used for human aquatic therapy. Often the people being treated are particularly susceptible to infection but also the aquatic physiotherapists themselves are at risk from long-term immersion. Hydrotherapy pools are maintained at the thermo neutral temperature of 34-35 °C which makes them more difficult to manage than swimming pools.

Design and operation is multidisciplinary and should take the water safety plan approach. Design needs to minimise opportunities for contamination of the pool water by the users and introduction from outside and to accommodate the need for adequate patient mobility, safe access and movement around the pool, and adequate pre-swim showering facilities.

Ease of access for routine cleaning is important and plant rooms should be sufficiently spacious to accommodate adequate filtration and disinfection plant and enabling easy access for maintenance. The effective operation of hydrotherapy pools for their primary purpose can sometimes be jeopardised by their inappropriate use for other purposes. This talk will consider the appropriate design, management and operation of hydrotherapy pools in order to enhance the patient experience and reduce any risks.

Immunology of COVID-19 associated aspergillosis

Dr Frank Vander Veerdonk, Infectious diseases specialist, MD, PhD, Radboudumc

11:00, FIS Theatre

Influenza-associated pulmonary aspergillosis (IAPA) is an emerging fungal infection, which causes high mortality in patients. The pathogenesis is not clear but evidence suggest that the lytic infection of Influenza itself, the immunodysregulation caused by the virus, and a possible role for neuraminidase inhibitors as the perfect storm to cause this severe and lethal infection. COVID is a more recent infection caused by the SARS-CoV-2 which shares some similarities but also clear differences with Influenza. Therefore the question whether COVID-associated pulmonary aspergillosis (CAPA) would be a similar entity as IAPA. I will focus on the known pathophysiology and clinical data of both viral infections in relation to aspergillosis.

Fungal disease and COVID-19 – A global update

Dr Elizabeth Johnson, Honorary Professor of Medical Mycology, Southmead Hospital

11:15, FIS Theatre

It has been recognised for several years that invasive pulmonary aspergillosis can be a complication of severe influenza (IAPA) due not only to the damage inflicted on the pulmonary epithelial cells by the virus

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itself and the host response to it, but also due to its immune modulating effects and those of steroids employed to control cytokine storms. Therefore even before the first cases were formally recognised there was speculation about the possibility of COVID-19-associated pulmonary aspergillosis (CAPA). Many ICUs in Europe were therefore primed to begin surveillance sampling employing fungal biomarkers and culture of respiratory fluids in their severely ill COVID-19-infected ICU patients. The first case due to Aspergillus flavus was reported in the first 99 patient cohort analysis from Wuhan, followed closely by another report from China and a report from France. There have followed many case reports and cohort studies worldwide but the majority to date (90%) have been from Europe. Incidence rates vary widely from 2.8% - 34% likely due in part to the difficulties in defining cases. The majority of cases of pulmonary infection have been due to the ubiquitous mould Aspergillus fumigatus but other Aspergillus species and even a Fusarium proliferatum have been implicated. Several case reports have noted the worrying finding of azole resistance in Aspergillus fumigatus isolates with mutations suggesting the development of resistance due to use of environmental azoles.

As expected in the ICU setting there have also been numerous reports of candidaemia due to the usual spread of pathogenic yeast species with Candida albicans predominating. An interesting case series was reported from Greece in which two patients developed fungaemia due to Saccharomyces cerevisiae four days after use of a probiotic containing this yeast to treat diarrhoea, raising the issue of gut translocation following probiotic use. Perhaps surprisingly what we haven't seen to date are any reports concerning the emergence of the pathogenic yeast Candida auris which is well-recognised for its ability to cause nosocomial outbreaks in the ICU setting.

Definitions for defining COVID-19 associated aspergillosis

Dr Lewis White FECMM, FRCPATH, Consultant Clinical Scientist, Public Health Wales Mycology Reference Laboratory

11:30, FIS Theatre

Respiratory viral infections and invasive pulmonary aspergillosis (IPA) have a well-established clinical relationship, with dual infections usually documented in patients with underlying host factors, such as immunosuppressive conditions (e.g. Haematological malignancy). The onset of IPA in patients lacking host factors, initially diagnosed with influenza, but more recently COVID-19 infection, complicates the classification of IPA, as the widely accepted EORTC/MSGERC definitions are not applicable to a wide range of these patients on the critical-care ward. While defining proven IPA remains consistent across all patient cohorts, the heterogeneity in patients diagnosed with influenza associated pulmonary aspergillosis (IAPA) and COVID-19 associated pulmonary aspergillosis (CAPA) has led to a range of definitions being proposed, embracing different mycological strategies testing various sample types. This results in classifications of IAPA/CAPA that vary considerably in their strength of mycological evidence and do not correspond with expected clinical prognosis, casting doubt on their accuracy. This presentation will discuss the definitions currently available to classify IPA, before comparing CAPA classifications, the strength of mycological evidence and prognosis from a single COVID-19 population.

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Weak organic acids for the prevention of catheter-associated urinary tract infections

Dr Nicola Irwin, Lecturer in Pharmaceutical Materials Science, Queen's University Belfast

14:00, Lowbury Auditorium

Weak organic acids (WOAs) have been used as food preservatives for centuries and are reported to exert their antimicrobial activity by the flow of unionised molecules through bacterial cell membranes. Reduction of intracellular pH due to accumulation of acidic anions causes damage to enzymes and disruption of cell membrane structure, thereby inhibiting bacterial growth (1). The effects of WOAs, alone and in combination, against common uropathogens (Proteus mirabilis, Staphylococcus aureus, Escherichia coli and Pseudomonas aeruginosa) were investigated through determination of MIC, MBC, time-kill and checkerboard assays. The effect on catheter blockage was investigated by in vitro bladder model assays through determination of time to blockage, urinary pH, viable cell density and scanning electron microscopy. Citric and propionic acids displayed synergistic activity against P. mirabilis and S. aureus with fractional inhibitory concentration index values < 0.5. The rate of encrustation around the catheter eyeholes was reduced in the presence of citric acid, resulting in an almost doubling of catheter time to blockage relative to control (75.11 h ± 11.15 and 43.92 h ± 4.18 respectively). Furthermore, the synergistic relationship between citric and propionic acids extended the time to blockage 3-fold (123.50 h ± 13.28). Multi-mechanistic combinations identified herein are anticipated to play an important role in the prevention of catheter-associated urinary tract infections and catheter blockages.

The effect of intestinal microbiota dysbiosis on growth and detection of carbapenemase producing enterobacteriaceae

Dr Caroline Chilton, Academic Fellow, University of Leeds

14:25, Lowbury Auditorium

Background: Carbapenemase producing Enterobacteriaceae (CPE) can colonise the gut and are of major clinical concern in the UK. Identification of CPE colonisation is problematic, and the effects of antibiotic exposure and microbiota dysbiosis on detection are unknown.

Aim: Based on a national survey we selected four screening platforms in common use. We used a clinically reflective in vitro model of human gut microbiota to investigate the performance of each test to detect a clinical Klebsiella pneumoniae strain containing an OXA-48-like carbapenemase enzyme, inoculated into the model under different, clinically relevant antibiotic exposures.
Methods: Four gut models were seeded with a pooled faecal slurry and exposed to CPE either pre, post, concomitant to, or in the absence of piperacillin-tazobactam (358 mg/l, 3x daily, 7 days). Total Enterobacteriaceae and CPE populations were enumerated daily. Regular screening for CPE using Cepheid Xpert® Carba-R, Brilliance™ CRE, Colorex™ mSuperCARBA and CHROMID® CARBA SMART agars was performed.

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Talks are ordered chronologically by session and by room/lecture theatre.

Findings: Detection of CPE in an intact microbiota is problematic. Antibiotic exposure disrupts microbiota populations and allows CPE proliferation, increasing detection. The Cepheid platform performed best for detecting a low level of Klebsiella pneumonia OXA-48 within an intact microbiota, although performance of agar screening methods was comparable when CPE populations increased in a disrupted microbiota. Conclusion: There may be a subset of patients who screen negative for CPE while carrying a CPE at an undetectable level, which proliferates following antibiotic exposure. These patients could be an unknown infection control risk, potentially spreading the organism, particularly in the healthcare setting.

How to reduce hospital acquired infection in a Zimbabwean neonatal unit: pilot qualitative and quality improvement work

Dr Felicity Fitzgerald, NIHR Academic Clinical Lecturer in Paediatric Infectious Diseases, UCL Great Ormond Street Institute of Child Health, London, UK/ Biomedical Research and Training Institute, Harare, Zimbabwe

14:50, Lowbury Auditorium

There are 2.9 million annual neonatal deaths worldwide. About 700000 of these are caused by neonatal sepsis, increasingly caused by highly resistant bacteria transmitted within hospitals. Babies admitted to neonatal units in low-income settings are up to 20 times more vulnerable to hospital-acquired infections than in high-income countries. I will describe our HIS-funded pilot work in a large Zimbabwean neonatal unit preparing for a multimodal intervention aiming to reduce transmission of infection. First, we introduced an Android application (the NeoTree) which acts as a combination electronic medical record, educational platform and decision support tool to replace admission, discharge and laboratory forms. Second, we carried out in depth interviews and ethnographic observation to identify barriers and facilitators to infection prevention and control processes on the unit, analysing data according to the Capability-Opportunity-Motivation-Behaviour (COM-B) framework), to inform a future theory-driven behaviour change intervention.

Room decontamination: Should we ask for automatic room disinfection or enhanced cleaning?

Professor Deverick Anderson, Director of the Duke Centre for Antimicrobial Stewardship and Infection Prevention, Duke University

14:00, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Hand hygiene monitoring: Effective but is it practical?

Carolynn Greene, Doctoral Researcher / PhD Candidate, College of Nursing, Midwifery and Healthcare University of West London

14:25, JD Williams Theatre

Abstract supplement (invited speaker abstracts)

Talks are ordered chronologically by session and by room/lecture theatre.

Hand hygiene is a key behaviour in the prevention and control of healthcare associated infections. In order to ensure hand hygiene practice is meeting required standards a system of audit and feedback is used. Commonly, audits use direct observation of practice to establish staff compliance to the World Health Organization's My Five Moments for Hand Hygiene. This method has limitations due to the Hawthorne effect and sampling bias. In addition, it is often conducted over short periods and so data represents a small window of hand hygiene practice. Electronic monitoring systems for hand hygiene aim to establish 24/7 compliance data and can provide immediate feedback for staff. This presentation aims to provide an overview of how electronic monitoring systems can capture hand hygiene practice, alongside its reported acceptability and usability by staff.

Surface environments: cleaning and materials

Lena Ciric, Associate Professor, University College London

14:50, JD Williams Theatre

For a long time, the surface environment in healthcare settings was not thought to be involved in the transmission of pathogens. Over the years, more and more evidence has emerged which has shown that surfaces can harbour pathogenic organisms and play a role in the transmission of microorganisms which cause healthcare associated infections (HCAIs). Work showing the spread of contamination via surfaces around an outpatient ward will be presented. Data showing microbiological surface contamination before and after cleaning on the same ward will also be reported. Cleaning methods are not always undertaken correctly, therefore regular audits and training should be undertaken to improve the technique and understanding of the relevant staff groups. The market is saturated with a plethora of cleaning products as well as materials such as those used in medical devices, curtains and paints which claim to have exceptional antimicrobial activity. But do these work well in a real hospital environment? Surface decontamination is a complex problem that requires a holistic approach and working collaboratively across healthcare staff groups to tackle effectively.

Hospital pathogens spread by air

Dr Jean Ralph Zahar, Head of Infection Control unit, AP-HP, Avicenna Hospital, Bobigny

14:00, Barnet Christie Theatre

Ensuring that the air in our hospitals is well controlled and safe is a key issue, especially in these troubled times. Many droplet-borne pathogens have been found in the air. Analysis of the literature suggests that many factors are involved in the airborne spread of pathogens. Previous and current experiences lead us to question the concept of droplet versus airborne pathogens.

Important hospital pathogens spread by water

Dr Susanne Surman-Lee, Consultant Clinical Scientist/Public Health Microbiologist, Leegionella Ltd

14:15, Barnet Christie Theatre

Abstract supplement (invited speaker abstracts)

Talks are ordered chronologically by session and by room/lecture theatre.

In healthcare premises, the population is more likely to be at risk from infections spread by water, either as a result of illness or treatment, than the general population. Because of the size and complexity of water systems within healthcare premises, even when drinking water at the point of entry meets drinking water quality standards, by the time it reaches the point of use it may no longer be safe for all types of use and all types of user. In addition, the range of potential sources increases the opportunity for opportunistic pathogens to proliferate and cause infection by an increasing range of different modes of exposure. Whilst *Legionella* is still the waterborne pathogen of most concern as it can cause serious illness and death, not just to patients but also staff and visitors and applies to all types of building other waterborne infectious agents are increasingly being recognised. P*seudomonas aeruginosa* is of particular concern as it poses the greatest threat to the most vulnerable patients and unlike *Legionella* ,can be spread between staff, visitors and patients and backwards and forwards from colonized persons, water outlets and water. The range of waterborne infectious agents which are being recognised as being associated with exposure to water as well as fittings, components and equipment which uses or is filled with water within healthcare is increasing. It includes those associated with the transmission of antibiotic resistance, particularly carbapenamase producing organisms (CPO)s. Outbreaks of CPO have increased recognition that when considering risks associated with waterborne infection, including of COVID 19, we need to consider not just the water in distribution, but also any associated equipment and the waste water system as a whole.

New technologies to improve the quality of hospital air and water. Do they work?

Professor Hilary Humphreys, Professor of Clinical Microbiology and Consultant Microbiologist, Royal College of Surgeons Ireland and Beaumont Hospital Dublin

14:30, Barnet Christie Theatre

Fresh air and potable water do not cause a risk to most patients in hospital except potentially when patients are severely immunosuppressed or there is heavy contamination. Operating theatre (room) ventilation contributes to reducing some post-operative infections. Ultraviolet light and other technologies decontaminate the air and reduce surface bacterial counts, but evidence for efficacy in reducing infections is limited. However, there is increasing interest given the ongoing COVID-19 pandemic. Bacterial biofilm formation means that decontaminating water systems is challenging but electrochemically activated solutions (superoxidized water, anolyte) may enhance hand-basin hygiene. Structural modifications to toilets and drains, e.g., hopper and sink drain covers, have been evaluated. Basic maintenance, routine but effective environmental hygiene and close liaison between engineers, estates and infection prevention control teams, will prevent many airborne and waterborne infections. Newer technologies reduce microbial counts in vitro, but their efficacy in actually reducing infections has yet to be confirmed, because of the absence of suitably designed trials.

Clostridioides difficile – where does it all begin?

Dr Claire Johnston, Specialist Registrar in Microbiology and Infectious Diseases, Public Health Wales

Abstract supplement (invited speaker abstracts)

Talks are ordered chronologically by session and by room/lecture theatre.

14:00, FIS Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

COVID19 – staff and patients as Trojan Horses

Hibo Asad, Healthcare Epidemiologist, Health Protection CDSC, Public Health Wales

14:00, FIS Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

E-learning and AMR: Global educational solutions in AMS

Professor Dilip Nathwani FRCP OBE, Emeritus Honorary Professor of Infection, University of Dundee

15:30, Lowbury Auditorium

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Year in IPC

Dr Chris Lynch, G Graham Ayliffe Training Fellow and Microbiology ST6, Healthcare Infection Society and Sheffield Teaching Hospitals NHS Foundation Trust

Dr Katie Prescott, Microbiology ST6 & Graham Ayliffe Training Fellow (Healthcare Infection Society), Nottingham University Hospitals NHS Trust

16:30, Lowbury Auditorium

In this session we will review selected infection prevention and control literature from the past year, highlighting work that has happened despite COVID-19 along with that which has been impacted by it. We will also take the opportunity to highlight some of the learning points of the pandemic which may inform future research and practice in IPC.

Wednesday 11 November

Abstract supplement (invited speaker abstracts)

Talks are ordered chronologically by session and by room/lecture theatre.

Barnet Christie Lecture – British Infection Association: Tuberculosis diagnostics to reduce HIV-associated mortality

Dr Ankur Gupta-Wright, Clinical Lecturer, University College London

10:00, Lowbury Auditorium

Tuberculosis (TB) was declared a global emergency in 1993 by the World health Organization (WHO), with global and African regional TB incidence rates driven by the HIV epidemic. Much of this burden lay in health facilities in sub-Saharan Africa, with post-mortem studies showing almost half of fatal TB goes undiagnosed, reflecting a failure of the current approach to TB diagnostics. HIV-associated TB is often under the clinical radar, and this lecture describes strategies to improve TB diagnostics to expedite treatment, reduce the amount of undiagnosed disease and ultimately reduce mortality. Through studies assessing the diagnostic accuracy and yield of new, rapid TB diagnostics, including the Xpert MTB/RIF nucleic acid amplification and urinary lipoarabinomannan (LAM) lateral flow assays, and clinical trials to measure mortality impact, this lecture describes how TB diagnostics can reduce HIV-associated morbidity and mortality. With improved TB diagnostics in the pipeline, the future of urine-LAM assays for TB are also discussed.

Global issues surrounding the availability of antimicrobials

Professor Philip Howard, Consultant Antimicrobial Pharmacist, Leeds Teaching Hospitals NHS Trust

11:00, Lowbury Auditorium

The production of antimicrobials is complex. There are many stages in the supply chain where disruption can occur. There is limited transparency around the production of antimicrobials outside of the regulatory process. Antimicrobials have been identified as the most common shortage reported in European hospitals. This presentation will explore the measures that have been establishes to mitigate any shortages in UK healthcare.

Can we be optimistic about the antimicrobial pipeline

Professor David Livermore, Professor of Medical Microbiology, University of East Anglia

11:15, Lowbury Auditorium

In many respects the situation regarding antibiotic resistance has improved. In 1997 we had 3 antibiotics from 2 classes active against most MRSA; now we have 16 from 9 classes. New agents are being launched against tuberculosis for the first time in 50 years and resistant pneumococci are no longer prominent in conference programmes, having been targeted by vaccines. Even against gram-negative bacteria, new agents are being launched or are in Phase III. Those directed against carbapenemase producers include multiple β-lactamase inhibitor combinations, a catechol cephalosporin, a novel tetracycline and new aminoglycoside. Very few carbapenemase-producing Enterobacterales evade all these agents, though fewer cover carbapenemase-producing non-fermenters. Other areas of development include oral penems, carbapenems, and inhibitor combinations directed against ESBL *E. coli*, and two anti-gonococcal agents.

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Two clouds however shadow this horizon. First, mutational resistance can emerge to even the newest anti-gram-negative agents, sometimes with alarming frequency. Secondly, the commercial return is extremely poor, discouraging investment. Several manufacturers have abandoned applications to license their new compounds in Europe. And, although the UK government has a scheme fund access to 2 new agents, it remains unknowable if the right agents will be chosen for the uncertain future. And, what will happen to those agents that are not chosen? Will they remain available? In summary, we can be optimistic about scientific ingenuity, but much less about the pipeline sustainability.

Antibiotic prescribing and resistance in primary care: implications for intervention

Dr Oliver Van Hecke, NIHR Academic Clinical Lecturer and General Practitioner, University of Oxford

11:30, Lowbury Auditorium

Antibiotic resistance is an important societal health issue. The greatest risk factor for developing a resistant infection is antibiotic use. We know less about how antibiotic-resistant infections affect people in the community, even though this is where almost 75% of all antibiotics are prescribed.
In this presentation, I will discuss the findings from my PhD (2018) which tackled this important question and will present some thoughts where these findings might be incorporated into future interventions aiming to optimise antibiotic use.

Setting research priorities in healthcare acquired infection

Professor Peter Wilson, Consultant Microbiologist, UCLH

11:00, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Which research topic should the UK infection trainee community prioritise?

11:15, JD Williams Theatre

Vote on a top 10 of research projects presented by trainees to help us choose NITCARs research direction**.**

Challenging SARI Season 2020- 2021: How to control?

Dr Nagwa Khamis, Professor of Clinical Pathology (Microbiology) and Director IPC Department, ASU and CCHE-57357

11:00, Barnet Christie Theatre

SARI stands for Severe Acute Respiratory Infection which tends to be rapidly progressive respiratory illness due to pathogens that have the potential for large scale epidemics.

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Viruses account for the majority of the acute respiratory tract infections globally with a mortality exceeding 4 million deaths per year.
The most commonly encountered viruses, in order of frequency, include influenza, respiratory syncytial virus, parainfluenza, adenovirus. And lately SARS CoV-2.
The mode of transmission for most if not all SARIs is mainly due to large droplets,
but transmission through contact via hand contaminated with subsequent self-inoculation can also occur.
Respiratory aerosols can cause airborne transmission when conducting high-risk aerosol generating procedures.

A preparedness and management plans, to face this challenging season 2020- 2021, might include:
1. Risk assessment/ identification and communication
2. Preparedness policy that might include:
a) Applying preventive measure.
b) Patient flow (placement) from screening till management.
c) Isolations areas (map).
d) Provision of required PPE.
3. Awareness and education

Both COVID-19 and flu can have varying degrees of signs and symptoms, similarities, ranging from unrecognized symptoms to severe symptoms. Common symptoms that COVID-19 and flu share are: Fever or feeling feverish/chills, cough, shortness of breath or difficulty breathing, fatigues Sore throat, runny or stuffy nose, muscle pain or body aches and headache. Some people may have vomiting and diarrhoea, though this is more common in children than adults. Finally, both were the cause of Pandemic. This season a Flu Vaccine is More Important than Ever!

Management of a COVID-19 outbreak in a French long-term care facility

Dr Lavigne Thierry, Head of the Infection Control Unit, University Hospitals of Strasbourg, France

11:15, Barnet Christie Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Situation analysis of infection prevention and control (IPC) and hand hygiene programmes worldwide

Professor Benedetta Allegranzi, Infection Prevention and Control Technical Lead, WHO HQ

11:30, Barnet Christie Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

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The role of biosensors to diagnose and optimise the treatment of infection

Professor Till T. Bachmann, Deputy Head of Infection Medicine and Personal Chair of Molecular Diagnostics and Infection, University of Edinburgh

11:00, FIS Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

The role of nanopore metagenomics in the diagnosis and management of infection.

Dr Justin O'Grady, Associate Professor in Medical Microbiology, Quadram Institute and University of East Anglia

11:15, FIS Theatre

The rise in antimicrobial resistance (AMR) is predicted to cause 10 million deaths per year by 2050 unless steps are taken to prevent this looming crisis. Microbiological culture is the gold standard for the diagnosis of bacterial/fungal pathogens and antimicrobial resistance and takes 48 hours or longer. Hence, antibiotic prescriptions are rarely based on a definitive diagnosis and patients often receive inappropriate treatment. Rapid diagnostic tools are urgently required to guide appropriate antimicrobial therapy, thereby improving patient outcomes and slowing the development of AMR. In this talk, I will discuss the application of sequencing technology for the diagnosis of infection, focusing on rapid (~6hr) nanopore sequencing based clinical metagenomics.

Novel nucleic acid based diagnostic tools for rapid and affordable detection of infectious diseases and antimicrobial resistance

Jesus Rodriguez Manzano, Lecturer in Antimicrobial Resistance and Infectious Diseases, Imperial College, London

11:30, FIS Theatre

Smartphone-based diagnostics for infectious diseases has become a promising field enabling the delivery of precise diagnostics near the patient and in limited-resource settings. Although smartphones provide a user-friendly interface, cloud connectivity, and strong computational power, they are currently coupled with non-portable and expensive diagnostic platforms, typically based on fluorescent or colorimetric detection. This work demonstrates a smartphone-based platform for nucleic acid detection at the point-of-care, replicating the function of conventional lab-based quantitative PCR instruments. This is achieved by coupling semiconductor technology for non-optical real-time DNA sensing with isothermal amplification chemistries, reducing the need for complex and costly thermal management. Adoption of this platform will decrease the turnaround time for detection of nucleic acids, improving diagnostic capabilities, patient outcomes, and the management of infectious diseases and antimicrobial resistance.

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The lung mycobiome and AMR

Dr Paul Bowyer, Senior Lecturer in Molecular Biology, University of Manchester

14:00, Lowbury Auditorium

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Combining mathematical modelling and artificial intelligence to support the design of antibiotic Treatments

Professor Gabriela Ochoa, Professor in Computing Science, University of Stirling

14:15, Lowbury Auditorium

This talk illustrates how we can use mathematical modelling and AI methods (optimisation) to assist in the design of effective antibiotic treatments. Antibiotic use, especially their overuse, is the single most important driver of antibiotic resistance. Efforts have been made to reduce unnecessary drug prescriptions, but limited work is devoted to optimising dosage regimes when they are prescribed. The design of antibiotic treatments can be formulated as an optimisation problem where candidate solutions are encoded as vectors of dosages per day. The formulation naturally gives rise to competing objectives, as we want to maximise the treatment effectiveness while minimising the total drug use, the treatment duration and the concentration of antibiotic experienced by the patient. This article combines a recent mathematical model of bacterial growth including both susceptible and resistant bacteria, with a multi-objective evolutionary algorithm in order to automatically design successful antibiotic treatments. Our approach obtains shorter treatments, with improved success rates and smaller amounts of drug than the standard practice of administering daily fixed doses. These new treatments consistently involve a higher initial dose followed by lower tapered doses.

Animals, Microbiome and Human Resistance

Dr Adrian Muwonge, BBSRC Future Leader Fellow, The University of Edinburgh

14:30, Lowbury Auditorium

What is the role of subsistence farming in AMR spread?

Unravelling the fundamental dynamics of AMR dissemination at the human-animal interface offers the best chance of developing effective control measures and underwrites the efforts toward limiting irrational antibiotic use in both human and animal health care.

Here I use a combination of molecular techniques, including microbiome analysis in a setting of epidemiological relevance to detect antibiotic driven changes in the gut bacteria. The hypothesis tested is that farmers in contact with pigs in peri-urban settings are at higher risk of acquiring AMR genes across this interface than people in rural settings.

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The results unambiguously show an association between the levels of antibiotic use, AMR gene carriage and phenotypic resistance. For example, the urban farmer uses more antibiotics on their pigs than their rural counterparts, which is reflected in the amount and patterns of AMR gene they carry and phenotypic resistance. Farmers and their pigs carry comparable resistomes with evidence of exchange between farmers and pigs in urban settings.

The adult HCID programme and COVID: impact and possible future

Dr Nick Price, Consultant in Infectious Diseases, Guys and St Thomas' Hospital

14:00, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

Emerging Infections: What about Children?

Dr Alicia Demirjian, Paediatric infectious diseases consultant and epidemiologist, Evelina Hospital

14:15, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

The impact of COVID on maternity pathways

Pat O'Brien, Consultant Obstetrician, University College London Hospitals

14:30, JD Williams Theatre

Abstract unavailable at time of publishing. Please refer to e-conference site for most current abstract content.

The importance of environmental CPE reservoirs in ongoing transmission of CPE

Dr Nuala O'Connell, Consultant Microbiologist, University Hospital Limerick, Ireland

14:00, Barnet Christie Theatre

Carbapenemase Producing Enterobacterales (CPE) are an increasing problem worldwide. There is mounting evidence for the role of the environment as a source of potential cross transmission in the hospital setting. In our centre there has been an outbreak of CPE, predominantly Klebsiella pneumoniae carbapenemase (KPC) producers, with an increase in numbers over the past decade. A point prevalence survey was carried out looking at clinical WHB in a tertiary referral hospital over a 12 month period to quantify the number of clinical wash-hand basins (WHB) colonised with CPE. A number of CPE detected isolates were sent for confirmation to National CPE Reference Laboratory, Galway and whole genome sequencing was performed against patient isolates from the same ward areas. Various interventions were introduced including ward

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refurbishments, sink replacements and sink disinfection regimens. Other considerations are in the pipeline. Strict adherence to good infection control practices and behaviours, education of staff & patients, environmental hygiene and structural design of healthcare premises are fundamental in the prevention of CPE transmission, amongst other micro-organisms, from these reservoirs to patients.

Environmental reservoirs of CPE: Environmental design and the role of environmental screening

Dr Michael Weinbren, Consultant Microbiologist, Sherwood Forest Hospitals NHS foundation trust

14:15, Barnet Christie Theatre

The talk will explain how healthcare drainage systems have become a superhighway for transport and dispersal of CPEs and other organisms.

Environmental decontamination to control CPE. The old and the new

Professor Hilary Humphreys, Professor of Clinical Microbiology and Consultant Microbiologist, Royal College of Surgeons Ireland and Beaumont Hospital Dublin

14:30, Barnet Christie Theatre

It is now accepted that many multi-drug resistant bacteria may be acquired from the inanimate environment, even if their detection, especially Gram-negative bacilli, can be problematic. Carbapenamase-producing Enterobacterales (CPE) have been associated with a number of outbreaks and are detected in the hospital environment, including hospital wastewater. Irish, UK and European guidelines emphasise the importance of environmental cleaning but are not proscriptive on how, when and with what. New technologies have largely being assessed with other hospital pathogens such as Clostroidies difficile and Acinetobacter species. These are effective in reducing the surface counts of most bacteria, but often have not been assessed for reducing actual infections. Increasingly, efforts are focussed on reducing counts of CPE in damp areas such as showers and sinks where CPE can persist. These include regular maintenance and the periodic flushing or installation of a variety of disinfectants. Regular and effective decontamination is important in the control of CPE and new technologies may have a role but currently, evidence supporting their efficacy in reducing spread and infections is lacking.

Publishing Models and Metrics

David Spencer, Senior Publisher - Health and Medical Sciences, Elsevier

14:00, FIS Theatre

This presentation will cover the different publication models used by scholarly journals, and the major differences between these models, as well as discussing an example of an Open Access mandate (Plan S). This presentation will also cover publication metrics, including the impact factor and other metrics of research evaluation.

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Writing your manuscript

Christine Fears, Editorial and Production Manager, Healthcare Infection Society

14:15, FIS Theatre

This talk looks in detail at the parts of a research article and what to focus on in each section. We will also look at how research articles are discovered by readers and how your writing can grow your audience.

An editor's viewpoint

Dr Gemma Winzor, Public Health England Midlands and East Region, Birmingham, United Kingdom

14:30, FIS Theatre

A guide to scholarly publication for IPC practitioners; from an Editor's viewpoint. The presentation will cover tips for choosing the right journal for your manuscript, why to consider the Journal of Hospital Infection or Infection prevention in Practice for your manuscript and the impact of the COVID-19 on the publishing process in 2020. Attendees can expect to develop a deeper understanding of the editorial process and how to catch an editor's attention to ensure the road to publication is smooth!