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Contents

A quick reference guide by topic, paper number and presentation type can be found at the end of the document or [click here](#).

(Click paper title to take you straight there)

Free paper oral presentations

11: Investigations, actions and learning from an outbreak of SARS-CoV-2 infection among health care workers in the United Kingdom	13
12: Procalcitonin as an antibiotic stewardship tool in COVID-19 patients in the intensive care.....	14
20: Impact of antibiotic timing on mortality from Gram negative Bacteraemia in an English District General Hospital: the importance of getting it right every time	15
35: Case report: A fall in the forest	16
65: Not such a fun-guy: A case series of severe urological infections secondary to <i>Nakaseomyces glabrata</i> infection at Nottingham University Hospitals between 2017 and 2019.....	17
95: <i>Cryptococcus gattii</i> cryptococcosis microbiological diagnosis in an immunosuppressed traveller to a non-tropical endemic region	18
97: Hypervirulent <i>Klebsiella pneumoniae</i> : An emerging nosocomial threat	19
112: COVID-19 related encephalitis is not an unusual presentation	20
120: Antimicrobial resistance pattern of Community-acquired Urinary Tract Infection from different geographical regions of India	21
124: Persistence of <i>Pseudomonas aeruginosa</i> (PA) in hospital shower waters and drains and presence of antimicrobial resistance in the augmented-care setting	22
136: Extended-spectrum β -lactamase-producing Enterobacterales acquisition and incidence of bloodstream infections after relocating to a new hospital with 100% single-occupancy rooms: the MOVE study	23
149: Using metagenomics to study the impact of hospital stay on the human gut resistome	24

Abstract supplement (free paper abstracts)

157: Serratia marcescens outbreak in a neonatal intensive care unit and the potential of whole-genome sequencing	25
160: Disseminated Ureaplasma urealyticum infection in an immunocompromised patient.....	26
163: A review of symptomatology, clinical progression and transmission dynamics in confirmed COVID-19 patients and potential contribution of demographic characteristics on disease susceptibility – preliminary analysis.....	27
164: Fight against COVID-19 in Africa: positive lessons for future pandemics from Ghana.....	28
168: Is Mycobacterium tuberculosis infection life-long?	29
181: Clostridioides difficile Spore Survival Upon Recommended Exposure to Sodium Hypochlorite Disinfectant	30
205: Real-time Monitoring of Aerosol Generating Dental Procedures.....	31
210: CMV colitis in a young immunocompetent patient	32
212: A case of Plasmodium falciparum 13 years after leaving an endemic area.....	33
230: Hospital-wide SARS-CoV-2 antibody screening in 4153 staff in a UK hospital - patterns of antibody detection	34
231: Genomic and epidemiological investigations help to clarify the extent of healthcare-associated infection during a hospital outbreak of COVID-19	35

Free paper poster presentations

1: A Prospective Audit of Antimicrobial Stewardship and 'Start Smart – then Focus' Compliance on A Vascular Ward.	37
2: Comparison of PCR-detected bacterial gastroenteritis cases with their clinical phenotypes: are we over-estimating incidence in hospitalised patients?	38
4: Quality Improvement Project. Are we inoculating enough blood volume in paediatric blood culture bottle?	39
7: Selective use of Cepheid Xpert MTB/RIF based on NICE guidelines maintains a high rate of rapid pulmonary TB diagnosis	41
9: The quality of life and cost benefits of domiciliary 24-hour piperacillin/tazobactam 13.5g infusion in patients with necrotising otitis externa.	42
10: Urogenital schistosomiasis in fishermen in the Mangochi district of Malawi: short-term dynamics of Schistosoma haematobium infections and morbidity after praziquantel treatment.....	43
13: Addressing Refugee Health During the COVID-19 Pandemic and Future Ones.....	44

Abstract supplement (free paper abstracts)

14: To report a rare case of fungal necrotising otitis externa (NOE) centred on the left temporomandibular joint (TMJ).	45
17: Prevalence of the kleboxymycin biosynthetic gene cluster in <i>Klebsiella</i> spp.	46
18: How good is the hand hygiene of surgeons? A data-driven strategy for long-term behavioral change	47
19: Resistance and virulence traits of <i>Staphylococcus</i> strains isolated from maternity unit	48
21: Implementation of Central venous catheter maintenance bundle in an intensive care unit in Kuwait:....	49
Effect on central line-associated bloodstream infections.....	49
23: Tuberculosis with a genitourinary component	50
24: Enhancing clinical impact by rapid bacterial identification from blood cultures: the York Teaching Hospital UK experience	51
25: A retrospective study of vancomycin prescribing and therapeutic drug monitoring in adult patients with a high creatinine clearance at a large teaching hospital in the East of England, UK: Implications for clinical practice.....	52
26: Deep learning model for prediction of extended-spectrum beta-lactamase (ESBL) production in community-onset Enterobacterales bacteraemia from a high ESBL prevalence multi-centre cohort	53
27: Retrospective descriptive study of patients with <i>Strongyloides</i> positive serological diagnostic markers referred to a regional infectious diseases unit	54
28: Using Quality Improvement Methodology to Enhance Antenatal Infection Screening	55
29: Investigation of bacteraemia. Do we still need more than one set of blood cultures for initial diagnosis?	56
30: Anti-adhesion polymer therapy for the neutralization of Cholera Toxin.....	57
31: Creating and Maintaining a Blue Ward within the COVID-19 pandemic	58
32: In vitro activity of cefiderocol against Gram-negative clinical isolates from the UK across a range of infection types.....	59
33: In vitro activity of cefiderocol against UK Gram-negative clinical isolates resistant to current comparator antimicrobials.....	60
34: Ethnicity, Age and COVID-19: Experience of a London District General Hospital.....	61
36: Lymphopenia is not a reliable predictor of COVID-19: Association between lymphopenia and COVID-19, influenza, respiratory syncytial virus and bacteraemia in hospitalised patients.	62
37: <i>Fusobacterium nucleatum</i> : An unusual cause of paediatric septic arthritis.....	63
38: A 5 year retrospective analysis of the clinical management of varicella zoster CNS infections	64

Abstract supplement (free paper abstracts)

39: Can rationalization of frequent respiratory samples culture requests from an ITU lead to cost savings?	65
41: Survey of UK healthcare workers' knowledge, attitudes and behaviours on antibiotics, antibiotic use and antibiotic resistance	66
42: A case of Capnocytophaga canimorsus endocarditis in a non-immunosuppressed host: The value of 16S PCR for diagnosis.....	67
43: Evaluation of Novodiag CarbaR+ for the detection of carbapenemase producing organisms from faeces – NUH prevalence study 2020.....	68
44: Opportunistic Infection in the Immuno-compromised Child: A Multi- Disciplinary Management of A Paediatric Crohn's Patient with Listeriosis	69
45: Prosthetic Joint Infection secondary to Bacteroides infection	70
46: An audit to assess the use and safety of nitrofurantoin for lower urinary tract infections in patients aged ≥ 65.....	71
47: Carbapenem Stewardship in a large English teaching hospital - can microbiology right the ship	72
48: Clinical utility of 16S rRNA PCR on clinical specimens in patient management at the Queen Elizabeth University Hospital, Glasgow.....	73
49: Remote risk stratification of dyspnoea in acute respiratory disorders and applications for COVID-19 and future pandemics: a systematic review of the literature.....	74
50: Availability of Hand Sanitisation in a District General Hospital	75
51: Assessing outpatient parenteral antimicrobial therapy for the treatment of intra-abdominal collections in a London teaching hospital	76
52: VRE acquisition on an oncology ward: The impact of environmental controls	77
53: Validity of Pneumonia Severity Assessment Scores in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis	78
54: Whose Line Is It Anyway?.....	79
55: Flu through the hospital or not? Prospective follow up of multiple contacts of 25 patients with influenza in a South London hospital.....	80
56: Advanced HIV-1 infection discovery at post-mortem raises questions about confidentiality and disclosure	81
57: A case of necrotising otitis externa in a type 2 diabetic	82
58: A case of embolic spread of Fusobacterium necrophorum from presumed pharyngitis	83
59: A case of treatment refractory necrotising otitis externa progressing to skull base osteomyelitis	84
60: Safety in the practice of decontaminating filtering facepiece respirators: a systematic review.....	85

Abstract supplement (free paper abstracts)

61: Review of anti-fungal use in severe COVID-19 patients: the need for antifungal stewardship.....	86
62: A review of thrice weekly teicoplanin dosing in the OPAT setting	87
63: Botulism in a pregnant adolescent: a case report	88
64: Let off the 'Leish' in Egypt: Sun, Sea, Sand and Splenomegaly	89
66: Towards a dialogue about a Scottish ESBL reporting national consensus plan	90
67: Community-acquired bacterial co-infection is rare in COVID-19 ICU admissions	91
68: Paediatric bone and joint infections in Oxford: a 10-year retrospective review	92
70: Lumbar punctures: Who's doing them and how long are they taking?.....	93
71: Adherence to new Entamoeba histolytica guidelines in inflammatory bowel disease: An audit of practice at a UK teaching hospital.....	94
72: COVID-19 The Irish Public Health Experience: The first 100 days in a large Regional Department of Public Health	95
73: Broad Spectrum Antimicrobial Activity of 405-nm light as a Pathogen Reduction Treatment for Blood Plasma	96
74: The detrimental unintended consequences of lockdown on People Who Inject Drugs in NHS Lothian" ..	97
75: Identifying the World Health Organization's fifth moment for hand hygiene: Infection prevention in the operating room.	98
76: An Observational Study on Carbapenem Resistant Enterobacteriaceae (CRE) colonization and subsequent risk of infection in adult ICU patients.....	99
77: Procalcitonin (PCT) trends in patients admitted with confirmed COVID19 in Doncaster Royal Infirmary (DRI).....	100
78: The Elephant in the Medical Admissions Unit: Cognitive Bias in the COVID-19 Pandemic	101
79: The efficacy of universal disinfection wipes in an Acute Medical Unit: a comparison with a Chlorine-releasing agent.	102
80: Fight COVID with COVID, and Learning from COVID- Kettering General Hospital story.....	103
81: The impact of on-site testing on turnaround time based on a cross-sectional survey of molecular testing of CSF samples by laboratories in the UK.....	104
82: Audit to monitor adherence to national treatment guidelines for C. difficile infection, to evaluate epidemiology of C. difficile infection, to assess the adherence to specimen collection guidance and infection prevention precautions to prevent spread of C. difficile infection at South Warwickshire NHS Foundation Trust (SWFT) between September 2018 and August 2019.....	106

Abstract supplement (free paper abstracts)

83: Dalbavancin: a cost-effective management strategy for deep-seated methicillin-sensitive <i>Staphylococcus aureus</i> (MSSA) infection in a prisoner.....	108
84: Quinine inhibits infection with SARS-CoV-2 in vitro - a new potential therapeutic approach in combating the current SARS-CoV-2 pandemic.....	109
85: Influenza testing – an evaluation of understanding and application among clinical staff.	110
86: Severe COVID-19 infection and invasive pulmonary aspergillosis: a retrospective review from a UK centre.	111
87: 10-year review of pathogens and their antimicrobial resistance patterns at a tertiary neonatal intensive care unit (NICU) in the North East of England. Do we have the right antibiotic policies?.....	112
88: Mycotic Aneurysm due to Prostatitis.....	113
89: Local monitoring of microbiology and antimicrobial susceptibility in acute bacterial otitis media and rhinosinusitis in Ukrainian pediatric sample	114
90: Operating room fomites as potential sources for microbial transmission in burns theatres.....	115
91: Are the use of manually operated electric floor scrubbers a mechanism by which Carbapenemase Producing Enterobacterales (CPE) could be dispersed within the healthcare environment?.....	116
92: SARS-CoV-2 confirmatory testing in a low prevalence setting helps guide protocols for the future	117
93: Utility of repeat Covid-19 Testing in the Mid West of Ireland	118
94: The role of antimicrobial dosing in patients with sepsis-induced acute kidney injury; a single centre observational study.....	119
96: A Retrospective Analysis of <i>Enterococcus faecium</i> Bacteraemias in NHS Greater Glasgow and Clyde in 2019.....	120
98: A Retrospective Study exploring the impact of changes to the Vancomycin Order Panel in the Hospital Electronic Prescribing (EP) System on vancomycin prescribing and therapeutic drug monitoring.....	121
99: Supporting One Health: scoping review of approaches for improving antimicrobial stewardship in livestock farmers and veterinarians	122
100: An unusual diagnosis of neck pain: Sternoclavicular osteomyelitis secondary to <i>Aggregatibacter aphrophilus</i>	123
101: Impact of a dedicated <i>Clostridium difficile</i> infection isolation ward on clinical outcomes	124
102: A local audit on the initiation and dosing of gentamicin on surgical patients.....	125
103: A Rare Case of Eumycetoma of the Hand in an Immunocompetent Patient: A Neglected Tropical Disease Lacking in Accurate Incidence/Prevalence Data and Which Poses Particular Diagnostic and Therapeutic Challenges.	126

Abstract supplement (free paper abstracts)

104: Fusarium keratitis: a challenging diagnosis and long road to recovery	127
105: Decision making on the route and duration of antibiotic therapy in acute cellulitis: A systematic review and meta-analyses considering the effectiveness and harms of antibiotic treatment.	128
106: Immunodeficiency Screening in Invasive Infections with Encapsulated Bacteria	129
107: Investigation of a coronavirus disease 2019 (COVID-19) outbreak in an elderly nursing home in France.	130
108: Temocillin 4g or 6g? Breakpoints vs Practise	131
110: Evaluation of Aspergillus Lateral Flow Device in the diagnosis of Invasive Fungal Infections.....	132
111: A retrospective audit reviewing the safety of Teicoplanin administered via the Outpatient Parenteral Antimicrobial Therapy (OPAT) service, over a 5-year period.....	133
113: USE OF HIGH FLOW NASAL OXYGEN IN COVID-19: EXPERIENCE FROM A UK	134
TEACHING HOSPITAL	134
114: Hospital-acquired pneumonia: data supporting the use of doxycycline in a large subgroup of patients	135
115: An Evaluation of Beta D-Glucan Testing as an Antimicrobial Stewardship Tool in a Tertiary Referral Hospital	136
118: The effect of Infection Control measures on the rates of nosocomial COVID-19 infection in a suburban hospital over time	137
119: International travel and admission to hospital when back home: travel behaviour, risk perception and carriage of highly resistant microorganisms of patients admitted to a large tertiary care hospital	138
121: Surgical site infection surveillance: Right tools, right care	139
122: Rapid diagnostics of orthopaedic implant-associated infections using nanopore shotgun metagenomic sequencing	140
123: COVID learning: Green is not always green, day 5-7 re-swab is essential	141
125: Computer says no: Integrating antimicrobial stewardship into electronic prescribing – early lessons in infective exacerbations of chronic obstructive pulmonary disease.....	142
(IE-COPD) prescribing	142
126: An interesting case of Mycobacterium abscessus peritonitis.....	143
127: Adapting Infection Prevention & Control Training During and Beyond COVID-19 in Singapore	144
128: Metal Oxide-doped Elastomeric Materials for Enhancement of 405-nm Light-based Antimicrobial Surface Decontamination.....	145

Abstract supplement (free paper abstracts)

129: One wipe or two? Surface cleaning with commercially available wipes.	146
130: Efficacy of Low Irradiance Antimicrobial 405-nm Violet-Blue Light for the Inactivation of Nosocomial Bacteria	147
131: The Great ESKAPE: Are we Misdiagnosing Infections from Closely Related Species?	148
132: Risk evaluation of duodenoscope-associated infections in the Netherlands calls for a heightened awareness of device related infections: a systematic review	149
133: Physiological Effects of Antimicrobial 405nm light on Red Blood Cell Products	150
134: A confusing drug eruption.....	151
135: The use of the index of microbial air contamination in healthcare setting: a review of published studies from 2000 to 2020.....	152
137: Fungal Fournier's – an unusual organism	153
138: Sustained antimicrobial efficacy of antibiotic-eluting biodegradable polymer coatings for medical devices.....	154
139: Leadership to reduce antimicrobial resistance in Uganda; Teams Kyenjojo and Kabarole, affecting long term change with ownership by frontline healthcare workers	155
140: Transmission of a susceptible microorganism through a contaminated duodenoscope in a non-outbreak setting; a case study.	156
141: Annual presence of Anncaliia algae in water environments from Leicestershire, UK.....	157
142: Specialised training to protect humans and the environment to pandemics	158
143: Novel resources for teaching and learning medical parasitology	159
145: Active follow-up of patients identified with highly-resistant microorganisms in a large tertiary care centre	160
147: Review of patients admitted with Community Acquired Pneumonia: compliance with local guidance	161
148: Review of positive microbiology cultures results of respiratory tract specimens in confirmed COVID-19 in-patients	162
150: Rapid assessment of possible price instability and shortages of medicines and equipment during the COVID-19 pandemic across Asia and the public health implications.....	163
151: Endocarditis outcomes and characteristics in a UK tertiary centre with high prevalence of intravenous drug use.....	164
152: Microbial profile with Antibiotic Resistance pattern in bile from Cholecystectomised Patients by Culture and Multiplex PCR	165

Abstract supplement (free paper abstracts)

153: When is query COVID not COVID? A systematic review of misdiagnoses during the 2009 H1N1 influenza and COVID-19 pandemics where presumed diagnoses of pandemic respiratory virus were overturned.	166
154: The COVID-19 staff testing service at Nottingham University Hospitals: description of the service and analysis of the results.....	167
155: MDR bacteria in the hospital environment: case of the operating room.....	168
156: COVID-19: case report of a probable re-infection in a lupus patient	169
158: An audit investigating the reporting of invasive Salmonella Infection in adults and children in Greater Glasgow & Clyde (GGC):	170
159: Experience of CLABSI prevention measures in a medical ICU in a tertiary care hospital in a developing country	172
161: Early intravenous to oral switch of antibiotic therapy in deep, post-operative spinal infection – a single centre case series.....	173
162: Procalcitonin and antibiotic stewardship at BSUH during the Covid-19 pandemic.....	174
165: Solitary Syphilitic gumma as a possible cause of Brown-Sequard Syndrome in HIV: a diagnostic dilemma	175
167: A comparison of the severity of clostridioides difficile infections using traditional scoring compared with ATLAS scores over a period of one year.....	176
169: Diagnostic performance of SARS-CoV-2 serological assays: comparison of three chemiluminescent immunoassays and two rapid IgG/IgM antibody tests	177
170: Rapid molecular testing to reduce the number of days spent in respiratory isolation for inpatients under investigation for pulmonary TB in a high incidence setting	178
171: Evaluation of the diagnostic accuracy of a rapid dengue NS1 antigen lateral flow immunochromatography test in UK returned travellers	179
172: Activities in Namibia to limit the impact of COVID-19 versus Europe and Iran and the implications for the future	180
173: The use of high concentration intrathecal amikacin for gentamicin-resistant Gram negative ventriculitis: A case report and review of the literature”.....	181
175: Infections caused by Fusobacterium spp: a 3-year retrospective cohort study from West of Scotland	182
176: A cross-sectional survey of the perceived workload of UK infection specialists related to Lyme disease	183
177: Assessing Antibiotic Allergy to Improve Antimicrobial Stewardship	184

Abstract supplement (free paper abstracts)

178: Antimicrobial Synergy Testing of Extensively-Drug Resistant Escherichia coli isolates at an Organ Transplant Center in Nepal	185
179: Impact of an empiric therapy manual on antibiotic usage in a large Italian teaching hospital: an interrupted time series analysis, 2015-2019.....	186
180: Genotypic characterisation of non-tuberculous mycobacteria from clinical samples suspected of tuberculosis	187
182: An outbreak of SARS-CoV-2 infection on a long-stay hospital ward in March 2020, identified at the onset of inpatient testing in England	188
183: Clinical and laboratory correlation of a screening reactive cytomegalovirus (CMV) IgM antibody	189
184: Developing a Ward Team Approach to Antimicrobial Stewardship: Can Addition of an Antimicrobial Pharmacy Technician to the Multidisciplinary Team Improve Antimicrobial Stewardship and Patient Care?	190
185: The consequences of protracted Hospital admission with COVID-19 infection: Hospital acquired Serratia marcescens aortic valve endocarditis	191
186: Impact of the COVID-19 pandemic on Infections of IPC interest at Birmingham Children's Hospital, UK	192
187: What does an Incidence survey tell you about hospital epidemiology that Prevalence surveys do not?	193
188: Assessment of the accuracy of penicillin allergy documentation and investigation in to whether or not those labelled as penicillin allergic could potentially be de-labelled through pharmacist involvement.....	194
190: Using Big Data to Evaluate the Time to Achieve an Initial Therapeutic Vancomycin Pre-dose Level and Optimal Dosing of Vancomycin in Patients with High Renal Clearance	195
191: A novel communications strategy for optimising COVID-19 Prevention and Control in non-English speaking communities in Ireland	196
192: Clinical and Laboratory profile of Dengue infection: A Hospital-based study in Rajasthan, India	197
193: Early clinical assessment tool alongside testing pathway to aid patient placement in healthcare to reduce healthcare associated COVID-19.....	198
195: Enhanced surveillance of Staphylococcus aureus bacteraemia (SAB) in Glasgow	199
196: Appendiceal abscess and bacteraemia caused by Eggerthella lenta: an emerging anaerobe	200
197: Persistent Influenza A(H1)pdm09 shedding in an immunocompromised patient	201
198: Proof-of-concept trial to assess the impact of Biofire FilmArray panel for rapid diagnosis of meningoencephalitis	202

Abstract supplement (free paper abstracts)

199: Native mitral valve <i>Citrobacter koseri</i> endocarditis following urinary tract infection	203
200: Management of the interaction between tetracycline and fluoroquinolone antibiotics with cation-containing products: Is there room for improvement?	204
201: Pilot evaluation of vapourised hydrogen peroxide for large-scale decontamination of FFP3 masks in a hospital setting	205
202: Microbiological evaluation of ready-to-use flexible gastroscopes in clinical use after different interval following reprocessing	206
203: Should Scotland Adopt the Canadian Definitions of MDR & XDR Gram-negative organisms?	207
204: Septic arthritis attributed to <i>Acinetobacter nosocomialis</i>	208
206: Septic Screen in Patients with COVID-19 Infection	209
207: Blood stream infection with <i>Actinomyces funkeii</i> in an intravenous drug user	210
209: Absence of inflammatory marker responses to antibiotics facilitate antimicrobial stewardship in COVID-19	211
211: DETECTION OF CAUSATIVE AGENTS OF INFECTIOUS KERATITIS IN PATIENTS FROM WESTERN INDIA	212
213: Managing antiretroviral therapy in patients with swallowing difficulties	213
214: Prevalence of healthcare-associated infections and antimicrobial use: the four years' experience of two acute-care hospitals in North-West Italy	214
215: Polypyridyl di/mono-nuclear ruthenium complexes:	215
An answer to relieving the antimicrobial resistance crisis?	215
216: A quality improvement project (QIP) to improve antibiotic prescribing practice in general surgery using a daily ward-round checklist, ABBDDOMM.	216
217: Comparison of ISO 11731:2017 culture methods versus a real-time quantitative (q)-PCR (Biotecon-microproof® <i>Legionella</i> Quantification LyoKit) for the detection and enumeration of <i>Legionella pneumophilla</i> (LP) in hospital waters	217
218: Is <i>Corynebacterium striatum</i> an emerging healthcare pathogen? A multi-site ICU outbreak during COVID-19 pandemic	219
219: Multiple splenic abscesses in a returning traveller	220
220: Exploring the utility of rifampicin levels during the management of tuberculosis	221
222: Characterisation of patients with COVID-19 infection in Glasgow, Scotland.	222
223: An investigation of a nosocomial COVID-19 outbreak reveals a high level of asymptomatic staff infection	223

Abstract supplement (free paper abstracts)

224: Antibiotic Guardian Ambassadors Pilot Project for World Antibiotic Awareness Week (WAAW) 2019	224
225: Neutrophil: Lymphocyte Ratio – a useful prognostic marker in COVID-19 infection	225
226: Evaluation of remote triazole capillary blood testing to facilitate remote Therapeutic Drug Monitoring (TDM): a validation study	226
228: Presenting a case for caesarean section surgical site infection surveillance.....	227
229: Underreporting of carbapenemase-producing organism (CPO) colonisation at a district general hospital: universal screening may help cost-effectively control transmission.	228
232: The cost of unsubstantiated antifungal drug interactions – A large tertiary hospital’s experience of antifungal prophylaxis in haematology patients.....	229
234: Mouth care matters – a HAP prevention strategy	230
235: We’re staying ahead of the NHS digital revolution curve in SSI surveillance	231
236: Antimicrobial resistance and mitigation strategies in healthcare settings: A scoping review	232
237: Reducing ventilator associated pneumonia - a basic oral hygiene training package	233
238: Five-year retrospective review of the prevalence of Staphylococcus aureus isolated from patients with identified or suspected infection in a tertiary teaching hospital, China	234

Free paper oral presentations

Abstract supplement (free paper abstracts)

11: Investigations, actions and learning from an outbreak of SARS-CoV-2 infection among health care workers in the United Kingdom

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Background

We report an outbreak of SARS coronavirus-2 (SARS-CoV-2) infection among health care workers (HCW) in an NHS elective health care facility.

Methodology

A narrative chronological account of events following declaring an outbreak of SARS-CoV-2 among HCWs in early May 2020. As part of the investigations HCWs were offered testing during the outbreak. These were:

- A) Screening by real time reverse transcriptase polymerase chain reaction (RT-PCR) to detect a current infection.
- B) Serum samples to determine sero-prevalence.

Results

Over 180 HCWs were tested by real time RT-PCR for SARS-CoV-2 infection. Infection rate was 15.2% (23.7% for clinical patient facing HCWs vs 4.8% in non-clinical non-patient facing HCWs). 57% of the infected HCWs were asymptomatic. Sero-prevalence (SARS-CoV-2 IgG) among HCWs was 13%.

It was challenging to establish an exact source for the outbreak.

The importance of education, training, social distancing and infection prevention practices were emphasised. Additionally avoidance of unnecessary patients' transfer and minimising cross site working for staff and early escalation were highlighted. Establishing mass and regular screening for HCWs are also crucial to enabling the best care for patients while maintaining the wellbeing of staff.

Conclusion

To our knowledge this is the first UK outbreak report among HCWs and we hope to have highlighted some key issues and learnings that can be considered by other NHS staff and HCWs globally when dealing with such a task in future.

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12: Procalcitonin as an antibiotic stewardship tool in COVID-19 patients in the intensive care

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Introduction:

The coronavirus 2019 (COVID-19) pandemic has imposed significant demand on all health care systems, including intensive care units. In our General Intensive Care Unit (GICU), at University Hospital Southampton, UK, as part of international experience, these patients were routinely commenced on antibiotics on admission for 7 days.

Procalcitonin (PCT) was introduced facilitate antibiotic stewardship (ABS). We aim to report on:

1. Antibiotic usage in COVID-19 patients post introduction of PCT within 7 days of ICU admission.
2. Impact of PCT related antibiotic decisions on mortality within thirty days.

Methodology:

Prospective, observational cohort study involving assessment of PCT in COVID-19 patients admitted to GICU from April 6th to May 22nd, 2020 (our peak).

Results:

Fifty two patients were tested for PCT on their admission to GICU. They were categorised into PCT value $<0.5\mu\text{g/L}$ (n=25 low PCT group) and PCT value $>0.5\mu\text{g/L}$ (n=27 high PCT group).

The use of antibiotics within first 7 days of admission was lower in the low PCT group (5 days) compared to 7 days with high PCT ($P < 0.001$). There was also significant difference in the duration ICU stay between both groups [5 days vs 15 days ($P 0.03$)]. Larger number of patients requiring invasive ventilation in high PCT group compared to the low PCT group, and a better survival trend in low PCT group were noted. These were not statistically significant.

Conclusion:

PCT can be used as ABS tool in COVID-19 patients and can safely reduce antibiotic usage. This is crucial in tackling antibiotic resistance.

Abstract supplement (free paper abstracts)

20: Impact of antibiotic timing on mortality from Gram negative Bacteraemia in an English District General Hospital: the importance of getting it right every time

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Abstract

Objectives

There is limited evidence that empirical antimicrobials affect patient-oriented outcomes in gram-negative bacteraemia. We aimed to establish the impact of effective antibiotics at four consecutive time points on 30-day all-cause mortality and length of stay in hospital.

Methods

We performed a multivariable survival analysis on 789 patients with *Escherichia coli*, *Klebsiella* spp and *Pseudomonas aeruginosa* bacteraemias. Antibiotic choices at the time of the blood culture (BC), the time of medical clerking, 24 and 48 hours post BC were reviewed.

Results

Patients that received ineffective empirical antibiotics at the time of the BC had higher risk of mortality before 30 days (HR 1.68, 95% CI 1.18 – 2.38, $p=0.004$). Mortality was higher if an ineffective antimicrobial was continued by the clerking doctor (HR 2.73, 95% CI 1.58 - 7.73, $p<0.001$) or at 24 hours from the BC (HR 1.83, 95% CI 1.05 – 3.20, $p=0.033$), when compared to patients who received effective therapy throughout. Hospital onset infections, 'high inoculum' source of infections, elevated C- reactive protein, lactate, and the Charlson Comorbidity index were independent predictors of mortality. Effective initial antibiotics did not statistically significantly reduce hospital length of stay (-2.98 days, 95% CI -6.08 to 0.11, $p=0.058$). The primary reasons for incorrect treatment were in vitro antimicrobial resistance (48.6%), initial misdiagnosis of infection source (22.7%) and non-adherence with hospital guidelines (15.7%).

Conclusion

Consecutive prescribing decisions affect mortality from gram-negative bacteraemia.

Abstract supplement (free paper abstracts)

35: Case report: A fall in the forest

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A 63yo man presents with 1 week of fever, cough, jaundice and leg pain progressing until unable to support own weight. He denies sore throat, breathlessness, headache/neck stiffness or arthralgia. DHx: Aspirin, atorvastatin. PMHx: hypertension, IHD. SHx: 'occasionally' drinks alcohol. Two weeks prior he had fallen while walking in a forest, denying alcohol consumption.

On examination, mild confusion, low fever (37.5dC), hypotensive (69/50), hypoxic (95% on 65%HFNC), jaundice, and tender RUQ & thighs bilaterally. Severe sepsis with biliary source causing multi-organ failure was considered top differential.

Admission bloods: anaemia (Hb-80), thrombocytopenia (Plt-21), AKI (Cr-50), ALT-141, CRP-133, normal PT/APTT. CT: gallstones within neck, cystic duct and distal CBD, possible liver cysts. Lepto ELISA IgM –ve.

Diagnosis: On ITU, he required prolonged multi-organ support including HFNC, inotropes, haemofiltration and platelet replacement. Further detailed history taking elicited that he had ingested puddle water when he fell.

Further results: WCC:12.73/Neutrophils:12.25, Hyper-bilirubinaemia (594, 73%conjugated), haptoglobin-2.4, CK-4017 (after one week of illness).

5xblood cultures, HAV/HEV/CMV/EBV IgM, extended viral respiratory panel, film babesia, autoimmune screen: all negative. Leptospirosis PCR +ve.

Lessons: This case highlights the importance of a thorough history in the face of diagnostic uncertainty. The differential was wide including invasive GAS, meningococemia, atypical pneumonia, babesiosis/Hantavirus/CMV/EBV/HA/HHV/HEV, haemolytic, autoimmune and iatrogenic causes.

Leptospirosis should be considered in all septic patients with jaundice.

Most UK leptospirosis occurs with occupational exposure or foreign travel but cases following contact with canals and puddles are reported. Thrombocytopenia, raised PT and raised CK are typical, the latter two being markers of severity.

Abstract supplement (free paper abstracts)

65: Not such a fun-guy: A case series of severe urological infections secondary to *Nakaseomyces glabrata* infection at Nottingham University Hospitals between 2017 and 2019.

Dr Anna Wild¹, Mr Hari Ratan¹, Mr Jerry Raju², Dr Amelia Joseph¹

¹Nottingham University Hospitals NHS Trust, ²University Hospitals of Leicester

Background: *Nakaseomyces glabrata* (formerly *Candida glabrata*) is an opportunistic pathogen, previously rarely isolated in Urological specimens at our institution. We present a case series of six severe urological infections with *N. glabrata* between 2017 and 2019.

Clinical cases: Five cases developed fungaemia associated with obstructing ureteric calculi, in-dwelling prostheses and surgical procedures. Funguria typically persisted until the infection nidus was removed. One case relapsed resulting in spondylodiscitis from haematogenous spread. One case was immunocompromised; all six had poorly-controlled diabetes.

Management: High-dose fluconazole was the preferred antifungal, with an echinocandin in addition if fungaemic. Amphotericin B deoxycholate was administered intravenously and/or via nephrostomies in two cases, due to failure to eradicate funguria with fluconazole alone. Two cases had increasing minimum inhibitory concentrations to fluconazole during treatment (16-32mg/L). Flucytosine was poorly tolerated with hepatotoxicity in one case. Median duration of antifungals for clinical and microbiological response was 31 days (14 – 59). One case remains on prolonged voriconazole 12 months later for spondylodiscitis.

Possible aetiologies were explored; none of the cases had prior fluconazole exposure and there were no direct patient connections or common urological endoscope. Retrotransposon amplification polymerase chain reaction typing was attempted for three isolates; this neither supported nor refuted strain similarity. Endoscope washer-disinfectors were operating within acceptable control parameters.

Conclusions: Urological infections due to *N. glabrata* are associated with significant morbidity, are difficult to treat with existing antifungals and can result in serious complications. Surgical source control and removal of prosthetic material are important factors in determining clinical cure.

Abstract supplement (free paper abstracts)

95: *Cryptococcus gattii* cryptococcosis microbiological diagnosis in an immunosuppressed traveller to a non-tropical endemic region

Dr Lisa Campisi¹, Dr Jason Biswas¹, Dr David Garner¹

¹*Frimley Park Hospital*

We report a rare case of *Cryptococcus gattii* (*C.gattii*) cryptococcosis in the UK, in an immunocompromised patient. We believe this to be the first case in the English language literature making a diagnosis by direct visualisation and culture from lung tissue.

C.gattii is at the centre of a recent outbreak in the Pacific Northwest, with few but growing numbers of travel-related cases, predominantly in immunocompetent patients.

A 68-year-old man presented to his general practitioner with a persistent cough for several months and treated for community acquired pneumonia with no improvement. Chest radiograph showed multi-focal nodules and computerised tomography confirmed multi-focal infection. A lung biopsy was undertaken; culture grew *C.gattii* with histopathological analysis and serum Cryptococcal antigen (CrAg) supportive of this diagnosis. A brain magnetic resonance scan showed bilateral foci of increased signal, not thought to be cryptococcomas. Cerebral spinal fluid CrAg was also positive. He was HIV negative.

His cryptococcosis unmasked newly diagnosed immunodeficiencies: myelodysplastic syndrome and the presence of anti-granulocyte-macrophage-colony-stimulating-factor (GM-CSF) autoantibodies.

He commenced Ambisome and Flucytosine induction therapy, changed to maintenance Fluconazole after four weeks due to severe renal impairment and toxic Flucytosine levels.

Previous case reports have presumed a diagnosis of *C.gattii* from serological and cytological diagnosis. *C.gattii* visualisation and culture from lung biopsy leaves no ambiguity that *C.gattii* caused lung pathology in this case.

We highlight the importance of identifying unusual fungi associated with on-going worldwide outbreaks as a potential causative agent of severe mycosis in patients in the United Kingdom, USA, Canada and possibly Worldwide.

Abstract supplement (free paper abstracts)

97: Hypervirulent *Klebsiella pneumoniae*: An emerging nosocomial threat

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Introduction- Hypervirulent *Klebsiella pneumoniae* (hvKp) is a hypermucoviscous phenotype of classical Kp causing serious localized and disseminated infections. It was initially identified as antibiotic susceptible strain causing community-acquired infection among immunocompetent host. However, recent cases of multidrug resistant hvKp (ESBL producers and carbapenem-resistance) with increased virulence factors are being increasingly reported from different nosocomial settings targeting immunocompromised host and becoming a potential cause of clinical crisis.

Aims and objectives- Identification and antimicrobial susceptibility pattern of hvKp in the clinical isolates of a tertiary healthcare center in India

Materials and methods- Total 100 MALDI-TOF confirmed Kp isolates were identified from different clinical specimens. These were confirmed hvkp phenotypically by string test and genotypically by PCR targeting *iucA* gene. Antimicrobial susceptibility test was performed using Kirby-bauer method.

Results- Twelve out of 100 (12%) were identified as hvKp [5/48 (10.4%) positive for *iucA* gene (rest are under evaluation), 10/100 (10%) were string test positive and 3 were positive for both]. Among twelve, 4 were from blood (33.3%), 7 from urine (58.3%), and 1 from Bronchoalveolar lavage (BAL) (8.3%). Twenty-five percent of total patients had comorbidities (leukemia, diabetes) and 8 (66.5%) were on external devices. 3 out of 12 (25%) patients whose blood culture was positive for hvKp expired. Resistance against aminoglycoside, 3rd generation cephalosporin, carbapenem and colistin were found to be 50%, 88.7%, 58.2% and 20%, respectively.

Coclusion: Multi drug-resistant hvKP isolates are emerging threat in the nosocomial settings, hence clinical awareness, accurate detection and prompt therapeutic management is highly essential.

Abstract supplement (free paper abstracts)

112: COVID-19 related encephalitis is not an unusual presentation

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Background: In the majority of cases COVID-19 is a respiratory infection. There is now emerging evidence about neurological manifestations due to COVID-19 infection.

Case Summary: We present the case of a 67 year old man whose hospital admission for heart failure was complicated by coronavirus disease 2019 (COVID-19). In contrast to the majority of patients with COVID-19 infection who present with respiratory symptoms, this gentleman had central nervous symptoms as the predominant features of his infection. His cerebral spinal fluid (CSF) showed a markedly high protein level and no other explanation for this, or his symptoms, was found. Diagnosis of probable COVID-19 related encephalitis was made. His symptoms resolved without intervention and he was discharged home. This case is an important reminder that COVID-19 can present in a number of different and non-classical ways and receiving physicians need to be aware of these to ensure timely testing, treatment and infection control measures are put in place.

Conclusion: We believe that this case report is appropriate for presentation because there are only relatively few case reports on encephalitis due to SARS-Cov-2, it is important not to miss it. Early diagnosis allows timely infection control measures preventing viral spread among health care staff and other patients. It is a diagnostic challenge and SARS-CoV-2 may not always be detected in the CSF. Its a valuable clinical lesson to the physicians to do a systematic diagnostic work up in patients with COVID-19 presenting with neurological symptoms. Early recognition may have therapeutic as well as prognostic implications.

Abstract supplement (free paper abstracts)

120: Antimicrobial resistance pattern of Community-acquired Urinary Tract Infection from different geographical regions of India

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Introduction: Urinary tract infection (UTI) is one of the most common infections in clinical practice worldwide in both healthcare and community settings causing significant morbidity and mortality. It is one of the common conditions at community level treated empirically and regarded as a potential cause for the emergence of Antimicrobial Resistance (AMR). Limited information is available regarding community-acquired UTI from rural areas.

Methodology: This is a first of its kind prospective multicentric-cross-sectional study at the community level targets patients attending the Out Patients Department (OPD) of the rural health centers from four geographical regions (North, South, West and East) of India to determine the epidemiology, antibiogram profile, and identification of ESBL producers. Urine samples from UTI suspected patients were collected at rural centers, and processed at the tertiary healthcare centers using common standard operating procedure.

Result: Total 97 out of 844 (11.4%) urine sample (713 Adults, 131 Paediatrics) were found positive causing significant bacteriuria. Male:Female ratio was 1:2.9, diabetes melitus was the commonest risk factor followed by renal stone. More than 80% of total cases were caused by E.coli (72.1%) and K. pneumoniae (11.3%). The resistance against Ciprofloxacin, Nitrofurantion, Fosphomycin, Aminoglycoside, 3rd generation cephalosporins (ESBL producers) and Carbapenem among E.coli isolates were 61.4%, 7.1%, 1.4%, 1.4%, 52.8%, and 8.5%, respectively.

Conclusion: ESBL producing and carbapenem resistant E.coli isolates are increasing in community-acquired UTI; hence judicious usage of antibiotics, policy restriction and regular AMR surveillance is necessary to formulate the guidelines especially in developing countries.

Abstract supplement (free paper abstracts)

124: Persistence of *Pseudomonas aeruginosa* (PA) in hospital shower waters and drains and presence of antimicrobial resistance in the augmented-care setting

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Background:

Hospital-acquired infection with PA presents significant risks in healthcare settings worldwide. Hospital waters (showers and drains) may act as reservoirs for horizontal-transmission of antimicrobial-resistant strains.

Materials/methods:

Shower water (100mL) and drain swabs were collected every two-weeks over 28-weeks (November-2018 – June-2019) from ten patient bathrooms on wards A (non-augmented) and B (augmented) in the same hospital.

Water samples were concentrated (membrane-filtration:0.45µm pore-size); swabs were streak-plated onto *Pseudomonas*-Selective agar. PA were segregated (oxidase-reaction, casein-hydrolysis, UV-fluorescence) before confirmation (MALDI-TOF-Mass-Spectrometry). Antibiotic-susceptibility test (AST) profiles (disk-diffusion; EUCAST-breakpoints v8.1) against 12 antibiotics (amikacin, gentamicin, tobramycin, aztreonam, meropenem, imipenem, ceftazidime, cefepime, ciprofloxacin, piperacillin, piperacillin/tazobactam, ticarcillin/clavulanic-acid) were determined.

Results:

Approximately 49% (274/560) of the patient bathroom environment harboured PA (117/280: non-augmented; 157/280: augmented-care). Showers in augmented-care areas were more frequently contaminated with PA (75%: 105/140 occasions) than non-augmented (49%: 69/140). Drains were similarly contaminated on both wards (~35% occasions). Of fourteen sampling weeks, persistence (Mean±SD) of PA in showers was 10±5 weeks and 7±5 weeks in augmented vs. non-augmented wards respectively. Drain isolates in augmented care wards exhibit higher (23.1%; [6/26]) resistance to aztreonam, amikacin and gentamicin than non-augmented care (Chi-Squared: p=0.023), and greater (15.4% [4/26]) tobramycin resistance when compared to their respective shower isolates (p=0.01).

Conclusion:

Around 75% of showers/drains in patient bathrooms may harbour PA reservoirs that persist for many months if not effectively managed. Drains in augmented-care setting are more likely to disseminate aminoglycoside or monobactam-resistant strains, promoting antimicrobial therapy-failure if acquired by vulnerable patients.

Abstract supplement (free paper abstracts)

136: Extended-spectrum β -lactamase-producing Enterobacterales acquisition and incidence of bloodstream infections after relocating to a new hospital with 100% single-occupancy rooms: the MOVE study

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Background: In May 2018, the Erasmus MC University Medical Centre moved from a hospital with mainly multiple person rooms and shared bathrooms to a new building with 100% single-occupancy rooms and private bathrooms. We aim to identify the effect of single-patient rooms on acquisition of extended-spectrum β -lactamase (ESBL)-producing Enterobacterales, and on hospital-acquired bloodstream infections caused by ESBL-producing Enterobacterales (ESBL-BSI).

Methods: From January 2018 until August 2019, perianal samples were collected from participating adult patients in the old and new building. Samples were taken at admission and discharge to determine ESBL acquisition during hospitalization. For ESBL-BSI incidence, data from clinical blood cultures, from January 2013 until March 2020, was used.

Results: Seven out of 226 (3.1%) patients acquired an ESBL-producing bacterium in the old building, compared to twelve out of 370 (3.2%) in the new building ($P=0.92$). Forty seven out of 52 (90.3%) carriers were solely detected by the non-targeted sampling in this study, not by clinical samples. The average rate of ESBL-BSI was 1.4 per 10,000 admission days in the old building, and 2.2 per 10,000 admission days in the new building ($P=0.67$). 76 out of 119 (63.9%) patients in the old and 31 out of 58 (53.4%) in the new building had previous clinical cultures with the same ESBL species.

Discussion: The relocation to a building with solely single-occupancy rooms showed minor difference in acquisition of ESBL-producing Enterobacterales or incidence of ESBL-BSI. Active screening identified 47 unknown carriers. Future research should focus on the added value of non-targeted screening.

Abstract supplement (free paper abstracts)

149: Using metagenomics to study the impact of hospital stay on the human gut resistome

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Antimicrobials are vital for modern medicine. Antimicrobial use selects for resistant bacteria, particularly among the gut microflora. Minimising antimicrobial resistance (AMR) selection by avoiding unnecessary antibiotic use helps combat AMR. Metagenomic analyses have the potential to provide accurate detection and quantification of AMR genes (ARGs) within an individual's gut microbiome (gut resistome), allowing the impact of different types of antibiotic exposures to be evaluated and guide interventions to reduce AMR.

We developed a short-read sequencing approach to characterise the gut resistome and piloted this in two clinical sample sets. DNA is extracted from faecal samples and sequenced to a depth of ~10 million reads. The resulting reads are mapped to known ARGs in the CARD database using the bioinformatics tool ARIBA.

The first set was 25 paired samples from older hospitalised adults taken a median of 25 days apart. Median ARG reads/kb/million total reads (RPKM) increased between first and second samples (1544 to 2704), but this did not reach statistical significance (paired Wilcoxon test, $p=0.22$).

The second set was 159 faecal discards from a hospital, taken over 14 months. Preliminary analysis of samples from months 1-3 ($n=11$) and 12-14 ($n=10$), showed an increase in the median ARG RPKM (883 to 1040), but this did not reach statistical significance (two-sample Wilcoxon test, $p=0.7$).

Direct, deep sequencing can be used to quantify carriage of ARGs in faecal samples, and this approach can be used to study the impact of healthcare exposure and antibiotic treatment on ARG carriage in individual patients.

Abstract supplement (free paper abstracts)

157: *Serratia marcescens* outbreak in a neonatal intensive care unit and the potential of whole-genome sequencing

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Background

Serratia marcescens is notorious for its increasing antimicrobial resistance and potential to cause outbreaks in neonatal intensive care units (NICU). A new and promising tool in outbreak investigation is whole-genome sequencing (WGS).

We aimed to describe a *S. marcescens* outbreak at the NICU and discuss which infection control measures contributed to the containment, addressing the potential of WGS.

Materials and methods

S. marcescens isolates from NICU patients and the environment isolated during the current outbreak were included. In comparison, we included isolates from previous presumed NICU outbreaks, and adult blood cultures. WGS and subsequent whole-genome multilocus sequence typing analysis were performed.

Results

Sixty-three *S. marcescens* isolates were analyzed. The current outbreak (2018-2019) turned out to be divided in three clusters, including four environmental strains (drains, n=3; baby scale, n=1). Standard infection control measures were implemented, the siphons replaced, and weekly decontaminated with acetic acid (10%). Seven acquired resistance, and 29 virulence-associated genes could be detected.

Conclusions

We assume that both, neonates and drains, were reservoirs of *S. marcescens* cross-contamination through the hands of healthcare workers and parents. Thus, hand hygiene reinforcement was an important standard intervention. However, definitive containment was achieved only after replacement of the siphons and weekly decontamination with acetic acid.

Based on WGS, accurate mapping of the spread in outbreak investigation is possible, facilitating the implementation of infection control measures. Furthermore, interesting information about (the spread of) antibiotic resistance and virulence genes can easily be provided.

Abstract supplement (free paper abstracts)

160: Disseminated *Ureaplasma urealyticum* infection in an immunocompromised patient

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A 70-year-old retired farmer, with a history of bronchiectasis and rheumatoid arthritis, managed on Leflunomide and Rituximab, presented with acute back pain and fever with loss of power in his right leg and associated urinary retention. He also developed erythema and swelling of his prosthetic right knee, suggestive of septic arthritis. An MRI of his spine showed spondylodiscitis of the L4/5 disc and a 52mm epidural abscess, causing severe central canal stenosis. He had no history of high-risk sexual practices.

Intervention.

A decompression and evacuation of the epidural abscess was performed and a 'Debridement, Antibiotics and Implant Retention' procedure was performed on his knee.

Microbiology

Gram stain on spinal tissue and synovial fluid showed no organisms. Standard and Mycobacterial culture yielded no growth. A 16S PCR was performed which amplified sequences consistent with *Ureaplasma urealyticum*.

Treatment and Outcome.

Dual oral antibiotic therapy with Moxifloxacin and Doxycycline lead to good clinical and biochemical response and surveillance MRI showed no evidence of persistent infection. Given his immunosuppression and the presence of prosthetic material, a prolonged course will be required with potential consideration of a two-stage revision of his prosthetic knee.

An ultrasound of his renal tract was unremarkable.

Conclusion

This is the first reported case of a spondylodiscitis caused by *Ureaplasma*. There are reported cases of *Ureaplasma* septic arthritis usually associated with hypogammaglobulinaemia or Rituximab therapy. This demonstrates the need to consider a wide range of organisms in spondylodiscitis, particularly in immunosuppressed patients, and the benefit of molecular diagnostics in infection.

The authors declare that they have no conflicts of interest by reporting this case.

Abstract supplement (free paper abstracts)

163: A review of symptomatology, clinical progression and transmission dynamics in confirmed COVID-19 patients and potential contribution of demographic characteristics on disease susceptibility – preliminary analysis.

Keywords: COVID-19, SARS-COV-2, symptoms, demographics, susceptibility, transmission dynamics.

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Objective: To describe the clinical characteristics and transmission dynamics of COVID-19 in a UK population in Northern England.

Design: Observational, cross-sectional study of patients confirmed with positive SARS-COV-2 in Doncaster from 3rd March 2020 until 21st July 2020.

Outcome measures: Trends in clinical symptoms, requirement for hospitalisation and transmission rates within households. Epidemiological and demographic data was also collected to provide an insight into risk factors for transmission and disease severity.

Methods: Patterns and behaviours of the disease were assessed through patient survey and telephone consultation gathering information over a 1-month period from symptom onset, including days 1, 7, 14 and 28.

Results: A total of 217 participants have returned questionnaires up to the present time (median age 62 years [9-104]; 47.92% females; 79.27% underlying comorbidities). Clinical symptoms were reported by 84.34%. Tiredness was the most frequent manifestation (64.37%), followed by cough (49.30%) and fever (46.54%). In week 2 of illness, there was an increase in dyspnoea, loss of taste/smell and tiredness. Prolonged symptoms were seen in 31.33% and the majority categorised their symptoms as moderate/severe (66.81%). 35.48 % of patients required hospital admission as a direct consequence of COVID-19. 71.88% had on average 2.5 [2-4] family members living in the same household and 1.5 became symptomatic after 4.2 days.

Conclusions: This exploratory analysis demonstrates the clinical impact that SARS-COV-2 infection has had on individuals and relative ease of transmission within households. Data indicates an excess of certain symptoms which appear to be linked to advancing age and co-morbidities.

Acknowledgments: All the patients participating in our study

Abstract supplement (free paper abstracts)

164: Fight against COVID-19 in Africa: positive lessons for future pandemics from Ghana

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Introduction: The novel coronavirus which causes COVID-19 has affected all continents, Africa inclusive. In Ghana, the first two cases of COVID-19 were recorded on 12th March, 2020; after which the Government took measures to limit and stop importation of the virus. We wanted to document experiences of Ghana during this pandemic to provide future guidance. **Methods:** We conducted a review of publicly available information on measures taken by Ghana to reduce the spread of coronavirus, and care for the sick.

Results: On 30th March 2020, a 14-day partial lockdown was imposed in affected regions in Ghana, along with other measures (closure of borders, mandatory wearing of facemasks, etc). Three major laboratories, as well as other government hospital laboratories, served as stations for COVID-19 testing. Some hospitals had been dedicated as COVID-19 treatment centres, whilst other major hospitals served as support centres. In July, 2020, Ghana opened its first Infectious Disease Isolation and Treatment Centre. The Government of Ghana introduced measures to facilitate local production of face masks, medical scrubs, hospital gowns and head gear. Additionally, the Food and Drugs Authority in Ghana fast-tracked testing and approval of alcohol based hand sanitizers. As at 28th August, 2020, Ghana had recorded 43,949 COVID-19 cases, with only 270 deaths (case fatality of 0.6%). **Discussion:** We believe Ghana serves as a good example of a low- and middle-income country that has made relevant strides in dealing with the COVID-19 pandemic. Nonetheless, setting-specific approaches are important in the fight against this pandemic.

Abstract supplement (free paper abstracts)

168: Is *Mycobacterium tuberculosis* infection life-long?

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Introduction

Longitudinal studies and clinical trials have shown that tuberculosis (TB) immunoreactivity can persist after curative therapy, but only a small proportion of patients relapse after completing treatment. We present the unusual case of a gentleman whom we had no choice but to offer lifelong anti-tuberculous therapy (ATT) due to multiple relapses when off treatment.

Case report

An 18 year old Indian gentleman presented in 2000 with confirmed cerebral and pulmonary TB, with a fully sensitive organisms but unusual complex course, characterised by multiple relapses (psoas, cerebral) on discontinuation of therapy. He developed culture negative para-aortic abscess and psoas abscess from 2002-2005. MRI scans of his brain have shown persistent enhancing cerebral tuberculomas from 2006 to 2013, during which he developed early hydrocephalus and inflammatory cerebrospinal fluid from a midbrain lesion. A trial of adjunctive gamma interferon 1b therapy failed to have any radiological impact on his cerebral disease. The last time ATT was discontinued in 2013, he developed further headaches and MRI found further enhancing lesions in the brain. Since starting long term chemo-suppressive treatment in 2013 with Rifinah, his symptoms have resolved and he has so far, been clinically well for the last seven years.

Discussion

To our knowledge, we present the first clear case of a patient who has several demonstrable TB relapses when off ATT, despite an initially fully sensitive organism and full adherence to therapy. The patient provides evidence that in some patients, TB infection could be life-long, despite effective phenotypic treatment.

Abstract supplement (free paper abstracts)

181: *Clostridioides difficile* Spore Survival Upon Recommended Exposure to Sodium Hypochlorite Disinfectant

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Clostridioides difficile is the most common cause of antibiotic-associated diarrhoea globally. Its spores have been implicated in the prevalence of *C. difficile* infection due to their resistance and transmission ability between surfaces. Currently, disinfectants such as chlorine releasing agents (CRAs) and hydrogen peroxide are used to decontaminate and reduce incidence of infections in clinical environments. Recent research demonstrated the ability of *C. difficile* spores to survive exposure to recommended concentrations of sodium dichloroisocyanurate. In this study the ability of spores to survive exposure to recommended concentrations of sodium hypochlorite (NaOCl) was determined. Spores from *C. difficile* strains R20291, DS1813 and CD630 were exposed to a 10-minute contact time of 1,000-ppm, 5,000-ppm and 10,000-ppm NaOCl. Spore survival was determined on Brain Heart Infusion agar supplemented with 0.1% sodium taurocholate. Spores were also spiked onto surgical scrubs and patient gowns (UK) and survival/transmission was determined after CRA use. Morphological changes to *C. difficile* were visualised using scanning electron microscopy, negative staining and Gram stain. To examine the effect of NaOCl on spore germination, *C. difficile* spores were artificially stimulated in the presence of terbium chloride. This study demonstrated the survival/transmission of *C. difficile* spores on surgical scrubs and patient gowns despite the appropriate use of NaOCl, highlighting the need to review NHS and NICE infection control policies and to find appropriate disinfection alternatives.

Abstract supplement (free paper abstracts)

205: Real-time Monitoring of Aerosol Generating Dental Procedures

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Recent World Health Organisation (WHO) guidelines suggested postponing non-essential oral health care until community COVID-19 transmission was reduced to case clusters. Dental procedures aerosolise pathogens from patient saliva and blood putting dental professionals and other patients at risk of contagion. The effect of routine high-volume evacuation and additional high-volume extra-oral suction (BA Optima EOS350) on dental procedure-related aerosols along was monitored by two real-time particle detectors, the Wideband Integrated Bioaerosol Sensor (WIBS) and the Optical Particle Sizer (OPS).

An ultrasonic scaler (Dentsply, Cavitron Select SPS) and high-speed air turbine hand-piece (Kavo, Powertorque LUX 646B) were used in a manikin head (Frasaco Dental Exercise Unit – PK-1 TSE) to replicate instrument and operator position in a partitioned area (19.5 m³) by a dental professional.

On average drilling produced 8.5 times more aerosols than scaling. Without high-volume evacuation drilling-related aerosols (0.3 – 2 µm) remained airborne for ~ 2 hours post-procedure, but using high-volume evacuation no drilling-related aerosols remained airborne post-procedure.

The use of high-volume evacuation reduced peak drilling-related 0.3 and 0.5 µm particles by 72 - 94% and 1 µm particles by 80 – 97% (OPS), correspondingly the WIBS recorded drilling related particle reductions of 90 – 95%. Supplementing high-volume evacuation with a high-volume extra-oral suction arm did not achieve greater particle reduction.

This research suggests high-volume evacuation is effective in preventing procedure-related aerosols from remaining airborne post-procedure and reduces aerosol spread during procedures. Complementing correctly-placed high-volume evacuation with high-volume extra-oral suction did not additionally provide a significant reduction of procedural-particles.

Abstract supplement (free paper abstracts)

210: CMV colitis in a young immunocompetent patient

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Cytomegalovirus (CMV) colitis is well-described in immunocompromised patients or those with inflammatory bowel disease (IBD). It is extremely rare in immunocompetent patients below 50 years of age with no medical comorbidities.

We present a 21-year-old female who was admitted with a 10-day history of abdominal pain and bloody diarrhoea. Her past medical history includes a single functioning kidney and recurrent urinary tract infections. She lives with her 18-month-old son, who was well with no symptoms. There is no family history of IBD.

Flexible sigmoidoscopy during admission revealed rectal inflammation with shallow ulcerations in the distal sigmoid colon, not typical for ulcerative colitis. Histological examination of colonic biopsies noted eosinophilic inclusions which were positive for CMV on immunostaining. Full blood count analysis revealed a lymphocytosis ($5.90 \times 10^9/L$). Her ALT was raised (108 U/L). Serology for CMV was positive for IgM and IgG, with 600-2000 copies/ml DNA detected by PCR.

She was treated with valganciclovir for 21 days and continued to have intermittent episodes of bloody diarrhoea for 6 weeks before symptoms settled. A colonoscopy at 8 weeks showed normal bowel lining suggestive of resolved infection, with no evidence of underlying inflammatory bowel disease, and she remains well with an undetectable CMV viral load. Outpatient immunology review did not reveal any evidence of immunodeficiency, with the urinary tract infections attributed to structural abnormalities.

CMV should be considered as a rare but possible cause of colitis in young immunocompetent patients, particularly where the history or histology are atypical for IBD.

Abstract supplement (free paper abstracts)

212: A case of *Plasmodium falciparum* 13 years after leaving an endemic area

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¹North Bristol NHS Trust

Case: A 27-year-old woman presented with 8 days' history of fever, headaches and intermittent shortness of breath. She was 28 weeks pregnant with her first pregnancy. Her background includes arthrogyriposis, alpha thalassaemia trait and malaria as a child. Raised in Equatorial Guinea until age 14, she lived in Spain for 9 years and currently the UK for 4 years, not returning to Africa since leaving 13 years ago. Recent travels included Spain and Portugal. She had family visit from Equatorial Guinea for one night in July 2019. She denied any intravenous drug use, tattoos or blood transfusions.

On presentation she was febrile (38.9°C) and managed as pyrexia of unknown origin. She was found to be pancytopenic so blood film was performed, revealing *Plasmodium falciparum* parasites (parasitaemia of 0.6%), confirmed by rapid malaria antigen testing. She was commenced on oral Quinine and Clindamycin, complicated by hypoglycaemia. There was mild splenomegaly. Obstetric assessment revealed normal fetal growth. There were no other signs of severe malaria and treatment was converted to oral artemisinin-based combination therapy (Riamet).

She improved and by day 5 no parasites were seen on film. *Plasmodium falciparum* has been confirmed via secondary film examination and PCR.

Conclusion: This may be a case of recrudescence or odyssean malaria. Recrudescence of *Plasmodium falciparum* malaria is rare and 13 years would represent one of the longest described periods of latency prior to symptomatic infection, potentially impacted by this patient's pregnancy.

Abstract supplement (free paper abstracts)

230: Hospital-wide SARS-CoV-2 antibody screening in 4153 staff in a UK hospital - patterns of antibody detection

Dr Bethany Ferris¹, Dr Isabel Baker¹

¹*Great Western Hospital*

Background: SARS-CoV-2 antibody tests were introduced at the Great Western Hospital in June.

Methodology: Eligible staff were mandated to complete a pre-test comprehensive online questionnaire. Information collected included demographics, job details and relevant symptoms. Data was analysed following antibody test results.

Results: Data was collected from 4153 staff members. Gender did not affect antibody detection, with 16% of men and women testing positive, whilst ethnicity, age, job role, department and reported coronavirus symptoms did. 13.6% of white staff members had a positive antibody test compared to 25.6% of non-white staff. This difference remained after analysing those in patient-facing roles only, 15.7% and 37.4%, respectively. Younger (21.8%) and non-permanent (19.4%) staff members had higher rates of antibody detection, as did unregistered nurses and midwives (24%) compared to registered colleagues (18%). Departments used as coronavirus cohort wards had the highest rates of antibody detection (63.2%). 87.5% of staff with positive PCR had a positive antibody test. Of those without a PCR result, 26.7% of staff reporting coronavirus symptoms, and 5.9% without symptoms, tested positive. Anosmia (55.4%), ageusia (51.4%) and symptoms lasting 7-14 days (33.5%) had the highest rates of antibody detection.

Conclusion: This research highlights patterns of antibody detection amongst a hospital-wide staff cohort. The main limitations of this research are incomplete datasets and potential coding errors. Although this research in a single-centre shows association rather than causation, the future implications of this work could be towards targeted use of personal protective equipment. Future work could focus upon a meta-analysis of datasets.

Abstract supplement (free paper abstracts)

231: Genomic and epidemiological investigations help to clarify the extent of healthcare-associated infection during a hospital outbreak of COVID-19

Dr Rhys Wenlock¹, Dr Robert Mann¹, Dr Amy Arnold¹, Dr Matija Tausan¹, Dr Winifred Garr¹, Dr Rebecca Preston¹, Dr Charlotte Quick¹, Dr Jennifer Hoban¹, Dr Sam Robson², Dr Catherine Sargent¹
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Background

COVID-19 posed an unprecedented challenge to infection control measures within hospitals. This abstract describes an outbreak of COVID-19 on Ward A (designated COVID-19 free at the time) at a UK teaching hospital.

Methods

Contact tracing was undertaken to identify patients with “epidemiological links” (defined as sharing a ward) to positive patients and their clinical information was screened to identify COVID-19 infection. Genomic sequencing was performed on the viral samples. The package transcluster was used in R (v1.2.5033) to infer clusters of transmission.

Results

Between the 4th and 13th April, 6 patients were found to be PCR positive for COVID-19 on Ward A. 114 patients with in-hospital “epidemiological links” were identified of which 13 were PCR positive for COVID-19 within the 14 days before or after their contact. Two further were identified as having out-of-hospital “epidemiological links”.

3 of the traced patients were COVID-19 PCR positive prior to transfer to Ward A, 9 were detected on re-admission after discharge from Ward A, 2 were admitted to A&E after out-of-hospital exposure and the last was found to be positive on Ward A.

The sequencing of genomes from 13 samples revealed a diverse population (median 9 SNP difference, range 0-17). Cluster analysis identified one six-patient cluster and seven unconnected samples.

Discussion

Despite the epidemiological linkages identified in this study, analysis of SNP differences suggests that nosocomial transmission was limited to only six patients (of the genomes sequenced thus far). Genomic

Abstract supplement (free paper abstracts)

analysis complements epidemiological investigation and can provide feedback on infection control measures.

Abstract supplement (free paper abstracts)

Free paper poster presentations

1: A Prospective Audit of Antimicrobial Stewardship and 'Start Smart – then Focus' Compliance on A Vascular Ward.

Dr Ahmed Hagiga¹, Ms Shima Ibrahim¹, Ms Lola Eid-Arimoku¹, Dr Sally Curtis¹

¹Brighton and Sussex University Hospitals NHS Trust

Introduction:

The 'Start Smart – then Focus' guidelines provide a framework for appropriate and safe use of antibiotics in the healthcare setting.

Methods:

A prospective audit of prescribing practice on vascular ward was performed. Twenty patient notes and drug charts were reviewed over a 4 weeks period (November 2019) and re-audit (January 2020); the following criteria were examined:

- Diagnosis of bacterial infection clearly documented
- Choice of antimicrobial in line with local guidelines
- Start Date, duration, dose adjustments for renal/hepatic impairment
- Indication for antibiotic treatment documented
- 48-hour clinical review and antimicrobial plan documented

We excluded the audit participants.

In the re-audit stage, a teaching session was presented in the morning handover, start smart then focus poster checklist were printed and distributed. Also, we used social media for awareness.

Results:

In the re-audit (January 2020), There is overall improvement compared to the first cycle. The 48-hour clinical review has increased from 60% to 90%, Microbiological cultures sent appropriately has also increased from 60% to 77.77%. Indication was documented in 85% compared to 65% in the previous audit

Recommendations:

Despite the improvement in the current practice, more teaching is still needed to increase the awareness. For instance, including the results of this audit to the junior doctors' induction materials.

The effect of social media and teaching in enhancing the compliance was profound in this audit.

A proposal for amendment to the current drug chart so that a specific tick box is created for co-morbidities that may affect antibiotic dosage/duration

Audit, Start Smart – then Focus, antibiotics, Vascular

Abstract supplement (free paper abstracts)

2: Comparison of PCR-detected bacterial gastroenteritis cases with their clinical phenotypes: are we over-estimating incidence in hospitalised patients?

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¹Chelsea and Westminster Hospital NHS Foundation Trust, ²North West London Pathology, Imperial College Healthcare NHS Trust, ³Imperial College London

Introduction

Up to 30% of hospitalised patients experience loose stools, but rarely bacterial gastroenteritis. Whilst molecular methods such as polymerase chain reaction (PCR) are being increasingly used, concerns remain around the test's specificity for enteric diagnosis. We assessed the appropriateness of faecal specimen requests at a central London hospital, measured the local incidence of enteric infection, and evaluated PCR-positive cases for correlation with a clinical phenotype of bacterial gastroenteritis.

Methods

All faecal samples of hospital inpatients from July 2018 to October 2019 were analysed (N=2459). For patients with positive culture or PCR results (N=61), clinical and biochemistry data was collected retrospectively. Adherence to Public Health England guidelines was assessed for faecal sample requests between the 1st and 8th October 2019 (N=30). Data was analysed using R Studio software.

Results

80% of faecal specimens sent for diagnosis were appropriate according to national standards. The incidence of detected *Campylobacter*, *Salmonella*, *Shigella* and cytotoxic *E.coli* significantly increased after implementation of PCR. Patients' clinical phenotype correlated with these molecular diagnostic results in 74%, 83%, 100% and 34% of *Campylobacter*, *Salmonella*, *Shigella* and cytotoxic *E.coli* patients respectively. This is compared to culture-based correlation with clinical diagnosis of 93% in *Campylobacter* patients and 100% in *Salmonella* and *Shigella*.

Discussion

This study suggests a potential higher false positive rate than previously observed using PCR for enteric diagnosis. Overestimation of bacterial gastroenteritis cases risks exposing patients to unnecessary treatment and further fuelling antimicrobial resistance, a crisis predicted to be the biggest cause of global mortality by 2050.

Abstract supplement (free paper abstracts)

4: Quality Improvement Project. Are we inoculating enough blood volume in paediatric blood culture bottle?

Dr Mohamed Omer¹

¹York Teaching Hospital NHS Foundation Trust- Scarborough General Hospital

(1-3) ml of blood was chosen as the standard for the audit based on the recommendation from the Microbiology department & the manufacturer.

2.Aim of Audit:

To improve doctor awareness regarding how much of blood volume needed/ recommended to be inoculated into the paediatric blood culture bottles at Scarborough hospital (Duke of Kent Ward- children's ward + SCBU).

3. Standards Audited Based on:

- 1) Microbiology-laboratory guidelines of York Teaching Hospital NHS Foundation Trust
- 2) The manufacturer of the paediatric blood culture bottles (BD BACTEC, Becton Dickinson).

4. Methodology:

Methodology: Pre-intervention, 30 paediatric blood culture bottles (BD/BACTEC) were weighed with a calibrated scale and marked with an identification serial number and distributed to paediatric areas. The bottles were re-weighed after inoculation. The volume of blood inoculated was calculated by subtracting pre- from the post-inoculation weight. Then after awareness intervention, the same process was conducted

5. Results:

- Pre-intervention, 24 bottles (out of 30) were returned. 5 bottles were excluded as were not return to the lab & one was disposed of accidentally. Average blood volume inoculated was 0.6398 ml. 95.7% (22 bottles) had less than 1 ml inoculated. 4.3% (2 bottles) had 1-3 ml. The maximum 3 blood volumes collected (1.4835, 1.4001 & 0.9488 ml).
- Post-intervention, 24 out of 30 samples were considered. Average blood volume inoculated was 1.2735 ml. 45.8 % (11 bottles) had more than 1 ml. 54.1 % (13 bottles) had less than 1 ml. The maximum 3 blood volumes collected (3.8290, 2.7651 & 2.1944 ml).

6.Conclusions:

There was significant improvement after awareness & showing the trust & manufacturer recommendations (from 4.3% to 45.8%). Still, there were underfilled bottles (very low volume) post-intervention. This could be due to a lack of awareness (missed due to night shift/annual leave) about the recommended volume or the challenging nature of getting enough blood from children. Growth in culture bottles is affected by underfilling and hence the reliability of all underfilled negative blood cultures is questionable. False-positive blood culture results (under filled /contaminated?!) associated with unnecessary antimicrobial therapy, prolonged hospitalization & incurred cost. This is likely to be a problem in other hospitals as well. As blood culture results play an important part in our decision-making process about antibiotics a greater emphasis is needed to get this right.

6a. Key Successes:

Abstract supplement (free paper abstracts)

- Significant improvement after awareness & showing the trust & manufacturer recommendations (from 4.3% to 45.8%).

6b. Key Concerns:

- There were still underfilled bottles.

7. Recommendations:

To hang a QI poster in the treatment rooms, blood collection areas & different wards.

Add trust microbiology guidelines to the computer system, so the guideline are available for all staff.

Follow the manufacturer of the paediatric blood culture bottles (BD BACTEC) recommendation.

Abstract supplement (free paper abstracts)

7: Selective use of Cepheid Xpert MTB/RIF based on NICE guidelines maintains a high rate of rapid pulmonary TB diagnosis

Dr Katherine Cobb¹, Dr William Olver¹

¹*Department of Microbiology, Ninewells Hospital*

Background. TB PCR as the primary diagnostic test for pulmonary tuberculosis increases sensitivity from approximately 60% (ie smear) to over 95%. Patients are therefore commenced on treatment faster and are less likely to pass infection to others. The Microbiology laboratory at Ninewells Hospital has used TB PCR (Cepheid Xpert MTB/RIF) since 2011 on all respiratory specimens where TB/mycobacterial investigation is requested. In order to target resources more effectively, the laboratory introduced a triage system in November 2016, testing only higher risk patients, based on NICE 2016 Tuberculosis guidance.

Methods. Data was collected from the laboratory TB database for the 3 years prior to triage and the 3 years after it was introduced. Culture positive TB cases were examined to see if Xpert TB/RIF was the primary diagnostic test, with possible results being Positive, Negative or Invalid. Some specimens were insufficient volume for testing.

Results. In the pre-triage 3 year period, 18/21 (86%) of culture-confirmed pulmonary TB cases were diagnosed by Xpert MTB/RIF. One sample was insufficient volume, one negative and one invalid. In the 3 year triage period, 27/32 (87%) were diagnosed by Xpert MTB/RIF. One sample was insufficient volume, two negative and two did not meet triage criteria due to inadequate clinical details provided. The total number of PCR tests performed decreased from 2297 to 1307 (43%), equating to a significant cost saving in consumables alone.

Conclusion. Selective TB PCR testing based on NICE guidance maintained a high rate of rapid pulmonary TB diagnosis, whilst making significant cost savings.

Abstract supplement (free paper abstracts)

9: The quality of life and cost benefits of domiciliary 24-hour piperacillin/tazobactam 13.5g infusion in patients with necrotising otitis externa.

Yasir Sacranie¹, Wendy Smith¹, Naomi Fleming¹

¹*Kettering General Hospital*

The incidence of necrotising otitis externa (NOE), a severe and life-threatening complication of otitis externa is increasing. Currently there is no consensus on an antibiotic regimen for NOE but in a recent survey of otolaryngologists, 90% recommended using intravenous antibiotics. An initial 6 week period of intravenous antibiotics such as piperacillin/tazobactam has been recommended and in most hospitals, this has necessitated a prolonged hospital stay in patients who otherwise could be managed at home. To enable domiciliary treatment, a patient pathway was set-up whereby patients had a “mid-line” inserted and once clinically well (after 0-10 days in hospital) home antibiotic treatment was commenced.

Since September 2017 to present, 11 patients (9 males, 2 females aged 52 to 91 years) received domiciliary intravenous antibiotics for NOE and following treatment, patients completed a patient satisfaction questionnaire (Glasgow Benefit Inventory (GBI)). The financial cost of this service was compared to the traditional 6-week stay in hospital for intravenous antibiotic therapy. Patients were only asked to complete the GBI to evaluate a recognised treatment. Domiciliary potentially saves £2327 per patient compared to inpatient treatment.

Although other studies have assessed community intravenous antibiotic service, this study albeit with limited patient numbers is the first evaluating patient satisfaction and cost benefit of domiciliary antibiotics in patients with NOE. All patients preferred to be treated at home with no safety issues raised. There is a potential saving of £2347 per patient with domiciliary rather than in-patient treatment as well as “freeing-up” beds for other patients requiring admission.

Abstract supplement (free paper abstracts)

10: Urogenital schistosomiasis in fishermen in the Mangochi district of Malawi: short-term dynamics of *Schistosoma haematobium* infections and morbidity after praziquantel treatment

Dr Joanna Fawcett¹, Dr Sekeleghe Kayuni¹, Dr Alexandra Shaw¹, Dr James LaCourse¹, Mr Peter Makaula², Mr Lazarus Juziwelo³, Professor Russell Stothard¹

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³National Schistosomiasis and STH Control Program, Community Health Sciences Unit, Ministry of Health

Background: In the Mangochi District of Malawi, dynamics of urogenital schistosomiasis remain poorly understood in fishermen, a high-risk and difficult-to-access demographic group who may threaten elimination efforts. This six-month follow-up survey investigates *Schistosoma haematobium* infection resolution, re-infection and associated morbidity after praziquantel treatment in a cohort of fishermen enrolled into a longitudinal study.

Methods: Parasitological indicators (*Schistosoma haematobium* egg-patent prevalence and infection intensity) and in-field morbidity markers (symptoms questionnaire and urinalysis) were assessed. An experimental composite morbidity metric was piloted. Paired comparisons of parasitological and morbidity data at baseline and follow-up identified individuals with either persistent, new or resolved disease. **Results:** Overall, 55 participants were followed up (recovery rate=31.4%). Prevalence at six-months was 7.3% [CI95: 1.8-14.5]. Abdominal pain and albuminuria were the most prevalent symptom and urine parameter (30.9% [CI95: 18.2-41.8] and 48.7% [CI95: 30.8-64.1] respectively). There was a 100% [CI95: 100-100] six-month cure rate in those infected at baseline (n=12) and a 14.0% [CI95: 4.7-25.6] six-month cumulative incidence (n=43). Microhaematuria, proteinuria and leukocyturia decreased by 50%, 28.5% and 50% respectively in those previously infected. Composite morbidity scores decreased by 85.7% and 13.0% in those with previous heavy (≥ 50 eggs per 10mL urine) and light (< 50 eggs per 10mL urine) infections respectively.

Conclusions: This cohort of fishermen were likely implicated in local transmission dynamics, but praziquantel appeared effective in reducing infections and morbidity. This research provides a firm foundation for larger studies in the Mangochi District investigating dynamics of this neglected disease with a specific focus upon male genital schistosomiasis.

Abstract supplement (free paper abstracts)

13: Addressing Refugee Health During the COVID-19 Pandemic and Future Ones

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¹*University Of Colorado School Of Medicine*

Background: Since the declaration of the coronavirus disease (COVID-19) pandemic on March 11, 2020, many governments have not yet created a response plan for displaced persons (for example, refugees, migrants, and asylum seekers) residing within their borders.

Methods: We conducted a systematic literature search using the main online databases (PubMed, Web of Science, Google Scholar) with the following keywords: 'COVID-19;' 'refugee health;' 'migrants;' 'refugee camps;' 'pandemic' 'asylum seekers;' 'infectious diseases;' 'displaced person;' and 'U.S. Detention Centers.' We included publications from 21 May 2009 to 17 July 2020 that focused on understanding refugee health in the context of pandemics, including COVID-19. Structured key informant interviews were completed with refugee patients, providers and other relevant stakeholders located in Aurora and Denver, CO, USA.

Results: Measures need to be taken in order to address the following challenges that refugees face during the COVID-19 pandemic: 'social distancing' in refugee camps, treating chronic illnesses, accessing mental health care, engaging the community, and addressing legal status. National and local governments need to implement policies that allow this population to be fully incorporated into their respective national healthcare systems. Non-pharmacological interventions focused on reducing population density in refugee camps are needed in order to stop the spread of COVID-19 in this population.

Conclusion: In order to slow the spread of COVID-19 and other viruses that can lead to pandemics, protecting and ensuring access to adequate medical care of displaced persons needs to be a critical component of the national and international pandemic preparedness and response plans.

Abstract supplement (free paper abstracts)

14: To report a rare case of fungal necrotising otitis externa (NOE) centred on the left temporomandibular joint (TMJ).

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¹Bradford Teaching Hospitals NHS Foundation Trust, ²Leeds Teaching Hospitals Foundation Trust

Introduction: NOE is a rare life threatening complication of otitis externa, affecting the skull base, mastoid and temporal bones. *Pseudomonas aeruginosa* or *Staphylococcus aureus* account for 95% of cases, making fungal NOE extremely unusual. It is commonly encountered in elderly diabetics or immunocompromised hosts. Complications secondary to NOE can be fatal and include cranial nerve palsies, meningitis and dural sinus thrombophlebitis.

Case-study: A 67 year old man with stage 5 chronic kidney disease presented with left otalgia and otorrhea. He was treated with several antipseudomonal topical antibiotics and microsuction for months as an outpatient. *Aspergillus flavus* was grown on an initial swab, but subsequent cultures were negative. Due to unrelenting pain and progressive purulent otorrhea, he underwent further investigations. Computerised Tomography scans revealed inflammatory changes in the left masticator space with mastoid bone involvement suggestive of left NOE. He received three months of intravenous anti-pseudomonal antibiotics, microsuction and topical aminoglycosides. Despite interventions symptoms persisted and magnetic resonance imaging scanning revealed disease progression into the left TMJ and masticator space, prompting maxillofacial surgical opinion. Following washout of the TMJ, a tissue biopsy which was negative by microscopy and culture, was however positive for DNA on pan-fungal PCR, and the sequence identified as *Aspergillus flavus* group. The patient was successfully treated with oral posaconazole and topical amphotericin and discharged home.

Conclusion: Fungal NOE remains poorly treated as there is limited guidance on antifungal choice and duration of treatment. It should always be considered, particularly in immunocompromised patients with intractable cases of NOE.

Abstract supplement (free paper abstracts)

17: Prevalence of the kleboxymycin biosynthetic gene cluster in *Klebsiella* spp.

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As part of ongoing studies with clinically relevant *Klebsiella* spp., we identified three strains of GES-5-positive *K. michiganensis* that encoded the kleboxymycin biosynthetic gene cluster (KBGC). Metabolites produced by the KBGC contribute to non-*C. difficile* antibiotic-associated haemorrhagic colitis. The KBGC has previously only been reported in a few *K. oxytoca* strains and one strain of *K. grimontii*. We screened 7,170 publicly available assembled *Klebsiella* genome sequences to determine the prevalence of the KBGC across the genus. No *K. pneumoniae* complex (*pneumoniae*, *variicola*, *quasipneumoniae*, *africana*, 'quasivariicola') or *K. aerogenes* genomes encoded the KBGC ($n=6,821$ and $n=168$, respectively). Presence of the KBGC was restricted to four of the six members of the *K. oxytoca* complex. Of 181 screened genomes, only 88 encoded the KBGC: *K. oxytoca* (55/66, 83 %), *K. pasteurii* (5/6, 83 %), *K. grimontii* (19/24, 79 %), *K. michiganensis* (9/79, 11 %). Poor representation of *K. huaxiensis* ($n=5$) and *K. spallanzanii* ($n=1$) genomes in public databases may have prevented detection of the KBGC in these species. In addition to being found in *K. grimontii* strains isolated from preterm infants, the KBGC was encoded in *K. oxytoca* and *K. michiganensis* metagenome-assembled genomes recovered from neonates. These findings, in particular, have implications for infections associated with preterm birth (e.g. necrotizing enterocolitis). Detection of the KBGC across the *K. oxytoca* complex will be of clinical relevance and adds to our knowledge of virulence factors associated with this little studied but increasingly important group of bacteria.

Abstract supplement (free paper abstracts)

18: How good is the hand hygiene of surgeons? A data-driven strategy for long-term behavioral change

MD, PhD, Medical Director Marco Bo Hansen¹

¹*Sani nudge*

Background:

Many costly initiatives are conducted each year to increase hand hygiene compliance (HHC) of healthcare workers without being able to document an effect. Data generated from automated monitoring systems provides important insights into the HHC and can be used to nudge and provide performance feedback.

Objective:

We aimed to test the effect of visual nudges and performance feedback on surgeons using anonymized data from an automated monitoring system.

Method:

This prospective, observational, quality improvement study was conducted between 2018-2019. The automated monitoring system (Sani nudge™) was installed at a Danish surgical department, and measured hand hygiene opportunities and alcohol-based hand sanitations of surgeons in all rooms of the in-patient ward.

The study period was divided into three phases with different types of feedback: 1) baseline, 2) nudging using visual clues from the sensors and 3) team performance feedback based on data from the system.

Student's t-test test was used for comparisons between the groups.

Results:

The surgeons (n=10) had a HHC of 30% during the baseline period. The HHC significantly increased from baseline when the surgeons were visually nudged (30% vs. 55%, $p=0.0005$). The surgeons further improved when they received team performance feedback (55% vs. 76%, $p=0.002$) compared with nudging only. The HHC level was stable throughout the study.

Conclusion:

Nudging and performance feedback improve and sustain HHC of doctors. The highest HHC level was achieved when using a data-driven team performance feedback. The HHC levels achieved are some of the highest reported for doctors using automated monitoring systems.

This study was partly funded by the Danish Ministry of Health (J. no. 1608966) as part of a Public Private Innovation Initiative (OPI project). MBH is Medical Director in Sani nudge which was part of the publicly funded OPI-project.

Abstract supplement (free paper abstracts)

19: Resistance and virulence traits of Staphylococcus strains isolated from maternity unit

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Introduction: Staphylococcus aureus is an invasive pathogenic bacterium with an increased incidence and morbidity especially in the hospital environment. Colonization of the nasal mucosa or skin is an important risk factor for subsequent clinical infections with S. aureus.

Objectives: we proposed to characterize the resistance and virulence factors of Staphylococcus isolated from the medical staff nasal cavity, new-born skin, hospital maternity unit environment in order to obtain epidemiologically relevant data.

Methods: The study was based on routine nasal swab culture on blood agar, and considered positive if golden-colored colonies were detected after incubation. S. aureus was confirmed by Gram staining, catalase assay and automated mini Api system. The resistance phenotypes were established using disk diffusion and double-disk diffusion test. The isolated strains were tested for the production of different cell-associated (adherence to cellular substratum) and soluble virulence factors: hemolysins, amylase, caseinase, aesculin hydrolysis, DNA-ase, lipase and lecithinase, which give microorganisms the ability to colonize and disseminate in the host. Multiplex PCR reactions were performed for the detection of the SCCmec cassette type and virulence genes.

Results: The molecular analysis showed that 30% of the isolates were MRSA, being positive for the SCCmec cassette. Most of the strains presented virulence factors and harbor multiple drug resistance.

Conclusion: The emergence and rapid spread of MRSA has placed substantial burden on the healthcare system, enhancing the need for epidemiological studies, for revealing the characteristics of the local strains, in order to be able to implement appropriate preventive measures in the nosocomial infections control.

Abstract supplement (free paper abstracts)

21: Implementation of Central venous catheter maintenance bundle in an intensive care unit in Kuwait: Effect on central line-associated bloodstream infections

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Background: Central line-associated bloodstream infection (CLABSI) causes substantial morbidity, mortality and incurs high costs.

The use of central venous line (CVL) maintenance bundle has been shown to decrease the incidence of CLABSI. Our aim was to study the compliance with the CVL maintenance bundle together with incidence of CLABSI / 1000 ventral line days in an adult ICU in governmental hospital in Kuwait.

Material/methods : This prospective interventional study was conducted between January and December 2018 .Surveillance for CLABSI was conducted by trained infection control team using National Health Safety Network (NHSN) case definitions and device days measurement methods.

Implementation of central line maintenance bundle started in the main ICU since May 2018 using the following bundle elements (1) Daily review of line necessity (2) Hand hygiene before manipulation of the IV system (3) Proper procedure for Catheter injection ports (4) Administration set replacement (5) Proper procedures for CVC manipulation. (6) Proper procedures for catheter site dressing changes. (7) Infusate preparation using aseptic technique. For recording overall compliance for the central line bundle elements, it was "ALL OR NONE". The central line days rather than patients were counted. Results: The average central line maintenance bundle compliance rate was 89.2%. Incidence density of CLABSI/1000 catheter days decreased after from 6.64 down to 2.877. P value: 0.02).

Conclusion: This study demonstrates the role of central venous line (CVL) maintenance bundle implementation to decrease rates of CLABSI.

Abstract supplement (free paper abstracts)

23: Tuberculosis with a genitourinary component

Dr Umar Said¹, Mr Keith Yuen¹, Mr Adeel Anwar¹, Mr Chidi Molokwu¹, Dr Omar Rahama¹, Dr Sulman Hasnie¹

¹Bradford Royal Infirmary

Objective

In 2018 there were 4651 diagnoses of tuberculosis (TB) in England, 2759 (59.3%) of which were extra-pulmonary and 93 cases (2.0%) involved the genitourinary system. The low incidence of genitourinary TB and the variable presentation pose challenge in the diagnosis and management. We herein present the clinical course of two cases of genitourinary TB at our institute.

Materials and Methods

Both cases of genitourinary TB encountered were of Asian ethnicity.

A 48-year-old male presented with a six weeks history of a painful left testicle. Initial ultrasound suggested left epididymitis. Medical therapy with multiple antibiotics failed, which necessitated ultrasound-guided drainage. The culture grew fully sensitive *M. tuberculosis*. Prior to the scrotal presentation he was investigated for constitutional symptoms and hilar lymphadenopathy with granulomatous necrosis histology but negative mycobacterial cultures.

A 35-year-old male presented with a swollen right testicle. An ultrasound suggested a right epididymal abscess. Symptoms and ultrasound appearance progressed despite two weeks treatment with ciprofloxacin. Cultures from open surgical drainage grew fully sensitive *M. tuberculosis*. He had no constitutional symptoms and CXR was normal.

Both patients were treated with standard quadruple therapy (Rifampicin, Isoniazid, Pyrazinamide, Ethambutol) with satisfactory clinical response.

Conclusion

- TB is an important diagnosis to consider in treatment resistant genitourinary conditions.
- Early recognition (including assessment for pulmonary involvement) and intervention is important in high risk patients (epidemiology, past history or chronic symptoms).
- Quinolones are commonly used antibiotics in genitourinary presentations and monotherapy in case of TB can lead to resistance.

Abstract supplement (free paper abstracts)

24: Enhancing clinical impact by rapid bacterial identification from blood cultures: the York Teaching Hospital UK experience

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Prompt identification of microorganisms grown in blood cultures facilitates earlier targeted clinical intervention for patients with sepsis. However, in many hospitals in the UK, the results of conventional bacterial culture techniques only become available 48 hours after the patient has presented with an acute illness.

In this project, we aimed to assess the effectiveness and impact of rapid MALDI-ToF identification of blood culture isolates after 6 hours of incubation on antimicrobial therapy choices in York Teaching Hospital. We used blood culture bottles inoculated with blood that were referred to the Microbiology laboratory of York Teaching Hospital from 1st October 2019 to 31st January 2020.

A total of 154 blood samples were prospectively collected from 149 patients of which 81(54.4%) were males. The mean age was 67.9 (range 1-99). Initial gram staining yielded Gram positive cocci in 96(62.3%) samples; 52(33.8%) were gram negative bacilli; 5(3.2%) were gram positive bacilli and 1(0.6%) was a gram variable bacillus. The MALDI ToF-based identification was successfully carried out after 6 hours of incubation in 114/154 (74%) of the samples. Earlier identification of an organism from MALDI ToF at 6-hours led to a switch of antibiotics in 50/149 (33.6%) of the patients. Overall, *Escherichia coli* (28/114, 28.6%), *Staphylococcus aureus* (17/114, 14.9%), *Streptococcus pneumoniae* (9/114, 7.9%), *Staphylococcus epidermidis* (7/114, 6.1%) and *Klebsiella pneumoniae* (5/114, 4.4%) were identified most commonly.

We demonstrated the efficacy of MALDI ToF-based identification after 6 hours of incubation in 114/154 (74%) of the samples which represents a shortening of the traditional turn-around time.

The authors declare that there is no conflict of interest

Abstract supplement (free paper abstracts)

25: A retrospective study of vancomycin prescribing and therapeutic drug monitoring in adult patients with a high creatinine clearance at a large teaching hospital in the East of England, UK: Implications for clinical practice

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Background: Vancomycin is a glycopeptide antibiotic requiring therapeutic drug monitoring. Adherence to the Cambridge University Hospital's vancomycin guideline updated in 2019 with regards to the quality of vancomycin prescribing and monitoring were investigated.

Method: This single-centre retrospective study included all adult patients initiated on intravenous vancomycin with creatinine clearance (CrCl) ≥ 100 mL/min between 01/01/2020 and 29/02/2020.

Demographics and clinical details were obtained from the integrated electronic health record and laboratory system (EPIC), where vancomycin is prescribed through a dedicated order set.

Results: Ninety-five patients received vancomycin during the study period. 53.7% were male, the mean (SD) age was 52.5 (14.1) years and the mean (SD) CrCl was 152.1 (52.1) mL/min. The most common indications were hospital-acquired pneumonia and bacterial skin and soft tissue infections. Seventy-two (75.8% \pm 8.6) patients were prescribed an appropriate vancomycin loading dose whilst seventy-eight (82.1% \pm 7.7) and ninety-four (98.9% \pm 2.1) patients were prescribed an appropriate initial vancomycin maintenance dose and dosing interval, respectively. Fifty-nine (62.1% \pm 9.8) patients had initial pre-dose vancomycin levels taken at an appropriate time. For subtherapeutic levels, twenty-nine of sixty-five (44.6% \pm 12.1) patients had the vancomycin dose and dosing interval adjusted appropriately, compared to zero of two patients whose levels were supratherapeutic. Uptake of three times daily dosing for subtherapeutic levels was low with prescribers attempting this only when consistently unable to achieve therapeutic range. Sixty-nine patients (72.6% \pm 9) achieved the vancomycin therapeutic range with a mean (SD) of 3.1 days.

Conclusion: Overall, vancomycin prescribing and monitoring is improving, however management of vancomycin remains suboptimal as 100% adherence was not achieved.

Abstract supplement (free paper abstracts)

26: Deep learning model for prediction of extended-spectrum beta-lactamase (ESBL) production in community-onset Enterobacterales bacteraemia from a high ESBL prevalence multi-centre cohort

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Background

Adequate empirical antimicrobial coverage is instrumental in management of community-onset Enterobacterales bacteraemia in areas with high ESBL prevalence, while balancing the risk of carbapenem overuse and emergence of carbapenem-resistant organisms. It is unknown whether machine learning offers additional advantages to conventional statistical methods in predicting ESBL production.

Purpose

To develop a validated model to predict ESBL production in Enterobacterales causing community-onset bacteraemia

Methods

5625 patients with community-onset bacteraemia caused by *Escherichia coli*, *Klebsiella* species and *Proteus mirabilis* during 1 January 2015 – 31 December 2019 from three regional hospitals in Hong Kong were included in analysis, after excluding blood cultures obtained beyond 48 hours of admission. The prevalence of ESBL-producing Enterobacterales was 23.7% (1335/5625). Deep neural network and other machine learning algorithms were compared against conventional multivariable logistic regression. Primary outcomes compared consisted of predictive model area-under-curve of receiver-operator curve (AUC), and macro-averaged F1 score. Secondary outcomes included sensitivity, specificity, positive predictive value, and negative predictive value.

Results

Deep neural network predictive model yielded an AUC of 0.761 and F1 score of 0.661, which was superior to multivariable logistic regression (AUC = 0.660, F1 = 0.579). Deep neural network had a specificity of 91.5%, sensitivity of 37.5%, negative predictive value of 82.5%, and positive predictive value of 57.9%.

Conclusion

Deep neural network is superior to multivariable logistic regression in predicting ESBL production in Enterobacterales causing community-onset bacteraemia in a high ESBL prevalence area. Machine learning methods offers clinical utility in guiding judicious use of empirical antibiotics therapy.

Abstract supplement (free paper abstracts)

27: Retrospective descriptive study of patients with *Strongyloides* positive serological diagnostic markers referred to a regional infectious diseases unit

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Background

Strongyloides stercoralis is a soil dwelling Nematode endemic to sub/tropical countries affecting >100 million people worldwide and has a complex life cycle with autoinfection potentially causing chronic infection. Clinical presentation ranges from subclinical to severe in disseminated strongyloidiasis with 90% fatality. An immunosuppressed patient died of hyper infestation syndrome (HS) in 2019, when a screening opportunity was missed. This study examines and describes demographics, clinical presentation, indications for testing, diagnostic methods and treatments prescribed of patients with strongyloides.

Methods

Patient identification over a five-year period (2014-19) via diagnostic laboratory codes/ microbiological records. Patient data collection via e-records and paper notes. 217 patients screened in the last 2 years were examined for testing indication as denominator.

Results

20 patients positive for strongyloides were identified. All identified patients had visited or originated from an endemic area; 75% had visited an endemic area within the last 3years, 95% HIV negative. 50% were immigrants. 65% were male, mean age 36years (18-57), White-European(10), African(5), Asian(5). Presentation with GI symptoms 60%, respiratory 35%, 0% cutaneous or HS. Eosinophilia(55%). 70% had 3 stool samples collected, none positive for strongyloides. Treatment with Ivermectin(9), retreated(2), Albendazole(1), lost to follow up(7).

Screening indication amongst 217 patients in reference group: travel to high-risk country(81%), pending immunosuppression (5%); eosinophilia (37%).

Discussion

With increased global mobility, expanding air traffic and a rising migrant population it is paramount for clinicians to remain vigilant and have a high index of suspicion to diagnose and treat strongyloidiasis, particularly amongst patients receiving immune suppressive agents/ modulators.

Abstract supplement (free paper abstracts)

28: Using Quality Improvement Methodology to Enhance Antenatal Infection Screening

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Background:

The UK antenatal infection screening only includes Hepatitis B, HIV and Syphilis. This quality improvement (QI) cycle was undertaken between 2018-2020 to expand local screening to other infections.

Aim:

To improve antenatal screening pathways for Rubella, Parvovirus B19 and Varicella zoster.

Methodology:

Laboratory data and process mapping were used to identify target infections.

Change ideas were selected by three focus groups. Changes were implemented using the following Plan-Do-Study-Act (P-D-S-A) cycles:

1. Cessation of asymptomatic bacteriuria (ASB) screening to redirect resources.
2. Electronic recording of expected date of delivery (EDD), Rubella, Parvovirus B19 and Varicella zoster immunity when requesting routine antenatal screening tests.
3. Proactive Rubella, Parvovirus B19 and Varicella zoster antibody testing when indicated.
4. A Multi-Disciplinary Team (MDT) review of cases and processes.

Qualitative data was obtained from focus groups, interviews and observations.

Three sustainability audits were undertaken.

Results:

ASB screening was reduced to 29 samples/month from 365/ months.

There was 100% compliance with mandatory recording and laboratory testing for Rubella, Parvovirus B 19 and Varicella zoster.

Rubella, Parvovirus B19 and Varicella zoster testing increased from 64 tests/month to 315 tests/month.

Feedback from the MDT confirmed sustained user satisfaction, reduced emergency testing and improved record keeping.

Discussion and Conclusions:

QI methodology was effectively applied to expand antenatal infection screening and improve data capture.

The increase in serological testing was offset by cessation of ASB screening.

QI methodology can be used to enhance patient care through redirecting resources. QI Cycles are essential for ensuring the sustainability of improvement.

This work was undertaken as a project for a quality improvement fellowship. Time to undertake the fellowship was funded by Health Education England-Wessex.

Abstract supplement (free paper abstracts)

29: Investigation of bacteraemia. Do we still need more than one set of blood cultures for initial diagnosis?

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Background: Most authorities recommend more than one set of blood cultures for initial investigation of bacteraemia. Improvements in media and continuous monitoring, combined with cost-effectiveness efforts, lead some to consider whether a single set suffices. We recommend two sets of blood cultures for initial investigation. We retrospectively analysed data, to calculate possible increased diagnostic yield.

Materials/methods: We used the BACTEC FX system. A set comprised an Aerobic and an Anaerobic bottle. Bottles were inoculated with 10 mls patient blood. We analyzed 20,405 results from a 13-month period. Results suggestive of contamination were excluded after assessment by a clinical microbiologist according to criteria used by national surveillance.

Pairwise comparison was performed as follows: -

Congruent Pair = two sets requested at the same time and results of both match

Non-Congruent = two sets requested at the same time and results of both do not match

Results: Results from 6804 patients were analysed. 644/745 of the positive sets were taken as a pair (86%). Results of pairwise analysis of positive sets is shown.

Total Number of pairs Congruent Positive pair Non-congruent positive pairs
644 449/644(69,7%) 195/644(30,3%)

Conclusions: Thirty percent of pairs were non-congruent. Assuming random distribution, this would represent a 50% false-negative rate. This would have resulted in a 15% reduction in total positives. *E.coli* and *K.pneumoniae* were found in over 50% of non-congruent pairs. Switching to only one set would increase the risk of underdiagnosing bacteraemia, particularly Gram-negative infections.

Abstract supplement (free paper abstracts)

30: Anti-adhesion polymer therapy for the neutralization of Cholera Toxin

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Cholera is estimated to cause up to 140,000 deaths each year worldwide, and as such it remains a global health issue. Although in up to 80% of cases oral rehydration therapy is a sufficient treatment, safe drinking water is required both to reduce transmission and to combat active infection. Herein we adopted an alternative approach to rehydration therapy, or traditional antimicrobial therapy where drugs might target pathogens' essential metabolic pathways. We propose the use of "anti-adhesive" therapeutics that might neutralise waterborne Cholera Toxin without targeting the bacteria itself, thus circumventing antimicrobial resistance.

In the human gut, the binding subunit of Cholera Toxin adheres to the human glycoprotein "GM-1". In this work, reversible addition-fragmentation chain-transfer polymerisation was used to synthesis glycopolymers mimicking the 3-dimensional structure of this GM-1 ligand. These glycopolymers incorporated both GM-1's primary sugar ligand, and side-residues to interact with Cholera Toxin's allosteric binding site to enhance binding strength (avidity). Using inhibitory assays and bilayer interferometry, these glycopolymers were shown to enhance both affinity and avidity for Cholera Toxin relative to the native GM-1 ligand.

The successful development of such glycopolymer mimics suggests a potential future role for anti-adhesive therapies in breaking the chain of Cholera transmission.

References

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Abstract supplement (free paper abstracts)

31: Creating and Maintaining a Blue Ward within the COVID-19 pandemic

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Background: During the peak period of the COVID-19 pandemic we set up a blue ward (A4). The blue ward would be an area where all patients, staff and visitors to the ward would be negative for the SARS-COV-2 virus. it was agreed to trial this for a period of 8 weeks.

Method: All patients would be swabbed within 72 hours period, prior to transfer to ward A4 and again at day 5, 10 and 15. We identified 48 regular staff and 10 transient staff to the ward. Staff were to be swabbed every 7 days starting from the June, 2020. All visiting staff/relatives of patients temperatures was checked prior to admission onto the ward.

Results: During the trial we had 100 patients, approximately 120 visitors, we performed 600 swabs (450 staff and 150 patients); all patients were swabbed on admission, 61 patients swabbed at 5, 27 patients swabbed at 10 and 12 swabbed day 15 (as rest discharged or transferred before the dates), an additional 21 patients were swabbed to facilitate discharge to care homes. During this period we identified one positive amongst the staff team (they had worked 24 hours of the previous 48 and was asymptomatic), no cross-infection to other staff or patients. One COVID-19+ve patient was incorrectly transferred to A4 during the trial period.

Discussion: The ward maintained the blue characteristic of remaining COVID-free for 8 weeks, the weekly swabbing of staff lead to self-swabbing. There were issues with delayed results and transfer of patients.

Abstract supplement (free paper abstracts)

32: In vitro activity of cefiderocol against Gram-negative clinical isolates from the UK across a range of infection types

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Background:

Cefiderocol is a novel siderophore cephalosporin active against many Gram-negative pathogens, including carbapenem-resistant strains. The in vitro activity of cefiderocol and comparator antimicrobials was evaluated against a global collection of Gram-negative clinical isolates through the SIDERO-WT-2014–2018 surveillance studies. Here we report UK isolate data from different infection types.

Methods:

Minimum inhibition concentrations (MICs) were determined by broth microdilution for cefiderocol, meropenem, ceftolozane/tazobactam, ceftazidime/avibactam and colistin, according to International Organization for Standardization guidelines. Cefiderocol was tested using iron-depleted cation-adjusted Mueller–Hinton broth. Susceptibility rates were based on EUCAST breakpoints. In the absence of a species-specific EUCAST breakpoint, pharmacokinetic/pharmacodynamic breakpoints were used.

Results:

Of 1,601 Gram-negative UK isolates (70.5% Enterobacterales, [31.3% *Escherichia coli*, 28.7% *Klebsiella pneumoniae*]; 29.5% non-fermenters [73.4% *Pseudomonas aeruginosa*, 14.8% *Acinetobacter baumannii*]), 79 (4.9%) were meropenem-resistant (MIC >8 mg/L). Isolates were retrieved from a range of infection types including nosocomial pneumonia (NP; n=498; 31.1%), complicated urinary tract infection (n=230; 14.4%), bloodstream infection (BSI)/sepsis (n=324; 20.2%) and complicated intra-abdominal infection (n=302; 18.9%). Overall, 98.8% Enterobacterales and 98.7% non-fermenters were cefiderocol-susceptible. Susceptibility to cefiderocol ranged from 98.5–99.6% by infection type, and was numerically higher in NP (98.8% overall; 98.5% vs non-fermenters [n=204]) versus all comparators (88.8–94.2% overall; 81.9–92.6% vs non-fermenters). Cefiderocol (98.9%) susceptibility was also numerically higher than meropenem (89.8%), ceftolozane/tazobactam (90.0%) and ceftazidime/avibactam (90.9%) against non-fermenter BSI/sepsis isolates (n=88).

Conclusion:

Cefiderocol maintained in vitro antibacterial activity against a range of Gram-negative pathogens regardless of site of infection, with significantly higher susceptibility than comparators versus NP isolates.

Abstract supplement (free paper abstracts)

33: In vitro activity of cefiderocol against UK Gram-negative clinical isolates resistant to current comparator antimicrobials

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Background:

Few therapeutic options for carbapenem-resistant Gram-negative bacterial infections exist, often limited by multidrug resistance, including alternative β -lactams and β -lactam/ β -lactamase inhibitor combinations. The in vitro activity of cefiderocol, a novel siderophore cephalosporin, and comparators was evaluated against a Gram-negative clinical isolate collection (SIDERO-WT-2014–2018 surveillance studies).

Methods:

Minimum inhibitory concentrations (MICs) were determined by broth microdilution according to International Organization for Standardization guidelines. Cefiderocol was tested using iron-depleted cation-adjusted Mueller–Hinton broth. Susceptibility rates were based on EUCAST breakpoints. In the absence of a species-specific EUCAST breakpoint, pharmacokinetic/pharmacodynamic breakpoints were used. Data for UK isolates from 2014–2018 are included for all but meropenem/vaborbactam (2017–2018).

Results:

Of 1,601 isolates, 70.5% were Enterobacterales and 29.5% non-fermenters; 98.8% were cefiderocol-susceptible. The antimicrobial with the highest level of resistance was ceftolozane/tazobactam (n=130; 8.1%), followed by ceftazidime/avibactam (n=70; 4.4%), colistin (n=61; 3.8%) and meropenem (excluding 40 intrinsically resistant *Stenotrophomonas maltophilia* isolates; MIC >8 mg/L; n=40; 2.5%). Of 401 isolates tested against meropenem/vaborbactam, 37 (2.3%) were resistant. A substantial proportion of comparator-resistant isolates were susceptible to cefiderocol: ceftolozane/tazobactam (120/130; 92.3%), ceftazidime/avibactam (63/70; 90.0%), colistin (61/61; 100%), meropenem (34/40; 85.0%) and meropenem/vaborbactam (32/37; 86.5%). A total of 13 (0.8%) isolates (all *S. maltophilia*) were resistant to all of ceftolozane/tazobactam, colistin and ceftazidime/avibactam (10 of these isolates were also tested against meropenem/vaborbactam and were resistant); all 13 of these isolates were susceptible to cefiderocol (0.03–2 mg/L).

Conclusion:

A high proportion of isolates resistant to comparator antimicrobials, including current β -lactam/ β -lactamase inhibitor combinations, remained susceptible to cefiderocol.

Abstract supplement (free paper abstracts)

34: Ethnicity, Age and COVID-19: Experience of a London District General Hospital

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Objectives: To describe the demographic characteristics of patients admitted with COVID-19 at a district general hospital in London, UK, and assess the effect of ethnicity and age on mortality, intensive care (ITU) admission and hospital length of stay.

Methods: In this retrospective cohort study we included patients admitted between March 16 and April 14 2020 with confirmed COVID-19 infection. Study outcomes were recorded until May 1 2020. Characteristics of the cohort were described with categorical variables represented as n (%) and continuous variables were represented as median with interquartile range (IQR). Wilcoxon ranked tests, Student's t-tests, chi-squared tests and fisher-exact tests were used to compare differences between groups.

Results: Amongst our cohort of 383 patients, the median age was 71 (54, 82) with 210 (54.8%) male patients. White patients had a higher median age on admission (78.5) compared to other ethnicities ($p < 0.001$), followed by asian (63), other groups (60.5), and black (54). In addition, white ethnicity was associated with increased length of hospital stay compared to the other ethnicities ($p = 0.0021$). Black, asian and minority groups (BAME) were overrepresented both in terms of hospital and ITU admission. 51.2% of admitted patients, and 76.4% of ITU patients ($p < 0.001$), were from BAME groups despite comprising only 39.9% of the London Borough of Hillingdon population. There was no significant difference in terms of mortality between the different ethnic groups.

Conclusion: People from the BAME community tend to present with COVID19 infection at a younger age and are at higher risk of admission to ITU.

Abstract supplement (free paper abstracts)

36: Lymphopenia is not a reliable predictor of COVID-19: Association between lymphopenia and COVID-19, influenza, respiratory syncytial virus and bacteraemia in hospitalised patients.

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Objectives

To determine whether lymphopenia, recently described as a “cardinal sign of COVID-19” ¹, is more predictive of COVID-19 than other serious infections in hospitalised patients.

Methods

We collected retrospective data on lymphocyte count and outcome at 30 days (survival versus death from any cause) from cohorts of 50 patients admitted to an acute general hospital in the North of England with *Staphylococcus aureus*, Gram-negative and pneumococcal bacteraemias, laboratory confirmed influenza and respiratory syncytial virus infection between January 2017 and August 2019, a control group undergoing elective orthopaedic surgery in July 2019, and a cohort of patients with laboratory confirmed COVID-19. All lymphocyte counts were taken within a day of the positive blood culture or positive viral swab.

Results

All six cohorts of hospitalised patients with confirmed infection had a high proportion of lymphopenia (range 49%-90%); only the control group did not. Compared to COVID-19, there was a statistically significant difference between the control group ($p < 0.001$) and pneumococcal bacteraemia group ($p < 0.009$). After adjusting for age and sex, patients with pneumococcal bacteraemia were four times more likely to be lymphopenic than patients with COVID-19. Unlike previous studies, we found no correlation between lymphopenia and adverse outcome.

Conclusions

Lymphopenia is not a reliable marker of COVID-19 and cannot be used to distinguish viral from bacterial infection.

References

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Abstract supplement (free paper abstracts)

37: *Fusobacterium nucleatum*: An unusual cause of paediatric septic arthritis.

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Introduction

Septic Arthritis (SA) is an orthopaedic emergency, treatment requires prompt surgical drainage and a prolonged course of antimicrobial therapy. The causative organism is most commonly staphylococcus aureus we however report on an unusual case caused by *Fusobacterium nucleatum* (FN).

Case Review

A 15 year old male presented with a 1 week history of right groin pain and finding it progressively more difficult to weight bear. He reported no temperature, no recent coryzal symptoms and no symptoms to suggest an alternative source of infection.

His investigations yielded a CRP 176, WCC 10.9, ESR 53 and an ultrasound scan confirmed an effusion in the right hip joint.

The child was promptly taken to theatre for aspiration and washout of the right hip joint, empirical antibiotics were commenced immediately after washout, IV Flucloxacillin and Cefotaxime. His initial response was unsatisfactory both clinically and biochemically. Post operative MRI demonstrated no other pathology. Culture subsequently demonstrated growth of FN. Metronidazole was added to his antibiotic regime for 14 days and the regime was converted to Ertapenem IV to complete 6 weeks. Following treatment his CRP is 2 and his clinical symptoms have largely settled.

Conclusion

FN is an unusual cause of SA, it is more commonly associated with oral and intrabdominal pathology, however in our case both a specialist ENT review and a CT scan of the abdomen failed to demonstrate any alternative source of infection. This case highlights the importance of culture in providing a lab diagnosis to guide optimal antimicrobial therapy.

Abstract supplement (free paper abstracts)

38: A 5 year retrospective analysis of the clinical management of varicella zoster CNS infections

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Background: Varicella Zoster Virus (VZV) is the second most common pathogen causing encephalitis in the UK. A high index of suspicion for viral encephalitis alongside early diagnosis mitigates the devastating outcomes associated with delayed treatment.

Methods: Patients with positive VZV PCR from CSF from 01/01/2014 to 31/12/2019 identified via laboratory database. Retrospective analysis of electronic records performed and audited against 2012 guidelines.

Results: 13 samples identified. 1 excluded, suspected contaminant from varicella lesion. VZV encephalitis (n=6), VZV meningitis (n=5), VZV transverse myelitis (n=1). Equal gender split (6vs6), mean age 52(21-85).

Commonest symptoms, headache (n=7), confusion (n=6), shingles (n=6, ophthalmic: n=4).

Immunocompromised (n=4, HIV/2xMTX/splenectomy). CT head>MRI brain (9vs7), 1 had CT findings of encephalitis.

2/12 had LP <6hrs from admission, 7/12 started treatment before receiving an LP, 6/12 started treatment <6hrs from admission. All were given empirical treatment with IV aciclovir (ACV) at appropriate dose, 11/12 had a HIV test, all negative. 5/6 of the encephalitis cohort had ≥14d IV ACV with 3 receiving ≥21d IV ACV. All patients with <14days IV ACV received valaciclovir for ≥7d. 2/6 had end of treatment LP.

Conclusions: Treatment is performed in accordance with guidelines. Education is required to increase the index of suspicion in those with encephalopathic symptoms, leading to earlier LP and follow-up MR after negative CT. 100% of VZV CNS infections should have a HIV test and encephalitis patients should have end of treatment LP to confirm resolution.

Abstract supplement (free paper abstracts)

39: Can rationalization of frequent respiratory samples culture requests from an ITU lead to cost savings?

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Background: We observed during authorization of critical care microbiology results that repeat respiratory samples were frequently processed within short periods of previous samples. Samples were sent by ITU nursing staffs although intensivists and microbiologists did not feel there was clinical justification to investigate more.

Objective: To assess the impact of repeating respiratory samples on laboratory resources and antibiotic use.

Methods: Retrospective observational study conducted in our 22-bed adult ITU. Electronic data were collected over a 6 month period from Jan to Jun 2019 and was analyzed to identify the frequency of respiratory samples and associated costs.

Results: 303 samples from 243 patients were reviewed. 90 samples (30%) contributed to clinical decisions on antibiotic use. Antibiotics were prescribed for 13 broncho-alveolar lavage (BAL), 5 sputum, and 72 endotracheal secretions (ETS).

Sputum and ETS were repeated in 37 out of 243 patients. The repetition frequency was 2-7 times in an average critical care stay of 4.2 days. The processing cost of one positive specimen on culture media in our laboratory was £ 8.04. At least 2 culture media are required for sputum and ETS process. The minimum costs of repeating sputum and ETS samples for 37 patients were £ 594.96 in the 6 month period. Overall total costs could be higher if the cost and time on sample collection and dispatching via porters, unnecessary antibiotic use were taken into account.

Conclusions: We conclude that stopping repeated respiratory sample requests from ITU can save money, time, and resources without negatively impacting patient care.

Abstract supplement (free paper abstracts)

41: Survey of UK healthcare workers' knowledge, attitudes and behaviours on antibiotics, antibiotic use and antibiotic resistance

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¹Public Health England (PHE), ²European Centre for Disease Prevention and Control (ECDC)

Background

Using the COM-B model as a framework, an EU-wide survey aimed to ascertain multidisciplinary healthcare workers' (HCWs) knowledge, attitudes and behaviours on antibiotics, antibiotic use and antibiotic resistance. The UK findings are presented.

Methods

A 43-item questionnaire was developed through a two-round modified Delphi consensus process. The UK target quota was 1,315 respondents.

Results

2,404 participants responded. The highest proportion were nursing and midwifery professionals (42%), pharmacists (23%) and medical doctors (18%).

HCWs correctly answered that antibiotics are not effective against viruses (97%), they have associated side effects (97%), unnecessary use makes antibiotics ineffective (97%) and healthy people can carry antibiotic resistant bacteria (90%). However, fewer than 80% answered that using antibiotics increases a patient's risk of antimicrobial resistant infection or that resistant bacteria can spread from person to person.

Whilst the majority of HCWs (81%) agreed there is a connection between their antibiotic prescribing behaviour and the spread of antibiotic resistant bacteria, only 64% felt that they have a key role in controlling antibiotic resistance.

The top three barriers to providing advice or resources were lack of resources (19%), insufficient time (11%) and the patient being uninterested in the information (7%).

Approximately 35% of UK prescribers felt fear of patient deterioration led them to prescribe once in the last week.

Conclusion

These findings highlight the barriers to prudent antibiotic use and provide evidence for guiding targeted policy and intervention development. Education and training should focus on patient communication, information on spreading resistant bacteria and increased risk for individuals.

Abstract supplement (free paper abstracts)

42: A case of *Capnocytophaga canimorsus* endocarditis in a non-immunosuppressed host: The value of 16S PCR for diagnosis

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Background

Capnocytophaga canimorsus has been associated with fulminant sepsis following dog bites. It has been identified as a rare cause of infective endocarditis and literature to date suggests it is usually associated with immunosuppressed hosts. It is a fastidious organism, which can make culture unreliable and untimely for prompt, targeted antibiotic treatment. Here we present a case of endocarditis in an immunocompetent patient with no past medical history nor history of a dog bite, where 16S PCR of valve tissue was key for confirmation of the causative organism and subsequent targeted antibiotic treatment.

Case Description

A 59-year-old woman presented with a three-week history of lethargy, myalgia, pyrexia and night sweats. She had no significant past medical history. She was pyrexial and ECG showed first-degree AV block. Transthoracic echocardiography demonstrated an aortic valve mass, further characterised by Trans-Oesophageal echocardiography as a 1.8cm x 0.9cm mass and likely root abscess. Broad-spectrum empirical antibiotics were commenced.

One out of eight sets of blood cultures grew *Capnocytophaga canimorsus* following five days of incubation. The patient underwent emergency aortic valve replacement with an Edwards Inspiris Resilia. 16S PCR of valve tissue confirmed the causative organism as *Capnocytophaga canimorsus* and allowed targeted antibiotic therapy according to susceptibility testing with IV Benzyl Penicillin to complete a successful four-week course.

Discussion

Capnocytophaga canimorsus is an unusual cause of endocarditis in a non-immunosuppressed host. Diagnostic certainty was enhanced by 16S PCR of the valve, highlighting its importance as a diagnostic tool in endocarditis to enable targeted treatment.

Abstract supplement (free paper abstracts)

43: Evaluation of Novodiag CarbaR+ for the detection of carbapenemase producing organisms from faeces – NUH prevalence study 2020

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Introduction: Antibiotic resistant microorganisms are a major concern to public health worldwide, because they reduce effectively available antibiotics. Enterobacterales can produce carbapenemases which hydrolyse carbapenems. Outbreaks of carbapenemase resistant enterobacterales (CRE) occur due to the potential of these enzymes to transfer between strains and species. Identifying patients CRE with colonisation is important to prevent the spread of these organisms, through screening and implementing appropriate infection control precautions.

Aim: To compare a direct molecular screening system with a culture based method for detecting CRE.

Methods: All stool samples received for one week, were anonymously used to detect CRE. A swab dipped in the stool sample was used to inoculate the Novodiag CarbaR+ cartridge for direct detection. Another swab was used to inoculate Colorex mSuper CARBA agar, which was incubated for 24 hours. Putative colonies grown on Colorex mSuper CARBA agar, were identified using MALDI-TOF (Bruker, USA) and underwent CRE enzyme detection on Novodiag carbaR+.

Results: 417 stool samples, received over 1 week, underwent examination for CRE. The culture based methodology did not detect any CRE isolates. Novodiag CarbaR+ detected CRE genes in 6 stool samples including NDM (2), IMP (1), OXA-48/181 (2), OXA-23 (1), as well as MCR-1 in another stool sample. The molecular methodology demonstrated a 1.4% local prevalence of CRE.

Conclusion: The molecular detection method demonstrated improved sensitivity for detection of CRE compared to a culture based method. Additionally, the molecular method is able to give a result within 2 hours, allowing earlier implementation of infection control precautions.

Abstract supplement (free paper abstracts)

44: Opportunistic Infection in the Immuno-compromised Child: A Multi- Disciplinary Management of A Paediatric Crohn's Patient with Listeriosis

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Introduction

Listeria causes a range of clinical syndromes from mild to life threatening infections. At risk groups include pregnancy, neonates and immunocompromised patients.

Case Description

A 17 year old male with Crohn's disease presented with a two day history of fever, abdominal pain and reduced oral intake.

He was diagnosed at age ten and was trialled on different biologic agents and steroids. He had severe fistulating disease with numerable insertions of setons to manage peri-anal disease previously. On presentation, he was managed with Ustekinumab and a reducing dose of steroids.

He was clinically stable with no localizing signs but had a temperature of 39.4°C. CRP was raised at 101.

Initial blood cultures revealed Gram positive rods in the aerobic bottle which was later confirmed as listeria monocytogenes serotype 4b, ST 554. As expected, this was sensitive to amoxicillin and he was treated with two grams three times a day for three weeks via a PICC line.

Three blood cultures obtained towards the end of therapy were negative.

His biologic therapy was suspended during this period and in the interim he underwent a laparoscopic total colectomy to manage his underlying severe disease.

Discussion

This case highlights the role of immunosuppression as a cause of severe listeriosis, especially with the widespread use of biologic agents. A careful multidisciplinary approach was needed to manage such a complicated case. This balanced the need for treatment of listeriosis and preventing further complications such as meningitis, alongside the risk of fulminant Crohn's disease while withholding immunosuppressive therapy.

Abstract supplement (free paper abstracts)

45: Prosthetic Joint Infection secondary to *Bacteroides* infection

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Introduction

Prosthetic Joint infections (PJI) are associated with significant morbidity and healthcare costs. There are established guidelines for the management of PJI; however, these tend to focus on common causative organisms namely staphylococci and streptococci. We report a case of PJI secondary to *Bacteroides fragilis*.

Case Review

A 48 year old lady with rheumatoid arthritis and sight-threatening uveitis on adalimumab, methotrexate and prednisolone presented with signs of septic arthritis in a prosthetic hip. The aspirate grew *Staphylococcus epidermidis* and was subsequently treated with doxycycline as suppressive therapy prior to proceeding with revision surgery in which some modular components were changed and Stimulan beads containing vancomycin inserted. Post-op she was treated with Linezolid for 4 weeks.

Shortly following completion of the linezolid course, she represented clinically unwell with septic arthritis in the same hip and was taken for emergent washout, frank pus was drained. Samples grew *Bacteroides fragilis* & *Staphylococcus epidermidis*. CT abdomen-pelvis showed no obvious evidence of intra-abdominal source.

Further revision surgery was performed with removal of all components and insertion of sliver coated implants with the addition of Stimulan with meropenem & piperacillin-tazobactam. She was commenced on teicoplanin, piperacillin-Tazobactam and metronidazole. She showed good clinical and biochemical response to therapy.

Conclusion

Bacteroides is a rare cause of PJI, it is important to ensure no underlying gastro-intestinal source. With increasing numbers of immunosuppressed patients and complex patients on biologics it's important to have a multi-disciplinary approach to manage these patients especially when changes to immune suppressive therapy are required.

Abstract supplement (free paper abstracts)

46: An audit to assess the use and safety of nitrofurantoin for lower urinary tract infections in patients aged ≥ 65

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¹Leeds Teaching Hospitals NHS Trust

Background: The English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) report states that more than one million urinary tract infections (UTI) samples were analysed in NHS laboratories across England in 2016 and that resistance was a “common” observation. We aimed to assess the use and safety of nitrofurantoin in treating lower urinary tract infections (LUTI) in patients aged over sixty-five and whether urine cultures had been done prior to therapy.

Methods: Data was obtained from the Trusts’ electronic medication and administration prescription (eMeds) antimicrobial report in April 2019. The electronic care record (PPM+) clinical notes were used to identify if nitrofurantoin was the first-line treatment and whether it had been prescribed safely.

Results: 95 patients met the inclusion criteria. Treatment with nitrofurantoin was not first-line for 17% of patients (n=16). Of these 16 patients, 75% (n=12) had poor renal function and 25% (n=4) showed resistance to nitrofurantoin. Urine cultures were taken in 86% patients of which 21 had a negative culture result.

Discussion: Nitrofurantoin was changed in four patients due culture results showing resistance. Poor renal function has an impact on the success rate of treatment which is why the second line treatment was initiated in twelve patients. It was difficult to identify why the urine cultures were not taken in 14% of patients however, these patients had typical LUTI symptoms. This review highlights the importance of following guidelines which are based on local resistance patterns and reinforces promoting antimicrobial stewardship and reducing antimicrobial resistance for future generations.

Abstract supplement (free paper abstracts)

47: Carbapenem Stewardship in a large English teaching hospital - can microbiology right the ship

Mrs Abimbola Olusoga¹, Professor Philip Howard¹

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Background: The English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) 2019 Report highlighted that carbapenem consumption did not significantly change although there has been a reduction in secondary care setting in the last 5 years. We reviewed meropenem usage and appropriateness of prescribing to assess the impact of a revised carbapenem stewardship programme. **Methods:** Data was gathered in the first week of August 2018 and compared to similar period in August 2019 from electronic antimicrobial prescription report. Meropenem prescriptions were reviewed to ascertain if prescribed in line with guideline recommendations or on the advice of microbiology or infectious diseases.

Results: 58 patients (cohort-1) were followed up and compared with 60 patients (cohort-2). 71% of the patients reviewed in 2018 compared to 37% in 2019 were authorised by infection specialists. Both cohorts had sampling done in 95% of cases where blood cultures accounted for 64% cohort-1 and 85% in cohort-2. 28 (48%) patients in cohort-1 were commenced on meropenem empirically for mainly neutropenic sepsis or cystic fibrosis. For cohort-2, meropenem was initiated empirically in 38 (63%) patients mainly for neutropenic sepsis while 26 (43%) were culture directed. 21 patients were escalated from piperacillin-tazobactam of which 12 (57%) had neutropenia while de-escalation occurred in 6 (10%).

Conclusions: Our revised carbapenem stewardship strategy resulted in a reduction of total carbapenem DDD/1000 Admission from 125 (September 2018) to 80 (September 2019) through improved adherence to guideline and infection specialists recommendations however more work is required to promote switch to narrower spectrum choice.

Abstract supplement (free paper abstracts)

48: Clinical utility of 16S rRNA PCR on clinical specimens in patient management at the Queen Elizabeth University Hospital, Glasgow

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¹NHS Scotland

Background: The identification of bacterial isolates with 16S rRNA PCR can be important in effective clinical management. The aims of this study were to (1) compare 16s rRNA PCR results with microbiological culture results, (2) assess its utility in guiding antimicrobial therapy, and 3) review turnaround times of the 16S rRNA PCR service run by Public Health England (PHE) reference laboratory in Colindale.

Methods: A retrospective analysis of 30 patients with positive 16S rRNA PCR results from clinical specimens collected at Queen Elizabeth University Hospital in Glasgow, Scotland from 2016 to 2019 was conducted.

Patient data were obtained from electronic medical records and the laboratory information system Telepath. 16S rRNA PCR was performed at PHE, Colindale. The outcome assessed was change in antimicrobial therapy (rationalization, cessation or addition).

Results: Six 16S rRNA results had an impact on clinical management, of which two led to a change in antimicrobial therapy. Eleven had bacterial culture results discordant with 16S rRNA PCR results, and 3 were culture-negative. 85% were processed within 7 days, meeting the PHE turnaround time standard.

Conclusion: 16S rRNA PCR can be a useful tool to identify organisms where routine culture techniques are insufficient. Despite the low diagnostic yield, and only a small proportion with impact on management, the results can still have a significant overall impact. However, as the cost at Colindale is absorbed by the local diagnostic laboratories and not a central national body, an evaluation of cost-effectiveness is required to fully analyse the utility of the test.

Abstract supplement (free paper abstracts)

49: Remote risk stratification of dyspnoea in acute respiratory disorders and applications for COVID-19 and future pandemics: a systematic review of the literature

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Background

Due to the highly infectious nature of the disease, a large amount of community-based triage of COVID-19 is performed by video/telephone consultation, especially in primary care. This presented clinicians with a new challenge in risk stratification of patients with dyspnoea due to suspected COVID19.

This review searched existing literature to identify existing modalities to remotely assess patients with acute respiratory distress, which can be adapted for the COVID-19 pandemic and in future similar situations.

Methods

We conducted a systematic search of Medline, Embase and Medrxiv for studies of the remote assessment of dyspnoea in acute respiratory disorders in adults/children. The study was registered on PROSPERO (ID: CRD420202292)

3014 abstracts were screened independently by two reviewers and 32 studies were progressed to full text screening.

Results

Five studies were selected for review, including 1317 patients. Two studies assessed video consultation, two assessed telephone related triage tools, and one study assessed an online triage tool for dyspnoea. In one study, video consultation was found to have 83% sensitivity for diagnosing 'severe' respiratory distress in comparison to face-to-face assessment. The online triage tool was found to have 87.5% sensitivity for detecting dyspnoea requiring emergency level care.

Conclusion

A range of successful remote risk stratification tools and clinical features were identified for assessing dyspnoea severity which can be adapted to COVID-19 and future pandemics to assess respiratory distress via telemedicine. These findings will influence development of comprehensive evidence-based tools to assess dyspnoea which will reduce resource strain during current/future pandemics.

Abstract supplement (free paper abstracts)

50: Availability of Hand Sanitisation in a District General Hospital

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Background

The most serious infections in healthcare are spread by peoples actions. Hospital acquired infections are one of the most common complications of healthcare. Hand hygiene is an important way to prevent the spread of infection. Greater hand hygiene creates a safer working environment for staff and patients. The audit was performed to assess the functionality of hand sanitizers, soap dispensers and towel availability at a District General Hospital.

Method

264 different data points were collected at different Wards, Outside Theatres, Investigative areas and non-clinical areas of the Whiston hospital. The ward staff and Medirest (hand sanitiser supplier) were informed, then re-audited after 4 weeks.

Results

For all areas overall, availability of hand saniters improved from 77.5% to 85%, soap dispensers functionality improved from 67% to 96% and hand towels availability improved from 97.5% to 100%. All areas of the hospital improved availability for all parameters tested on re-audit.

Conclusion

The availability of hand gel and the soap dispenser is variable in the areas checked in the initial audit. The increased awareness of the non-functioning hand gel and soap dispensers led to responsible action from the staff. Our results showed that the hand sanitisation facilities could be improved with better information.

Implications

No National or Local Hospital Standards are available for the parameters that were audited. It is generally accepted that there should be 90% functional soap and hand sanitizer dispensers and availability of towels.

Abstract supplement (free paper abstracts)

51: Assessing outpatient parenteral antimicrobial therapy for the treatment of intra-abdominal collections in a London teaching hospital

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Introduction: Intra-abdominal collections are optimally managed by drainage. Where this is not feasible prolonged antimicrobials are necessary. Whether this should be PO or IV is still under consideration, as is optimal duration, frequency of follow-up. To investigate this we studied a single centre cohort of patients with intra-abdominal collections under outpatient parenteral antimicrobial therapy (OPAT) in a London teaching hospital.

Methods: Over a 12-month period (Feb2019-Feb2020) all patients enrolled in OPAT were identified. Patients with intra-abdominal collections of non-gynaecological origin were included. Clinical and radiological outcomes (OPAT duration, 30-day mortality/readmission, size/location/reason for collection, imaging modality, time to radiographic resolution, antimicrobials, microbiology, CRP/WBC) were recorded. Descriptive analytics were undertaken.

Results: 37 OPAT administrations involving 35 unique patients and 992 days of OPAT were identified. Mean age was 55.9 (SD +/-16.3) years, 12/35 were female. 29/37 OPAT administrations successfully completed therapy. 30-day mortality was zero, one patient stopped OPAT due to adverse drug reaction. Median duration of successful OPAT was 23 days (IQR 14-42), median duration of definitive IV antimicrobials was 35 days (IQR 21-55.5). Positive antimicrobial cultures (blood/pus) were obtained in 20/37. Drainage was performed in 12 cases. Microbial identification was obtained in 10/12 of those drained and 10/25 of those not drained. Radiographic resolution was confirmed in 12/29 prior to OPAT completion.

Conclusions: OPAT is a safe and effective treatment for intra-abdominal collections. Prolonged courses of antimicrobials are required and patients should be counselled on this prior to commencing therapy. Drainage increases microbial identification and should be performed wherever possible.

Abstract supplement (free paper abstracts)

52: VRE acquisition on an oncology ward: The impact of environmental controls

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Background-Vancomycin-resistant Enterococcus(VRE) remains a significant burden in Irish hospitals. Environmental contamination with VRE is a known risk factor for both colonisation and infection. The aim of this study is to demonstrate the impact of environmental change on VRE acquisition whilst all other infectious control measures remain constant.

Method-Data on unit VRE acquisition per 10,000 occupied beds days(OBDs) hospital acquired(HA) and burden, the overall number of cases managed per 10,000 OBDs, in an Irish oncology ward have been collected prospectively since 2015. During which numerous control measures have been put in place including relocation of the unit to a predominantly single room, albeit an older unit and the use of VRE PCR for the screening of all patients on admission. Despite these measures VRE acquisition continued to occur. In July 2019, the Oncology ward moved to a new purpose-built hospital wing. All international, national and local requirements were included in the design which was 100% single rooms. No other intervention took place at that time.

Results-There were 4 HA VRE cases from July 2019–March 2020(post-intervention) Vs. 28 from January-June 2019(pre-intervention). The HA VRE rate was 7 with an overall burden rate of 315 from July 2019-March 2020 Vs. 67 and 355, respectively from January 2015-June 2019.

Conclusion-This study confirms that environmental controls, above and beyond the use of screening, single rooms and appropriate cleaning and hand hygiene are a critical measure in the control of VRE. It is likely that this would also be the case for other multi-drug resistant pathogens.

Abstract supplement (free paper abstracts)

53: Validity of Pneumonia Severity Assessment Scores in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis

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Background

Several pneumonia severity assessment scoring systems have been developed, but the evidence of their utilisation in low- and middle-income countries (LMICs) remains limited. We sought to systematically investigate the evidence around the validity and performance of the existing pneumonia severity scores in adult patients diagnosed with community-acquired pneumonia in LMICs.

Methods

Medline (Ovid), Embase (Ovid), Cochrane Central Register of Controlled Trials, Scopus, and Web of Science were searched for eligible articles up to May 2020. Pooled estimates of the severity scores performance (sensitivity, specificity) at their high-risk cutoffs in predicting the reported outcome were estimated using the bivariate meta-analysis model. Heterogeneity was assessed using the I^2 index.

Results

Overall, 11 were eligible, of which, only six studies with sufficient data were included in the final meta-analysis that involved examining CURB-65 and CRB-65 scores. Both scores at a threshold ≥ 3 were related to an increased mortality risk, with pooled relative risks of 8.58 (95%CI: 3.48-21.18) and 4.83 (95%CI: 2.52-9.28) for CURB-65 and CRB-65, respectively. The predictive performance of CURB-65 and CRB-65 at their high-risk cutoffs, respectively, were as follows: the pooled sensitivity, 0.69 (95%CI: 0.25-0.94) and 0.04 (95%CI: 0.00-0.40); the pooled specificity, 0.89 (95%CI: 0.72-0.96) and 0.99 (95%CI: 0.95-1.00); and the area under the summary receiver operator characteristic curves, 0.90 (95%CI: 0.87-0.92) and 0.86 (95%CI: 0.83-0.89).

Conclusion

CURB-65 and CRB-65 at a cutoff ≥ 3 are strongly associated with mortality and appear to be valid scores for mortality prediction in LMICs. CURB-65 exhibited higher sensitivity and overall accuracy, compared to CRB-65.

Abstract supplement (free paper abstracts)

54: Whose Line Is It Anyway?

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A 54-year-old female with recurrent ovarian cancer and a dual lumen tunnelled line in-situ for TPN dietary supplementation of short bowel syndrome, presented with septic shock. Peripheral blood cultures grew *Serratia liquefaciens*, an organism associated with biofilm formation. On advice of the nutrition team a decision was made to attempt to salvage the tunnelled line.

Serratia liquefaciens bacteraemia was treated with intravenous gentamicin and piperacillin/tazobactam for 3 and 7 days respectively. The patient showed complete biochemical and clinical response to treatment. Following antibiotic therapy, line use was trialled. 500ml of 0.9% sodium chloride was infused via each lumen over 30 minutes.

Prior to infusion the patient was subjectively well, NEWS 0, with unremarkable blood results. 1 hour after initiation of infusion the patient experienced rigors, her NEWS increased to 6 and lactate to 4.9. Urgent line removal was performed.

Macroscopically the line tip appeared pink, consistent with *Serratia liquefaciens* biofilm, which was confirmed on formal culture. The patient received 7 days further intravenous piperacillin/tazobactam prior to insertion of a new line.

This case highlights the difficulty of line salvage with biofilm forming bacteria. The IDSA guidelines state pseudomonal associated line salvage should not be attempted due to the organism's propensity to biofilm.¹ We review the evidence for biofilm associated line salvage and discuss intrinsic resistance mechanisms and proposed antimicrobial therapy for non-marscens *Serratia* bacteraemia.

1. Mermel, Leonard A., et al. "Clinical practice guidelines for the diagnosis and management of intravascular catheter-related infection: 2009 Update by the Infectious Diseases Society of America." *Clinical infectious diseases* 49.1(2009):1-45.

Abstract supplement (free paper abstracts)

55: Flu through the hospital or not? Prospective follow up of multiple contacts of 25 patients with influenza in a South London hospital

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Background

Limited numbers of siderooms are available in hospitals for isolating individuals with respiratory tract infection, often resulting in admission to bays and subsequently wards closing to admissions due to influenza transmission incidents. There were 199 UK hospital outbreaks in 2018/19. We prospectively monitored individuals with influenza admitted to a South London hospital and their potential contacts.

Method

A prospective observational study was undertaken from January 3rd to February 16th 2020 involving influenza virus RNA swab positive inpatients and their inpatient contacts identified as part of standard infection control practice. Demographic details, influenza vaccine status, risk factors for complications, antiviral use and outcome at two weeks were recorded.

Results

25 influenza virus infections were identified, 48% H1N1, 44% H3N2 and 8% influenza B. All patients were at risk of complications and received oseltamivir, one required ITU admission and two died.

74 contacts were identified. 86% were high risk, 88% of whom received oseltamivir prophylaxis. 7 patients (12%) did not receive prophylaxis for >48 hours. 31% of contacts had a respiratory viral swab taken within the following fortnight, 35% of whom were asymptomatic although only symptomatic patients should have been tested.

3 symptomatic contacts (4%) developed the same subtype of influenza infection. All had received prophylaxis (one delayed >24 hours), one had been vaccinated and all recovered.

Conclusion

3/74 contacts (4%) at risk of infection developed symptoms and were swab positive. 20 contacts were swab negative, excluding asymptomatic infection. Infection control procedures were effective in reducing transmission despite limitations in isolating patients.

Abstract supplement (free paper abstracts)

56: Advanced HIV-1 infection discovery at post-mortem raises questions about confidentiality and disclosure

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We present the case of a thirty-one year old Caucasian male who died suddenly from cardiac arrest. Post-mortem examination and investigations revealed advanced HIV-1 infection with disseminated *Mycobacterium avium* complex and pneumocystis pneumonia.

The patient had a history of previous drug use and had recently attended his General Practitioner with 3 stone weight loss in 12 months. Blood tests revealed severe hyponatraemia and hypoalbuminaemia but the patient declined further investigation. On the day of his death the patient was breathless but refused hospital admission. At post-mortem he was noted to be extremely emaciated with widespread lymphadenopathy, right sided empyema and left lung cavitating abscesses. An HIV test performed after death was positive for HIV-1. AAFB were seen on ZN stain of fixed lung tissue, on pus from empyema and tissue from kidney and thyroid gland. This was later confirmed as *Mycobacterium avium*. The lung also showed evidence of pneumocystis in Grocott silver stained sections.

This is a sad case of a young man dying a preventable death. It is unusual nowadays to diagnose advanced HIV infection post-mortem. The case raised ethical questions about disclosing HIV diagnosis after death. The GMC guidance is unequivocal about naming HIV on the death certificate if it has contributed to the cause of death. It is also clear that disclosure of information to close contacts who may be at risk of infection is permitted and this is reiterated in the 2020 BHIVA/BASHH/BIA Adult HIV testing guidelines.

Abstract supplement (free paper abstracts)

57: A case of necrotising otitis externa in a type 2 diabetic

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Necrotising otitis externa (NOE) is an infection of the external auditory canal commonly seen in diabetic and immunocompromised patients. NOE can lead to osteomyelitis of the base of the skull, abscess formation and cranial nerves involvement.

A 79 year old male with poorly controlled type 2 diabetes mellitus presented to ENT casualty clinic at Bradford Royal Infirmary, UK. He presented with four months history of right sided otalgia and otorrhea. On examination the left ear canal was unremarkable, the right ear canal contained debris and hyphae, suggestive of aspergillus. Swabs of debris were sent for culture and the patient was discharged on oral fluconazole to be reviewed in a week. A computed tomography scan of the head showed no evidence of soft tissue or bone infection and he was discharged and safety net advice given.

A month later, he represented with worsening right sided otalgia, otorrhea and decreased hearing. A magnetic resonance imaging scan of the head revealed appearances consistent with NOE and a 12mm x 7mm abscess in the external auditory canal.

Results of the swab taken previously confirmed aspergillus growth, specific sensitivities are yet to be confirmed as the culture was sent to the mycology reference lab in Bristol, UK.

He was commenced on piperacillin-tazobactam and oral itraconazole with TDM. He is planned for a minimum of 6 weeks with regular follow up.

This case illustrates the seriousness of NOE and also highlights the importance of considering the possibility of fungal infection especially in at risk groups.

Abstract supplement (free paper abstracts)

58: A case of embolic spread of *Fusobacterium necrophorum* from presumed pharyngitis

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Fusobacterium necrophorum is a Gram negative anaerobic bacillus that can cause serious systemic infections.

Lemierre's syndrome is one such complication which can occur as a result of *F. necrophorum* infection with thrombophlebitis of the jugular vein and potential of dissemination to remote sites.

A 39 year old female with a background history of intravenous drug use presented unwell to the accident & emergency department at Bradford Royal Infirmary, UK. On admission she was clinically unstable with a temperature of 41.5 degrees, HR of 99 BPM, blood pressure of 83/40 and a new pan-systolic murmur. Antibiotic therapy was commenced with cefotaxime and clarithromycin as severe CAP due to focal chest findings. She reported history suggestive of pharyngitis a week prior to her admission. She was transferred to ICU where a computed tomography scan of the thorax revealed bilateral septic emboli and cavitation.

Blood cultures taken on admission grew *F. necrophorum* and metronidazole was added. A computed tomography scan of the neck showed no evidence of jugular vein thrombophlebitis. A trans-thoracic echocardiogram wasn't suggestive of endocarditis. She was stepped down from ICU 2 weeks later and continued on IV co-amoxiclav and PO metronidazole. She was eventually discharged on oral amoxicillin and metronidazole to complete 4 weeks in total with follow up in chest clinic.

This case illustrates the importance of considering a wider microbiological differential in light of clinical history. The confounding history of intravenous drug use and CT findings could have led to a completely different treatment strategy and antimicrobial choice.

Abstract supplement (free paper abstracts)

59: A case of treatment refractory necrotising otitis externa progressing to skull base osteomyelitis

Dr Umar Said¹, Dr Omar Rahama¹, Dr Jorge Abarca¹, Dr Sulman Hasnie¹

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Necrotising otitis externa (NOE) is an infection of the external auditory canal seen more commonly in diabetic and immunocompromised patients. NOE can lead to local complications including osteomyelitis and a protracted course with failure to respond to therapy is not uncommon.

A 73 year old female was admitted to Bradford Royal Infirmary, UK with a 13 week history of left sided otalgia following a traumatic ear syringing. A mastoid computed tomography scan was consistent with NOE and incidental venous sinus thrombosis was also noted.

She was discharged on a six week course of piperacillin-tazobactam as an outpatient with rivaroxaban. Unfortunately, she was readmitted 2 months later with similar symptoms and an MRI scan of the head on this admission displayed progressive inflammatory changes consistent with skull base osteomyelitis. On this occasion she was dis-charged with a plan to receive 12 weeks of piperacillin-tazobactam as outpatient.

Following antibiotic therapy, she underwent left cortical mastoidectomy and it was decided to complete 6 more weeks of piperacillin-tazobactam. She was readmitted twice following this and the MDT decided to restart treatment with piperacillin-tazobactam & ciprofloxacin.

Samples always grew pseudomonas, sensitive to piperacillin & ciprofloxacin.

An MRI head on completion showed improvement in the osteomyelitic changes.

Regular follow up with the patient was disrupted due to the COVID19 but for the past six months she has been asymptomatic and remained well.

This case illustrates the challenges seen with complicated NOE especially cases with established OM and the need for MDT approach and regular follow up.

Abstract supplement (free paper abstracts)

60: Safety in the practice of decontaminating filtering facepiece respirators: a systematic review

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Background: Considering the new SARS-CoV-2 pandemic and the potential scarcity of material resources, the reuse of personal protective equipment such as filtering facepiece respirators (FFRs) for N95 filtering or higher is being discussed, mainly regarding the effectiveness and safety of cleaning, disinfection and sterilization processes.

Aim: To analyze the available evidence in the literature on the safety in processing N95 or higher filtration FFRs.

Methods: A systematic review conducted by searching for studies in the following databases: PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), Cochrane Central Register of Controlled Trials (CENTRAL), Excerpta Medica Database (EMBASE), Web of Science and Scopus.

Results: The disinfectant/sterilizing agents most frequently tested at different concentrations and exposure periods were ultraviolet irradiation, sodium hypochlorite and ethylene oxide. Microbial reduction (through artificial contamination) occurred in 10 (55.5%) studies. All tested disinfectants/sterilizers caused degradation of the material's integrity, except for ethylene oxide. Significant loss of filtration efficiency occurred with alcohols, sodium hypochlorite, Hydrogen Peroxide Gas Plasma, soap/water, autoclaving and dry heat. Exposure to ultraviolet irradiation resulted in a non-significant reduction in filter performance.

Conclusion: There is a complex relationship between the FFR raw materials and the cycle conditions of the decontamination methods, evidencing the need for validating FFRs by models and manufacturers, as well as the sterilization technology in the three evaluated outcomes. Some methods may require additional tests to demonstrate the safety of FFRs for use due to toxicity.

Abstract supplement (free paper abstracts)

61: Review of anti-fungal use in severe COVID-19 patients: the need for antifungal stewardship

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Introduction: Severe SARS-CoV-2 pneumonia results in prolonged intensive care unit (ICU) admission and late deterioration is common. Often CT findings appear similar to those of invasive fungal disease (IFD). This presents diagnostic and treatment challenges leading to institution of antifungal therapy (AFT).

Methods: Data was collected retrospectively on patients admitted to the ICU who were treated with systemic AFT for suspected IFD. Diagnostic tests included respiratory culture, galactomannan (GM), beta-D-glucan (BDG) and imaging findings.

Results: Forty-five patients with COVID-19 were admitted to ICU from April to May 2020 of whom 10 (22%) received empiric AFT for suspected IFD due to clinical deterioration despite broad spectrum antibiotics and/or suspicious CT findings. Eight patients had no pre-existing risk factors for IFD. The mean interval to a possible diagnosis of IFD was 19 days. A mean of 4.4 respiratory samples per patient were taken for culture, five had serum GM, six had broncho-alveolar lavage fluid (BALF) or tracheal aspirates for GM, six had Aspergillus PCR performed on BALF or tracheal aspirates and five had serum BDG. None of the 10 patients had results suggestive of IFD. The average length of AFT was 23.33 days. One patient died.

Conclusion: This audit highlights the challenges involved in screening and diagnosis of IFD in these patients. This is compounded by the long turnaround time for results. Inevitably these patients received prolonged and perhaps inappropriate courses of AFT. A diagnostic algorithm is needed to promote antifungal stewardship in this patient cohort.

Abstract supplement (free paper abstracts)

62: A review of thrice weekly teicoplanin dosing in the OPAT setting

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Introduction

The glycopeptide teicoplanin is commonly utilised to facilitate Outpatient Parenteral Antimicrobial Therapy (OPAT). Licensed for once daily maintenance dosing, teicoplanin's long half-life allows for less frequent dosing (e.g. thrice weekly) following successful loading. This service evaluation reviews the safety and effectiveness of a novel thrice weekly teicoplanin dosing regimen.

Methods

A retrospective, observational study was conducted at Chelsea & Westminster hospital (March 2018 – February 2020), evaluating trough serum teicoplanin concentrations for patients receiving ≥ 7 days of thrice weekly teicoplanin. Clinical outcomes (NORS defined treatment outcomes), therapeutic levels and follow-up pathology (U&Es, FBC and LFTs) were analysed for all patients. The project was registered with clinical governance locally.

Results

A total of 26 patients undergoing thrice weekly teicoplanin OPAT during the study period were identified. All patients had a reported serum level $>10\text{mg/L}$, with 13/26 (50%) achieving the desired trough concentration of 20-50mg/L. One patient had supra-therapeutic serum level (62.6mg/L) and required dose adjustment. The clinical success rate was 24/26 (92.3%). No correlation between clinical outcome and initial teicoplanin serum levels was identified.

Augmented renal function ($>90\text{ml/min}$) was associated with a trend to lower teicoplanin serum concentrations but failed to demonstrate clear statistical significance ($p=0.18$). Hypoalbuminaemia had a non-significant impact on trough concentration ($p=0.34$). No clinically significant or treatment-altering adverse effects were reported.

Conclusions

This study supports thrice weekly teicoplanin as an efficacious and safe option for OPAT. Local guidance has been adapted to increase dosing in patients with augmented renal function to minimise risk of sub-therapeutic drug concentrations.

Abstract supplement (free paper abstracts)

63: Botulism in a pregnant adolescent: a case report

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Botulism is a globally prevalent and potentially life threatening infectious disease. In the recent years Ukraine has reported several foodborne botulism outbreaks. Botulism in pregnant women may be especially hazardous, however, currently there is a limited number of related papers.

We observed a case of foodborne botulism in a 17-year-old adolescent being on the 32nd week of her pregnancy. Blurred vision, abdominal pain, vomiting, muscle weakness, and moderate respiratory distress started on the second day after homemade fish foods consumption. On examination ptosis, dysphagia and reduced salivation were registered. Fetal movements were normal, fetal heart rate was 136 beats per minute. Isolation of type E botulinum toxin from gastric and intestinal lavage fluids confirmed botulism.

A multidisciplinary team of an infectious disease specialist, neurologist, obstetrician and intensive care specialist delivered the patient management. Heptavalent botulinum antitoxin was applied rather late, on the second day after admission, due to a limited supply of botulinum antitoxin in Ukraine. The treatment resulted into a steady positive dynamics with a complete recovery in three weeks. The patient appeared to tolerate the treatment well with no adverse events occurred. The pregnancy resolved in term into a healthy infant childbirth.

With regard to both mother and fetus safety, we observed no deleterious impact of antitoxin administration which is consistent with literature data. Since rapid severe progression of botulism is possible even after mild initial manifestations, botulinum antitoxin in pregnancy may be considered as effective and relatively safe treatment option indicated in any suspicion of botulism.

Abstract supplement (free paper abstracts)

64: Let off the 'Leish' in Egypt: Sun, Sea, Sand and Splenomegaly

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Introduction:

Visceral leishmaniasis (VL) is a life threatening infection transmitted by sand fly vectors. VL is found in the tropics and subtropics, but endemicity is unclear due to an absence of reporting in some countries. Here, we present a case of VL in a tourist returning from Egypt.

Case report:

A 45 year old gentleman, with a past medical history of pulmonary sarcoidosis in remission, presented to hospital with a subacute history of breathlessness, fevers, weight loss and malaise. Admission blood analysis showed pancytopenia and elevated C-reactive protein (102mg/L). Widespread lymphadenopathy, hepatosplenomegaly and lung nodules were demonstrated on computed tomography scanning. Investigations for suspected haematological disease proceeded with a lymph node biopsy, which demonstrated reactive changes only. Microscopic examination of bone marrow established the diagnosis of VL through visualisation of amastigotes. Subsequent molecular testing identified *Leishmania donovani* complex DNA and serological studies revealed *Leishmania* K-39 antibodies. Further history established that he had travelled to Egypt's Red Sea coast two months prior to admission and Spain 6 months prior. He was treated with liposomal amphotericin B alongside supportive therapies and has made a good recovery.

Discussion:

According to the latest available World Health Organisation data, no cases of VL were reported in Egypt in 2018. Our report highlights the requirement for a high index of suspicion for VL in the returned traveller, and cautions not to exclude the diagnosis based on travel to an area with an apparently low burden of disease, nor in patients without clear history of cellular immunodeficiency.

Abstract supplement (free paper abstracts)

66: Towards a dialogue about a Scottish ESBL reporting national consensus plan

Dr Joanna Walker¹

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Introduction

The fourteen Scottish health board diagnostic microbiology laboratories have different approaches to testing and reporting extended-spectrum beta-lactamases (ESBLs). Some use a label of 'multidrug resistant organisms' (MDROs) rather than direct confirmatory testing of ESBLs. Is there a value placed by clinicians on ESBL reporting per se?

A survey of the perceived value of ESBL reporting amongst clinicians managing patients in NHS Grampian was undertaken to facilitate dialogue in reaching a potential Scotland-wide ESBL reporting national consensus plan.

Methods

In January 2020, 77 Clinicians managing patients in community surgeries and acute, critical care, and medical wards submitted responses to a 10 question questionnaire about their utilisation and clinical valuation of ESBL reporting.

Results

84% of clinicians preferred the direct reporting of ESBLs as advantageous to their decision making surrounding the management of patients.

Discussion

There were multiple clinical reasons identified for valuing ESBL reporting including facilitating antibiotic prescribing, stewardship, patient placement, IPC measures and PPE, GP referrals for admission, anticipatory management in acute admissions, education in best practice prescribing, feedback on previous antibiotic choices, and risk communication in handover.

Amongst these reasons the unique clinical advantages of direct identification of ESBLs over generalised MDRO reporting included more thorough IPC risk stratification and management of the hierarchy of consequences of transmission; more immediate detection of potential transmission incidents and outbreaks; and health board capability to monitor and respond dynamically to changes in ESBL resistance over time.

Abstract supplement (free paper abstracts)

67: Community-acquired bacterial co-infection is rare in COVID-19 ICU admissions

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Question: Is bacterial co-infection common in critically ill COVID-19 patients?

Methods: Retrospective review of COVID-19 ICU admissions March to April 2020, Newham Hospital, London.

Results: Seventy-seven patients admitted, average age 58 years, symptoms to ICU admission median 9 days, ICU admission to discharge home or death median 23 days and 8 days respectively, with 37 deaths. Pre-antibiotic blood cultures taken in 56%, one significant positive: Enterobacter from pyelonephritis. Respiratory specimens sent from 66% (51/77) of patients, 59% (30/51) in the first 72 hours, three containing potential CAP pathogens: Haemophilus influenzae, Staph aureus and Moraxella catarrhalis. Pneumococcal urinary antigens sent from 56% of patients with 2 positives; legionella antigens sent from 60% with no positives. Pre-admission antibiotics given 22% patients. All patients commenced on antibiotics upon admission, 75% changed to a second antibiotic, 55% to a third (9% and 14% prompted by culture results respectively), with 12 days median antibiotic use. In total, 180 respiratory specimens were sent, containing potential hospital-acquired pneumonia pathogens (n=89), no growth (n=67), commensals (n=20), and possible CAP pathogens (n=7). Pseudomonas aeruginosa (n=47) was most commonly isolated, emerging after 2 weeks. Procalcitonin was launched trust-wide mid-April, thus only sent in 18% of patients, 29% (8/28) of results influencing management.

Conclusion: In only 6% of patients was a potential CAP pathogen identified, all covered by first-line antimicrobials. Escalation of antibiotics should be considered to treat HAP/VAP. Procalcitonin should be considered in all critically ill patients with COVID-19 to guide antimicrobial therapy given the unreliability of other inflammatory markers.

Abstract supplement (free paper abstracts)

68: Paediatric bone and joint infections in Oxford: a 10-year retrospective review

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¹*Department of Paediatrics, University of Oxford*

Introduction

Acute septic arthritis (SA) and osteomyelitis (OM) can present as medical emergencies. We describe the clinical epidemiology of bone and joint infections at the John Radcliffe Hospital, Oxford in order to understand how management can be optimised in the advent of changing diagnostic and treatment practices.

Methods

We identified cases of SA and OM during September 2009 - February 2019 through interrogating clinical coding data. Inclusion criteria were: i) any child <16 years of age ii) with clinical or radiological features typical of SA or OM and iii) <2 weeks of symptoms prior to presentation.

Results

In total, we identified 77 cases of OM and 75 cases of SA. The median age at presentation of SA was 1.45 years and OM was 6.88 years.

Staphylococcus aureus accounted for the majority of blood or pus culture-positive SA (23%, 6/23) and OM (44%, 16/36). The majority of SA or OM cases had no pathogen identified on blood culture (77%, 27/35 and 65%, 33/51 retrospectively) or from intra-operative pus samples sent for conventional culture (57%, 30/53 and 74%, 32/43). *Kingella kingae* was identified in 4% of SA and no OM cases.

There was no significant difference in mean duration or outcomes after stratification of cases by duration of IV therapy received.

Discussion

Our data supports routine use of 16s PCR for detection of *K. kingae* as conventional culture will not identify most cases. Future studies should compare outcomes in short course IV followed by PO antimicrobial care compared to standard of care.

Abstract supplement (free paper abstracts)

70: Lumbar punctures: Who's doing them and how long are they taking?

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We audited all lumbar punctures (LPs) performed in a Scottish district general hospital over a 7 month period (23/10/18 – 14/5/19). Data collected included indication, operator grade, average delay and presence of a paired serum glucose. All middle grade medical doctors (MGs) were surveyed on perceived barriers to timely LP and their current level of competency.

Data from 49 patients was included. Indication for LP was not always clear but headaches (33%), confusion (20%) and seizures (10%) were the most commonly documented. The average delay between request and the first attempt was 5.64 hours. MGs performed most first attempts (43%), followed by acute medical consultants (22%), CDFs (10%) and anaesthetists (8%). 11 patients required a second attempt and 2 required a third attempt by a different practitioner. The average delay between first and second attempts was 8.17 hours. Most (64%) second attempts were carried out by anaesthetists. Paired glucose samples were sent for 27% of patients.

Half the MGs had performed 1 to 5 LPs under supervision. Most (73%) did not feel confident performing an LP independently but 73% felt confident performing LPs under direct supervision. No MGs thought LPs were carried out within an hour of being requested. Most (55%) thought they were carried out between 1 and 6 hours. Lack of experience and confidence were the most commonly cited reasons for this delay. This audit has stimulated further interest in a project to improve education and training for MGs performing LPs.

Abstract supplement (free paper abstracts)

71: Adherence to new *Entamoeba histolytica* guidelines in inflammatory bowel disease: An audit of practice at a UK teaching hospital

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¹De Montfort University, ²University Hospitals of Leicester NHS Trust

Introduction

In response to recent cases of amoebic colitis at University Hospitals of Leicester NHS Trust (UHL), patients with acute colitis requiring corticosteroid treatment were empirically treated with metronidazole pending results of their *E. histolytica* screen (stool PCR and serology). This project aimed to measure adherence to the UHL guideline.

Methods

A retrospective audit was undertaken between July to November 2019. All patients prescribed metronidazole on the gastroenterology unit were included. Data regarding sampling for *E. histolytica* (target 100% adherence) and prescribing of metronidazole (target 95% adherence) were collected using electronic systems and case-notes.

Results

Fifty-eight patient were prescribed metronidazole, of which 44 were for possible amoebic colitis. Data were missing for 4 patients, so were omitted from analysis.

Sixty percent (n=24/40) of patients had stool PCR sent while 55% had serology sent. Only 42.5% had both stool and serology sent as per guidelines.

Fifty-nine prescriptions for metronidazole were audited. This number is explained by switching route and amending existing enteral prescriptions. Only 35.6% of prescriptions were in line with guidance. Ten prescriptions (16.9%) contained suboptimal dosing and 29 prescriptions (49.2%) were for inappropriate durations. Three prescriptions (5.1%) contained other errors.

No difference in adherence to sampling or prescribing guidance was observed over time.

Conclusions

Interventions to improve sampling and prescribing for patients with possible *E. histolytica* colitis need to be put in place across gastroenterology. Practice across acute medicine and surgery should also be reviewed. Electronic prescribing and laboratory systems should be designed to drive appropriate sampling and prescribing.

Abstract supplement (free paper abstracts)

72: COVID-19 The Irish Public Health Experience: The first 100 days in a large Regional Department of Public Health

Dr Clíodhna Ni Bhuachalla¹, Dr Nicola Murphy¹, Dr Margaret O'Sullivan¹, Dr Mary O' Mahony¹, Dr Claire Buckley¹, Dr Clíodhna Foley-Nolan¹, Dr Deirdre Murray¹, Aline Brennan¹, Dr Anne Sheahan¹

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Aims: In Ireland Public Health efforts and societal engagement with Non-Pharmaceutical Interventions (NPIs) helped to mitigate COVID-19 pandemic risk; resulting in the lowest 14-day incidence of COVID-19 cases (Western Europe) by June 30th 2020. However, resurgence activity is concerning. This study presents the first, to our knowledge, Irish COVID-19 Public Health experience. We aim to describe the first 100 days of departmental activity, compare (inter)nationally and suggest 'lessons learned' to optimise preparedness. **Methods:** We describe the epidemiology of confirmed cases of COVID-19 notified to our department from 05/03/2020 - 13/06/2020. National surveillance definitions were used. Data were extracted from the national Computerised Infectious Disease Reporting System. National data were sourced from publicly available datasets. Epidemiological curves were constructed. All data are provisional. MS Excel was used for analysis.

Results: 1,842 cases were notified (7.3% of 25,303 cases nationally). Of 1,842 cases, 219 cases (11.9%) were hospitalised, 33 cases (1.8%) admitted to ICU and 55 cases (almost 3%) died. Hospitalisation rate was highest in those >65 years (48%, n=106). Local transmission (WHO classification) accounted for 60.5% (n=1,115) of cases, with 26.2% (n=482) occurring in healthcare settings. Outbreak settings included nursing homes, 'direct-provision centres' and food-processing plants. Key differences from national data include earlier flattening of our 'epi-date curve' and less healthcare-worker cases.

Discussion/Conclusion: Our findings are reflective of reported international experience. Outbreaks in complex settings highlight the need to protect vulnerable populations. Mitigating resurgence risk from relaxation of NPIs requires robustly-resourced Public Health services and sustained societal engagement with selected NPIs.

Abstract supplement (free paper abstracts)

73: Broad Spectrum Antimicrobial Activity of 405-nm light as a Pathogen Reduction Treatment for Blood Plasma

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The risk of bacterial contamination of blood products is a concern in transfusion medicine. Pathogen reduction technologies (PRTs) can improve blood product safety by proactively treating to remove infectious agents. Antibacterial violet-blue light, in the region of 405-nm, has recently demonstrated efficacy in reducing the bacterial burden in human blood plasma and platelet concentrates. This study aims to determine the broad-spectrum efficacy of a safe and effective 405-nm light dose for treatment of blood plasma.

Preliminary protein analysis, conducted using SDS-PAGE, assessed the compatibility of a 405-nm light dose of 360 J/cm² (1-hr at 100 mW/cm²) with plasma proteins. Visual analysis of protein band patterns indicated that a dose of 360 J/cm² did not significantly impact protein integrity. Plasma was then exposed to the fixed dose whilst seeded with a range of bacteria associated with transfusion-transmitted infections (TTIs) including: *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Bacillus cereus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Klebsiella pneumoniae* and *Yersinia enterocolitica*. Plasma was seeded at low (~10² CFU/mL) and high (~10⁷ CFU/mL) density levels, in order to represent realistic clinical contamination and high microbial challenge, respectively. Successful inactivation was achieved at low- and high-density populations, with significant reductions ($P \leq 0.05$) achieved for all species. Exposure of low-density seeded plasma to a dose of 360 J/cm² resulted in 99.0 – 100% inactivation of the bacteria tested.

405-nm light offers broad inactivation against a range of bacteria implicated in plasma contamination and transfusion-transmitted infections, demonstrating its potential to be developed as a bactericidal technology for human blood plasma.

Abstract supplement (free paper abstracts)

74: The detrimental unintended consequences of lockdown on People Who Inject Drugs in NHS Lothian

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During the lockdown to combat the COVID-19 pandemic there has been a reduction in available harm reduction services for People Who Inject Drugs (PWID). In NHS Lothian there has been a reduction in Injecting Equipment Provision related to suspension of services and re-deployment of staff. In addition there has been a reduction in Blood Borne Virus testing being performed.

The conditions that some PWID have been inhabiting during lockdown have been unhygienic, and reports from harm reduction teams visiting properties are of very large quantities of used injecting equipment being found accumulating in properties. The reduction in available support services, combined with close living in unhygienic conditions, may have contributed to an increased incidence of infection. Potential causes include reverting to sharing injecting works; with subsequent increased trauma to the skin, or close contact facilitating transmission of skin bacteria.

Following previous large outbreaks of Group A Streptococcal (GAS) infections in PWID we have maintained local laboratory surveillance. This involves requesting typing of GAS and Staphylococcus aureus isolated from specimens received from PWID. This enhanced surveillance has detected transmission of a new strain of Methicillin Resistant Staphylococcus aureus (MRSA) which is Panton-Valentine Leucocidin (PVL) positive, and continuation of a GAS emm type 83.13 outbreak, which is almost exclusively affecting the PWID community within NHS Lothian.

These pathogens causing infections in PWID may lead to severe skin and soft tissue infection which often requires inpatient management, including surgery.

Abstract supplement (free paper abstracts)

75: Identifying the World Health Organization's fifth moment for hand hygiene: Infection prevention in the operating room.

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The World Health Organization have designed the fifth of their '5 moments' for hand hygiene to account for microbial transfer from patients to equipment in a narrow area around that patient, known as the patient zone. The study was prompted by emerging local confusion about application of the patient zone in the operating room (OR).

In two phases, we aimed to create a '5 moments' style poster displaying an OR patient zone: phase 1, quantify equipment, in direct contact with the patient and, touched by non-scrubbed staff immediately after touching the patient; and phase 2, categorise equipment identified in phase 1 into patient zone and healthcare zone. An objective is to produce a '5 moments' poster for the OR.

The first phase used non-participant direct overt observation. In phase 2, phase 1 data were collaboratively assigned to patient zone or healthcare zone. Photography and graphic design were used to produce the OR '5 moments' poster.

In 11 full-length surgeries, 20 pieces of equipment were in direct contact with the patient and 57 pieces of equipment were touched. In phase 2, a OR patient zone '5 moments' poster was designed.

Content of the patient zone was identified and displayed in a novel resource. Having shared understanding of the patient zone has potential to sustain hand hygiene compliance and equipment cleaning in the OR.

Limitations in methods were balanced by collaboration with frontline staff. The study has been used as a teaching tool in the OR and similar settings.

Abstract supplement (free paper abstracts)

76: An Observational Study on Carbapenem Resistant Enterobacteriaceae (CRE) colonization and subsequent risk of infection in adult ICU patients

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Background: Carbapenem resistant Enterobacteriaceae (CRE) has emerged as a global health threat with increasing incidence. It is a particular problem in India as control over antibiotics prescription is really poor which can be easily bought over the counter and antibiotic prescription threshold is seen low among Indian doctors and also, even when administered, they are given in inappropriate dosage and duration. Infections by CRE are a health care challenge due to their difficult to treat and high morbidity and mortality. Colonization is a prerequisite for causing infection prevention of which should be prioritized.

Objectives: Objective of our study is to find the prevalence rate of CRE colonization in gastrointestinal tract in newly admitted ICU patients along with follow-up of any subsequent infection following colonization.

Methods: A prospective observational study was carried out among ICU patients from January 2019 to August 2020, by collection of perirectal swabs from consented patients. Clinical variables were identified and relationship between CRE colonization and subsequent systemic CRE infection was assessed. Processing was carried out by culturing on MacConkey agar plate with ertapenem disk and further identified using conventional microbiological techniques. Ertapenem MIC was determined using Epsilometer (E) test. Modified Carbapenem Inactivation (mCIM) test and EDTA Carbapenem Inactivation method (eCIM) was done to confirm carbapenem resistance using Clinical Laboratory Standards Institute 2020 guidelines.

Results: Among 186 ICU patients, 35 (18.81%) were colonized with CRE. 77.14% (N = 27/35) patients developed CRE infection during hospital stay. 37.14% (N = 13/35) of CRE-colonized patients died during hospital stay.

Abstract supplement (free paper abstracts)

77: Procalcitonin (PCT) trends in patients admitted with confirmed COVID19 in Doncaster Royal Infirmary (DRI)

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Background: NICE produced a rapid guideline for antibiotic usage in adults with COVID19 pneumonia. It advises that there is insufficient evidence to use PCT to guide antibiotic decisions but further research should be undertaken. The aim of the study was to see if any trends in PCT could guide antibiotic decisions or predict prognosis.

Methods: This study reviewed 48 patients, diagnosed with COVID19 who were admitted to DRI from March to May 2020, with serial PCT measurements.

Results: 75% of these patients were admitted to critical care and the overall mortality rate was 40%. The study found that patients who were discharged had an average lower first and last PCT, compared to those who died. Other laboratory and imaging findings were as follows: 90% of patients were lymphopenic on admission; the average CRP was 149, ranging from 9 to 426; 23% of patients had a chest xray reported as normal on the day the SARS-CoV-2 test was taken. 38% of patients had a PCT above 0.5 on admission; only 5 of these patients had a microbiologically confirmed bacterial infection.

Conclusion: Trends in PCT appear more useful than a single value in the context of COVID19 and higher values appear to correlate with poorer outcome. Further research on larger patient groups could further help define the role of PCT in predicting prognosis and guiding antibiotic usage in these patients.

Abstract supplement (free paper abstracts)

78: The Elephant in the Medical Admissions Unit: Cognitive Bias in the COVID-19 Pandemic

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Introduction

The COVID-19 pandemic has resulted in the triage of 'possible cases' through COVID-19 medical assessment units (MAU). Such systems risk introducing bias to the diagnostic process. In this study diagnoses were assessed for cognitive bias in patients admitted into a "COVID-19 MAU".

Methods

A case note review of patients admitted into COVID-19 MAU between April and June 2020, at Monklands University Hospital was conducted. The admission diagnosis documented by the junior doctor and consultant were compared with the final discharge diagnosis. Statistical analysis explored associations between clinical diagnosis and definitive diagnosis.

Results

Of 133 patients admitted, 41.1% were male and mean age was 58.2 years (+/-16.2). 38 (28.6%) were diagnosed with COVID-19 at discharge while 27.1% (n=36) had other respiratory diagnoses. COVID-19 was the most frequent admission diagnosis made by junior doctors (53.4%) and consultants (41.4%), significantly more frequent than confirmed cases ($p<0.001$ and $p=0.035$ respectively). The correct admission diagnosis was made by 72.8% (n=75) junior doctors and 79.3% (n=92) after consultant review. Patients with COVID-19 were significantly more likely to have a correct diagnosis from junior doctors than COVID-19 negative patients (90.3% vs 62.7%, $p<0.01$).

Conclusions

A large proportion of patients did not have COVID-19 or respiratory pathology. Despite physicians clinically identifying the majority of COVID-19 cases, there was a significantly lower chance of a correct diagnosis if not COVID-19. This and a preponderance of incorrect COVID-19 diagnoses suggests cognitive bias. Physicians should be alert to bias from triage systems, while measures should be explored to mitigate them.

Abstract supplement (free paper abstracts)

79: The efficacy of universal disinfection wipes in an Acute Medical Unit: a comparison with a Chlorine-releasing agent.

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¹*University Hospitals Birmingham*

Background: We assessed the disinfection methods used on the Acute Medical Unit of Queen Elizabeth Hospital Birmingham for efficacy of microbiological decontamination. The effect of training upon nurse-led decontamination was also examined.

Methods: AMU employed two methods. The first was a 'Green clean' comprising the use of a disinfectant detergent wipe containing quaternary ammonium compounds, carried out by nurses or healthcare assistants. The second was an 'Amber clean' consisting of a Green clean followed by the use of a solution containing surfactant and 1000ppm available Cl₂; the latter stage was carried out by hospital cleaners. Seven high-touch sites were sampled before and after each clean. Nurses and healthcare assistants were trained in cleaning techniques on five occasions. Generalised linear regression and Chi-squared models were used to analyse the log₁₀ reduction factors obtained.

Results: The universal disinfectant wipes produced significantly greater RFs than the Cl₂-releasing agent; on average, the Green clean gave a 1.53 times greater RF than the Amber clean (0.92 vs 0.60, $p = 0.003049$). Whilst training did not affect the efficacy of cleaning in general, it did improve the number of Amber cleans that were carried out correctly by 16.67 percentage points ($p = 0.01148$). Amber cleans performed with the Green pre clean produced a 2.02 times greater RF than those performed without (1.09 vs 0.54, $p = 0.0432$).

Conclusion: A universal disinfectant detergent wipe gave superior microbicidal performance compared to a Cl₂-releasing agent. Staff training led to a significant improvement in following cleaning protocols.

Abstract supplement (free paper abstracts)

80: Fight COVID with COVID, and Learning from COVID- Kettering General Hospital story

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BACKGROUND: COVID 19 pandemic has been highly challenging with rapid changes in epidemiology of the virus transmissions and disease burden in community and in Hospital. Keeping pace with rapidly changing guidance and reducing risk of transmission within patients and staff in Kettering General Hospital (KGH) has been our key focus points.

OBJECTIVES: Develop COVID care bundle to reduce transmission within hospital, maintain clear pathways for communications from single source.

METHODS AND IMPLEMENTATION: First milestone was to have one source of the truth- all communications were managed by comms teams and validated by IPC team.

We designed concise action cards (at a glance advice) for patient pathways on wards, theatres and outpatients. These were readily accessible from a single point on KGH intranet, Microguide app, and presented in various forums on Microsoft teams.

'Fight COVID with COVID' proved useful slogan and reminder to adhere to COVID care bundle.

Expansion as follows: C- Clean your hands often, O-observe social distancing, V-ventilate your area, Increased cleaning of surfaces, D-don a mask.

Compliance to COVID care bundle is owned by clinical teams, audited weekly and through an electronic audit tool, learning themes are fed back to the rest of the organisation in a timely manner.

CONCLUSIONS: Although we had sporadic cases of Hospital onset definite COVID infections, there has been no evidence of cross infection since 10th of July. Continued vigilance around 'Fight COVID with COVID' care bundle compliance will continue to reduce risk of transmission for COVID and other respiratory pathogens through winter.

Abstract supplement (free paper abstracts)

81: The impact of on-site testing on turnaround time based on a cross-sectional survey of molecular testing of CSF samples by laboratories in the UK

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Background: For cases of suspected meningitis and encephalitis, rapid molecular testing results in a diagnosis in less than 90 minutes, which can result in optimal treatment, improved outcomes as well as shorter inpatient stays.

Methods; This study reviewed current practice for molecular viral and bacteriological testing of CSF samples in hospitals across the UK using a structured questionnaire between July and August 2020.

Results; 196/212 (92%) Hospitals in the UK responded with data collected via telephone (173) or email (23). 64 (33%) had no on-site microbiology laboratory and were excluded. 133 laboratories were included in the study, 37 (18%) laboratories had facilities for bacterial and viral PCR testing on CSF and 8 (6%) had facilities for viral testing only.

Table: comparison of Microbiology laboratories with and without molecular CSF testing

Viral turnaround time (% of all responses)

On-site vs. not on-site

POC 3(1.5) 0(0)

<12h 18(9.2) 0(0)

24h 18(9.2) 4(2)

24-48h 7(3.6) 34(17.3)

48-72h 0(0) 19(9.7)

5-10d 0(0) 13(6.6)

Varied 3(1.5) 3(1.5)

Unknown 0(0) 13(6.6)

Bacterial turnaround time (% of all responses)

On-site vs. not on-site

POC 2(1) 0(0)

<12h 18(9.2) 0(0)

24h 7(3.6) 6(3.1)

24-48h 4(2) 19(9.7)

48-72h 0(0) 13(6.6)

Not tested 2(1) 31(15.8)

Unknown 1(0.5) 19(9.7)

Varied 2(1) 2(35.7)

Abstract supplement (free paper abstracts)

Conclusion; Hospitals undertaking on-site PCR testing on CSFs (25%) had a much faster turnaround time than Hospitals where samples were referred. Molecular testing for viral infection was more widely available than bacterial infection. Nearer patient testing is recommended, whenever possible, to optimise patient outcome subject to local demands.

Abstract supplement (free paper abstracts)

82: Audit to monitor adherence to national treatment guidelines for C. difficile infection, to evaluate epidemiology of C. difficile infection, to assess the adherence to specimen collection guidance and infection prevention precautions to prevent spread of C. difficile infection at South Warwickshire NHS Foundation Trust (SWFT) between September 2018 and August 2019

Doctor G. I. D. Dushyanthie A. D. Athukorala^{1,2}, Doctor Bernhard Usselman², Mrs Christine George², Mrs Nayara Matheson², Mrs Allison Bradley², Mrs Karen Richards², Mrs Gill Pinder², Mrs Hannah Pierson²

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Background and Objectives

Clostridioides difficile infection (CDI) leads to considerable morbidity and mortality. Optimal treatment is important and should review regularly. This audit will assess,

- the adherence to national guidance on treatment
 - adherence to specimen collection guidance
 - adherence to infection prevention precautions to prevent spread
- and
- the epidemiology
- of CDI among hospitalized patients at SWFT

Methods

Forty one C. difficile positive in-patient records from September 2018 to August 2019 were included. National guidance were followed to determine the severity score, adherence to treatment and place of onset.

Results

Ten of 41 episodes were considered as no CDI. Thirteen were hospital onset health care associated, 07 each were community onset healthcare associated and community onset community associated and 04 were community onset indeterminate association. These 31 episodes were from 30 patients and had equal males and females. Of the 30, 23 were over 65 years and 7 were under 65 years. Had 24/31 toxin positive and 7/31 PCR positive results. Had 6/31, 18/31 and 07/31 mild, moderate and severe/life threatening respectively. Thirty episodes had appropriate treatment. Six episodes needed changing management. Twenty nine episodes were cured following treatment. Five of the 41 episodes, patients were on or recently had laxatives.

Discussion and Conclusion

Adherence to national guidance on treatment for CDI at SWFT was very good with a compliance of 96.77%. Demographics were in line with previous studies done nationally and worldwide. Specimen collection guidance were not followed accounting to 12.2% non-adherence. Excellent compliance with infection control measures were observed.

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83: Dalbavancin: a cost-effective management strategy for deep-seated methicillin-sensitive *Staphylococcus aureus* (MSSA) infection in a prisoner

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Introduction: Dalbavancin is a recent addition to our antimicrobial repertoire - it is a long acting lipoglycopeptide licensed for the treatment of bacterial skin and soft tissue infections in adults. We describe its role in the clinical recovery of a prisoner with complex MSSA infection and the cost benefits compared to standard treatment.

Methods: Single case report of an IVUDU admitted from HMP with MSSA bacteraemia and evidence of deep-seated collections in the paraspinal area, including gluteus and piriformis muscles, which were not amenable to drainage. Initially treated with IV flucloxacillin 2g QDS as standard but PICC line became blocked after 10 days. Treatment was changed to Dalbavancin 1.5g stat. He was discharged back to the prison to receive 2 further doses of Dalbavancin at 2-weekly intervals in conjunction with po fusidic acid. As standard practice, the patient had to have two prison guards with him 24/7 whilst he was an inpatient.

Results: The patient made a complete clinical recovery and follow up MRI scan showed radiological resolution in the paraspinal collections after 3 doses of Dalbavancin. Inpatient stay was reduced from 6 weeks to 3 weeks and estimated cost savings from bed days and prison guard time was calculated at £53,061.

Discussion: This case highlights a potentially niche role for this new antibacterial which may be of particular significance in the management pathway of patients from prison facilities due to the beneficial impact on patient outcome, patient flow, cost savings on bed days and staffing.

Abstract supplement (free paper abstracts)

84: Quinine inhibits infection with SARS-CoV-2 in vitro - a new potential therapeutic approach in combating the current SARS-CoV-2 pandemic

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The lack of a vaccine or a regulatory approved therapy for the treatment of the newly emerged SARS-CoV-2 necessitates the development of new therapeutics to prevent the transition of a mild into a severe COVID-19 stage of infection. Among several candidates, the intensively tested drugs Chloroquine (CQN) and Hydroxy-Chloroquine (H-CQN) have been discussed controversially in the light of severe side effects. Originally, H-CQN descended from the natural substance Quinine, a medicinal product used since the Middle Ages and now regulatory approved for various indications. We hypothesized that Quinine also exerts anti-SARS-CoV-2 activity. To determine the substance's antiviral effects, virus production in Vero B4 cells was analysed by Western blot, showing an even stronger antiviral activity of Quinine than that of H-CQN or CQN at 10 μ M. The antiviral effect appears to be specific, since in Vero cells Quinine affected cell viability at approximately 50-fold higher concentrations, while the therapeutic window of H-CQN and CQN was approximately 10-fold lower. Fluorescence end-point and time lapse analysis of SARS-CoV-2-mNeon-infected CaCo-2 cells confirm a similar antiviral effect of Quinine in a human-derived cell line. No toxic effect was observed while complete block of infection occurred between 50 and 100 μ M at high MOIs. In summary, our in vitro studies indicate that Quinine could be a potential treatment option for SARS-CoV-2 with a predictable better toxicological profile when compared to H-CQN and CQN. First clinical studies using Quinine or derivatives have already been initiated in the USA, Indonesia and Russia during the last months.

Abstract supplement (free paper abstracts)

85: Influenza testing – an evaluation of understanding and application among clinical staff.

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Background

Efficient influenza diagnosis decreases nosocomial transmission and reduces length of stay. However, good testing practice relies on an understanding of policy and clinical recognition of Influenza-like Illness (ILI). We retrospectively audited rates of influenza testing, and used a survey to identify factors which influenced the decision to test.

Methods

During the high transmission period 1.1.19 - 8.3.19 we screened 200 consecutive admissions to Aintree University Hospital for patients fulfilling ILI criteria, and recorded if appropriate influenza testing, isolation, and oseltamivir prescribing occurred.

A questionnaire explored doctors' knowledge of testing logistics, ILI definition, oseltamivir prescribing, and factors influencing testing decisions.

Results

35 patients presented with ILI and 20 met the testing criterion of symptom duration ≤ 5 days. 7/20 eligible patients were tested, 2/20 were isolated and 3/12 presenting within 48 hours of symptom-onset received oseltamivir.

All doctors surveyed (n = 38) identified fever as an ILI defining symptom; most identified cough (84%) headache (84%), myalgia (81%) and arthralgia (71%), however identification of gastrointestinal symptoms was <40%. Doctors felt test kit availability, the ability of testing to influence prescribing and sepsis policy would influence testing decisions. 34.6% knew oseltamivir should only be administered to those presenting within 48 hours of symptom onset.

Conclusion

Most patients with ILI were not flu tested, despite widespread awareness of symptomology. Guideline compliance with isolation and oseltamivir prescribing was poor. Systemic barriers and perceptions of futility may explain this. In the COVID era, rational flu testing remains important and a local awareness campaign is planned.

Abstract supplement (free paper abstracts)

86: Severe COVID-19 infection and invasive pulmonary aspergillosis: a retrospective review from a UK centre.

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Introduction

An association between severe viral respiratory tract infections and invasive pulmonary aspergillosis (IPA) has previously been established. There is increasing evidence to suggest this may also be true for severe COVID-19 infection with reported rates up to 27%. We decided to evaluate this further at our institution.

Methods

A retrospective review was performed of all cases of COVID-19 requiring critical care admission over a six week period at a UK teaching hospital. IPA was defined as per the recently proposed coronavirus associated pulmonary aspergillosis (CAPA) criteria. Investigations for IPA were performed at the clinician's discretion with microbiologist input.

Results

A total of 79 patients were admitted to critical care with COVID-19. The majority were male (70.9%) with a median age of 61 years old. All required respiratory support (58.2% were intubated) and 54.4% needed cardiovascular support. 33 (41.8%) had at least one investigation for invasive fungal disease including serum galactomannan (n=22), deep respiratory sample for galactomannan and/or culture (n=14) and serum beta-d-glucan (n=26). Two cases (6.1%) met the definition for CAPA. They both received antifungal therapy and both were stepped down from critical care although one subsequently died. There were no positive serum galactomannan results and the two positive beta-d-glucan results had alternate explanations.

Conclusion

Within the confines of a retrospective review the observed rate of CAPA at our centre was much lower than has been reported elsewhere. Until this relationship is better characterised CAPA should remain on the differential of severe COVID-19 infection not responding to standard therapy.

Abstract supplement (free paper abstracts)

87: 10-year review of pathogens and their antimicrobial resistance patterns at a tertiary neonatal intensive care unit (NICU) in the North East of England. Do we have the right antibiotic policies?

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¹Newcastle Upon Tyne Hospitals NHS Foundation Trust

Background: The presentation of neonatal sepsis is typically non-specific, and empirical antimicrobial treatment is generally commenced before a causative organism is identified.

Aim: To define the susceptibilities and resistance patterns of the common causative pathogens in the neonatal unit.

Methods: Retrospective analysis of data from the microbiology department between 1st April 2010 and 31st March 2020. Data included all positive blood cultures, cerebrospinal fluid (CSF), and respiratory secretions (RS), together with their antimicrobial susceptibility and resistance profile.

Results: A total of 1642 positive cultures were identified in the 10-year period, from which 68.4% came from RS, 28.9% from BC and 2.7% from CSF. The five most prevalent organisms in all combined cultures were Coagulase negative staphylococci (CoNS), *Staphylococcus aureus*, *E. coli*, *Enterobacter* species and *Klebsiella pneumoniae*. CoNS was the most prevalent organism in BC and CSF. GBS was always susceptible to Penicillin and *E. coli* was resistant to Gentamicin in 5% of cases. CoNS was 100% susceptible to Vancomycin and Linezolid but mostly resistant to Gentamicin and Flucloxacillin.

Conclusion: Similar pathogens were seen to national data from other NICUs. No significant change in most prevalent pathogens in a 10-year period. First line antibiotics in our local guideline provided good coverage for early onset sepsis organisms. Second line antibiotics did not cover CoNS, for patients without central lines in situ. However, they provided good cover for all other prevalent pathogens involved in late onset sepsis. A study to look at clinical outcomes with current second line antibiotics is in progress.

Abstract supplement (free paper abstracts)

88: Mycotic Aneurysm due to Prostatitis

Mr Khalid Qureshi¹, Dr Omar Rahama¹, Ms Rosella Locci¹, Dr Sulman Hasnie¹, Dr Marco Lee²

¹Bradford Teaching Hospital, ²Airedale General Hospital

Presentation

76 year old fit and healthy male with fever, dysuria and back pain presented to A&E for the second time within 4 days, was originally treated as UTI on basis of symptoms and positive urine culture.

Investigations/Management

On admission, he was empirically treated with piperacillin/tazobactam and planned for CT scan in view of his ongoing symptoms and a positive blood culture with klebsiella pneumoniae. CT scan showed a ruptured mycotic abdominal aortic aneurysm with aorto-duodenal fistula and prostatic abscess with recto-prostatic fistula.

He was transferred to our hospital for vascular management where he underwent urgent endovascular repair (EVAR) with a future plan of explantation and surgical reconstruction in a controlled manner after antimicrobial therapy and nutritional support.

6 days later, he had CT-guided drainage of prostate abscess and antibiotics were changed to ceftriaxone 14 days post EVAR.

7 weeks after the stenting, he underwent explantation of the aortic stent and reconstruction of aorta with femoral veins and partial duodenectomy. Patient made a good post-operative recovery and was discharged after 11 weeks in hospital on oral co-trimoxazole for 4 weeks.

On follow up, he was clinically well and back to work.

His management involved a multi-disciplinary team of vascular surgeons, interventional radiologists, microbiologists, nutritionists and urologists.

Learning Points

Mycotic aortic aneurysm is a life threatening pathology and carries a very high mortality. MDT approach is important in managing such complicated cases and impacts positively on outcome.

Abstract supplement (free paper abstracts)

89: Local monitoring of microbiology and antimicrobial susceptibility in acute bacterial otitis media and rhinosinusitis in Ukrainian pediatric sample

Dr. Olha Shvaratska¹, Dr. Yurii Bolbot¹, Dr. Tina Bordiy¹, Dr. Svitlana Alifanova¹, Dr. Marina Kalichevskaya¹
¹Dnipropetrovsk Medical Academy

Bacterial airway and ear infections are the prevalent reason for ambulatory antibiotic use, which might be inappropriate. The study objective was to explore the local microbiology of pediatric acute bacterial otitis media (ABOM) and rhinosinusitis (ABRS) in association with actual antibiotic use patterns in Ukraine. We enrolled 214 children (6.0 (3.7; 12.0) years) with ongoing ABOM (31.8 %) or ABRS (68.2 %): 86 children with ≥ 4 episodes of ABOM/ABRS per year (recurrent course, group I) and 128 children with episodic ABOM/ABRS (group II). Preceding patterns of antimicrobial use, nasopharyngeal/middle ear exudates cultures and antibiotic susceptibility of agents were studied.

We obtained a conventional structure of isolates with *Streptococcus pneumoniae* predominance in ABOM (54 %) and *Haemophilus influenzae* predominance in ABRS (46.4 %); microbiology success rate was 74.8 %. In total, the level of susceptibility to the first-choice antimicrobials including aminopenicillins in local *S. pneumoniae* and *H. influenzae* strains and in resident bacteria strains (*Staphylococcus aureus*, *Haemophilus parainfluenzae*) was substantial (94-99 %), except for susceptibility to the first generation cephalosporins (about 60 %). Noticeably, 100.0 % of families in group I practiced self-prescription of antimicrobials versus 25.8 % in group II: 2.0 (0.0; 2.3) versus 0.0 (0.0; 0.1) times per year, respectively ($p < .001$). Simultaneously, *S. pneumoniae* and *S. aureus* strains obtained from group I demonstrated a decreased rate of ampicillin susceptibility (84-86 %).

Thus, recurrent ABOM and ABRS are associated with antimicrobial misuse. Reduced ampicillin susceptibility of pathogens and resident bacteria in these patients is an issue of concern.

Abstract supplement (free paper abstracts)

90: Operating room fomites as potential sources for microbial transmission in burns theatres

Miss Mariam Rela¹, Miss Sophia Opel¹, Miss Sarah Williams¹, Mr Declan Collins¹, Dr Kevin Martin², Dr Nabeela Mughal^{1,3,4}, Dr Luke Moore^{1,3,4}

¹Chelsea And Westminster NHS Foundation Trust, ²Department of Global Health and Infection, ³North West London Pathology, ⁴Imperial College London, NIHR Health Protection Research Unit in Healthcare Associated Infections and Antimicrobial Resistance

Background: Burns patients are susceptible to healthcare-associated infections. Contaminated surfaces play a role in microbial transmission - relevant in burns patients as they disperse organisms into the environment. This study aimed to quantify the degree of contamination of burns theatre equipment during routine clinical use.

Methods: The PAT slide and operating table were investigated using two methods - bacterial swabs and adenosine tri-phosphate (ATP) swabs as a measure of biological material. Both items were sampled four times a day: before the first case, immediately after a case, immediately before the next case after cleaning and after the terminal clean. The ATP luminometer provided instant results and the microbiology swabs were cultured using UK SMI guidelines and EUCAST breakpoints.

Results: Sampling was performed on 11 non-consecutive weekdays. Among 82 bacterial samples, four organisms were isolated, including *Staphylococcus aureus*, *Enterobacter cloacae* (x2) and *Pseudomonas* spp., all from the PAT slide. The *Enterobacter* persisted after cleaning. In 9/82 swabs, the ATP count was >10. Five of these swabs were taken immediately after a case, and in these instances, there was no significant reduction in ATP count after cleaning. In all cases where an organism was identified, the ATP count >10. Hence the sensitivity and specificity of ATP >10 in detecting an organism were 100% and 94% respectively.

Conclusions: Within burns theatres, there are instances of bacterial contamination on surfaces that persist despite cleaning. ATP luminometers as a point-of-care device may have a role in determining the cleanliness of surfaces, potentially minimizing onwards-bacterial transmission.

LSPM has consulted for bioMerieux (2013-2020), DNAelectronics (2015-18), Dairy Crest (2017-2018), Umovis Lab (2020), and Pfizer (2018-2020) received speaker fees from Profile Pharma (2018), received research grants from the National Institute for Health Research (2013-2020), CW+ Charity (2018-2020), and Leo Pharma (2016), and received educational support from Eumedica (2016-2018). NM has received speaker fees from Beyer (2016) and Pfizer (2019) and received educational support from Eumedica (2016) and Baxter (2017). All other authors have no conflicts of interest to declare.

Abstract supplement (free paper abstracts)

91: Are the use of manually operated electric floor scrubbers a mechanism by which Carbapenemase Producing Enterobacterales (CPE) could be dispersed within the healthcare environment?

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Waste tanks of eleven mechanical floor scrubbers across six hospital trusts were sampled; four contained CPE. Effective cleaning is critical to hospital infection control, yet little has been done to determine if cleaning procedures can aerosolise potential pathogens from surfaces or cleaning equipment; transferring them to more critical surfaces. This study aimed to determine if a mechanical floor scrubber could disperse microorganisms.

Experiments were carried out within an environmental test chamber. High concentrations of marker organisms were used to contaminate the floor (*Bacillus atrophaeus*), the clean water tank (*Geobacillus stearothermophilus*), and waste water tank (*Escherichia coli*) of a floor scrubber (a type common in hospitals). Passive and active air samples were taken whilst the scrubber was operated for 2.5 min for three different programmes (scrubbing and drying; scrubbing; drying).

Significantly more *B. atrophaeus* aerosols were generated without the drying function than with ($p=0.02$). Most particles recovered were $<3\mu\text{m}$ diameter and were from air samples taken 80cm above the floor. *G. stearothermophilus* was recovered from samples taken 30cm above the floor and only in the absence of drying. *E. coli* was not recovered from any air sample.

This study demonstrated that under certain conditions a floor scrubber may disperse microorganisms. Results suggest that organisms are more likely aerosolised from the floor than from the machine itself, implying dispersal is caused by the scrubbing action (e.g. rotating brush) rather than model of floor scrubber. Work will continue with different types of floor scrubber to strengthen this hypothesis and investigate potential mitigation strategies.

Abstract supplement (free paper abstracts)

92: SARS-CoV-2 confirmatory testing in a low prevalence setting helps guide protocols for the future

Dr Michael Wilson¹, Dr Dominic Sparkes², Dr Jordan Skittrall¹, Dr Anna Smielewska³, Mrs Chloe Myers⁴, Dr Mir Hussain⁴, Dr Chris Smith⁴, Dr Kathryn Rolfe⁴, Dr Hongyi Zhang⁴, Dr Hamid Jalal⁴

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Introduction:

As the prevalence of COVID-19 fell and the number of tests for SARS-CoV-2 increased, the concern for false positive results grew. In a low prevalence setting, the proportion of false positives is higher. On 22-06-20 confirmatory testing was initiated on all new positive SARS-CoV-2 results to investigate this.

Methods:

Our laboratory has two SARS-CoV-2 testing platforms: in-house RT-PCR and Hologic Aptima SARS-CoV-2 assay. New positive samples were re-extracted and re-run on the same and alternative platform, giving 3 results. We interpreted these as confirmed if 3/3 or 2/3 tests were positive or not confirmed (false positive) if 1/3 tests were positive. If insufficient sample for 3 tests, we interpreted 2/2 positive as confirmed or 1/2 positive as indeterminate.

Results:

Between 22-06-20 and 31-08-20 we performed 55,396 tests. There were 203 positive results of which 108 were new positives. 69/108 (64%) were confirmed positive, 31/108 (29%) were false positive, 8/108 (7%) were indeterminate. For initial positive results on Hologic Aptima if the relative light units were > 1000 (N=56) the positive predictive value was 98%, if <1000 (N=38) the positive predictive value was 32%. There were insufficient samples for analysis of the in-house assay.

Discussion:

We identified a considerable number of false positive results illustrating the importance of confirmatory testing. As prevalence and thus number of positive tests increases, resources and capacity may mean confirmatory testing is impractical on every positive. Our analysis suggests it will remain important to confirm samples with RLU<1000. Up-to-date results to follow at the meeting.

Abstract supplement (free paper abstracts)

93: Utility of repeat Covid-19 Testing in the Mid West of Ireland

Dr Jillian O Keeffe¹, Dr Patrick Stapleton¹, Dr Lorraine Power¹, Dr Nuala O Connell¹, James Powell¹, Derry O'Rourke¹, Colm McDonnell¹

¹University Hospital Limerick

We reviewed Sars-CoV-2 PCR results from initiation of testing in the Mid West of Ireland on 7th February until 24th April 2020, encompassing all community and hospital tests in the region of approximately 385,000. During this time period, testing was restricted to individuals with symptoms of Covid-19, as this was prior to initiation of mass testing of asymptomatic residential care facility residents and staff.

Upper respiratory tract swabs and sputum analysis were tested locally or in the National Virus Reference Laboratory. 8,614 individuals were tested at least once for Sars-CoV-2, with 9,633 separate tests performed. Laboratory rules required discussion with a microbiologist if a third swab test or a second sputum test was requested for a particular individual.

Of individuals with laboratory confirmed Covid-19 infection, 95.7% were detected on PCR of first clinical sample. 99.9% of individuals were detected by the second sample within a fourteen day period. Cycle threshold values for this latter cohort were generally ≥ 35 . The remaining 0.1% represented a dialysis patient with a "Detected" result fourteen days after a "Not Detected" swab result. First detections on sputum represented only 0.3% of first detections and only three of 98 individuals with sputum testing. Testing more than two clinical samples (either NPS or sputum) did not result in the detection of new cases who were likely to be infectious to others (Ct values <35).

Abstract supplement (free paper abstracts)

94: The role of antimicrobial dosing in patients with sepsis-induced acute kidney injury; a single centre observational study.

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¹Chelsea and Westminster NHS Foundation Trust, ²North West London Pathology, Imperial College Healthcare NHS Trust

Introduction

We undertook a retrospective observational study to identify the incidence of AKI in patients presenting with Gram negative sepsis, the impact of antimicrobial dosing and selection and outcomes associated with AKI.

Methods

All adult in-patients with Gram negative sepsis (April 2016 – March 2020) were analysed across a large acute Trust in London (UK). Patient demographics microbiology data and patient outcome were extracted.

Results

A total of 647 episodes of Gram negative bacteraemia were included in this study (50.2% male; median 71years). AKI was present in 235/647 (36.3%) of episodes, with 78/647 (12.1%) and 45/647 (7.0%) having KDIGO defined injury or failure, respectively. In patients with AKI 2 / 3 not requiring filtration, aminoglycosides were prescribed in 86/105 of cases [median dose of amikacin 15mg/kg and gentamicin 5mg/kg]. Beta-lactam based therapy was prescribed in 97/105 of cases with full licensed dosing (unadjusted for renal dysfunction) utilised in 86/97 (88.7%) cases. The in-hospital 30-day mortality was higher in patients presenting with AKI 2/3 (21.1%) than those with presenting with normal renal function (7.1%) [p= 0.0001]. High-dose antimicrobials and aminoglycoside use did not negatively impact on renal function at day 21 or discharge with recovery of function in 105/106 of surviving patients.

Conclusions

Early aggressive dosed antimicrobials, including use of aminoglycosides, in the first 48hours of AKI is not shown to adversely impact on renal function recovery. Dose adjustments are not required in this initial phase and appropriately dosed treatment can facilitate early resolution of AKI.

Dr Moore is a member of the FIS conference committee

Abstract supplement (free paper abstracts)

96: A Retrospective Analysis of Enterococcus faecium Bacteraemias in NHS Greater Glasgow and Clyde in 2019

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¹NHS Greater Glasgow And Clyde

Background: Vancomycin resistant enterococcal (VRE) bacteraemia is an infection with significant patient mortality. Scotland has the second highest rates of VRE bacteraemia in Europe, with 43.2% of Enterococcus faecium isolates reported as resistant in 2018. These are difficult to treat infections and more research is needed into risk factors for developing a VRE bacteraemia so that prevention strategies can be developed.

Methods: A retrospective analysis was performed on all adult patients who had a first incidence of an E. faecium bacteraemia within NHS Greater Glasgow and Clyde in 2019. There was a total of 66 patients with vancomycin sensitive (VSE) bacteraemia and 48 patients with VRE bacteraemia. Ten patients were excluded from the data concerning antibiotics as they had incomplete notes available for analysis.

Results: Duration of hospital admission prior to developing bacteraemia was higher in VRE bacteraemia patients; VSE bacteraemia patients developed a bacteraemia after a mean of 18.2 days of admission compared to VRE bacteraemia patients who developed a bacteraemia after a mean of 33.9 days. Patients present on certain wards when developing were more likely to develop VRE bacteraemia. The proportion of VRE bacteraemia was higher in haematology wards (15/24 cases) and oncology wards (7/7 cases). Duration of exposure to different antibiotics also affected likelihood of VRE bacteraemia.

Conclusion: Increased duration of hospital admission and antibiotic exposure was associated with an increased risk of developing VRE bacteraemia.

Abstract supplement (free paper abstracts)

98: A Retrospective Study exploring the impact of changes to the Vancomycin Order Panel in the Hospital Electronic Prescribing (EP) System on vancomycin prescribing and therapeutic drug monitoring.

Susannah Burrows¹, Reem Santos¹, Dr Christianne Micallef¹

¹Cambridge University Hospitals NHS Foundation Trust

Background: Vancomycin is a glycopeptide antibiotic requiring therapeutic drug monitoring. For safe and appropriate prescribing of trough levels, the prescribing template for intravenous (IV) vancomycin was amended to include a set of prompts, including questions regarding renal function, to encourage prescribers to adhere to the trust's monitoring guidelines.

Method: Data for this study included a randomised sample of 90 patients who were initiated on IV vancomycin between the 30th September 2019 and 31st October 2019. Data was retrospectively obtained from the EP system which included patient demographics, biochemistry results, administration charts and pharmacist intervention notes, known as iVents. Analysing data was undertaken to interpret if levels were taken at the appropriate time for the patient's renal function and whether ward pharmacists had intervened and if so, appropriately.

Results: 87/90 (97%) patients' prescribers had answered the prompt questions but only 67 of these 87 (78%) patients had their renal function correctly identified at the time of the prescribing of the initial vancomycin dose. 45/85 (53%) patients then went on to have their first vancomycin trough level taken at the correct time as per the trust guidelines, five patients could not be included due to their vancomycin stopped prior to the level. 70/90 (77%) patients had iVents made by pharmacists regarding vancomycin levels.

Conclusion: Overall, the prompts were being used when IV vancomycin was being initiated. However, there is still improvement to be done to encourage prescribers to ensure the first trough level is prescribed according to the patient's renal function.

Abstract supplement (free paper abstracts)

99: Supporting One Health: scoping review of approaches for improving antimicrobial stewardship in livestock farmers and veterinarians

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¹Glasgow Caledonian University, ²University of Strathclyde, ³Health Protection Scotland, NHS Scotland

Background: Antimicrobial resistance is a global threat to human and animal health; although, steps to mitigate this problem are already being taken in many countries. However, a joint effort is required from both, a human and an animal perspective, but little is known about approaches for improving antimicrobial stewardship (AMS) in livestock farmers and veterinarians. Thus, a scoping review was conducted to summarise the range, and nature of such evidence.

Methods: Six electronic databases were searched in November 2017 for empirical studies related to antimicrobial use in livestock, in the context of animal farming or veterinary practices with outcomes related to the change in farmers' or veterinarians' AMS behaviour, or factors influencing such behaviours. Relevant evidence was synthesised per livestock sector for intervention and non-intervention studies.

Results: The evidence base for effective interventions was limited with only seven of the included 52 studies evaluating interventions. However, improvement in AMS behaviour was demonstrated for educational intervention in European cattle farmers and the Yellow Card scheme for Danish pig farmers. The 45 non-intervention studies showed that significant facilitators to veterinarians' prudent prescribing in the cattle and pig sectors included provision of additional education, and making diagnostic tests available, while for farmers, regardless of the livestock category, improving farm management practices and animal husbandry.

Conclusions: The review provides best currently available evidence on the effectiveness of interventions and significant facilitators to farmers' and veterinarians' AMS to guide improvements in livestock sectors and for supporting the collective, One Health approach for tackling antimicrobial resistance.

Abstract supplement (free paper abstracts)

100: An unusual diagnosis of neck pain: Sternoclavicular osteomyelitis secondary to *Aggregatibacter aphrophilus*

Dr Maithili Varadarajan¹, Dr Monica Ivan², Lead OPAT Clinical Nurse Specialist Laura MacLachlan²

¹*Kings College Hospital NHS Foundation Trust*, ²*Hull University Teaching Hospitals*

Aggregatibacter aphrophilus (AA) is a small fastidious gram-negative coccobacilli. Although osteoarticular infections can be caused by the organism, these infections are rare with approximately 50 cases reported. We describe a case of sternoclavicular osteomyelitis secondary to *Aggregatibacter aphrophilus*.

A 48-year-old man with a previous subarachnoid haemorrhage presented to A&E with sudden severe neck pain radiating to his right shoulder and neck stiffness. He denied any other symptoms. On admission, his observations were unremarkable. His GCS was 15/15. His cranial nerves were intact with normal tone and power in both upper and lower limbs. Examination of his right shoulder showed no erythema or swelling. However, palpation of the sternocleidomastoid elicited severe pain. Range of movement was limited due to pain. During his admission, the following day the patient became febrile with temperatures of 38.5C.

Initial bloods showed normal inflammatory markers. CT head was performed with no abnormalities detected. Lumbar puncture within the first 24 hours revealed no xanthochromia, normal white cells, protein and glucose. An MRI showed right sternoclavicular joint infection with likely collection in the right anterior pectoralis muscle. Two blood cultures grew *Aggregatibacter aphrophilus*. Resistance to Penicillin, Cefotaxime and Moxifloxacin was noted.

The patient was treated with appropriate antibiotic therapy including 6 weeks of intravenous treatment including Ertapenam and Co- trimoxazole followed by six weeks of oral Doxycycline. After 12 weeks of treatment, the patient recovered with good range of movement of the shoulder joint and his inflammatory markers remain within normal range.

Abstract supplement (free paper abstracts)

101: Impact of a dedicated *Clostridium difficile* infection isolation ward on clinical outcomes

Maithili Varadarajan¹, Dr Gavin Barlow²

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Clostridium difficile infection (CDI) is a globally important adverse event of antibiotic exposure that often results in prolonged hospital admission. In 2012, a dedicated CDI ward at Hull University Teaching Hospitals (HUTS) was opened; it closed in 2016 following a sustained reduction in incidence. The aim of this study is to assess the impact of the dedicated ward on short and longer-term clinical outcomes.

From all CDI patients treated at HUTS during the periods before (N = 148, 04/10-12/11), during (N = 332, 04/12-05/16) and after (N = 89, 09/16-12/18) the CDI unit was open, a random sample of N = 75 patients was selected for each period (N = 223). Data including age, co-morbidities, clinical data, treatment and outcomes was collected from discharge letters and hospital/laboratory systems. Data was analysed using STATA. Predictor variables with $p \leq 0.1$ by univariate analyses were included in multivariate logistic regression analyses.

The median age of patients was 76, 80 and 78 years in the before, during and after periods. The commonest ribotypes were 001 (13%) and 078 (13%). 53% of patients were treated with Vancomycin. 28%, 16% and 23% of patients died within 30-days in the before, during and after periods. Admission to the CDI unit was not significantly associated with outcomes.

The dedicated CDI ward had no identifiable impact on outcomes. However, variables associated with the nature of the patient and severity of infection at onset were independent predictors of negative outcomes; suggesting that these are more important in determining CDI outcomes.

Abstract supplement (free paper abstracts)

102: A local audit on the initiation and dosing of gentamicin on surgical patients

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¹Whiston Hospital

Introduction:

A recent update of our trust antibiotic policy saw a return to gentamicin as the first-line empirical treatment for many surgical conditions including pyelonephritis, biliary sepsis and intra-abdominal sepsis. We had previously introduced a gentamicin dosing chart and recently implemented a smart device application with the aim to reduce prescribing errors related to gentamicin. Hence, for this audit, we aimed to investigate if gentamicin had been initiated and dosed appropriately within surgical wards at Whiston Hospital.

Methods:

Two audit cycles were conducted from June 2019 to June 2020 across General Surgery and Urology Ward at Whiston Hospital. We identified patients who had been prescribed gentamicin using Electronic Prescription charts and subsequently audited the documentation, dosing and administration of gentamicin for each case.

Results:

A total of 148 patients were included in the two audits. We demonstrated a significant improvement from the first audit in that almost all patients were correctly initiated on gentamicin. With the introduction of the gentamicin chart, all patients had a gentamicin chart started but only one-third of them were fully completed. However, only around 50% of patients had the correct initial dose of gentamicin prescribed. A considerable delay in gentamicin administration remained an outstanding issue.

Conclusion:

This study has highlighted that gentamicin initiation and dosing could be greatly improved following the introduction of a simple gentamicin dosing chart with an accompanying smart device application. Future audit will aim towards implementing these to emergency care physicians and reducing the delay in gentamicin administration by nursing staff.

Abstract supplement (free paper abstracts)

103: A Rare Case of Eumycetoma of the Hand in an Immunocompetent Patient: A Neglected Tropical Disease Lacking in Accurate Incidence/Prevalence Data and Which Poses Particular Diagnostic and Therapeutic Challenges.

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¹Newcastle upon Tyne Hospitals NHS Foundation Trust

Background:

Mycetoma is a progressive destructive disease, likely acquired by traumatic inoculation of fungi or filamentous bacteria, commonly involving the foot.

Methods:

Report of a rare case of Eumycetoma of the hand caused by the pathogenic mold *Phaeoacremonium kraidenii* in an immunocompetent patient.

Results:

A 44 year old man of Goan descent presents with 9 months of intermittent painful swelling of his left hand. The 2nd metacarpal(MC) bone was diffusely swollen and tender, with no erythema, sinus tract or skin changes. MRI revealed cortical thickening of the 2ndMC with enhancement of surrounding soft tissues suggestive of osteomyelitis. Surgical bone/tissue biopsy sent for microscopy, culture and histology reveals fungal hyphae with conidia and eosinophilic-clubshaped-bodies. Cous-Cous-like white grains discharged postoperatively from the wound and grew *Phaeoacremonium kraidenii* after 2 weeks, confirmed by 18s PCR. *Phaeoacremonium* species have shown in vitro susceptibility to various antifungals and oral posaconazole was commenced with a good response.

Conclusions:

A high index of suspicion is required for the diagnosis of Eumycetoma of the hands, particularly if the triad of painless subcutaneous mass, multiple sinuses and discharge containing grains is not present. Characterization of the causative pathogen can be difficult, requiring invasive surgical sampling, dedicated culture and staining facilities. There are currently no established breakpoints for filamentous fungi treatment. Eumycetoma require prolonged treatment, which can be difficult, and unsatisfactory, even when the causative organism is identified. Azoles are used but are expensive, not always available, and may fail to eradicate the fungus, leading to recurrence or even amputation.

Abstract supplement (free paper abstracts)

104: *Fusarium* keratitis: a challenging diagnosis and long road to recovery

Dr Razan Saman¹, Dr Kavita Sethi¹, Ms Seema Anand¹, Miss Jennifer Ratner¹

¹*Leeds Teaching Hospitals Trust*

A female patient presented with pain, photophobia and moderate loss of visual acuity in the left eye; a central corneal ulcer was diagnosed.

Topical ofloxacin and cefuroxime were commenced following a corneal scrape which was negative for bacterial growth and *acanthamoeba* PCR. Further deterioration in vision prompted another corneal scrape and treatment for *acanthamoeba* keratitis despite repeatedly negative microbiology, given the history of contact lens wear while swimming. The hypopyon and size of infiltrate further increased. The patient was referred for confocal microscopy which showed possible septate fungal hyphae. She was empirically commenced on topical natamycin with oral voriconazole. Due to continued progression with possible extension to the limbus superiorly, therapeutic penetrating keratoplasty was performed.

The excised corneal button grew *Fusarium solani* complex. Topical natamycin, amphotericin B, levofloxacin, and oral voriconazole were started. There was early recurrence of infection in the anterior chamber but no graft infiltrate. Multiple intracameral and intrastromal voriconazole injections with anterior chamber washouts were performed, but infection in the anterior chamber persisted.

Sensitivity testing revealed pan-azole resistance, but sensitivity to natamycin and amphotericin B. Treatment was switched to intracameral/intrastromal amphotericin B, topical chlorhexidine and natamycin, with improvement.

To date there is no recurrence of infection and the graft remains clear. This case demonstrates that *Fusarium* keratitis, though rare in temperate climates can be associated with contact lens wear. It is notoriously difficult to diagnose and requires a high index of suspicion. In the presence of voriconazole resistance, amphotericin B was used successfully as an alternative.

Not applicable

Abstract supplement (free paper abstracts)

105: Decision making on the route and duration of antibiotic therapy in acute cellulitis: A systematic review and meta-analyses considering the effectiveness and harms of antibiotic treatment.

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Background

Compared with guideline recommendations, antibiotic overuse is common in treating cellulitis. Clinicians can limit overuse by minimising intravenous (IV) and overall treatment duration. We conducted a systematic review and meta-analyses to inform decisions on the route and duration of antibiotic treatment for cellulitis in adults and children.

Methods

We searched MEDLINE, EMBASE and trial registries from inception to Dec 11, 2019 for interventional and observational studies of antibiotic treatment for cellulitis. Exclusions included case series/reports, pre-septal/orbital cellulitis and non-English language articles. Dual data extraction, risk of bias and quality assessment were performed. Random-effects meta-analyses were used to produce summary relative risk (RR) estimates for our primary outcome of clinical response. PROSPERO:CRD42018100602.

Results

We included 47/8423 articles, incorporating data from eleven trials (1855 patients) in two meta-analyses. The overall risk of bias was moderate. Only two trials compared the same antibiotic agent in each group. We found no evidence of difference in clinical response rates for antibiotic route or duration (RR(oral:IV)=1.12, 95%CI 0.98-1.27, I²=32% and RR(shorter:longer)=0.99, 95%CI 0.96-1.03, I² = 0%, respectively).

Observational data suggest that prior cellulitis, illness severity and certain comorbidities are likely to be important in influencing clinical outcomes. Follow-up data beyond 30 days were sparse (8/47).

Conclusions

The evidence base for antibiotic treatment decisions in cellulitis is flawed by biased comparisons, short follow-up and lack of data around harms of antibiotic overuse, which hampers clinical decision making. The challenge for future research is personalising treatment decisions about duration of therapy to reduce unnecessary antibiotic use.

None to declare.

Abstract supplement (free paper abstracts)

106: Immunodeficiency Screening in Invasive Infections with Encapsulated Bacteria

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Invasive infections with encapsulated organisms are associated with primary and secondary immunodeficiency syndromes in adults. The European Society for Immunodeficiencies recommends screening those presenting with two or more infections; however this approach may miss the 'golden window' to diagnose and treat the underlying immunodeficiency

A retrospective review of invasive infections by encapsulated organisms at the University Hospitals North Midlands Trust was performed. Electronic laboratory system was interrogated for culture results of *S. pneumoniae*, *H. influenzae* and *N. meningitidis* in blood, CSF and joint fluid between 01/08/2018 to 31/12/2019 (2 years) in adults aged >18. Electronic patient and pathology records were reviewed for medical history, diagnoses, HIV serology, all serum immunoglobulin and protein electrophoresis (SPEP) results.

A total of 193 patients were identified, with median age of 68. 97.4% (191/193) of samples were blood cultures with one CSF and three joint fluid samples. *S. pneumoniae* was predominant (N=176, 91.2%; *N. meningitidis* (N=5, 2.6%) and *H. influenzae* (N=15, 7.8%). 90-day mortality was 24%. 39% (76/193) of patients had an HIV test; of the 117 who did not, 32 were <65 yrs. 9% had immunoglobulins measured (76% abnormal) and 7% had SPEP performed (86% abnormal). 13% of patients had either known Myeloma or a paraproteinaemia detected at some point, all in >50yr olds.

In this cohort, there was a high mortality and a high prevalence of myeloma and paraproteinaemia in the >50yr group. Testing for HIV and immunodeficiency was low even in the <65yrs group and hence prevalence for immunodeficiencies is unknown.

None

Abstract supplement (free paper abstracts)

107: Investigation of a coronavirus disease 2019 (COVID-19) outbreak in an elderly nursing home in France.

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At the end of march 2020, a nursing home located in the Île-de-France region reported several cases of acute respiratory infections among residents and staff. In the context of COVID-19 pandemic, nasopharyngeal swabs were collected, the results were positive for SARS-CoV-2 virus. An epidemiological investigation was carried out to look for possible risk factors and follow the trend of the epidemic.

A prospective cohort study was performed with active identification of cases. A SARS-CoV-2 mass screening with nasopharyngeal swabs was done to all residents and staff. Cases of COVID-19 were defined as individuals who tested positive by SARS-CoV-2 RT-PCR assay for nasopharyngeal swabs. Cases surveillance continued for two weeks after the last diagnosed case.

From 27 March to 26 May 2020, 69 cases of COVID-19 were identified, divided into 52 residents and 17 staff. The overall Attack Rate (AR) was 37.2% (69/188) : residents AR = 41.2% (52/126), staff AR = 27.4% (17/62). The fatality rate of residents with confirmed COVID-19 was 25% (13/52).

In a multivariate Poisson regression model, living in a dementia care unit was identified as a major risk factor (significantly association with the disease: RR=2.8; p <0.001).

Control measures implemented have probably played a major role in reducing the occurrence of new cases.

The investigation contributed to highlight the increased risk of SARS-CoV-2 transmission for residents living in dementia care unit. Residents and staff in nursing homes, especially those in dementia care units should be given top priority for a COVID-19 vaccine once it becomes available.

Abstract supplement (free paper abstracts)

108: Temocillin 4g or 6g? Breakpoints vs Practise

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Background: Temocillin's narrow-spectrum Gram-negative activity stable against ESBL, AmpC and some KPC CPE organisms making it a viable carbapenem sparing option. Recent EUCAST (2020) recommendations advise 6g/day dosing for pathogens with MIC 0.001 - 16mg/L, associated with higher costs than the previous 4g/day dosing regimen. We report clinical outcomes of patients treated with 4g/day dosing to determine the need for high-dosed regimens.

Method: A single-centre, retrospective cohort study was conducted assessing all temocillin prescriptions (≥ 3 days) between March-2016 and October-2019. Success was defined as patient survival, no use of broad-spectrum agent for the same indication, no subsequent same-organ infection, and no *C. difficile*, occurring within 30 days of temocillin use. The study was registered as service improvement project.

Results: 212 prescriptions met the inclusion criteria. 142 for urinary tract infections (UTI), 58 lower respiratory infections and 12 unlicensed indications. Mean patient age 79 years (42% female). 209/212 prescriptions were at a 4g/day dose or renally adjusted equivalent. 60% of patients had a resistant Enterobacterales cultured. Overall success rate was 77.4%, highest in UTI; 83.8% ($p=0.002$). Of failures: 16 died, 18 required escalation of therapy, and 19 developed a repeat infection of the same body system. 1,250 days of carbapenem therapy were spared during the study period.

Discussion: This local data supports the use of temocillin as a treatment option for resistant Gram-negative infections. Acceptable clinical outcomes are reported in this group at doses of 4g/day. This real-world data supports the carbapenem-sparing strategy of using temocillin 4g/day for complex Gram-negative infections. LSPM has consulted for bioMerieux (2013-2020), DNAelectronics (2015), Dairy Crest (2017-2018), Pfizer (2018-2020), and Umovis Lab (2020), received speaker fees from Profile Pharma (2018), received research grants from the National Institute for Health Research (2013-2019), Leo Pharma (2016), and CW+ Charity (2018-2019), and received educational support from Eumedica (2016-2017). All other authors have no conflicts of interest to declare.

Abstract supplement (free paper abstracts)

110: Evaluation of Aspergillus Lateral Flow Device in the diagnosis of Invasive Fungal Infections

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Despite the moderate sensitivity and specificity, Aspergillus Galactomannan (GM) is increasingly used in diagnosing invasive fungal infections (IFI). The aim is to evaluate the clinical utility of Aspergillus Lateral Flow Device (AspLFD; OLM diagnostics) in diagnosing IFI.

AspLFD was performed on serum (n=259) and BAL (n=96) samples routinely tested for GM. Clinical information and antifungal treatment were collated for the discordant results.

The AspLFD and GM results agreed in 81% of serum and BAL samples. Agreement was higher in GM and AspLFD negative results (86% vs 62%). The remaining 19% the AspLFD and GM results were discordant. This included 50 serum (15 GM positive AspLFD negative and 35 GM negative AspLFD positive) and 19 BALs (14 GM positive AspLFD negative and 5 GM negative and AspLFD positive).

Clinical information was retrieved in 27 samples. Three patients with positive AspLFD (GM negative) in serum, had features consistent with probable (n=1) and possible (n=2) IFI. Three patients with positive AspLFD (GM negative) in BAL also had probable (n=2) and possible (n=1) IFI. There was no evidence of IFI in 5 patients who had a positive GM (AspLFD negative).

The target antigens detected by GM and AspLFD are different and these may be circulating at different levels and times in the body. This could explain the 19% disagreement between the two assays. The positive AspLFD (GM negative) in 6 patients with IFI needs careful scrutiny. The short turnaround time of AspLFD could improve diagnosing IFI and antifungal stewardship.

Abstract supplement (free paper abstracts)

111: A retrospective audit reviewing the safety of Teicoplanin administered via the Outpatient Parenteral Antimicrobial Therapy (OPAT) service, over a 5-year period.

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¹Leeds Teaching Hospitals Nhs Trust

The OPAT service is used to administer intravenous antibiotics, without a need for on-going hospitalisation. However, prolonged courses of treatment are often administered.

This audit was prompted by the adverse effects updated in the summary of product characteristics (SPC) in 2019. The aim was to establish if these adverse effects were reflected in patients using the OPAT service, as they were stated as uncommon. They included:

- Increased transaminases
- Increased blood alkaline phosphatase
- Increased blood creatinine

Of the 222 patients included in this study, 32% experienced some form of adverse effect. The three most common types were blood and lymphatic system disorders (eosinophilia, thrombocytopenia, leukopenia, agranulocytosis, neutropenia) accounting for 22%, renal disorders including raised creatinine or urea accounting for 19% and liver abnormalities (raised transaminases or raised alkaline phosphatases) accounting for 18%.

This is a significant finding as the third most common side effect is not currently in the Leeds Teaching Hospitals NHS Trust guidelines. In summary, the data collected in this study reflects the addition in the SPC that liver function tests (LFT's) are affected by teicoplanin treatment.

Some of the recommendations from this audit include:

- Amending the 'LTH Teicoplanin guidelines for adult patients', to include liver abnormalities as a listed adverse effect.
- Advising clinicians to prescribe teicoplanin with caution in patients with pre-existing liver impairment
- Performing a similar audit reviewing the safety of teicoplanin in OPAT patients compared to inpatients

Abstract supplement (free paper abstracts)

113: USE OF HIGH FLOW NASAL OXYGEN IN COVID-19: EXPERIENCE FROM A UK

TEACHING HOSPITAL

Dr Mariya Molai¹, Dr Tanaraj Perinpanathan¹, Dr Rosa McGing¹, Dr Gavin Barlow¹, Dr Nicholas Easom¹

¹Hull University And Teaching Hospitals NHS Trust

Background COVID-19 was declared a public health emergency of international concern in March 2020. Patients commonly present with hypoxia progressing to acute respiratory distress. A key clinical decision is the selection of the mode of oxygen delivery. High flow nasal oxygen (HFNO) offers humidified high FiO₂ delivery, provides PEEP and improves oxygenation. HFNO does not require specialist teams to initiate and manage, and the humidified oxygen improves patient adherence and comfort. We present our experience of HFNO in type 1 respiratory failure (T1RF) due to COVID-19.

Materials Data was collected retrospectively for COVID-19 patients admitted to the High Consequences Infectious Diseases unit at Hull University Teaching Hospitals (UK), March-June 2020, presenting with T1RF and requiring high oxygen requirements (FiO₂>40%) in whom HFNO was commenced. Clinical data was extracted from electronic records. Outcomes included the proportion of patients requiring ICU admission, intubation, mortality and complications of therapy.

Results: 76% were males with median age 67 years with mean duration of HFNO=4.7 days. Overall survival to discharge was 59% (N=10).33% avoided ICU admission.

Conclusion: Our experience with HFNO is promising. More than one-third of patients deemed inappropriate for ICU survived, and of patients suitable for ICU, one-third avoided ICU admission from the use of HFNO.

Additionally, half of patients admitted to ICU continued HFNO and were not intubated. HFNO also appeared to be useful post-ICU. In this small cohort, HFNO appeared to be associated with avoidance of ICU and intubation for some patients. The results of randomised controlled trials are required.

The authors declare that there is no conflict of interest

Abstract supplement (free paper abstracts)

114: Hospital-acquired pneumonia: data supporting the use of doxycycline in a large subgroup of patients

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Hospital-acquired pneumonia (HAP) outside of the intensive care unit (non-ICU HAP) is understudied. Gram-negative bacilli are considered common HAP pathogens and international guidelines recommend broad-spectrum gram-negative antimicrobial coverage. The empiric use of doxycycline is unsupported by clinical trial or observational data. This retrospective observational study reports outcomes of a cohort of non-ICU HAP patients treated without broad-spectrum gram-negative coverage.

Cases were adults in non-ICU wards in two tertiary care hospitals in Edinburgh from July 2018–July 2019, who had new/progressive chest X-ray consolidation ≥ 48 hours after admission and documented symptoms/signs of pneumonia.

200 patients were identified, with median age 77, a median of 2 comorbidities, and an overall low severity of illness defined by SIRS and qSOFA. Microbiological evidence of Enterobacteriaceae or *Pseudomonas aeruginosa* (N=12) was associated with number of comorbidities, and specifically chronic obstructive pulmonary disease. Treatment failure occurred in 30% of cases (antimicrobial escalation, 18%; HAP-attributable mortality, 16%), and was associated with new/increased oxygen requirements and urea >5.5 mmol/L. 61% of patients were treated without empiric broad-spectrum Gram-negative coverage, most often doxycycline (95.9%), with clinical cure in 69.7%. The following were associated with treatment failure in this subgroup: new/increased oxygen requirements (OR, 10.9), prior doxycycline treatment (OR, 8.2), diabetes mellitus (OR, 7.5), a neutrophil count $>6.2 \times 10^9/L$ (OR, 3.9), respiratory rate $>18/\text{minute}$ (OR, 3.5).

In summary, a large subgroup of patients with non-ICU HAP were treated successfully without broad-spectrum Gram-negative antimicrobial coverage, identifiable by lower disease severity markers, an absence of diabetes mellitus, and no prior doxycycline treatment.

Abstract supplement (free paper abstracts)

115: An Evaluation of Beta D-Glucan Testing as an Antimicrobial Stewardship Tool in a Tertiary Referral Hospital

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Background: Detection of Beta D-Glucan (BDG) in sera can indicate a fungal infection. A positive test can contribute to early diagnosis whereas a negative result can rule out a fungal infection and be used as an antimicrobial stewardship (AMS) tool.

Aim: To evaluate BDG as an AMS tool.

Methods: All patients with a BDG test over a 5 month period were included. Data was collected from the laboratory information system and electronic patient record. Data recorded included result, indication, impact of the result on diagnosis or antifungal therapy, cost savings in antifungal therapy.

Results: Total number of tests was 162 (n=162), 53 positives and 109 negatives. 16 new positive results contributed to early diagnosis and treatment of fungal infections and 36 positives were repeats. 1 positive was considered falsely positive. Of 109 negative tests, 28 directly resulted in antifungal therapy being avoided or stopped, with a cost saving of €79,668. A further 44 negative tests contributed to the avoidance of empiric antifungal therapy and 19 negatives were repeats. 13 negative tests were in patients that were critically ill and/or with an unclear diagnosis, where the result did not have an AMS impact. 3 patients died before the result was available, and 2 negatives were deemed to be falsely negative.

Conclusion: BDG testing contributes to the improved diagnosis of fungal infections and a negative BDG has value as an AMS tool. 72 negative results contributed to the avoidance or cessation of antifungal therapy with a clear cost saving.

Abstract supplement (free paper abstracts)

118: The effect of Infection Control measures on the rates of nosocomial COVID-19 infection in a suburban hospital over time

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Background: The first patient testing positive for SARS-CoV-2 at Walsall Manor Hospital was on 10 March 2020. Ever since, cases have risen. Rigorous Infection Confection measures were implemented to curb transmission within the hospital and we sought to analyse the effect of such measures on the rate of nosocomial COVID-19 cases over time.

Methods: Retrospective data collection from the electronic records of 616 patients who tested positive for SARS-CoV-2 at the hospital was undertaken. Date of admission and date of first positive PCR test was collected. Length of stay in hospital prior to testing positive for SARS-CoV-2 was subsequently calculated. Patients were classed as Hospital acquired COVID-19 if they had a length of stay greater than 7 days before testing positive for SARS-CoV-2 as per NHS regulatory guidelines. The date at which different Infection Control measures were implemented in the hospital was recorded and analysed with respect to nosocomial infection rates.

Results: Changes in PPE guidance and retesting asymptomatic patients saw a subsequent increase in nosocomial infection rates. Restricting access to visitors, PPE usage for all patient contact, discharging COVID-19 patients and introduction of the COVID-19 antibody test saw a decrease in nosocomial infection rates. COVID-19 testing being extended for all inpatients and non-elective admission also saw a fall in nosocomial infection rates.

Conclusions: Various Infection Control measures implemented in the hospital saw a decrease in nosocomial infection rates, most notably advising PPE usage for all patient contact and extending testing for all inpatients.

Abstract supplement (free paper abstracts)

119: International travel and admission to hospital when back home: travel behaviour, risk perception and carriage of highly resistant microorganisms of patients admitted to a large tertiary care hospital

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Background. When people who recently travelled to countries with a high prevalence of highly resistant microorganisms (HRMO) are admitted to a hospital back home, there is a risk of introducing HRMO into the hospital. To minimize this risk, a strategy including pre-emptive isolation and screening for HRMO should be developed. To estimate the impact of such strategy, we investigated patients' travel behaviour, HRMO carriage, and opinions.

Methods. From May 2018 until August 2019, adult patients were asked upon admission to the Erasmus MC University Medical Centre to participate in the study, which comprised a questionnaire and screening for HRMO from a perianal swab.

Results. 608 questionnaires were handed out, of which 247 were returned completed (40.6%). 130 (52.6%) patients did not travel abroad in the last year, of which eight (6.2%) were HRMO carrier at admission. 117 (47.4%) patients travelled in the last year, of which seven patients (6.0%) were HRMO carrier at admission. Thirty patients (12%) travelled outside of Europe; in this group HRMO prevalence was 13.3% (4 out of 30; p-value 0.049). The majority of patients (71.3%) were aware that international travel could lead to carriage of HRMO, and an even larger majority (89.5%) supported the idea to screen for HRMO in case of a travel history.

Conclusions. Patients that travelled outside Europe in the past year had an increased risk of carrying HRMO compared to patients that did not travel. Patients would support a screening strategy on hospital admission to minimize the risk of introducing HRMO.

Abstract supplement (free paper abstracts)

121: Surgical site infection surveillance: Right tools, right care

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¹Kettering General Hospital NHS Foundation Trust

Background

Surgical site infection (SSI) surveillance is an integral aspect of good infection prevention and control (IPC) to ensure that patients undergoing surgery receive quality care where the risk of SSI is minimised. For patients undergoing breast surgery the rate of SSI was higher than expected.

Methods

KGH participated in GIRFT SSI module for breast surgery (May-October 2019) and also continuous PHE SSI surveillance during 2019/20. Clinicians used ICNET GIRFT module to identify infections and IPC Team used ICNET to identify early infections. For each SSI the following was implemented:

- Root cause analysis (RCA) to determine potential causes and themes
- SSI care bundle audit to determine gaps in practice and emergent themes
- Case presentation at virtual MS Teams multi-disciplinary team (MDT) meeting comprising Consultant Microbiologist, Consultant Surgeons, Director of IPC, Specialist Breast and IPC Nurses to discuss learning from patient notes, the RCA and care bundle audit
- Continuous surveillance to re-start from October 2020.

Learning from the MDT meeting was then shared both within the speciality and wider Surgical Division.

Findings

GIRFT module for breast mammoplasty showed KGH as outlier (7.2% vs national 4.8%), and PHE SSI data was also high (5.5% vs national 3.1%). January-March 2020 has seen a reduction in rates using all above interventions (3.3% vs 3.0% national for PHE SSI).

Conclusions

Timely MDT review of individual cases using evidence-based robust tools, combined with collaboration with the clinicians delivering care, can lead to sustained improvements in practice and reduced SSI rates.

Abstract supplement (free paper abstracts)

122: Rapid diagnostics of orthopaedic implant-associated infections using nanopore shotgun metagenomic sequencing

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Conventional culture-based diagnostics of infections involving tissue biopsies are comprehensive and time consuming. Nanopore shotgun metagenomics can improve diagnostics. The aims were therefore to evaluate 1) whether rapid diagnostics of orthopaedic implant-associated infections (OIAI) are possible with shotgun metagenomics, and 2) whether the protocol can feasibly replace culture-based OIAI diagnostics, comparing a) microbial identification, b) time to diagnosis, and c) characterization of antimicrobial resistance (AMR). Soft tissue biopsies from 32 OIAI patients at Akershus University Hospital in Norway were divided into two segments. Shotgun metagenomic using nanopore sequencing (Oxford Nanopore Technologies) and EPI2ME data analysis was performed on one segment, and conventional culture-based diagnostics on the other. Shotgun metagenomic sequencing and conventional culturing identification results matched in 23/32 OIAI patients (72%). Pathogens were identified within a median of 1h of sequencing start [1-18h]. Including 6h wet-lab, biopsy to result amounted to a maximum of 24h. Sequencing detected additional microbes in 9/32 patients (5h median [1-14h]). AMR phenotype was partially explained by detected resistance genes in 9/20 patients (45%) positive for AMR.

OIAI diagnostics using shotgun metagenomics sequencing are possible within 24h from biopsy using nanopore technology. The sequencing workflow outperformed culture-based diagnostics with respect to additional microbes detected and speed of detection, where pathogens were at sufficient concentration. Culture-based diagnostics have a slight advantage at lower pathogen concentrations. Genome-based AMR detection, however, may not yet be a stand-alone replacement for culture-based antibiotic susceptibility testing. The protocol has the potential to be applied to other types of infections.

Abstract supplement (free paper abstracts)

123: COVID learning: Green is not always green, day 5-7 re-swab is essential

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Background

During the Coronavirus Infectious Disease 2019 (COVID-19) pandemic, there has been a significant focus in the acute Trusts on preventing transmission of COVID-19 to other patients, particularly those who have been admitted for over 8 days. On 24th June 2020 PHE revised guidance included re-swabbing of patients on day 5-7 of admission following learning that patients on a green (negative on admission) pathway may be incubating the disease.

Method

From 24th June the Infection Prevention & Control Team (IPC) and Director of IPC (DIPC) at Kettering General Hospital NHS Foundation Trust implemented a daily compliance audit of the number of patients admitted and the percentage of those patients that received their 5-7 day COVID-19 re-swab. This data was used to implement strategies to improve compliance and protect patients from COVID-19.

Findings

Prior to implementing any interventions, the mean daily compliance for week one was 17.2%. Following interventions this increased to a daily mean of 49.1% for week eight, with a median of 52.5% of the eight week study period.

Discussion

Daily compliance data is useful when implementing and embedding change quickly. In this study a multi-modal strategy was utilised to improve compliance comprising an IPC blog, league table, sharing success stories from wards with high compliance, communication messages through learning forums and Careflow Connect, visual aid memoires and prompts on ward boards. Since fruition of this work, compliance continues increasing, hospital acquired COVID-19 rates decreasing and patients on green pathways are at lower risk of acquiring COVID-19 during admission.

Abstract supplement (free paper abstracts)

125: Computer says no: Integrating antimicrobial stewardship into electronic prescribing – early lessons in infective exacerbations of chronic obstructive pulmonary disease

(IE-COPD) prescribing

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Inpatient electronic (e-)prescribing system rollout represents new opportunities for antibiotic stewardship programmes. The impact of novel e-prescribing modalities on inpatient antibiotic prescriptions, focusing on infective exacerbations of chronic obstructive pulmonary disease (IE-COPD), was analysed in this study.

Fifty-patients with IE-COPD were identified retrospectively between September to December 2018, and 2019 after e-prescribing was introduced in NHS Lanarkshire in August 2019. The prescribing characteristics were contrasted and analysed with the Chi-squared statistical analysis. Those who died, with radiographic pneumonia, diagnostic uncertainty, and confounding co-existing conditions were excluded.

Of those admitted 62% and 60% were female, and the mean age was 67.4 and 69.9 years, in the pre/post-intervention groups respectively. Those receiving more than 5-days of oral antibiotics fell significantly, $p=0.02$, following the introduction of e-prescribing. However, the mean total duration of antibiotics was unchanged, 6.98 days, due to an increase in intravenous (IV) therapy from 0.63 to 1.09 average days. There was an increase of 66.7% of adjunctive clarithromycin prescriptions.

Compliance to the recommended five-day course of oral antibiotic prescriptions significantly increased with e-prescribing. A small sample size in this single-centre was a limitation, however opportunities for further improvement were identified. Prompts for oral switch are to be generated after 48-hours of IV Amoxicillin therapy. An alert at Clarithromycin prescription now prompts guideline compliance and also at oral Amoxicillin prescribing to subtract IV-days. A loading dose was introduced to a four-day pre-set IE-COPD doxycycline prescription. Utilisation and continuous refinement of e-prescribing modalities represents a novel strategy in promoting antibiotic stewardship.

Abstract supplement (free paper abstracts)

126: An interesting case of *Mycobacterium abscessus* peritonitis

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Background

M. abscessus is part of the rapidly growing Mycobacteria (RGM), environmental organisms that usually grow in subculture within one week. They are widely reported in literature to cause pulmonary and skin and soft tissue infections. *M. abscessus* is one the most pathogenic of the RGMs with potential to cause wide variety of infections.

Description

We report a case of *M. abscessus* peritonitis associated with peritoneal dialysis (PD) catheter. A 77 year old male patient with chronic renal failure secondary to diabetes mellitus requiring Continuous Ambulatory Peritoneal Dialysis(CAPD) presented with cloudy peritoneal fluid and pyrexia not responding to commonly used antibiotics. The patient experienced non-resolving infection despite been escalated to broad spectrum antibiotics.

Findings

Multiple sets of blood cultures and peritoneal fluid remained negative but the PD fluid send in blood culture bottle flagged positive and Gram positive bacilli were seen in Gram stain from the aerobic bottle. The growth on the solid media was subjected to MALDI-TOF and was identified as *M. abscessus*. The patient was started on empirical treatment of meropenem, clarithromycin and levofloxacin. The isolate was sent to the Mycobacterial Reference laboratory for whole genome sequencing that confirmed *M. abscessus*.

Measures :

The patient was treated with long-term antibiotics as per susceptibility report and the catheter was removed. Both the source control and appropriate antimicrobial management resulted in full recovery.

Conclusion:

Incidence of such cases is growing. This case emphasizes the importance of awareness of this pathogen in order to facilitate accurate diagnosis and appropriate treatment.

Abstract supplement (free paper abstracts)

127: Adapting Infection Prevention & Control Training During and Beyond COVID-19 in Singapore

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Background: Coronavirus disease 2019 (COVID-19) rapidly spread worldwide since the first report of a cluster of pneumonia cases in Wuhan, China. Keeping healthcare workers (HCWs) safe from healthcare-associated transmission is a top priority and it is crucial ensure all HCWs are well trained on infection prevention measures. To date, Singapore has 56,908 COVID-19 cases, of which migrant workers in dormitories form the majority.

Method: Training more than 10,000 internal and external staffs is very challenging at an acute care tertiary hospital and its external operations. Various methods were used to rapidly train all staff, e.g. e-learning modules, videos, e-newsletters addressing current situation and infection control practices at work and after work. Train-the-trainer approach was also used to help disseminate information quickly. Daily walkabout and huddles are held to address questions staffs have regarding the pandemic and the implication for their safety.

Results: Despite HCWs having attended multiple training sessions, we noted that some important steps may be omitted, thus resulting to potential exposure to infection. Buddy checking approach and ready-to-use posters are 2 interventions made. We deployed additional staffs as spotters in high risk wards as added precaution. They were responsible to guide HCWs and provide immediate feedback to prevent any cross contamination. To date, there is zero HCW infected with COVID-19 during the course of work in our institution.

Conclusion: Adopting a multi-pronged approach and tapping on e-learning helped towards timely and effective training to help HCWs work safely at all time.

Abstract supplement (free paper abstracts)

128: Metal Oxide-doped Elastomeric Materials for Enhancement of 405-nm Light-based Antimicrobial Surface Decontamination

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The rapid rate at which microbes are evolving to resist current antimicrobial treatments poses a huge threat to public health, therefore novel decontamination methods are urgently required to prevent their spread and proliferation.

This study investigates the use of titanium dioxide (TiO₂)-elastomer composites to enhance the antimicrobial efficacy of 405-nm visible light for surface decontamination.

Photocatalytic TiO₂ nanoparticle-doped polymers were prepared and the surface of the cured elastomer (poly(dimethylsiloxane)) wet etched to expose embedded nanoparticles. Surface characterisation by SEM and contact angle analysis confirmed that etching exposed the surface nanoparticles producing a rougher and more hydrophobic surface. By creating a surface rich in exposed photocatalytic nanoparticles, contaminating bacteria could be in direct contact with the TiO₂ nanoparticles and there is the potential for ROS generation in closer proximity to the bacteria, and therefore greater enhancement of the 405-nm light treatment.

Metal-oxide samples were seeded with *Staphylococcus aureus* and exposed to antimicrobial 405-nm light (60 J/cm²), and the bacterial inactivation quantified. Results demonstrated that incorporation of the TiO₂ nanoparticles into the polymer improved the surface decontamination efficacy compared to on the polymer alone (1.4-log₁₀ reduction compared to 0.7-log₁₀). Surface decontamination efficacy was further enhanced by the etching of the photocatalytic TiO₂ polymer surfaces, resulting in a 1.9-log₁₀ reduction following light treatment.

Overall, results demonstrate that incorporation of TiO₂ nanoparticles and surface etching can significantly enhance the antibacterial efficacy of 405-nm light for surface decontamination, highlighting the potential for this mechanism to be developed for TiO₂-doped medical devices and surfaces.

Abstract supplement (free paper abstracts)

129: One wipe or two? Surface cleaning with commercially available wipes.

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Hospital surfaces play an important role in the transmission of infectious agents and can act as a reservoir for clinically significant pathogens. With the rise in antimicrobial resistance, prevention of healthcare associated infections is critical. Cleaning is one of the most important interventions to reduce risk of transmission to patients. However, there are many types of cleaning agents, all of which have varying efficacy against pathogens.

To understand this, an assessment was undertaken of three wipes that are currently used to clean the clinical environment, each with different active ingredients; Clinell Universal (undisclosed QUAT formulation), Clinell Clorox (containing <1% sodium hypochlorite) and PDI alcohol wipes (70% isopropyl alcohol). These wipes were tested against two pathogens, *S. aureus* and *K. pneumoniae*, inoculated onto ceramic tiles at 10⁸ concentration. Efficacy was tested with both a single and two consecutive wipes. Following wiping and a 10-minute contact time, the tiles were sampled with cotton-tipped swabs. Serial dilutions were performed and inoculated onto blood agar plates and read at 24 hours.

The results showed that, for both organisms, the QUAT-based and sodium hypochlorite containing wipes achieved total kill (>8 log) with a single wipe. The alcohol wipe and gauze control wipes required a second wipe to achieve a 4.30 and 5.04 log kill respectively for *S. aureus*, and a second wipe to achieve a 3.32 and 4.32 log kill respectively for *K. pneumoniae*. These results demonstrate that different wipes have varying performance profiles and this evidence should inform procurement and use within healthcare settings.

Abstract supplement (free paper abstracts)

130: Efficacy of Low Irradiance Antimicrobial 405-nm Violet-Blue Light for the Inactivation of Nosocomial Bacteria

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The antimicrobial effects of 405-nm violet-blue light, coupled with its increased safety compared to ultraviolet-light, has led to interest in its development for a range of infection control applications, including continuous decontamination of clinical environments, and wound decontamination. This study investigates the 405-nm dose-response kinetics of nosocomial pathogens, and how these are affected by use of differing light irradiances.

ESKAPE pathogens (*Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter* species) suspended in PBS, were exposed to 405-nm light at an irradiance of 100 mW/cm² and their comparative susceptibility was established. *S. aureus* and *P. aeruginosa* (selected as representative Gram-positive and Gram-negative species) were then exposed to increasing doses of 405-nm light using irradiances ranging from 5-150 mW/cm², and inactivation kinetics were compared. Results highlighted that bacterial inactivation was more energy efficient with the use of lower irradiance light treatments. When exposed using 5-10 mW/cm² irradiances, *S. aureus* required 45 J/cm² to achieve 2.9-3.4 log₁₀ reductions, however with higher irradiances of 50-150 mW/cm², double the energy (90 J/cm²) was required to achieve similar (1.98-2.97) log₁₀ reductions. Similarly, *P. aeruginosa* required 1.5-2 times less dose to achieve near-complete inactivation when exposed at lower irradiances. This study provides evidence of the influence of photon energy on the antimicrobial efficacy of 405-nm light and establishes a basis for further investigation into the associated photo-chemical inactivation mechanisms involved. Increased understanding of these fundamental interactions is critical for the optimisation of this antimicrobial technology for decontamination and infection control applications.

Abstract supplement (free paper abstracts)

131: The Great ESKAPE: Are we Misdiagnosing Infections from Closely Related Species?

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The ESKAPE organisms are described as the most prominent causes of multi-drug resistant healthcare-associated infections (HCAI). However, current diagnostic techniques may frequently misidentify these important pathogens. Advances in molecular diagnostics and sequencing have revealed numerous closely related species, with varying levels of antimicrobial resistance and morbidity when compared to their ESKAPE counterparts. For example, *Acinetobacter baumannii* and *Klebsiella pneumoniae* exist in complexes of closely related bacterial species, which are not distinguished by typical clinical diagnostics. When more accurate identification methods are applied, atypical species such as *Klebsiella variicola* and *Klebsiella quasipneumoniae* are reported to cause up to 30% of *Klebsiella pneumoniae* complex infections. Their misdiagnosis affects our understanding of the epidemiology of the ESKAPES and result in inappropriate use of antibiotics.

We have developed a set of multiplex real-time PCR assays to accurately identify the ESKAPE pathogens which can also distinguish between the closely related species within complexes. Multiplex 1 identifies *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *K. pneumoniae sensu stricto*. Multiplex 2 detects *Enterococcus faecium*, *Enterobacter spp.*, *A. baumannii*, and the *Acinetobacter baumannii-calcoaceticus* complex. Multiplex 3 differentiates between the prominent members of the *Klebsiella pneumoniae* complex, specifically *K. pneumoniae*, *K. quasipneumoniae* and *K. variicola*. A panel of over 200 microorganisms was assembled for testing and the assay are specific (100%) and sensitive (<10 genome equivalents). Future work will demonstrate the suitability of these assays in various healthcare settings (infection control and clinical diagnostics) to determine accurately the level of HCAI caused by ESKAPE and their closely related complex pathogens.

Abstract supplement (free paper abstracts)

132: Risk evaluation of duodenoscope-associated infections in the Netherlands calls for a heightened awareness of device related infections: a systematic review

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Background: The risk of exogenous infections through endoscopic procedures is often cited as almost negligible (1 infection in 1.8 million procedures) but is based on older literature. This estimate does not seem to match the number of infectious outbreaks reported after ERCP due to contaminated duodenoscopes. To appraise the risk for patients undergoing ERCP, we calculated a minimum risk estimate of duodenoscope-associated infections (DAI) and colonizations (DAC) based on Dutch data.

Methods: A systematic literature search identified all DAI outbreaks within the Netherlands, reported in a confined time period. Included cases were confirmed by molecular matching of patient and duodenoscope cultures. Based on the total number of ERCPs performed in the confined time period, risk ratios were calculated.

Results: Three outbreaks were reported and published between 2008 and 2019, including 21 confirmed DAI cases and 52 confirmed DAC cases. In that same period it was estimated that between 181,209 and 227,006 ERCPs were performed. This results in a minimum estimated DAI risk of approximately 0.010%. The minimum estimated DAC risk was 0.023-0.029%.

Conclusion: With a minimum calculated risk of 0.010%, the chance of DAI in the Dutch ERCP practice was at least 180 times higher than previously published risk estimates. The actual risk is likely to be (much) higher due to underreporting of infections caused by both MDRO, but especially by sensitive bacteria. This calls for a heightened awareness of healthcare personnel involved in endoscopy and endoscope cleaning, and for innovative technical solutions to contain and ultimately abolish DAIs.

J.A. Kwakman: Grant recipient from Pentax Medical.

N.S. Erler: no competing interests

M.C. Vos: Grant recipient from 3M and Pentax Medical.

M.J. Bruno: Consultant for, Boston Scientific, Cook Medical; grant recipient from 3M, Boston Scientific, Cook Medical, and Pentax Medical.

Abstract supplement (free paper abstracts)

133: Physiological Effects of Antimicrobial 405nm light on Red Blood Cell Products

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Red blood cells (RBC) are the most frequently transfused blood product, and approximately 40% of transfusion-transmitted infections are attributed to RBC units. Pathogen reduction technologies (PRTs) can reduce the pathogen burden for platelets and plasma, however pathogen inactivation in stored RBC has proven more difficult due to membrane sensitivity, increased viscosity, and physical cellular properties of RBCs. Currently, there is only one CE-marked PRT in use for whole blood in Europe.

405-nm violet-blue light has recently demonstrated potential for bacterial inactivation in plasma and platelet products, and this study assesses the potential compatibility of 405-nm antimicrobial light with RBC components. Sheep RBC samples were exposed to 405-nm light at doses of 9-360 J/cm², using irradiances of 10-100 mW/cm². Cell integrity was analysed by photometric detection of leaked haemoglobin and microscopy using Trypan Blue staining.

Results demonstrated that RBC damage was influenced by the irradiance levels and exposure times used, with data suggesting that RBCs have a threshold tolerance to oxidative damage, above which haemolysis occurs rapidly. Haemolysis rose sharply with exposures using 100 mW/cm² irradiance, and this was supported by a visual decrease in stained viable cells. Exposures of 15-60 min using 20 and 50 mW/cm² irradiances, caused haemolysis to increase by 0.4 and 1.3%, respectively. Treatment doses of ≤90 J/cm², using irradiances ≤50 mW/cm², showed potential compatibility, with haemolysis being below the 0.8% European limit. Future work will build on these findings and investigate the potential for broad-spectrum antimicrobial efficacy of 405-nm light at levels compatible with RBC physiology.

Views expressed in this article are an informal communication and represent the authors own best judgment. These comments do not bind or obligate the FDA

Abstract supplement (free paper abstracts)

134: A confusing drug eruption

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Introduction

A previously fit and well 5 year old was seen by her GP with cough, sore throat and mouth ulcers. She was treated with amoxicillin, changed to phenoxymethylpenicillin for worsening mucosal ulceration. She was admitted with a blistering rash over her trunk and limbs, intubated for stridor and transferred to ITU. She was febrile and hypotensive requiring inotropic support. There was peri-ocular erythema, conjunctival injection, oral ulceration and multiple discrete targetoid lesions to her trunk and limbs. Penicillin was stopped due to suspected drug eruption. She was started on broad spectrum antibiotics and IV aciclovir for likely Herpes simplex virus (HSV) hypersensitivity reaction.

Methods

On Microbiology ward rounds, it was advised to clarify whether the rash and oral blisters preceded antibiotics use. Viral and bacterial swabs of the lesions were taken and antibiotics were changed to clindamycin, cefuroxime and clarithromycin.

Results

Skin swabs were negative. Chest x-ray identified patchy consolidation in a perihilar distribution and in the left lower lobe. Mycoplasma pneumoniae DNA was identified in the nasopharyngeal aspirate. Skin biopsy confirmed a diagnosis of erythema multiforme major.

Discussion

Erythema multiforme is an immune mediated reaction usually triggered by infections, most commonly HSV. It manifests with cutaneous and mucosal lesions of which target lesions with three colour zones are characteristic. However, classic lesions may not be present and it can resemble other conditions such as fixed drug eruption and Stevens-Johnson syndrome confusing the clinical diagnosis. Mycoplasma pneumoniae should be strongly suspected in a child with rash/mucositis and respiratory infection.

Abstract supplement (free paper abstracts)

135: The use of the index of microbial air contamination in healthcare setting: a review of published studies from 2000 to 2020

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Background

Measuring airborne microorganisms is essential in infectious risk management. The passive method, to assess microbial air contamination, has been standardized by the index of microbial air contamination, IMA (Pasquarella et al. J Hosp Infect 2000). The aim of this study was to provide information about the use of the IMA standard in healthcare setting.

Materials and methods

We searched PubMed and Scopus for articles published until August 2020 reporting the citation Pasquarella et al. 2000. Only studies in English language where the IMA standard was applied in healthcare setting were considered.

Results

The IMA standard was applied in 43 studies, of which 24 performed in Europe, 12 in Asia, 4 in Africa, 3 in America. 20 studies used it in operating theatres, 10 in intensive care units, 6 in dental units, 17 in hospital wards. Bacterial contamination and/or microbial total count was evaluated in 35 studies, fungal contamination in 11 studies, while 6 studies dealt with only specific microorganisms (*Staphylococcus aureus*, *Legionella* spp., *Bacillus cereus*). An increase in published studies using IMA standard was observed over the years: n.1 (2000-2006), n.14 (2007-2013), n.28 (2014-2020).

Conclusions

This review provides a picture of the application of the IMA standard for measuring microbial air contamination in healthcare setting, a context in which there is not an unanimous consensus regarding the methods to be used and how to interpret the results. It represents a contribution towards the definition of reference limits to identify situations at risk and to implement targeted preventive measures.

Abstract supplement (free paper abstracts)

137: Fungal Fournier's – an unusual organism

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Fournier's gangrene is a rare and severe necrotizing infection of the perineum and genitalia, most frequently caused by skin and gastrointestinal commensal bacteria. Fungi are rarely reported; there are only two case reports of non-albicans *Candida* species as the causative organism in the literature.

We describe a case of Fournier's gangrene and associated candidaemia in a 55-year-old man. His past medical history was notable for poorly controlled type 2 diabetes and peripheral vascular disease. He had previously undergone a right below-knee amputation, and was a smoker. Following initial admission and treatment for a suspected urinary tract infection, he suffered repeated traumatic attempts at catheterisation, resulting in urethral rupture and scrotal infection. He became critically unwell, requiring inotropic support in intensive care, and underwent four surgical debridement procedures. Intra-operative appearances were consistent with Fournier's gangrene.

Blood, urine and wound swab cultures were positive on multiple occasions for *Candida glabrata*, sensitive to anidulafungin, miconazole and itraconazole, but with intermediate susceptibility to fluconazole, clotrimazole and voriconazole. He is recovering well on anidulafungin monotherapy, although his course has been complicated by adrenal suppression, for which he is currently under investigation.

This case underscores the importance of considering *C. glabrata* as an emerging cause of Fournier's gangrene, particularly in patients with diabetes.

Abstract supplement (free paper abstracts)

138: Sustained antimicrobial efficacy of antibiotic-eluting biodegradable polymer coatings for medical devices

Justine Fraser¹, Dr Christopher McCormick¹, Dr Michelle Maclean¹

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Implanted medical devices are often part of essential, life-saving treatment for a number of diseases. However, one of the primary risks associated with indwelling devices is infection. Infections may be late-onset, occurring several weeks or months after implantation, and are difficult to eradicate due to the challenge of delivering a concentrated antimicrobial dose to the infection site. Biodegradable polymers which facilitate controlled release of antimicrobials from the surface of a device, may make it possible to inhibit these infections.

The antibiotic rifampicin was formulated with poly(lactic-co-glycolic acid) at a ratio of 75:25 polymer:antimicrobial and coated on implantable polyester. Rifampicin release from the material was characterized by release into PBS (37°C; 120rpm), and the associated antimicrobial effect analysed by *Escherichia coli* and *Staphylococcus aureus* biofilm inhibition.

Results showed that over 10 weeks, 90% of the loaded rifampicin was released, with 62% released during the first 24 hours. The presence of a second period of heightened release was indicated at 28 days, continuing until > day 35. This result was strengthened by an increased inhibitory effect on *E. coli* biofilm formation during this period, which increased from 26% inhibition at day 21, to 64% and 74% inhibition at day 28 and 42, respectively. *S. aureus* biofilm formation was inhibited up to 99.9% throughout.

This demonstrates the potential of biodegradable polymer drug-delivery technology in preventing medical device infection. The potential for engineering release profiles to include secondary periods of increased release is indicated, which may be beneficial for inhibition of late-onset infection.

Abstract supplement (free paper abstracts)

139: Leadership to reduce antimicrobial resistance in Uganda; Teams Kyenjojo and Kabarole, affecting long term change with ownership by frontline healthcare workers

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In February 2020, 16 leaders from the public sectors in Uganda and the UK came together for a five day workshop to develop their leadership skills and co-create low cost innovation ideas to combat AMR. In teams, professionals from the National Health Service (NHS) UK, Baylor College of Medicine Children's Foundation Uganda and five hospitals in Rwenzori Region received leadership training from the Cross Sector Leadership Exchange (CSLE), and visited 29 health facilities across the region to understand the day-to-day challenges AMR places on the Ugandan health system.

The teams developed robust action plans to improve AMR stewardship across five hospitals, which received stakeholder endorsement from five District Health Officers and four Medical Superintendents on the final day of the workshop. Leadership development has the implementation of these plans by creating motivated, accountable frontline health workers who have designed low cost interventions to support the National Action plan's strategic interventions: 1. Promote public awareness for AMR 2. Improve infection control and prevention 3. Promote appropriate access to and use of antimicrobials 4. Implement AMR surveillance 5. Invest in research and innovation.

Since the program senior Ugandan physician in both teams have championed the role of IPC in their hospitals and districts. Team Kyenjojo ensured 20 staff from their health facilities were trained in IPC and mentorship with the aim of cascading the training to improve IPC. Team Kabarole, established a robust IPC committee to improve clinical engagement and aimed to establish further committees in other hospitals in the district.

Abstract supplement (free paper abstracts)

140: Transmission of a susceptible microorganism through a contaminated duodenoscope in a non-outbreak setting; a case study.

Judith Kwakman¹, Arjan Rauwers¹, Corné Klaassen¹, Marco Bruno¹, Margreet Vos¹

¹*Erasmus Medical Center*

Introduction: Despite compliance to extensive reprocessing protocols, duodenoscopes have been related to multiple outbreaks of multi-drug resistant organisms (MDRO) due to persistent duodenoscope contamination. Reports of duodenoscope associated infections (DAI) usually involve outbreaks of MDRO. Outbreaks with susceptible microorganisms probably do occur, but are hard to recognize and thus underreported. Here we describe a case of DAI with a susceptible microorganism which was at that time not recognized in clinical practice.

Methods: We retrospectively detected this DAI case through research in which we collected duodenoscope cultures from disinfected endoscopes on a daily basis. Stored cultures of the patient and the duodenoscope containing *Enterobacter cloacae* complex were examined using molecular typing and whole genome sequencing to determine indistinguishability.

Results: The patient was treated for a cholangitis by *Enterobacter cloacae* complex three months after duodenoscopy with an endoscope contaminated with *Enterobacter cloacae* complex. Molecular typing through AFLP showed both strains to be indistinguishable. Moreover, by MLST analysis, both strains were of the same (but novel) sequence type. Whole genome MLST however, showed 93 (out of 3757) allelic differences.

Discussion: This study reveals the effort needed to diagnose a DAI with a susceptible microorganism which was not associated with an outbreak. Evidence of transmission remained unresolved. AFLP showed similar types but WGS showed a higher genetic distance which can be due to the time period between collection of the two strains as well as storage and disinfection conditions.

J.A. Kwakman: Grant recipient from Pentax Medical.

A.W. Rauwers: Grant recipient from Pentax Medical and 3M.

M.C. Vos: Grant recipient from 3M and Pentax Medical.

M.J. Bruno: Consultant for, Boston Scientific, Cook Medical; grant recipient from 3M, Boston Scientific, Cook Medical, and Pentax Medical.

Abstract supplement (free paper abstracts)

141: Annual presence of *Anncaliia algerae* in water environments from Leicestershire, UK.

Dr Antonio Peña-Fernández¹, Dr Fernando Izquierdo², Dr Tiziana Sgamma¹, Mr Umar Anjum¹

¹Leicester School of Allied Health Sciences, De Montfort University, ²Facultad de Farmacia, Universidad San Pablo CEU

We have detected, for the first time, in different water ecosystems in East Midlands, England, the presence of *Anncaliia algerae*, a microsporidian species related with fatal disseminated microsporidiosis infections among immunocompromised hosts. However, their presence and distribution in water environments is poorly understood. To support our preliminary findings, thirty water samples were collected per season, according to the US Environmental Protection Agency (EPA) method 1623, from different water environments in Leicestershire from 2017 to 2018, using a portable water pump connected to a foam filter module. Water samples were collected in the same locations each season from: 9 ponds; 9 from the River Soar; 1 from the River Biam and a marina near the River Soar; 6 streams; 4 from lakes highly frequented for fishing/leisure. Samples were concentrated using the IDEXX® Filta Max system according to manufacturer's instructions and EPA method 1623; DNA was extracted using a FastDNA® for Soil kit. *A. algerae* was detected by PCR using the NALGf2/NALGR1 primers in 9 samples from a range of locations (ponds, brooks, river) in Summer-Autumn 2017 and Spring-Summer 2018. Samples collected in Winter 2017 and Autumn 2018 were negative. Our results suggest a general distribution of *A. algerae* in water environments in Leicestershire but limited to warm seasons, which may be reasonable as this is a microsporidian species related to mosquitoes. The presence of this pathogen could indicate a potential threat for human health that should be carefully considered due to the high volumes of users of these water environments. There is no conflicts of interest

Abstract supplement (free paper abstracts)

142: Specialised training to protect humans and the environment to pandemics

Dr Antonio Peña-Fernández¹

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The coronavirus pandemic 2019 (COVID-19), which is rapidly expanding with more than 26,344,000 cases and 869,569 deaths globally as of September 4th 2020, is highlighting the lack of preparedness of health systems to respond to pandemics. First responders have developed specialised training (theoretical and practical) that covers the different phases of a response to any biological incident, i.e. incident response preparedness and situation assessment; exposure assessment; acute health effects; long term health effects; and recovery phase. Trainees use the novel tools and guidance developed by Public Health England (PHE) in the UK Recovery Handbook for Biological Incidents (UKRHBI). The UKRHBI's user can select effective protection and recovery options/techniques based on the physiological characteristics of the pathogen(s) involved and the characteristics of the site of the outbreak. Nine postgraduate students (MSc Advanced Biomedical Science) at De Montfort University (UK) completed a short environmental toxicology training course in 2019/20; and used the UKRHBI to develop an intervention to protect the public and the environment in the aftermath of an outbreak affecting food production systems and inhabited areas. All students have reported that the UKRHBI is an appropriate resource for tailoring a protection/recovery response; 80% indicated that they learnt how to tailor an appropriate environmental recovery programme (e.g. chemical and physical decontamination techniques). The UKRHBI is shown to be effective with students with different backgrounds in infectious diseases and environmental toxicology, as the Handbook is aimed, amongst others, at national and local authorities, who are part of any first response. There is no conflicts of interest

Abstract supplement (free paper abstracts)

143: Novel resources for teaching and learning medical parasitology

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The COVID-19 pandemic has resulted in unprecedented changes and curriculum modifications to adapt medical education to the new situation. In order to comply with public health measures to respond to the on-going pandemic, academics from different universities have used our novel resource for teaching and learning medical parasitology recently developed at De Montfort University (DMU) in the UK. DMU e-Parasitology® (<http://parasitology.dmu.ac.uk/>) has four sections and different engaging resources for providing an overall education of medical parasitology. Specifically, it has four modules: a theoretical module, with engaging e-learning units about major and emerging human parasites, that have different formative quizzes and mini-games; a virtual laboratory, with biomedical techniques to detect parasites; a virtual microscope with a library of real specimens for parasitology diagnosis; and finally, virtual clinical case studies to promote self-learning and provide problem-solving skills and some parasitological diagnostic skills. This novel resource has been successful for the online-delivery of medical parasitology, as highlighted by first year DMU Biomedical Science students. 91.3% students enrolled in the Basic Microbiology module in 2017/18 (n=69) reported they had gained appropriate knowledge of the pathology, prevention and treatment of some parasitic diseases; and 85.5% indicated that they learnt basic skills to investigate parasitic disease. Similar percentages were obtained in 2018/19 (n=73): 87.7% highlighted acquisition of knowledge of the parasitic diseases studied; and 87.7% indicated that they learnt basic skills to investigate parasitic disease. In conclusion, the novel resource DMU e-Parasitology could be highly relevant to create multidisciplinary and translational parasitology training.

Abstract supplement (free paper abstracts)

145: Active follow-up of patients identified with highly-resistant microorganisms in a large tertiary care centre

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Background: Contact isolation to prevent transmission of highly resistant microorganisms (HRMO) during hospitalisation is costly and labour intensive. Routine follow-up cultures are needed to identify end of carriage and prevent unnecessary isolation measures. This study aims to evaluate active patient follow-up, aiming to identify patients no longer carrying HRMO to reduce unnecessary costs and workload.

Methods: This before-and-after study was conducted in the Erasmus University Medical Centre, The Netherlands. Patients colonized with HRMO between October 2013 until November 2019 were included for patient follow-up. The passive follow-up group are patients colonized before 2019; they were only cultured upon request from their physician. The active follow-up group are patients colonized in the year 2019 and actively approached for follow-up cultures. Patients were contacted at least two months after HRMO finding and were excluded for cultures when hospitalized or treated with antibiotics. They were declared HRMO-free after two consecutive negative rectum and throat cultures taken at least 3 days apart. The impact of the active follow-up regimen was evaluated by comparing the hospitalization days in isolation of the active group with the passive follow-up group.

Results: For passive follow-up 2571 patients were included, for active follow 481 patients of which 219 were eligible for culturing. Active follow-up patients had on average 14.3 days (median=3.0) isolation days compared to 22.5 days (median=9.0) for passive follow-up patients ($P>0.001$). An analysis with a fixed follow-up period is currently being performed.

Conclusion: Active follow-up patients decrease significantly in isolation days ($n=8.2$)

Abstract supplement (free paper abstracts)

147: Review of patients admitted with Community Acquired Pneumonia: compliance with local guidance

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¹Leeds Teaching Hospitals Trust

In 2019 patients with a diagnosis of Community Acquired Pneumonia (CAP) were retrospectively reviewed on 2 dates for 2 consecutive months (June and July). More than 70% of patients were found to have been treated with regimens that did not comply with the current local guidance.

The auditor independently assessed the CURB-65 score for the patients using electronic records. The prescribed antibiotics were then compared to this score and the local guidance.

The reasons for not following the guideline fell broadly under 2 areas: wrong drug (broader spectrum prescribed) and wrong route of administration (usually intravenous when oral was recommended) based on the assumed CURB-65 score.

Following this audit it was decided that CAP would be targeted to be one of the first guidelines to be reviewed in a new format that would make diagnostics more prominent and empirical prescribing guidance much clearer. The new guideline was launched in August 2020 along with updated protocols for our electronic prescribing system.

Once the guideline has been available for a month we will re-audit to assess the impact. Many wards are now using digital medical records so we will also assess whether a CURB-65 score has been documented in the notes (this was not previously possible).

The Pharmacy Infection Team will also be introducing a virtual stewardship round for patients with a diagnosis of CAP and provide advice where appropriate - for example, when the patient has not followed the guideline or is ready for an intravenous to oral anti-bacterial switch.

Abstract supplement (free paper abstracts)

148: Review of positive microbiology cultures results of respiratory tract specimens in confirmed COVID-19 in-patients

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¹Mater Misericordiae University Hospital

Background and Aim

SARS-CoV2 is responsible for the COVID-19 global pandemic. Antimicrobial prescribing guidelines for bacterial co-infection are evolving with early data suggesting it occurs in less than 10% of cases. We aim to review microbiological cultures from confirmed COVID-19 cases evaluating appropriateness of local antimicrobial guidelines empirically targeting common bacterial causes of community acquired pneumonia (CAP).

Methodology

A retrospective review of patient admissions from 05/03/2020-01/05/2020 with SARS-CoV-2 detected was performed on the laboratory information system. Data collected included specimen type, collection date and culture result.

Results

427 patients were admitted, 40 to critical care (CC).

Of 427 patients, 5.4% (n=23) cultured an organism on respiratory specimen; 4.7% (n=20) cultured bacteria and 0.7% (n=3) cultured mould.

Of the 387 non-CC admissions, 1.8% (n = 7) cultured bacteria on sputum; 1 H. influenzae, 1 MRSA and 5 Gram negatives, including 2 Pseudomonads. All isolates cultured within 5 days of admission.

Of the 40 CC patients, 30% (n=13) cultured bacteria. Two patients cultured MSSA, 7 Enterobacterales, 1 *Stenotrophomonas maltophilia*, 1 Group B streptococcus and 2 *Pseudomonas aeruginosa*.

3 of 427 (0.7%) cultured *Aspergillus fumigatus*, 1 of whom was in CC.

Three patients (0.7%), 1 admitted to CC, had a positive blood culture secondary to a respiratory source. Two isolates were *Pseudomonas aeruginosa* and 1 MSSA.

Conclusion and Recommendations

Patients with COVID-19 had a low prevalence of bacterial co-infection. The organisms identified in this cohort would be covered by local antimicrobial guidelines designed to treat CAP in the majority.

Abstract supplement (free paper abstracts)

150: Rapid assessment of possible price instability and shortages of medicines and equipment during the COVID-19 pandemic across Asia and the public health implications

Professor Brian Godman^{1,2}, Professor Mainul Haque³, Dr Salequ Islam⁴, Dr Zubair Mahmood Kamal⁵, Dr Santosh Kumar⁶, Dr Jaykaran Charan⁷, Dr Zikria Saleem⁸, Dr Thuy Phuong⁹, Dr Hye-Young Kwon^{1,10}, Dr Amanj Kurdi^{1,11}, Dr Israel Sefah^{12,13}

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Background: Countries have introduced a variety of measures to prevent and treat COVID-19 with some countries adopting preventative strategies earlier than others. There has been considerable controversy surrounding some treatments especially hydroxychloroquine with the initial hype and misinformation leading to shortages, price rises, and suicides. Such activities can have catastrophic effects on patients where there are high co-payment levels and issues of affordability. Consequently, a need to investigate this further. Objective: Assess changes in utilisation, prices, and availability of relevant medicines and PPE during the pandemic among Asian countries. Method: Interviews among community pharmacists from beginning of March until end of May 2020. In addition, suggestions on ways to reduce misinformation. Results: 308 pharmacists took part from 5 Asian countries. There was an appreciable increase in the utilisation of antimicrobials in Pakistan (in over 88% of pharmacies), with lower increases or no change in Bangladesh, India, Malaysia and Vietnam. Encouragingly, increased use of Vitamins/ immune boosters and PPE across the countries and limited price rises for antimicrobials in India, Malaysia and Vietnam. Appreciable price increases seen for PPE across some countries. Conclusion: Encouraging to see increases in utilisation of vitamins/ immune boosters and PPE. However, increases in the utilisation and prices of antimicrobials is a concern that needs addressing alongside misinformation and any unintended consequences from lockdown measures. Community pharmacists can play key role in providing evidence-based advice, helping moderate price increases, reducing self-purchasing of antimicrobials, and addressing some of the unintended consequences of the pandemic.

Abstract supplement (free paper abstracts)

151: Endocarditis outcomes and characteristics in a UK tertiary centre with high prevalence of intravenous drug use.

Dr Chris Lawrence¹, Dr James Cheaveau¹, Michael Kavourides¹, Dr David Chadwick¹, Dr Brendan McCarron¹
¹NHS South Tees

Infective endocarditis has a significant burden of morbidity and mortality, particularly in intravenous drug users (IDUs). This study is an up-to-date comparison of microbiological causes and outcomes of endocarditis in both IDUs and non-IDUs with a review of the factors that impact on subsequent prognosis.

This cohort study analysed all consecutive adult admissions to a tertiary referral hospital in England with a diagnosis of endocarditis from April 2013 to January 2020. Primary outcome was length of survival following diagnosis.

Of 303 cases identified via clinical coding 287 cases of endocarditis were confirmed. First episode endocarditis was then confirmed in 263 episodes, 44 in IDUs and 219 in non-IDUs. *S. aureus* was the most common organism seen overall, significantly more so in IDU than non-IDU cases (29/44 [65.9%] vs 51/219 [23.3%], $p < 0.001$) and was associated with reduced survival ($p = 0.049$). Progression to valve surgery was similar in both groups (92/219 [42.0%] vs 19/44 [43.2%], $p = 0.886$). Mortality in both groups approached 50% in both groups at 3 years.

Mortality rates amongst IDUs in the two years following discharge with endocarditis are of significant concern, despite a significantly less comorbid and younger cohort than in the non-IDU population. Our analysis demonstrates an initial period of approximately a year where survival is maintained before a rapid decline over the following few years. We hypothesise that this represents a return to high risk behaviours following a period of increased support. We hope that our analysis can help guide and provide comparison to local and national guidelines.

Abstract supplement (free paper abstracts)

152: Microbial profile with Antibiotic Resistance pattern in bile from Cholecystectomised Patients by Culture and Multiplex PCR

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Introduction:

Bile in the biliary tract is normally sterile. Presence of gallstones, ascending infection from duodenum or bacterial translocation from portal vein leads to microfloral colonization in biliary system. Therefore, it is important to evaluate the microbiological profile of bile from gall bladder for determination of the appropriate antibiotics in cholecystectomised patients.

Methods & Materials:

This cross sectional study included patients who underwent laparoscopic or open cholecystectomy in Dhaka Medical College Hospital, Dhaka, from July, 2013 to December, 2014. Total 246 intraoperative bile were cultured aerobically in Blood agar and MacConkey's agar media. The identified isolates were tested for their sensitivity pattern according to CLSI guidelines and multiplex PCR was used to detect virulence genes of Salmonella Typhi and anaerobic bacteria along with drug resistance genes.

Results:

Out of 246 bile samples, organisms were identified in 171 (69.51%) cases; 119 (48.37%) were aerobic bacteria identified by culture and PCR and 52 (21.14%) were anaerobic bacteria identified by multiplex PCR. Escherichia coli (26.61%) were found predominantly followed by Staphylococcus aureus (19.35%), Clostridium perfringens (13.82%). Salmonella enterica serovar Typhi was detected by culture and PCR in 3 (1.22%) and 8 (3.45%) samples respectively. Prevalence of ESBLs, Carbapenemase producers and MRSA were detected phenotypically in 10.96%, 16.44% and 8.33% samples respectively and the resistance genes blaCTX-M-15 (50.0%), blaOXA-1-group (25.0%), blaNDM-1 (62.50%), OXA-181/OXA-84 (12.5%) and mecA (8.33%) were detected.

Conclusion:

Significant proportion of aerobic and anaerobic bacterial infection associated with biliary tract obstruction may warrants serious health risk to cholecystectomised patients in this region.

Abstract supplement (free paper abstracts)

153: When is query COVID not COVID? A systematic review of misdiagnoses during the 2009 H1N1 influenza and COVID-19 pandemics where presumed diagnoses of pandemic respiratory virus were overturned.

Dr Lucy Bray¹, Mr Daniel James², Dr Pavan Mason¹, Dr Katerina Meznikova¹, Dr Razan Risan¹, Dr Rahul Shah¹, Mr Tim Staniland¹, **Dr Nicholas Easom¹**

¹Hull University Teaching Hospitals, ²University College London Medical School

There have been two respiratory virus pandemics in recent times, the H1N1 influenza pandemic of 2009-2010 and the COVID-19 pandemic of 2020. In both cases, health systems responded to the high incidence of transmissible illness by using syndromic case definitions and “stay at home” guidance. This posed a diagnostic challenge for patients experiencing, and clinicians assessing, illnesses with clinical features overlapping with those of the pandemic virus. This challenge is compounded by the potential for human factors and cognitive biases to impair clinical decision-making in the pandemic context. We performed a systematic review of the literature describing delayed diagnoses due to initially presumed 2009 pandemic H1N1 influenza or COVID-19. Two searches were undertaken, in the EMBASE, MEDLINE, Cochrane and Medrxiv databases. One combining terms for 2009 H1N1 influenza or COVID-19 and terms for delayed diagnosis and diagnostic error; the second combining terms for 2009 H1N1 influenza or COVID-19 and terms for bias and decision-making. Most articles were case reports, there were no large, prospective studies of illnesses misdiagnosed or of diagnostic processes. Delayed diagnosis was reported in diseases falling into two major categories: undifferentiated fever illness and respiratory infection. It was difficult to examine cognitive processes leading to initial misdiagnosis from the existing literature and there were no studies of diagnostic reasoning during either pandemic. We recommend that clinicians of all cadres working in pandemics be taught the range of diseases that might present like the pandemic illness and that diagnostic reasoning research be embedded into future pandemic responses.

Abstract supplement (free paper abstracts)

154: The COVID-19 staff testing service at Nottingham University Hospitals: description of the service and analysis of the results

Dr Tim Boswell¹, Dr Annie Joseph¹, Dr Ruth Taylor¹

¹Nottingham University Hospitals

Background

In response to the COVID-19 pandemic, Nottingham University Hospitals (NUH) established a COVID-19 testing service for healthcare workers (HCWs) and/or their household contacts in April.

Methods

The service was operated by staff from Genito-Urinary Medicine (GUM), using a secure car park as a drive-through testing facility. A combined nose/throat swab was taken, and tested in-house. The process was fully electronic, with alterations made to existing GUM software to allow automated ordering, results and appointment management. Mean time for sample reporting was 22hrs, with results sent by text message to the HCW. This service operated 7 days/week and also encompassed contact tracing from June. Criteria for testing were principally for symptomatic HCWs (or their household contacts) with typical COVID-19 symptoms between days 1-4 of their illness.

Results

Between 4/4/20 and 3/9/20 a total of 4135 tests were performed with 390 positive results (9%), with a median of 20 tests per day (range 0-99). The majority of positive tests occurred during April and May with initial positivity rates between 15-36%. Most positives were from adults, but 20 positives were from HCW contacts <18 yrs.

Negative test results (allowing asymptomatic HCW or contacts to return to work) saved at least 14,634 staff isolation days.

There were 4 hospital admissions from the 390 positives, with 3 (0.8%) requiring a short ITU admission.

There were no deaths.

Conclusion

This service has proved fast and efficient, utilising existing internal systems. The majority of HCWs or their contacts suffered only a relatively mild COVID illness.

Abstract supplement (free paper abstracts)

155: MDR bacteria in the hospital environment: case of the operating room

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Introduction:

Pathogenic microorganisms, which are present in hospitals, represent a threat to hospitalized patients, especially in risky departments like the operating theater. About 1/5 of nosocomial infections are acquired from the surgical site (SSI), resulting in increased morbidity and mortality as well as increased costs to the healthcare system. This study enables the identification of bacteria isolated from different surfaces in the operating rooms of a Provincial Hospital Center and determination of their antimicrobial resistance.

Materials and Methods:

54 samples, which were gathered in three departments of the Mohammedia Provincial Hospital, were collected from floors, walls and the surfaces of various objects and medical equipment, by swab according to ISO / DIS 14698. Cultures were done and the susceptibility patterns of the isolates were determined following the standards of CLSI.

Results and Discussion:

92.6% (50/54) represented the overall bacterial contamination. The *S. aureus* was the most frequently found 40%, followed by *SCN* at 18%, and *Enterobacter* sp and *Klebsiella* sp at 10%, *Serratia* sp and *Acinetobacter baumannii* at 4%, and 6% for *P. aeruginosa*. The results of the antibiotics susceptibility testing illustrated that 30% of *S. aureus* isolates were MRSA, among gram negative bacteria 19% were Multidrug resistant (MDR).

Conclusion: The presence of MDR bacteria in hospital surfaces promotes the acquisition of NIs, especially those at the operating site. Therefore, it is strongly recommended to set up a plan for regular microbiological monitoring of the environmental contamination of operating theaters. Similarly, it is necessary to apply disinfection measures and compliance with the bi-cleaning procedures.

Abstract supplement (free paper abstracts)

156: COVID-19: case report of a probable re-infection in a lupus patient

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Background

SARS-CoV-2 infected patients mount an immune response, probably preventing re-infection. However, as the antibody titer can wane, it is not clear how long immunity lasts.

Case Description

A 56-year-old obese patient with lupus (treated with hydroxychloroquine) presented 09/04/2020 at the emergency department (ED) with dyspnea since two weeks, dry cough, chest pain, myalgia, headache, ageusia, and diarrhea. One week earlier he had returned from the Democratic Republic of Congo (DRC) where he resided for two months. SARS-CoV-2 was detected by PCR in a nasopharyngeal swab [crossing point (Cp): 36], and the patient was placed in home quarantine. On 04/06/2020 a new PCR was negative. A serological analysis performed 14/08/2020 could not detect SARS-CoV-2 IgG antibodies. On 28/08/2020, he represented at the ED with dyspnea, productive cough, malaise, fever, dysosmia, and dysgeusia. A nasopharyngeal swab was taken showing a strong positive result for SARS-CoV-2 (Cp 14). Moreover, lab analysis showed a mild leucopenia ($3,2 \times 10^3/\text{mm}^3$).

Discussion

The patient probably initially got infected in DRC, counting 134 confirmed cases in the beginning of April (data WHO), as he already had symptoms during his stay. The viral load tested in Belgium was low. The immunity after a SARS-CoV-2 infection can wane, and our patient suffered from leucopenia which is a rare side effect of hydroxychloroquine, probably explaining the decreased immune response with negative serology 127 days after the initial episode, and subsequent re-infection.

Conclusion

We described a probable case of symptomatic SARS-CoV-2 re-infection, 142 days after the initial infection.

Abstract supplement (free paper abstracts)

158: An audit investigating the reporting of invasive Salmonella Infection in adults and children in Greater Glasgow & Clyde (GGC):

Dr Eleanor Singer¹, Dr Kamaljit Khalsa¹, Dr Pauline Wright¹

¹NHS Greater Glasgow & Clyde

Background:

Salmonella typhi and paratyphi A, B & C are pathogens with up to 20% case fatality if untreated. There have been no recent reviews in GGC microbiology, laboratory processing/reporting.

Aims/objectives:

Review number of cases of invasive salmonella infection over a five-year period;
Evaluate laboratory processing: culture, identification and susceptibility testing.
Assess method of reporting results for end-user.

Standards:

GGC microbiology Standard Operating Procedure.
GGC reporting tool "Gram negative rods from a blood culture with a travel history".

Method:

Data gathered from LIMS, laboratory archive, clinical software.
Inclusion criteria: GGC patients, S.typhi/paratyphi A,B&C in sterile samples: 01/01/15–31/12/19.

Results/conclusion:

32 isolates (28 patients). S. Typhi (n=19); S. Paratyphi A(n=8); S. paratyphi B (n=1).
Identification: primary method: MALDI-TOF(28/32 isolates); API20E(3/32). 2nd method: serology - correctly performed in 22/32 cases.

Susceptibility testing/reporting:

Disc diffusion susceptibility: 28 (87.5%)
VITEK 381 card: 4 (12.5%)
CRO MIC assessed: 29 (90.6%)
CIP MIC assessed: 30 (93.8)
CIP MIC listed: 27 (90%)
CIP MIC de-suppressed: 4 (14.8%)
CIP reported as 'S'/'R': 21 (70%)
Azithromycin MIC assessed: 24 (75%)
Azithromycin MIC listed: 22 (91.7%)
Azithromycin MIC de-suppressed: 7 (29.2%)

Abstract supplement (free paper abstracts)

“Salmonella sp”: 81% reported correctly. 31% with azithromycin comment.

Recommendations:

Highlight standardised approach to staff via departmental teaching. Key points:

- Enteric fever suspected? CL3 laboratory processing.
- Serology from nutrient agar.
- Disc diffusion susceptibilities as per SOP.
- Avoid VITEK2
- Report as “Salmonella sp”.
- Release CIP and CRO as “S”/“R”
- De-suppress CIP & Azithromycin MICs.
- Include S. Typhi interpretation comment.

Re-audit: 2 years.

Abstract supplement (free paper abstracts)

159: Experience of CLABSI prevention measures in a medical ICU in a tertiary care hospital in a developing country

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Aims: To reduce the incidence of CLABSI (central line associated blood stream infection) in Intensive care unit (ICU) handling medical patients in a tertiary care setup.

Materials and methods: Baseline data was collected for the first 6 months. Training for doctors, nurses and technicians provided in fixed intervals for implementation of 5 bundles of prevention, especially hand hygiene.

Results: There was significant fall (25.3 Vs 8.1) in CLABSI rate soon after every educational programme conducted. However, it was followed by rise again. There was no overall improvement in CLABSI rate after the intervention part (18.4 Vs 19.5). However, subgroup analysis showed that the outbreak of flu season in the second part of the year in the intervention phase made the population incomparable, with more ARDS cases in the second half with high SOFA score. CLABSI rate comparison between ARDS population containing months in the first half and the second half was done, which showed 15.5% reduction. Also there was significant increase in hand hygiene rate pre and post intervention ($p < 0.05$).

Discussion: The data showed fall in CLABSI rate in the months soon after the educational programme but it was not sustained. Also overall comparison did not yield significant reduction as the two populations were heterogeneous. However reduction in CLABSI rate in ARDS population showed intensive and continuous educational efforts can make significant improvements.

Conclusion: Intensive and continuous teaching programme can cause significant reduction in CLABSI in resource limited settings.

Abstract supplement (free paper abstracts)

161: Early intravenous to oral switch of antibiotic therapy in deep, post-operative spinal infection – a single centre case series

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¹*The Newcastle upon Tyne Hospitals NHS Foundation Trust*

Background: Traditionally, treatment of post-operative deep spinal infections has involved long courses of intravenous antibiotics. We report a case series of patients treated at our hospitals for these infections.

Methods: Cases of post-operative, deep spinal infection between January 2015 and June 2016 were identified from microbiology treatment records. Clinical outcome of cure or recurrence was determined from follow-up documentation.

Results: 24 patients with deep post-operative spinal infection were identified (average age 57.3 years, 15 males, 9 females). Spinal metalware was present in 20 patients (83%), and absent in 4 (17%). 18 patients (75%) experienced early infection (within 30 days), compared to 6 cases (25%) of late infection. Mono-bacterial infection was found in 11 patients (46%), with polymicrobial infection found in 13 patients (54%). The most frequently isolated pathogens were *Staphylococcus aureus*, coagulase-negative staphylococci and members of the Enterobacterales family.

31 courses of antibiotic(s) were reviewed. Average treatment course duration was 47 days (average IV duration: 20 days, average oral duration: 27 days).

At last follow up (average 691 days) 17/20 patients (85%) with infection and presence of metalware were successfully treated. 2 patients died from infection despite remaining on intravenous antibiotics and 1 patient required switch to a long-term antibiotic suppression strategy. All 4 patients with deep infection without spinal instrumentation were successfully treated. Overall, 87.5% of patients achieved clinical cure.

Conclusion: Within this case series, good outcomes were seen in a high proportion of cases after treatment strategies involving an early intravenous to oral antibiotic switch.

Abstract supplement (free paper abstracts)

162: Procalcitonin and antibiotic stewardship at BSUH during the Covid-19 pandemic.

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¹Brighton and Sussex University Hospitals

This quality improvement project (QIP) assessed if procalcitonin (PCT) was influential in antibiotic prescribing at Brighton and Sussex University Hospitals (BSUH) during the COVID-19 pandemic. Superimposed bacterial infections in COVID-19 patients presents a diagnostic dilemma as there are no sensitive methods to detect bacterial superinfection. Consequently, prescription of empirical antibiotics is commonplace.

In response BSUH created local guidance using PCT levels in COVID-19 patients to guide antibiotic prescription. PCT is a pro-hormone released in response to bacterial endotoxins and proinflammatory cytokines. PCT's release is inhibited by viral infections and therefore PCT may be more specific for bacterial infections than CRP. Moreover, PCT levels have been demonstrated to correlate to severity of infection in patients with sepsis and lower respiratory tract infections.

This QIP included all patients prescribed antibiotics admitted to the infectious disease wards at BSUH from April-June 2020. 32 patients with a confirmed diagnosis of COVID-19 and an additional 10 non-Covid patients prescribed antibiotics were included. Demographic data and routine medical data was collected from the notes. Data was analysed using Microsoft Excel. 56% of patients adhered to the predefined criteria. Protocol adherence correlated with reduced hospital stay of up to 50% in certain cohorts, with a presumed reduction in antibiotic duration. Supporting the use of PCT for antibiotic stewardship.

This QIP demonstrated the benefit of PCT in reducing inappropriate prescribing in patients admitted to hospital with COVID. However, given the small sample size, ongoing evaluation of PCT will be beneficial to guide antibiotic use in COVID patients.

Abstract supplement (free paper abstracts)

165: Solitary Syphilitic gumma as a possible cause of Brown-Sequard Syndrome in HIV: a diagnostic dilemma

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¹St. George's Hospital, London

Background

Brown-Sequard syndrome describes the hemisection of the spinal cord which leads to dissociation of spinothalamic and dorsal column sensory modalities in the context of paralysis. While traumatic causes predominate, infective aetiologies are important considerations in the setting of HIV.

Clinical Presentation

We report a case of a 45-year-old, HIV seropositive gentleman with previously treated syphilis (2017) who presented with four week history of progressive left leg weakness (MRC 0 globally) in the context of a rim enhancing cavitating intramedullary lesion at T4-T5 with associated meningeal thickening on MRI spine imaging indicative of central nervous system tuberculosis (TB). Cerebrospinal fluid (CSF) analysis revealed highly elevated protein (3.07g/L), white cell count (7u/L). TB molecular testing (GeneXpert) and sputum microscopy and cultures were negative. PET-CT was conducted to identify possible sites amenable to tissue biopsy. Syphilis serology was indicative of acute or reactivated infection: EIA positive, TPPA >20,480, RPR 1 in 64 (serum), 1 in 2 (CSF). Concurrent treatment for TB, with standard therapy, and neurosyphilis was initiated with 14-days high-dose benzylpenicillin therapy. Repeat MRI spine (days 12 and 22) demonstrated incremental improvement in both spinal cord oedema and size of the T4-T5 lesion, with associated progressive and marked improvement in neurology.

Conclusion

This represents a unique instance of likely neurosyphilis or CNS TB presenting as Brown-Sequard syndrome. Solitary spinal syphilitic gumma are exceedingly rare, and where definitive tissue diagnosis is not possible, thorough investigation of possible causes is required in order to inform the benefits and risks of additional long-term therapies.

Abstract supplement (free paper abstracts)

167: A comparison of the severity of clostridioides difficile infections using traditional scoring compared with ATLAS scores over a period of one year

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¹*Public Health Wales*

Introduction

Clostridioides difficile infection (CDI) causes considerable morbidity and mortality. There is no validated 'severity' scale which predicts outcomes or recurrence. We use a traditional scoring system which categorizes cases into mild, moderate or severe disease.

The ATLAS score has been suggested as an alternative severity scoring system which could also inform prognosis.

We wished to compare severity scores obtained with our current system to those of the ATLAS score and investigate how these scores related to treatment.

Methods

The study was carried out through retrospective analysis of the assessment form we use to assess and manage each case of CDI. This documents whether the CDI is primary or recurrent, severity, risk factors for recurrence and treatment.

We then calculated the ATLAS score for each case and compared these with the severity scores. We also compared severity scores and ATLAS scores with treatment.

Results

There were 121 cases of CDI over one year. Cases were mostly mild but with an overall 30 day mortality of almost 10%. 34 cases (28%) had no documented severity assessment. ATLAS scores did not seem to correlate that well with our severity assessments. Patients with high ATLAS scores were more likely to be treated with fidaxomicin.

Conclusion

We did not find a clear link between ATLAS scores and severity using our traditional scoring system. Patients with high ATLAS scores were more likely to be treated with fidaxomicin. This suggests the ATLAS score may be more useful in identifying patients at high risk of recurrence.

Abstract supplement (free paper abstracts)

169: Diagnostic performance of SARS-CoV-2 serological assays: comparison of three chemiluminescent immunoassays and two rapid IgG/IgM antibody tests

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Background. The 2019 SARS-CoV-2 outbreak rapidly evolved into a pandemic, posing several issues to laboratories all over the world. Comparative performance studies are needed to provide rigorous data on COVID-19 antibody detection assays. Main aim of our work is to compare the performance of 3 chemiluminescent immunoassays (CLIAs) and 4 immunochromatographic lateral flow assays (LFAs) for professional use only to detect SARS-CoV-2 antibodies.

Methods. All specimens have been collected and processed at Ospedale Policlinico San Martino IRCCS, Genoa, Italy, from March to April 2020. The specimen set comprised 137 serum samples from symptomatic patients with a SARS-CoV-2 RT-PCR-positive result in at least one respiratory sample and 63 samples from individuals who underwent respiratory viral molecular testing but were not diagnosed with COVID-19. For the 137 COVID-19 patients the median time between onset of symptoms and serum collection was 14 days. **Results.** Preliminary results showed a higher sensitivity for IgG antibodies in CLIAs ($\geq 90\%$; 95% CI 84-94) than LFAs ($\geq 79\%$; 95% CI 71-86). Sensitivity 14 days after the onset of symptoms significantly increased, ranging between $\geq 93\%$ (95% CI 85-97) and $\geq 98\%$ (95% CI 91-99) for IgG CLIAs and between $\geq 86\%$ (95% CI 73-93) and $\geq 91\%$ (95% CI 78-96) for IgG LFAs. IgM detection resulted less consistent than IgG for nearly all assays. Test specificity ranged from 92-100.0% for both CLIAs and LFAs tests.

Conclusions. Commercially available SARS-CoV-2 immunoassays have good specificity and sensitivity for COVID-19 diagnostics, but we need more data on mechanisms and serological correlates of protective immunity.

Abstract supplement (free paper abstracts)

170: Rapid molecular testing to reduce the number of days spent in respiratory isolation for inpatients under investigation for pulmonary TB in a high incidence setting

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¹Division of Medicine, Barts Health NHS Trust, ²Division of Infection, Barts Health NHS Trust

Introduction:

Respiratory isolation (RI) for inpatients with suspected *Mycobacterium tuberculosis* (MTB) is routinely continued until three negative sputum-smear samples are confirmed. The sensitivity of TB PCR is greater than AFB smear with shorter turn-around time. Side room utilisation has been associated with adverse clinical outcomes and may negatively impact on patient flow.

Aims:

To assess the potential reduction in side room utilisation using first negative TB PCR test.

Methods:

This retrospective review of inpatients with suspected pulmonary MTB between 01/01/20 and 20/05/20 analysed RI days for all patients with TB sputum examination (Smear and BD MAX™ MDR-TB assay). The potential number of RI days saved was calculated using the date of PCR result versus third negative sputum-smear or discharge.

Results:

52 inpatients had sputum samples processed. 42 patients tested negative and could be de-isolated. 22 patients were de-isolated appropriately. We calculated that 116 side room days could potentially have been liberated if patients were de-isolated according to first negative PCR test compared with 3 negative AFB smear tests. This includes 33 intensive care side-room days, 9 coronary care unit days and 74 ward days. Of those testing negative, 43% had at least three sputum samples processed. No PCR negative patients were identified as smear/culture positive. MTB was detected in 19%, providing rapid resistance information.

Conclusion:

First negative TB PCR is a safe means of reducing unnecessary side room utilisation thus liberating RI for other infection control priorities. Furthermore, TB PCR testing supports early personalised treatment for active pulmonary TB patients.

The BD MAX™ platform was donated by BD Molecular Diagnostics for the duration of the study. All consumables were purchased by Barts Health NHS Trust.

Abstract supplement (free paper abstracts)

171: Evaluation of the diagnostic accuracy of a rapid dengue NS1 antigen lateral flow immunochromatography test in UK returned travellers

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Background: Dengue Fever (DF) is an important cause of illness in travellers returning to the UK, but is often impossible to distinguish clinically from other imported infections. A severe vascular leak syndrome can occur. Most UK hospitals do not have an on-site test. Rapid diagnosis at the point of care would help identify these patients and simplify decision making. Our aim was to compare the performance of a rapid diagnostic test with the reference standard in a select UK returned traveller population.

Methods: We tested stored frozen specimens (plasma/serum), taken from adults who were symptomatic following return from a dengue endemic region. Patient samples were included if: onset of an acute febrile illness within seven days of return, sample collection within five days of illness onset. Testing was performed using the BIO-RAD NS1 antigen rapid diagnostic lateral flow immunochromatography test (NS1-RDT). The operator was blinded to the reference standard result. The NS1-RDT result was then compared with the reference standard reverse transcriptase polymerase chain reaction (RT-PCR) result.

Results: 79 individuals met inclusion criteria. 41 (51.9%) had dengue virus infection according to the reference standard (RT-PCR positive). The sensitivity of the NS1-RDT was 85.4% (95% CI: 70.8, 94.4) and the specificity was 100% (95% CI: 90.7, 100). The positive predictive value was 96.2% (95% CI: 81.7, 98.6) and the negative predictive value was 85.2% (95% CI: 74.1, 91.1) assuming a disease prevalence of 0.5.

Conclusions: NS1-RDT is an accurate tool for early identification of DF in a select UK returned traveller population.

Abstract supplement (free paper abstracts)

172: Activities in Namibia to limit the impact of COVID-19 versus Europe and Iran and the implications for the future

Professor Dan Kibuule¹, Dr Lahya Nambahu¹, Dr Israel Sefah^{2,3}, Dr Amanj Kurdi^{4,5}, Dr Thuy Nguyen Thi Phuong⁶, Dr Hye-Young Kwon^{4,7}, **Professor Brian Godman^{4,8}**

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Introduction and aims: Considerable differences in prevalence and mortality rates from COVID-19, with higher rates among European countries and Iran versus African and Asian countries in part due to early and extensive prevention measures. There has been considerable controversy surrounding hydroxychloroquine, with resultant misinformation increasing prices and suicides. Growing concerns also with unintended consequences of lockdown and other measures. Consequently, a need to investigate changes in utilisation and prices of relevant medicines during the pandemic in Namibia with its proactive approach to guide future decision making. Community pharmacists play a key role in this respect. Methods: Questionnaire survey among 55 pharmacists from March to end June 2020. Results: Proactivity among some pharmacists to plan for the pandemic with increased stocks. Limited increases in utilisation of antimalarials and antibiotics in Namibia versus other countries enhanced by restrictions on self-purchasing in Namibia, reflected in limited price rises and shortages. Higher use of Vitamin C/ immune boosters in Ghana and Nigeria versus Namibia reflected in higher price rises, with increased utilisation and prices of PPE across all countries. Encouragingly lower increases in herbal medicines in Namibia versus Ghana. Concerns though with unintended consequences. Conclusion: Encouraging to see continued low prevalence and mortality rates from COVID-19 in Namibia and limited increase in utilisation of antimalarials and antibiotics with prescribing restrictions. Concerns with rising rates of malaria and other infectious diseases following lockdown need addressing. Pharmacists can help plan for the future, educate the public during pandemics, help with vaccinations and general medicines management.

Abstract supplement (free paper abstracts)

173: The use of high concentration intrathecal amikacin for gentamicin-resistant Gram negative ventriculitis: A case report and review of the literature".

Dr Alex May¹, Dr Rhys Davies¹, Dr Gwennan Jones¹, Dr Jaisi Sinha¹

¹*Public Health Wales Microbiology Cardiff*

Objectives

To report a case of gentamicin-resistant E.coli ventriculitis following a neurosurgical procedure treated with high concentration intrathecal amikacin and summarise current literature on intrathecal amikacin treatment regimens.

Case Report

A 51 year old female developed fevers and reduced GCS post dural tear repair surgery. MRI imaging demonstrated a collection at the surgical site in communication with the thecal sac and inflammation along the cord surface and leptomeninges. CSF samples cultured Extended-Spectrum-beta-lactamase producing E.coli demonstrating resistance to cefotaxime, ceftazidime and gentamicin, but susceptible to meropenem and amikacin. Empiric antibiotics were changed to intravenous meropenem and amikacin. In addition the patient was started on intrathecal(IT) amikacin via bilateral extra ventricular drains(EVD). 5mg/ml preservative free amikacin solution was produced by our local hospital pharmacy and administered intrathecally at a dose of 30mg once daily. 48 hours after starting IT amikacin CSF cultures were negative, without EVD replacement. Despite this the patient had further neurological deterioration and subsequently died.

Discussion

Intrathecal administration of amikacin for Gram negative ventriculitis provides additional challenges compared to gentamicin. Dosing regimens vary in published literature between 5-100mg/day. IDSA advise 5-50mg/day IT amikacin with a usual dose of 30mg/day. IT amikacin requires a preservative free formulation that is not readily available in the UK. The need to order this from the manufacturer led to treatment delay. Our pharmacy produced a higher concentration solution than reported by the UK's largest dedicated neurosurgical hospital. This higher concentration may facilitate higher dosing of IT amikacin when ventricular size may limit administered volumes.

N/A

Abstract supplement (free paper abstracts)

175: Infections caused by *Fusobacterium* spp: a 3-year retrospective cohort study from West of Scotland

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Background:

Fusobacterium species feature prominently among anaerobic bacteria of medical interest, in part due to the association with the much-dreaded Lemierre's syndrome. This study aimed to characterize the range of infection associated with *Fusobacterium* spp in West of Scotland, with a focus on which diagnoses are observed as well as the incidence of thrombotic complications.

Methods:

A 3-year retrospective, descriptive study was performed, using an electronic database to identify patients with microbiologically-confirmed *Fusobacterium* infection between January 2017 and December 2019. Clinical records were examined for information on presentation and diagnosis, including thrombotic complications. Treatment and outcomes were noted for cases of confirmed Lemierre's syndrome.

Results:

Of the 107 *Fusobacterium* isolates studied, half were *F. necrophorum* (49.5%), with others comprising *F. nucleatum* (42%), *F. gonidiaformans* (3.7%), *F. mortiferum* & *F. russii* (1.9%). Thrombosis was noted in 4/13 (31%) patients with *F. necrophorum* bacteraemia, with 3 having confirmed Lemierre's syndrome. Sites of thrombosis included the internal jugular, facial and retromandibular veins as well as one case of cavernous sinus thrombosis. Hepatic vein thrombosis and septic thrombophlebitis were observed complicating *F. nucleatum* infection. Associations between *F. gonidiaformans* and postpartum infection, *F. mortiferum* and alcoholic liver disease, and *F. russii* and cat bite wounds were observed.

Conclusion:

Fusobacteria are implicated in a range of serious infections, a small but significant proportion of which constitutes Lemierre's syndrome. A high rate of thrombotic complications was observed with *F. necrophorum* bacteraemia. Further studies are required to better characterize this association.

Abstract supplement (free paper abstracts)

176: A cross-sectional survey of the perceived workload of UK infection specialists related to Lyme disease

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Background: Anecdotally, there is a perception from UK infection specialists that they are predominantly consulted on Lyme disease (LD) in relation to patients with long-standing, non-specific symptoms. However, no formal description of this perception exists. The project's aim was to describe UK infection specialists' perceptions in relation to consultations concerning LD.

Methods: In July 2019 an electronic cross-sectional survey was distributed to members of the British Infection Association's 'e-list' - an open forum for infection clinicians.

Results: 82 specialists responded to at least one survey question. 86% were consultants, 30% were from South-West England. Phone advice was the most common interaction, involving discussions around diagnostic testing and management for confirmed LD. In relation to how patients presented, non-specific long-standing symptoms, or asymptomatic tick-bites were most common. In terms of consultations, proportions were relatively evenly split between those for possible early LD, and those relating to long-standing symptoms. Respondents were more confident in dealing with queries relating to possible early LD than those relating to long-standing symptoms.

Conclusions: The management of typical confirmed Lyme borreliosis was not perceived as a problem. In contrast to anecdotal perceptions, UK infection specialists' workload in relation to LD appears to be relatively evenly split between queries relating to early possible LD, and those relating to long-standing symptoms. However, they were more confident in dealing with the former, highlighting an area to target in future UK LD-related training and education. Further guidance and research around longstanding medically-unexplained symptoms and any relationship to borreliosis would be helpful.

Abstract supplement (free paper abstracts)

177: Assessing Antibiotic Allergy to Improve Antimicrobial Stewardship

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Antibiotic allergies, particularly to penicillins, are widely reported in patient records but it is believed that only a small proportion of those reported represent a true allergy. This results in the unnecessary use of second-line agents associated with higher levels of morbidity, mortality and antibiotic resistance. We surveyed patients with reported allergies in Raigmore Hospital, Inverness and developed a simple screening tool which allows around a third of allergies to be classified as unlikely within minutes. Optimisation is ongoing with a view to delivering improved patient care.

The Authors declare that there is no conflict of interest.

Abstract supplement (free paper abstracts)

178: Antimicrobial Synergy Testing of Extensively-Drug Resistant *Escherichia coli* isolates at an Organ Transplant Center in Nepal

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BACKGROUND

The imprudent use of broad-spectrum antibiotics leads to the emergence of multidrug-resistant (MDR) and extensively-drug-resistant (XDR) bacteria. Adopting strategies based on synergistic combinations of antibiotics are one of the best methods to combat XDR infections.

OBJECTIVE

This study was conducted to determine in vitro activity of different antibiotic combinations against MDR and XDR clinical isolates of *Escherichia coli*.

METHOD

A cross-sectional study was conducted at Human Organ Transplant Center, Nepal where XDR *E. coli* isolates were tested for antimicrobial synergy following by E-strip MIC:MIC method. The combination of antibiotic for synergy testing was chosen considering standard guidelines, and the result was interpreted as synergistic, indifferent or antagonist.

RESULTS

Around 23.9% of *E. coli* were MDR, 9.9% XDR, 8.5% extended-spectrum-beta-lactamase (ESBL)- and 7.0% metallo-beta-lactamase (MBL)-producer. The *E. coli* isolates showed resistance pattern as follows- amikacin (47.1%), meropenem (61.8%), ciprofloxacin (97.1%), while all were susceptible to colistin. The combination, meropenem + colistin showed the highest proportion of 'synergy' among all XDR *E. coli* whereas amikacin + ciprofloxacin showed equal number of synergy and antagonism (14.3% each) with 10 strains showing indifference. Meropenem + amikacin, meropenem + ciprofloxacin, amikacin + colistin, were showing indifference result in 71.4-100% cases. No antagonism was seen with meropenem when combined with amikacin or ciprofloxacin.

CONCLUSION

Possible beneficial action was seen while combining meropenem with colistin, and amikacin with ciprofloxacin. Such combinations can be used for XDR bacterial infections. Further studies are required to confirm these findings and develop protocols in the management of XDR bacterial infections.

Abstract supplement (free paper abstracts)

179: Impact of an empiric therapy manual on antibiotic usage in a large Italian teaching hospital: an interrupted time series analysis, 2015-2019.

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Background: Antimicrobial resistance (AMR) is a globally recognized public health threat. Italy is currently facing hyper-endemic levels of resistance. A National Action Plan to tackle AMR was established in 2017, which identified antimicrobial stewardship (AMS) as a key element in this endeavor.

Methods: An empiric antibiotic therapy manual was introduced in June 2017 as part of the AMS program of the Molinette hospital, a 1200-bed teaching hospital in Turin, Italy. The manual was drafted by a multidisciplinary team and encompasses all aspects of empiric therapy including primary antimicrobial choice, alternatives in case of allergy, dosage, duration and route of administration. Trends in antibiotic use in medical wards, calculated as defined daily doses (DDD) per 1000 bed-days (BD) per month, were investigated over a period of four years (May 2015 – May 2019) using segmented regression analysis of an interrupted time series, after checking for autocorrelation and seasonality.

Results: Post-intervention there was a significant downward change in trend in fluoroquinolone and vancomycin usage (-0.31 DDD/1000 BD; p 0.018 and -0.18 DDD/1000 BD; p 0.027 respectively). A non-significant downward change in trend was found for 3rd generation cephalosporins (-0.43 DDD/1000 BD; p 0.519). Regarding carbapenems, after a sharp post-intervention change in level, a non-significant upward change in trend was observed (0.28 DDD/1000 BD; p 0.082), almost reaching pre-intervention levels at the end of the study period.

Conclusion: Results of this study suggest the manual was effective in reducing broad-spectrum antibiotic usage, although sustained results over time were not achieved for carbapenem usage.

Abstract supplement (free paper abstracts)

180: Genotypic characterisation of non-tuberculous mycobacteria from clinical samples suspected of tuberculosis

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Background: Non-tuberculous mycobacteria are ubiquitous organisms found in natural water bodies, biofilms, soil, and even drinking water supplies. Approximately 186 NTM species are known. NTM affect both immunocompromised and immunocompetent individuals. Patients usually present with tuberculosis-like pulmonary disease, although lymphadenitis, soft-tissue infection and bacteraemia may also result. Differentiation from MTBC and species identification are crucial for proper patient management.

Objectives: To identify and speciate NTM from clinical sample genotypically, using Line Probe Assay and to correlate with clinical, laboratory and demographic data.

Methods: A total of 2050 samples (pulmonary and extra-pulmonary) from clinically suspected tuberculosis patients, were received for mycobacterium culture, during the study (August 2018 to December 2019). Samples were processed using standard techniques. Ziehl Neelsen staining was done from sample and culture isolates. Liquid culture was performed in BacT/ALERT-3D and positive cultures were differentiated from MTBC using MPT-64 antigen detection kit. Genotyping was performed using Line Probe Assay).

Results: Prevalence of NTM among clinically suspected tuberculosis patients was found to be 5.1%, with a male predominance (62.5%). Most common clinical spectrum observed were pulmonary disease (47.1%) and lymphadenitis (16.3%). Risk factors and comorbidities were present in 65.4% and 26.9% patients, respectively. Among the 10 NTM species identified, *M. abscessus* was the most frequent from both pulmonary and extrapulmonary samples (35.7%), followed by *M. intracellulare* among pulmonary and *M. fortuitum* among extrapulmonary samples.

Conclusion: NTM is emerging public health problem. Rapid and accurate diagnostic techniques are needed to enable targeted therapy and reduce risk of antimicrobial drug resistance.

Abstract supplement (free paper abstracts)

182: An outbreak of SARS-CoV-2 infection on a long-stay hospital ward in March 2020, identified at the onset of inpatient testing in England

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Introduction

On 10th March 2020, Public Health England recommended SARS-CoV2 testing for all hospital inpatients with respiratory symptoms. We investigated one of the first outbreaks of SARS-CoV2 infections affecting patients on a long-stay hospital ward in the UK.

Methods

We reviewed patient movements, records and infection control measures taken.

Results

During the period 10th March to 15th April 2020, thirteen SARS-CoV2 RT-PCR positive cases and two probable cases of SARS-CoV2 infection were identified on the ward.

Nine of the thirteen confirmed cases were symptomatic prior to ward closure on the 9th March 2020. Strict PPE and IPC measures commenced following closure. However, three confirmed cases were found subsequently despite these measures.

Using an incubation period of 14 days, we estimate that the index case could have acquired infection as early as 5th February 2020, when there were only two confirmed cases of SARS-CoV2 in the UK.

Discussion

We believe we are one of the first hospitals to have identified SARS-CoV2 positive inpatients in England. Furthermore, this occurred on a ward of long stay patients, suggesting that SARS-CoV2 was circulating in hospitals much earlier than introduction of inpatient testing by PHE. Environmental contamination secondary to the bed movements, slow adoption of PPE practise by staff at initial time of incident, lack of staff cohorting by bay and lack of visitor restrictions pre-closure may have all contributed to the outbreak.

Abstract supplement (free paper abstracts)

183: Clinical and laboratory correlation of a screening reactive cytomegalovirus (CMV) IgM antibody

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¹Northern Care Alliance

This audit assessed the final outcome of a screening IgM CMV antibody result (equivocal, low level detected, and high level detected) in comparison to the final result from the reference laboratory. We investigated if screening IgM CMV antibody detection represented evidence of acute or recent infection with CMV. We correlated clinical conditions that are associated with a low-level IgM CMV antibody detection in the screening assay. We evaluated if an alternative clinical diagnosis could have led to reactive IgM CMV antibody.

All patients investigated during the period September 2018 to August 2019 at the microbiology lab in Pennine Acute NHS Trust and found to have an equivocal or reactive CMV IgM antibody were included in the audit. These included patients seen at GP practices, hospitals, outpatient clinics and antenatal clinics. The screening IgM CMV antibody assay was tested in the laboratory using the Abbott Architect i2000 which uses a signal to cut-off ratio (S/CO) to report samples as not reactive, equivocal or reactive.

We also captured the value of ALT, whether there was absolute or relative lymphocytosis and whether a glandular fever screening test (GFST) had been performed.

256 eligible patient records were identified. These were divided into four groups:

- 1) Acute/ primary infection 36/256 = (14%)
- 2) Past CMV infection or reactivation 185/256 = (72.5%)
- 3) False positive screening CMV IgM 22/256 (8.5%)
- 4) Insufficient/ invalid avidity results 13/256 = (5%)

False positive screening was most commonly associated with EBV IgM, treponemal serology and HSV types 1 and 2.

Abstract supplement (free paper abstracts)

184: Developing a Ward Team Approach to Antimicrobial Stewardship: Can Addition of an Antimicrobial Pharmacy Technician to the Multidisciplinary Team Improve Antimicrobial Stewardship and Patient Care?

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¹Nhs Greater Glasgow & Clyde

Background

Antimicrobial pharmacy technicians (AMPTs) were recently introduced to NHSGGC to help support antimicrobial pharmacists. This provided an opportunity to develop this new role to support antimicrobial stewardship (AS) initiatives.

Aim

To determine if introduction of an AMPT to the multidisciplinary team, providing prospective audit and feedback of AS issues to medical, surgical and care of the elderly wards, can improve AS and patient care at the Royal Alexandra Hospital.

Method

Multidisciplinary ward team meetings were arranged and the need for improvement in antimicrobial medicine chart documentation recognised. Current ward systems were considered and a multidisciplinary process agreed. The AMPT visited wards twice weekly and screened all available medicine charts for the following:

1. Allergy Status
2. Stop/review date of oral antibiotics and IV antibiotics
3. Missed or Unavailable antibiotic doses
4. Completion of Protected Antimicrobial Forms
5. Antibiotic/multivalent cation interactions

The AMPT provided prospective feedback of AS issues to the ward charge nurse and medical team. Monthly reports were also shared with the ward teams.

Results

The AMPT service resulted in improved documentation of allergy status, oral and IV antibiotic stop/review dates, and compliance with the 'protected' antimicrobial policy. The AMPT also contributed to improved AS by raising awareness of the interaction between antibiotics and multivalent cations. Ward feedback described the AMPT service as helpful, supporting the ward team to improve AS and patient care.

Conclusion

The addition of an AMPT to the multidisciplinary ward team can make a significant contribution to improve AS and patient care and safety.

Abstract supplement (free paper abstracts)

185: The consequences of protracted Hospital admission with CoVID-19 infection: Hospital acquired *Serratia marcescens* aortic valve endocarditis

Dr Lucy Rivett^{1,2}, Dr Mark Belham¹, Dr David Enoch^{1,2}, Dr Christian Cruz Hofling¹, Miss Anna Mayhew¹, Mr Robert Moule¹, Dr Jamie Whitehorn^{1,2}, Dr Elinor Moore¹

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A normally fit and well 56 year old presented critically unwell to the Emergency Department in late March 2020, requiring intubation and ventilation.

He was found to be SARs-CoV-2 RNA positive and subsequently required a 50 days admission to ICU. 26 days into admission *Serratia marcescens* was isolated from arterial line blood cultures and an aortic valve vegetation was identified. His infective endocarditis was managed conservatively and following a protracted admission he is now undergoing home rehabilitation.

Whilst *Serratia marcescens* is a relatively infrequent cause of endocarditis, the organism is well documented in hospital associated infections and outbreaks due to environmental reservoirs and contamination. It is most frequently seen in those with indwelling devices, intubation and long ICU stays. Patients typically have co-morbidity or immune compromise.

A recent publication (Amarsy et al, 2020) describes an outbreak of *Serratia marcescens* in a Parisian ICU, involving four CoVID-19 patients. This outbreak was attributed to poor PPE use / hand hygiene measures. These cases, in combination with ours, highlight both the secondary consequences of CoVID-19 infection on the individual, but also the difficulties in ensuring effective PPE and cleaning measures are in place in a time of increased workload and significant changes in practice. In our Hospital, PPE has been adapted to balance the risk on the HCW with patient need and PPE scenarios have been developed to specifically address this. We need to be vigilant and prepare for the potential increase in numbers of nosocomial infections over the coming winter months.

Abstract supplement (free paper abstracts)

186: Impact of the COVID-19 pandemic on Infections of IPC interest at Birmingham Children's Hospital, UK

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¹*Birmingham Women's and Children's NHS Foundation Trust*

Introduction: The COVID-19 pandemic has led to profound changes in infection prevention and control (IPC) practice in the National Health Service(NHS).We assessed the impact of the COVID-19 pandemic on detection of other infections of IPC interest at the Birmingham Children's Hospital(BCH),United Kingdom.

Methods: Infections of IPC interest were defined as bloodstream-associated infections (BSI), respiratory viral infections unrelated to COVID-19 and enteric viral infections. The impact of the COVID-19 pandemic was assessed by comparing the incidence of these infections during the pandemic (March to August 2020) and the corresponding period pre-pandemic (March to August 2019).Data on BSIs caused by *Pseudomonas aeruginosa*, *Escherichia coli*, *Klebsiella* spp. and Methicillin-sensitive *Staphylococcus aureus* was obtained by interrogating the BCH bacteraemia surveillance database. Contaminated blood cultures were identified through discussions with clinical teams.

Results and Discussion: Non-Covid-19 respiratory and enteric viral infections reduced markedly during the pandemic, with no cases detected during the lockdown. However, overall incidence of BSIs and contaminated blood cultures was higher during the pandemic. Incidence rates need to be interpreted with caution as fewer patients presented to BCH during the pandemic, compared to pre-pandemic levels. However, these patients were more unwell. IPC measures such as visiting restrictions and social distancing of patients may have contributed to decline of other viral infections. However, increased use of personal protective equipment (PPE) may have encouraged lapses in hand hygiene and aseptic sterile non-touch techniques during procedures, resulting in higher number of contaminated blood cultures.

Conclusion: During the COVID-19 pandemic, the incidence of non-COVID-19-related respiratory and enteric viral infections reduced markedly, but an increase in bloodstream-associated infections and contamination of blood culture specimens was detected.

Abstract supplement (free paper abstracts)

187: What does an Incidence survey tell you about hospital epidemiology that Prevalence surveys do not?

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¹Glasgow Caledonian University, ²University of Strathclyde, ³Public Health Scotland

Prevalence surveys are the internationally accepted method of reporting burden of disease in hospital epidemiology. However, these snap shots of active cases provide only part of the picture. Prevalence surveys are rapid compared to incidence studies and require less resource. The Evaluation of Cost of Nosocomial Infection (ECONI) study was a year-long incidence study undertaken within a teaching and general hospital. This incidence study builds on the seminal Plowman study on the socioeconomic burden of healthcare associated infection (HAI). Infections which met the European Centres for Disease Prevention and Control HAI case definitions were recorded by trained research nurses. Full incidence data was collected on infection type, organisms isolated, date of onset and this was linked to routine data which provided admission and discharge information on cases and non-cases. This study reports seasonal variations in incidence, by both infection type and organism, and attributable LOS using a multistate modelling approach. Information on all HAI and individual infection types allows for a realistic extrapolation of the potential impact of infection prevention and control interventions. The benefits of information on all new cases compared with active cases are discussed and how these insights can be used to inform prevalence survey planning. There are limitations, only HAI which became active during the hospital admission were recorded and this study only reports a single year, however this information highlights some key considerations when interpreting prevalence studies.

Abstract supplement (free paper abstracts)

188: Assessment of the accuracy of penicillin allergy documentation and investigation in to whether or not those labelled as penicillin allergic could potentially be de-labelled through pharmacist involvement.

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¹Leeds Teaching Hospitals Trust

Penicillin is the most commonly reported drug allergy; fewer than 10% of patients, however, are truly allergic. Penicillin allergy is associated with poorer healthcare outcomes as patients are prescribed less effective second-line treatments associated with a risk of resistance.

Fifty adult inpatients with a documented penicillin allergy took part in a survey which asked about their allergy history to see if self-reports were consistent with the reaction listed on their inpatient prescription. A tool from the on-going ALABAMA trial was then used to identify who could theoretically be de-labelled.

Thirty-two patients reported the same reaction as documented. Discrepancies were usually because the reaction was absent. Twenty-six patients were identified as potentially suitable for a direct oral challenge or skin testing before an oral challenge, 13 of these patients expressed willingness to try a graded exposure.

De-labelling is a complex intervention. Healthcare professionals need a robust process in place to confidently implement this intervention. Several recommendations were made following the audit.

Pharmacy staff will be re-educated on their role as part of the reconciliation process to document the nature of the reaction to aid clinical decisions as many patients have intolerances rather than an allergy.

A robust system is required to enable de-labelling within electronic patient records to prevent patients subsequently being re-labelled.

National Guidance, led by the British Society for Allergy and Clinical Immunology, is expected to aid development of the Pharmacists and other healthcare professionals role in de-labelling allergies. We will review our processes when this is released.

Abstract supplement (free paper abstracts)

190: Using Big Data to Evaluate the Time to Achieve an Initial Therapeutic Vancomycin Pre-dose Level and Optimal Dosing of Vancomycin in Patients with High Renal Clearance

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Background:

Optimising vancomycin therapy in patients with high renal clearance represents significant challenges to clinicians at Cambridge University Hospitals. We evaluated the time to achieve initial therapeutic level of 10-20mg/L and optimal dosing in this patient group.

Methods:

This retrospective study includes all adult patients with a high creatinine clearance of over 100ml/min (calculated via Cockcroft-Gault formula) and started on intravenous vancomycin treatment over a 2-year period (1/2/2018-29/2/2020). Data was extracted from the electronic prescribing system (EPIC) using custom-made in-house reports on antibiotic prescriptions, laboratory results and therapeutic drug monitoring.

Results:

After manipulating databases of 83,185 vancomycin administration records, 182 patients, aged between 18-84 years old (mean 55) were identified and 203 courses of vancomycin were evaluated in this study. Duration of vancomycin treatment ranged from 4-43 days. Time to achieve the target level of 10.00-14.99mg/L and 15-20mg/L, ranged from 0.5-10 days vs 1-20 days respectively. Mean time to achieve initial pre-dose level of 10.00-14.99mg/L was 2.5 days (overall), 3 days with twice daily dosing, and 2 days with three times a day dosing. For the target level of 15-20mg/L, the mean time to achieve the initial target level was 4 days (overall), 4.5 days with twice daily dosing and 4 days with three times a day dosing.

Conclusion:

Our preliminary data suggests that twice daily dosing could potentially be under-dosing patients with high renal clearance, as these patients had a longer duration to achieve a therapeutic pre-dose level compared to those on a three times daily dosing.

Abstract supplement (free paper abstracts)

191: A novel communications strategy for optimising COVID-19 Prevention and Control in non-English speaking communities in Ireland

Dr Clíodhna Ni Bhuachalla¹, Dr Claire Buckley¹, Dr Catherine Clifford

¹HSE

Aims: Inequitable access to COVID-19 communications has been identified as a barrier to engagement in vulnerable communities. This can adversely impact practice of infection prevention control (IPC) components of Non-Pharmaceutical Interventions (NPIs). The World Health Organisation also warn of the challenges of COVID-19 misinformation in their 'Stop the Spread' campaign. In this context, we describe the Irish experience of a novel communications strategy to optimise COVID-19 communications/IPC in non-English speaking communities.

Methods: A voluntary cross-sectoral initiative was established. Two brief 'Public Health' scripts, based on national guidance and detailing COVID-19 symptoms, testing, management, IPC measures, restrictions and supports, were drafted. Thirty healthcare professionals recorded these scripts by video in 30 languages; these videos were shared via social-media platforms including via a key migrants' rights group. Subsequent scripts were approved by a national postgraduate medical body. Videos were updated regularly. Feedback was sought from 'service-users'.

Results: Crude metrics to date include 18,000 'views' on social-media platforms, with positive feedback. A promotional campaign was conducted by the national state broadcaster. The initiative was signposted by the national Health Service Executive (HSE) e.g., HSE National Health Protection Surveillance Centre, HSE National Social Inclusion Office, national guidance for outbreak management in meat factories; and endorsed by multiple migrants' rights groups. Additional 'Back-to-school' videos, recorded by 30 educational professionals, had approximately 10,000 'views'.

Discussion/Conclusion: This initiative highlights the need for easily accessible communications for non-English speaking communities. Dissemination of such information is critical to any COVID-19 prevention and control strategy. Future applications include 'Flu-vaccination'.

Abstract supplement (free paper abstracts)

192: Clinical and Laboratory profile of Dengue infection: A Hospital-based study in Rajasthan, India

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Background: Dengue fever, a mosquito-borne, febrile-illness caused by four serologically distinct DENV of genus Flavivirus. Infection may range from asymptomatic to life-threatening shock syndrome seen in hyper-endemic circulation of all four serotypes. Maintenance of body fluid volume is critical during patient care. WHO 2009 classification emphasizes on early recognition of warning signs, thus optimizing triage and management decisions.

Objectives: To analyse the clinical and laboratory profile among the serologically positive dengue fever patients hospitalized at a tertiary care hospital. Also, molecular detection and serotyping of dengue virus using Real-time PCR to know the prevalent strain.

Methods: This prospective study was done among clinically suspected dengue patients (August 2018 to December 2019). Blood samples were screened for NS1 antigen and dengue-specific IgM-antibodies using lateral-flow immunochromatographic assay. Positive samples were confirmed using ELISA. Serotyping was performed using qPCR.

Results: We investigated 8,139 patients suspected of dengue fever with 22.1% seropositivity. Out of 137 patients, according to 2009 WHO case definition, 56.9% had “Dengue fever with warning signs” and 5.9% had “Severe dengue”. Along with fever as presenting complaint bleeding manifestation was seen in 18.9%. Severe thrombocytopenia was seen in 56.2%. DENV-3 (16.8%) was most predominant serotype followed by DENV-1 (10.9%). Co-circulation of DENV-1 and DENV-3 (13.1%) was observed, along with DENV-4 in a case of co-infection with DENV-1.

Conclusion: Dengue fever is underreported and misdiagnosed due to wide-spectrum of clinical manifestations. Vector control measures with strong surveillance systems are needed to monitor any change in predominant serotype related to the disease severity.

Abstract supplement (free paper abstracts)

193: Early clinical assessment tool alongside testing pathway to aid patient placement in healthcare to reduce healthcare associated COVID-19

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In the early pandemic coronavirus PCR testing as the sole validated diagnostic test for COVID-19 was only available at regional facilities. Given the reported sensitivity of 70-90%, reliance on these tests alone for placement of patients (in single rooms or cohorts) would have resulted in mixing of patients without COVID-19 infection with those that have tested falsely negative.

In our 1500 bed secondary care hospitals, we introduced at the start of March 2020 an early COVID-19 clinical likelihood assessment tool (ECCLAT) to aid clinicians and bed managers in placing patients in appropriate clinical areas to minimise hospital transmission of COVID-19 infections.

The ECCLAT consisted of two parts: the first requiring a senior clinician to assess (prior to a test result) the pre-test probability of a patient having COVID-19 clinically (high, intermediate or low probability). The second part determined actions following a positive or negative result for each of these probabilities, reviewing management as required.

Even as testing capacity and algorithms improve, the reduction in prevalence post-peak pandemic means a corresponding drop in positive predictive value, increasing in our opinion the usefulness of clinical tools such as ECCLAT to support positive diagnoses and patient placement. With the winter approaching, we will modify ECCLAT to Clinical Likelihood Assessment of Acute Respiratory Virus Infection tool (CLAARVIT) to include the probability of Influenza/RSV and other acute respiratory viral infections. This will be used in combination with rapid diagnostic tests for these viruses to aid patient placement/cohorting, due to potentially more complex bed management decisions.

Abstract supplement (free paper abstracts)

195: Enhanced surveillance of *Staphylococcus aureus* bacteraemia (SAB) in Glasgow

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Background: *Staphylococcus aureus* bacteraemia (SAB) is associated with significant mortality and warrants further investigation.

Materials/methods: Data on adult SAB episodes were collected prospectively during enhanced surveillance in 2017 and augmented with additional data-points. Uncomplicated infections were defined as MSSA (methicillin-sensitive *Staphylococcus aureus*), neither deep-seated nor contaminants, and managed with flucloxacillin or vancomycin as per Trust guidance. Data analysed in STATA 13.

Results:

408 episodes were identified involving 380 patients, 229(60%) male, median age 63 [IQR_47-78]. 17(4.2%) were MRSA. 166(41%) were hospital-acquired and 130(32%) were healthcare-associated. 121(30%) infections were deep-seated. Median duration of IV treatment was 14 days [IQR_11-17]. Overall 30-day mortality was 17%(71/408), with 38(11%) recurrences.

There were 199 uncomplicated infections; 179(90%) received flucloxacillin and 20(10%) vancomycin. 30-day mortality was 13%(26/199). There were 19(10%) recurrent infections. Multivariate analysis revealed no association between antibiotic choice and mortality ($p=0.53$). Increasing age (OR 1.06, $p<0.0001$) and female sex (OR 2.77, $p=0.029$) were associated with mortality. Prolonged treatment was associated with reduced risk of recurrence (OR 0.89, $p=0.009$), but no association was found with any of age, sex or antibiotic choice ($p=0.44$, 0.85, 0.16, respectively). There was no association between antibiotic choice and time to discharge ($p=0.184$).

Conclusions: Antibiotic choice for uncomplicated infection, either flucloxacillin or vancomycin, had no association with mortality, recurrence or time to discharge. However, longer durations of treatment were associated with a reduced rate of recurrence. Interventions to reduce healthcare-associated SAB, and the increased mortality in female and older patients, require further investigation.

Abstract supplement (free paper abstracts)

196: Appendiceal abscess and bacteraemia caused by *Eggerthella lenta*: an emerging anaerobe

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A 92-year-old man presented with right iliac fossa pain, fever, nausea and diarrhoea. He had localised prostate cancer, diabetes mellitus and hypertension, taking anti-hypertensives and metformin. He was allergic to penicillin. His temperature was 39.2°C, pulse 84 and blood pressure 132/69. Examination revealed right sided abdominal tenderness, with guarding and rebound tenderness.

Blood tests included white cells 3.9 x10⁹/mm³, C-reactive protein 189 mg/dL and creatinine 164 µmol/L. He was commenced on teicoplanin, metronidazole and gentamicin for appendicitis. Abdominal CT showed a severe retrocaecal appendicitis complicated by rupture/perforation, with an evolving phlegmon indenting the tip of the liver.

Blood cultures grew gram-positive coccobacilli, identified as *Eggerthella lenta*.

Not wanting surgery, he was managed conservatively. His abdominal pain reduced, but subsequent imaging showed the appendiceal abscess had increased in size. After being drained, and following 7 days of intravenous antibiotics he was discharged to complete a course of amoxicillin-clavulanate.

The fluid contained gram-positive and negative bacilli. *Escherichia coli* and *E. lenta* were isolated.

Antimicrobial sensitivity testing (AST) showed the *E. lenta* was sensitive to metronidazole, amoxicillin-clavulanate, vancomycin and meropenem, intermediate to piperacillin-tazobactam and resistant to penicillin and ceftriaxone.

Eggerthella lenta is an anaerobic gram-positive bacillus difficult to identify with traditional microbiology, but much easier with MALDI-TOF. AST data are lacking, as are data on bacteraemias. We have been able to prove that *E. lenta* is a cause of appendicitis, rupture, abscess formation and bacteraemia all in the same patient, but with appropriate antibiotics when surgery is unavailable the outcome can be good.

Abstract supplement (free paper abstracts)

197: Persistent Influenza A(H1)pdm09 shedding in an immunocompromised patient

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Background: Influenza A(H1)pdm09 causes respiratory tract infections in humans, causing annual epidemics. Viral shedding is usually transient but reports of prolonged shedding are present in the literature, particularly in immunocompromised patients.

Case: We report a 64 year old female with a background of T-cell prolymphocytic leukaemia managed with a T-cell deplete stem cell allograft. She poorly engrafted and remained lymphopenic and intermittently neutropenic. Subsequently she presented with recurrent febrile episodes and was persistently positive for Influenza A (H1)pdm09 by reverse transcriptase polymerase chain reaction (RT-PCR) from throat swabs. Typing during the first 6 months post-allograft showed one strain, A/Michigan/45/2015-like, reinforcing the suspicion that the patient had a persistent infection. Oseltamivir resistance was identified by sequencing, before reverting to susceptible when treatment was changed from oseltamivir to zanamivir. At one year the patient continued to be positive for influenza by RT-PCR and showed clinical response to zanamivir, supporting a view that the RT-PCR findings were significant. During asymptomatic intervals the patient remained positive for Influenza A (H1)pdm09.

Discussion: Influenza A(H1)pdm09 life cycle consists of only a lytic phase with no described latent state, and viral shedding normally persists for a short period following infection before the infection resolves. Prolonged shedding, rarely for up to several months, has been described in case series of immunocompromised patients, but persistence for a year with asymptomatic intervals has not been. We speculate that severe immunosuppression in this patient allowed for ongoing limited replication within the respiratory epithelium or within extra-respiratory sites such as bowel.

Abstract supplement (free paper abstracts)

198: Proof-of-concept trial to assess the impact of Biofire FilmArray panel for rapid diagnosis of meningoenkephalitis

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Objective: To assess the clinical and financial impact of introducing a rapid multiplex PCR testing panel for diagnosing meningitis/enkephalitis in Doncaster and Bassetlaw Teaching Hospitals

Design: Proof-of-concept study comparing data before and after the introduction of FilmArray

Outcome measures: The primary outcome measure was time taken to diagnosis. Secondary measures included changes in sensitivity, hospital length of stay, antimicrobial management decisions and cost/benefit compared to previous methods.

Methods: Phase 1 involved retrospective data collection of CSFs processed from 1st January to 12th July 2017 using standard microscopy and culture methods with referral to Reference laboratory for PCR where indicated. Phase 2 consisted of prospective data collection following implementation of FilmArray from 13th July 2017 until 12th July 2018 and performed 24/7 on all paediatric CSFs and adult patients with CSF WBC >4.

Results: A total of 429 cases were reviewed – 172 in Phase 1 and 257 in Phase 2. Results showed average decrease of 46 hours turnaround times, increased detection of pathogens from 6.4% in Phase 1 to 23% in Phase 2 with only a small proportion of possible false positives. We detected an overall decrease in average length of stay of 153.1 hours in adults and 43.2 hours in children which equated to a bed-stay cost saving of £1771 and £1053 respectively. Antimicrobial management decisions improved by 6% in Phase 2.

Conclusions: The implementation of FilmArray meningitis/enkephalitis panel has streamlined our diagnostic service with benefits seen in sensitivity, rapid diagnosis, reduced bed-stay, associated costs and improved antimicrobial stewardship

Abstract supplement (free paper abstracts)

199: Native mitral valve *Citrobacter koseri* endocarditis following urinary tract infection

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Citrobacter koseri is a known opportunistic pathogen which can cause significant infections, particularly in immunosuppressed patients. It is also a very rare cause of endocarditis, usually in association with intravenous drug use or prolonged hospital admissions. We report a case of a community acquired native valve endocarditis in a relatively immunosuppressed patient after a confirmed *Citrobacter koseri* urinary tract infection.

An 87-year-old Caucasian man initially presented with one week history of rigors and dysuria. He had a limited past medical history, which included polymyalgia rheumatica, for which he took prednisolone (5mg OD) and a recent incidental finding of mitral valve prolapse on echocardiogram. He was admitted to hospital and diagnosed with a *Citrobacter koseri* urinary tract infection, with the organism being identified in a blood culture and a urinary isolate.

Following discharge with seven days of appropriate antibiotic therapy, he was then readmitted with further rigors 10 days later, with concurrent new microscopic haematuria, iron deficiency anaemia and splenic infarcts on CT abdomen. An echocardiogram showed an increase in the size of the prolapsing material attached to the mitral valve, but endocarditis was felt to be unlikely given the lack of positive blood cultures during his hospital stay. On a third admission to hospital, *Citrobacter koseri* was again isolated from the blood culture, and the patient was successfully treated for endocarditis.

This case highlights the need to suspect endocarditis in patients who have suggestive clinical features, even if organisms identified in blood cultures are not typical for the condition.

Abstract supplement (free paper abstracts)

200: Management of the interaction between tetracycline and fluoroquinolone antibiotics with cation-containing products: Is there room for improvement?

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Background

When tetracycline or fluoroquinolones are given concomitantly with multivalent cation products (e.g. iron, calcium), there is often a significant reduction in antibiotic absorption. This clinically significant interaction risks rendering the antibiotic ineffective and may contribute to the development of antimicrobial resistance.

Aim

To assess if the interaction between tetracycline and fluoroquinolones with cation-containing products is well managed at the Royal Alexandra Hospital (RAH) and determine if raising pharmacist awareness can lead to improvement.

Method

During April 2018 patients discharged on tetracycline or fluoroquinolone antibiotics were identified and immediate discharge letters were screened to determine if any multivalent cation products were also prescribed. The proportion of interactions managed appropriately and the number of antibiotic doses compromised were recorded.

In June 2018 an education session and baseline data were presented to the RAH clinical pharmacy team. Data collection was repeated in Sep 2018 to measure if any improvement in interaction management had been achieved.

Results

The percentage of patients prescribed an interacting antibiotic and multivalent cation remained unchanged between April (31%) and Sep (33%). In April only 5.9% of interactions were managed appropriately. This increased to 41% following the improvement intervention. The interaction was most commonly managed by altering dose times rather than withholding the multivalent cation product.

Conclusion

The interaction between tetracycline and fluoroquinolone antibiotics and multivalent cation products was poorly managed at the RAH. Interventions to raise pharmacist awareness resulted in improved management. This is important in terms of improved patient care and antimicrobial stewardship. Improvement work is ongoing.

Abstract supplement (free paper abstracts)

201: Pilot evaluation of vapourised hydrogen peroxide for large-scale decontamination of FFP3 masks in a hospital setting

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Background

The SARS-CoV-2 pandemic has created unprecedented demand for personal protective equipment including FFP3 masks, resulting in global shortages. There is a need for decontamination strategies which permit reuse without affecting mask integrity or safety in emergency situations. Vapourised hydrogen peroxide (VHP) is a frequently used decontaminant in hospitals.

Aim

To determine the feasibility of FFP3 mask decontamination using VHP in a hospital setting.

Methods

Over 400 FFP3 masks (1863 and 8833, 3M™) were placed in a sealed portable 12.1m³ chamber (ProXpod, Inivos, UK) and treated with 7.5% VHP (ProXcide system, Inivos UK). Successful decontamination was confirmed with chemical and biological indicators (*Geobacillus stearothermophilus* spores). Time for off-gassing to allow mask H₂O₂ concentration reduction to undetectable levels was recorded. Masks underwent quantitative fit testing and performance tests (breathing resistance, NaCl and paraffin oil penetration) before and after 5 decontamination cycles.

Results

Both 1863 and 8833 FFP3 mask types were successfully decontaminated and passed fit testing before and after 5 decontamination cycles. VHP concentration in the masks reached 0 ppm by 16-21 hours post decontamination. Both masks passed breathing resistance and penetration tests before and after decontamination.

Conclusion

VHP decontamination of FFP3 masks in a hospital setting is feasible, does not affect fit testing pass rates and does not significantly affect performance characteristics. VHP concentration reaches safe levels within a day, potentially allowing reuse of FFP3 masks in emergency situations. Further evaluations of the effect of repeated wear on mask fitting and performance characteristics are required.

TK is research and development manager for Inivos, UK.

Abstract supplement (free paper abstracts)

202: Microbiological evaluation of ready-to-use flexible gastroscopes in clinical use after different interval following reprocessing

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Aim: evaluate bacteriological contamination on ready-to-use flexible gastroscopes (FG) channels after different intervals following disinfection (Glutaraldehyde 2%).

Methods: Samples were collected (n=100) from FG channels in use and reprocessed by manual and automated methods in a teaching hospital (235 beds) in the Midwest region of Brazil: 50 in "Time zero" (immediately after reprocessing), 25 in "Time 1" (12h after reprocessing) and 25 in "Time 2" (72h after reprocessing). From each sample, 10mL were filtered (0.22µm) and the membrane cultured in Tryptic Soy Broth (TSB), and 10mL filtered and the membrane cultured in TSB containing 0.1% sodium sulfite (Glutaraldehyde neutralizer). Bacteria were identified by automated method (Vitek-2-Compact®).

Results: Positive culture was predominant in "Time 2" (52%; n=13/25), followed by "Time 1" (32%; n=8/25) and "Time Zero" (6%; n=3/50). The amount of positive culture from the same sample in both culture media, TSB with and without neutralizer, also prevailed in "Time 2" (61.5%; n=8/13), followed by "Time 1" (50 %; n=4/8) and "Time Zero" (33.2%; n=1/3). A total of 44 bacteria were isolated, 26 in "Time 2", 12 in "Time 1", and six in "Time Zero". Most of them were gram-negative rods (54.4%; n=24/44), including *Escherichia coli* and *Pseudomonas aeruginosa*. Among gram-positive, *Staphylococcus warneri* (84.2%; n=16/19) predominated, especially in "Time 2" (75%; n=12/16).

Conclusion: There was a predominance of bacterial isolation in "Time 2", which represents the storage period on weekends, which points to the importance of the establishment of maximum safe storage time and surveillance culture for FG.

Abstract supplement (free paper abstracts)

203: Should Scotland Adopt the Canadian Definitions of MDR & XDR Gram-negative organisms?

Dr Jame McCrae¹

¹NHS Lothian

Definitions of multi-drug resistant (MDR) and extremely drug-resistant (XDR) gram-negative have been issued by the European Society of Clinical Microbiology & Infectious Diseases (ESCMID) in 2012; these include several antibiotic classes that would be inappropriate for use in severe gram-negative sepsis. The ESCMID definitions also define XDR organisms as resistant to all but 2 antibiotic classes, meaning that if further testing unveils sensitivity to another drug class, then organism can be 'downgraded' from XDR to MDR, and even pan-drug resistant (PDR) to XDR. This has implications for isolation of these patients in hospital, as well as the documenting of MDR/XDR/PDR status by the Infection control teams.

We compared the ESCMID guidelines to that of the Canadian Public Health Laboratory Network and the Canadian Association of Clinical Microbiology and Infectious Diseases ('the Canadian guidelines') on the classification of MDR/XDR gram-negative organisms cultured in NHS Lothian in 2018.

For Enterobacteriaceae there was 95% and 89% concordance for identification of MDR & XDR organisms. Reasons for discordance were lack of routine testing for several indicator antibiotics that were included in ECDC but not the Canadian guidelines.

There was a 68% concordance for the identification of XDR *Pseudomonas* (NB: The Canada guidelines don't define MDR *Pseudomonas*). The main source of discrepancy was the lack of antibiogram testing for Cefepime, Fosfomycin, Colistin + Timentin in Scotland.

NHS trusts should consider aligning definitions of MDR/XDR with those of Canada.

Abstract supplement (free paper abstracts)

204: Septic arthritis attributed to *Acinetobacter nosocomialis*

Dominic Wakerley¹

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Acinetobacter nosocomialis is well described in association with healthcare-associated infections, although its virulence is generally thought to be low. Here we describe a case of septic arthritis attributed to *A.nosocomialis*, which is not thought to have been described before, and summarise what is known about its virulence.

A 44 year old man with a background of end stage renal failure was admitted to hospital with fever and shortness of breath. The week prior to arrival he had been an inpatient at a Nigerian hospital. His discharge papers indicated that his blood cultures had grown *Acinetobacter baumannii*, but here both peripheral and line sets grew *A.nosocomialis*. He was started on meropenem and managed as a case of line sepsis; his line was removed and replaced with amikacin cover two days later. He was discharged well and afebrile.

A week after his initial presentation, he was readmitted with pain in his right elbow and foot. On examination, he had a temperature of 38.3 and was tachycardic. He had limited flexion of his elbow and his right foot was swollen although with no clear specific joint involvement. Inflammatory markers were significantly raised. He was treated with meropenem and vancomycin. On this occasion blood cultures were negative. Two echocardiograms did not demonstrate any evidence of vegetations. Joint aspirate showed turbid fluid with no organisms seen on the Gram stain. After completing a week of antibiotics, 16S PCR on the joint aspirate identified *Acinetobacter nosocomialis*.

Abstract supplement (free paper abstracts)

206: Septic Screen in Patients with COVID-19 Infection

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Objectives:

To study impact of COVID-19 infection on performance of septic screen and antimicrobial stewardship during the pandemic in the UK.

Introduction:

All patients hospitalised with COVID-19 infection were prescribed antimicrobials at the beginning of the pandemic which caused a significant impact on the antimicrobial stewardship. We conducted this study to analyse if all patients hospitalised with COVID-19 infection were getting septic screen and to find what proportion of patients with bacteraemia.

Methods:

Data was collected prospectively between 17/03/2020 and 29/03/2020 from the laboratory database for hospitalised patients at University Hospital of North Midlands with COVID-19 infection and analysed using Microsoft excel.

Results:

A total of 54 hospitalised patients with COVID-19 infection were included in the analysis. Median age of males 73 years and females 69 years. Complete septic screen was done in 12 out of 54 patients (22%). Partial septic screen was done in 42 out of 54 (78%) patients. 41 (76%) blood cultures were negative and 3 (5%) were positive. There was no increased all-cause mortality (33.3%) in patients with bacteraemia.

Conclusions:

We concluded that a complete septic screen was not done in significant proportion of our patients which is very concerning. Out of those who had partial septic screens, there was no increase of positive blood culture results. This should suggest bacterial infections are not a common phenomenon in patients with COVID-19 infections. We claim that empirical antimicrobials may not be indicated in all patients with COVID-19 infections.

Abstract supplement (free paper abstracts)

207: Blood stream infection with *Actinomyces funkeii* in an intravenous drug user

Dr Mariya Molai¹, **Dr Tanaraj Perinpanathan¹**, Dr Kavitha Gajee¹

¹Hull University And Teaching Hospitals NHS Trust

Background: *Actinomyces funkeii* is an anaerobic gram positive bacteria that infrequently causes invasive bacterial infection. There is very little known about this particular species. We present an interesting case report of a 39 year old male with an *Actinomyces funkeii* bacteremia and computed tomography showing extensive infected left deep vein thrombus later complicated with bilateral septic pulmonary emboli.

Case presentation: A 39 year old male with a background history of injecting heroin intravenously presented with left leg swelling and brownish discharge from the left groin. The CT scan demonstrated a left sided infected deep vein thrombus extending from the left external iliac vein down to the knee. He was started on anticoagulants and oral flucloxacillin and discharged home after clinical improvement. Two weeks later he developed acute pleuritic chest pain and fever. A CT scan of his thorax showed a large cavitary lesion in the right upper lobe with multiple smaller lesions in the contralateral lung suggestive of septic emboli. Blood culture showed growth of *Actinomyces Funkei*, identified by matrix-assisted laser desorption ionization time-of-flight (MALDI-TOF). He was treated for a total of 6 weeks of antibiotics with complete clinical recovery.

Conclusion: There are few case reports on *Actinomyces funkeii* bacteraemia causing deep vein thrombosis complicated with lung cavities. *Actinomyces* species in blood cultures is often questioned to its clinical relevance however invasive infections can be complicated. Our case highlights the clinical relevance of *Actinomyces* in blood culture in association with the clinical presentation. It is important not to overlook *Actinomyces* species infections especially in intravenous drug user.

Abstract supplement (free paper abstracts)

209: Absence of inflammatory marker responses to antibiotics facilitate antimicrobial stewardship in COVID-19

Claire Mason², Tanmay Kanitkar², Charlotte Richardson², Marisa Lanzman², Tabitha Mahungu², Damien Mack², Emmanuel Wey², Lucy Lamb², Indran Balakrishnan², **Gabriele Pollara**¹

¹University College London, ²Royal Free London NHS Trust

Background

COVID-19 is infrequently complicated by secondary bacterial infection, but nevertheless antibiotic prescriptions are common. We tested the hypothesis that the inflammatory marker response to antibiotics differed between bacterial pneumonia and COVID-19, and that this could inform antimicrobial stewardship efforts.

Methods:

In patients admitted to Royal Free Hospital (RFH) and Barnet Hospital (BH) we defined pneumonia by lobar consolidation on admission chest radiograph, and COVID-19 by SARS-CoV-2 detection by PCR. Data were derived from routine laboratory investigations.

Results:

We identified 106 pneumonia and 620 COVID-19 patients at RFH. On admission all pneumonia and >90% COVID-19 patients received antibiotics. Pneumonia was characterised by elevated total white cell count (WCC) and C-reactive protein (CRP) compared to COVID-19 (median WCC 12.48 vs 6.78 x10⁶ cells/ml and median CRP 133 vs 31 mg/L respectively, p<0.0001 by Mann-Whitney test). Lower quartile WCC in pneumonia was 8.25x10⁶ cells/ml. Blood samples collected 48-72 hours into admission revealed a significant decrease in CRP in pneumonia patients, not seen in COVID-19 (CRP difference -33 vs +15 mg/L respectively, p<0.0001 by Mann-Whitney test). In the independent validation cohort from BH, an admission WCC > 8.25x10⁶ cells/ml or a fall in CRP during admission identified 96/99 (95%) of radiologically-defined pneumonia cases and predicted the absence of bacterial infection in 25/60 (45%) of COVID-19 cases.

Conclusions

Elevated WCC and antibiotic-induced decrease in CRP characterise bacterial pneumonia. We propose that the absence of this phenotype, in conjunction with SARS-CoV-2 detection and no consolidation on chest radiograph, can support antibiotic stewardship efforts in COVID-19.

Abstract supplement (free paper abstracts)

211: DETECTION OF CAUSATIVE AGENTS OF INFECTIOUS KERATITIS IN PATIENTS FROM WESTERN INDIA

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Introduction:

Corneal ulcers have an insidious onset and are difficult to treat which demands prompt management. The climate of Rajasthan is different from other states of India and there is lack of data regarding the epidemiology of pathogens causing keratitis from this region.

Objective:

To determine the spectrum of causative agents, the related risk factors and their association in patients of infectious keratitis.

Methodology:

It was a prospective study conducted over a period of eighteen months from August 2018 to January 2020, which included 100 patients attending the Ophthalmology OPD with features of keratitis. Ophthalmological examination was followed by corneal scrapings' collection, which were subjected to culture, microscopy and molecular diagnostic tools. Bacterial isolates were identified by conventional methods and MicroScan Walkaway system while the isolated fungi were identified conventionally. Pan-fungal primers were used to detect fungal elements directly from the sample.

Results:

Out of 100, 41 cases were positive by culture, of which 32 (78.04%) had fungal and nine (21.95%) had bacterial keratitis. *Fusarium* spp. accounted for 33.33% of fungal and *Pseudomonas aeruginosa* accounted for 55.55% of the bacterial isolates. Fungal material was detected in 41% using pan fungal primers. Cases were maximally recorded during July-October. Traumatic history was present in 78% patients caused by vegetative matter (49%). A male preponderance (67%) was also observed. Four patients underwent evisceration in spite of rigorous management.

Conclusion:

Poor prognosis emphasizes the need for faster diagnostics, which can detect the causative agents from the clinical specimen itself, reinforcing the concept of clinical metagenomics.

Abstract supplement (free paper abstracts)

213: Managing antiretroviral therapy in patients with swallowing difficulties

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Effective antiretroviral therapy is the cornerstone of HIV care, enabling many patients to live normal and healthy lives with an undetectable viral load. When adherence to therapy is disrupted due to factors outside the patient's control, such as difficulty swallowing or critical illness, modifications may be necessary to avoid a gap in treatment. Depending on the agents involved, options may include crushing tablets for ease of swallow or administration via feeding tubes, use of alternative formulations, or switching to other drugs.

We present two cases of patients who began crushing their tablets at home when they could no longer swallow them; the first due to chronic multifactorial dysphagia and the second due to an obstructing oesophageal adenocarcinoma. Following a review of the literature and discussion with the HIV multidisciplinary team, adjustments were made to the antiretrovirals in both cases to ensure optimal therapy could be provided without the need to swallow large tablets. Both patients remained fully virologically suppressed, with no adverse effects to the new regimes.

There is limited and often conflicting guidance available on the most appropriate means of administering antiretrovirals when swallowing whole tablets is not possible, either temporarily or permanently. We present a summary of the available evidence and recommendations relating to this issue in the commonly used antiretroviral drugs and combination therapies.

Abstract supplement (free paper abstracts)

214: Prevalence of healthcare-associated infections and antimicrobial use: the four years' experience of two acute-care hospitals in North-West Italy

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Background. Healthcare-associated infections (HAI) point prevalence surveys, repeated periodically, represent an effective epidemiological tool for estimating and monitoring the burden of this phenomenon in healthcare organizations.

Aims. i) To estimate HAI prevalence and antimicrobial use, (ii) to study microbial ecology and (iii) to identify risk factors for HAI at a 400-beds tertiary hospital and at a 100-beds primary hospital located in Liguria Region, North-West Italy.

Methods. During March of four consecutive years (2016-2019), we conducted point prevalence surveys of HAI and antimicrobial use by adopting the protocol of the European Center for Disease Prevention and Control (ECDC), Version 4.3.

Results. Overall, we enrolled 1433 patients with a median age of 71 years (IQR: 56 – 80), a female-male ratio = 0.97 and a median hospital stay of 7 days (IQR: 3 – 16). Nearly one quarter of the patients had an ultimately or rapidly fatal McCabe score, 39% of patients underwent surgical intervention and 62% were exposed to at least one invasive device. HAI overall prevalence was 7,4% and remained stable during the four years. Urinary tract infections and surgical site infections represented the most frequent site of HAI. Overall antibiotic treatment prevalence was 42,6%. At multivariate analysis, statistically significant risk factors for HAI resulted length of hospital stay, exposition to 2 or more invasive devices and presence of central vascular line.

Conclusion. The study allowed increasing knowledge about the impact and risk factors for HAIs in our organization and to implement appropriate interventions aimed at prevent and control them.

Abstract supplement (free paper abstracts)

215: Polypyridyl di/mono-nuclear ruthenium complexes:

An answer to relieving the antimicrobial resistance crisis?

Mr Adam Varney¹, Dr Samantha McLean¹

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Antimicrobial resistance (AMR) is a rapidly increasing global threat estimated to kill 10 million people in 2050; 1.8 million more than cancer. With a lack of new therapeutic options, novel antibiotics must start to be extensively explored, and ruthenium compounds, specifically, di/mono-nuclear Polypyridyl-ruthenium (Ru^{1+}/Ru^{2+}) compounds offer one such potential. Ru^{1+} a compound with two ruthenium cores bridged with a rigid organic linker displays excellent antimicrobial activity against multidrug-resistant pathogens including MRSA and Escherichia coli 958 (EC958) and with further study may provide an excellent line of defence if used in medical devices and wound dressings.

Minimum-inhibitory concentration screening identifies both Ru^{2+} and Ru^{1+} having comparable values to current antibiotics, including concentrations of 9.29mg/L and 2.9mg/L respectively against EC958. Introducing Ru^{1+} to EC958 in early exponential phase identified a lag phase ~1hour where there is no effect on turbidity. At 2 hours post-injection, a significant decrease in viability is seen in concentrations $<0.5\mu M$ ($p < 0.01$). qPCR performed on EC958 across a time course when treated with a sub-lethal Ru^{1+} identified significant differences in 3/9 tested genes; including a 4x increase in SPY at 30minutes suggesting a requirement for the repair of damaged proteins in the region of the outer membrane.

Our study lays excellent groundwork for a full transcriptomic study, providing insights into the largely unexplored mechanism of action and how this relates to the lag phase identified. Overall Ru^{1+} and Ru^{2+} show great potential as a novel antimicrobial with the potential to be used in the fight against AMR.

Abstract supplement (free paper abstracts)

216: A quality improvement project (QIP) to improve antibiotic prescribing practice in general surgery using a daily ward-round checklist, ABBDDOMM.

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Introduction

A single dose of pre-operative antibiotic is the optimal prophylaxis against surgical site infection, whilst minimising impact on antimicrobial resistance (WHO, 2009). Despite international consensus, there is huge variability in adherence to surgical prophylaxis guidelines (Gouvea 2015). This QIP assessed baseline adherence to surgical antibiotic guidelines in a tertiary hospital, and implemented a daily ward round checklist ('ABBDDOMM') to reduce discrepancy between antibiotic prescribing guidelines and practice.

Methods

Patients undergoing intra-abdominal surgery over a 2-month period were identified. Retrospective data was collected on the choice, indication and duration of antibiotics prescribed at anaesthetic induction and post-operatively (Cycle 1). 'ABBDDOMM' was developed with input from surgeons and microbiologists, and was implemented by educating junior doctors. Identical data was re-audited 6 months later (Cycle 2).

Results

In Cycle 1, 89/209 patients (42.6%) received extended antibiotics beyond the single-dose prophylaxis. After ABBDDOMM, only 33/113 patients (29.2%) received extended antibiotics beyond the single-dose prophylaxis. In Cycle 2 76/103 patients (73.8%) admitted post-operatively had this checklist used at least once during inpatient stay. In 36.9% ABBDDOMM was used daily. When ABBDDOMM was used, antibiotics and microbiology results were reviewed daily 100% of the time. In Cycle 1, 51.2% of patients received antibiotics compliant with Trust Guidelines, compared to 54% in Cycle 2.

Conclusions

ABBDDOMM prompts daily review of antibiotics and microbiology results during surgical ward rounds, improving compliance with antibiotic guidelines and reducing inappropriate extension of post-operative antibiotics. Focus on increasing uptake of the checklist by junior doctors is needed to achieve further benefit.

Abstract supplement (free paper abstracts)

217: Comparison of ISO 11731:2017 culture methods versus a real-time quantitative (q)-PCR (Biotecon-microproof® Legionella Quantification LyoKit) for the detection and enumeration of Legionella pneumophilla (LP) in hospital waters

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¹University College London Hospitals NHS Foundation Trust

Background

Accurate and rapid reporting of Legionella pneumophila serogroups: sg1/sg2-15 in hospital waters is imperative for infection-control management and safeguarding vulnerable patients. We compare the microproof® Legionella Quantification LyoKit against ISO 11731:2017 culture methods used extensively in UK laboratories.

Methods

Hospital water samples (1000mL; n=60) collected from seven clinical/non-clinical settings over three hospitals were processed in batches (3x20 samples) by first concentrating using membrane-filtration (0.45µm pore-size) and bead-washing (5mL Saline; 2minutes) followed by:

- 1) Culture: untreated/acid-treated aliquots were plated onto GVPC and BCYE agars and read post-incubation (7-days at 36°C) and presumptive isolates confirmed (latex-agglutination) after 2-days, or
- 2) real-time-qPCR: aliquots were treated with the Biotecon Reagent-D live/dead-differentiator, DNA-extracted and qPCR-run initiated

Results

Culture: prevalence of LP-sg1, sg2-14 and Legionella species (LS) was: 32% (19/60), 3% (2/60) and 22% (13/60) in hospital waters respectively with representative bioburden (mean±SD CFU/L) of: 600±0: (LP-sg1), 2±20: (sg2-14) and 106±495: (LS).

qPCR: qPCR reported presence of Legionella more frequently: 57% (34/60: LP-sg1), 13% (8/60 sg-2-15) and 97% (58/60: LS). Bioburden levels (GFU/L) were higher in all cases than indicated by culture: 19404±77: (LP-sg1), 71±556: (sg2-15) and 50860±181259: (LS).

Qualitative results derived by culture or qPCR were concordant in 75%, 90% and 25% occasions (LP-sg1, sg2-14, LS respectively) with dissimilar outcomes in the remainder of samples.

Processing times were similar (~1-2hrs per batch) but time-to-result was faster using PCR (~4hrs) vs. culture (7-9 days).

Abstract supplement (free paper abstracts)

Conclusions

Detection of environmental *Legionella* species using the qPCR platform allows faster reporting over culture and expedites turnaround for remedial actions.

The trial was supported financially in part by an unrestricted educational grant from Oxford Biosystems. However the supporters were not involved in the writing or editing of the results displayed.

Abstract supplement (free paper abstracts)

218: Is *Corynebacterium striatum* an emerging healthcare pathogen? A multi-site ICU outbreak during COVID-19 pandemic

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Background: Non-diphtheriae *Corynebacteria* commonly colonise skin and frequently contaminate clinical samples. *Corynebacterium striatum* infrequently cause infections and multidrug resistant (MDR) strains have been reported. Between April-July 2020, during the COVID-19 pandemic, observed a sharp increase in rates of MDR-*C.striatum* cultured from clinical samples from ICU patients across three hospitals at our institute.

Methods: To support outbreak management, undertook (i) 1-year retrospective evaluation to determine preceding incidence of MDR-*C.striatum* (isolates resistant to >3 antibiotic classes) and (ii) prospective case surveillance. Enhanced IPC measures were recommended aligned to national recommendations.

Results: 28 patients yielded MDR-*C.striatum* from at least one clinical sample (blood culture (4), respiratory (17), intravascular lines (9), wounds (2)). Eight patients (29%) were treated for MDR-*C.striatum* infection. Typing of 20 isolates revealed two clusters of the same pulsotype (n=11 and 8) involving patients spanning all three hospitals. One type corresponded to isolates susceptible to vancomycin only, for which Whole Genome Sequencing is being performed.

Observations (within the COVID-19 pandemic setting) included personal protective equipment (PPE) use exceeding recommendations, skin breaks from prolonged mask wear, and broad-spectrum antibiotics use. Subsequent introduction of PPE standardisation, targeted skin management and additional antimicrobial stewardship interventions was associated with outbreak termination. Microbiological testing of PPE suggested no *C. striatum* contamination.

Conclusion: During the COVID-19 pandemic we observed an outbreak of MDR-*C.striatum* involving multiple sites within our institute. Responding to observations multi-modal interventions targeting PPE and antimicrobial optimisation were associated with outbreak control. *C.striatum* may reflect an emerging healthcare pathogen associated with excess PPE use.

Abstract supplement (free paper abstracts)

219: Multiple splenic abscesses in a returning traveller

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Background: Melioidosis caused by *Burkholderia pseudomallei* is a neglected tropical disease. Due to the rising global travel it can be encountered anywhere in the world. We report this case to highlight the importance of suspecting it in a non-endemic setting. Its prolonged incubation period and prolonged course mimics other chronic bacterial infections. High index of suspicion and a travel history is of paramount importance.

Case Presentation: A 71 year old man with background history of type 2 diabetes mellitus, hypertension, atrial fibrillation, previous left cerebellar stroke presented with fever and being unwell for 3 months. Abdominal computed tomography showed multiloculated peripherally enhancing extracapsular suprasplenic collection 6.2X3.8X5.7cm with likely transdiaphragmatic extension into the left lower lobe and multiple intracapsular splenic hypodensities which didn't improve after 3 weeks of broad spectrum antibiotics and size got bigger requiring a drainage. Retrospectively detailed history revealed that his wife belonged to Northern Thailand hence he travelled there several times in the last 4 years and the last visit was 11 months ago. He was involved in grounding work during construction of his house thus exposed to earth during that period. Splenic aspiration and 30ml pus was drained and that was PCR positive for *Burkholderia pseudomallei*. He was treated with 4 weeks of intravenous meropenem and discharged on oral cotrimoxazole 1920mg twice daily to continue for 6 months.

Conclusion: In returning travelers from endemic areas, *B. pseudomallei* should be considered as a causative organism of splenic abscess in patients with established risk factors like diabetes mellitus.

The authors declare that there is no conflicts of interest

Abstract supplement (free paper abstracts)

220: Exploring the utility of rifampicin levels during the management of tuberculosis

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Rifampicin therapeutic drug monitoring (TDM) in tuberculosis (TB) is recommended for suspected malabsorption and/or poor treatment response.

We performed a retrospective review of rifampicin levels over 3 years (2016-2019). Levels were interpreted according to Bristol Antimicrobial Reference Laboratory guidance. Individual levels were separated into batches – sequential levels taken from the same patient on the same day for a single encounter – and subject to descriptive analysis.

Overall, 231 individual rifampicin levels were sent in 94 batches from 37 patients (59.1% male; 65% extra-pulmonary disease). Indications for levels included: poor treatment response = 36 (38.3%); intensive care management = 12 (12.8%); malabsorption = 12 (12.8%); previous low level = 8 (8.5%); drug-drug interactions = 7 (7.5%); isoniazid resistance = 6 (6.4%); unknown = 6 (6.4%); and other = 7 (7.5%). Overall, 18 (19.1%) batches of levels were low, 31 (33.0%) were low-normal, 39 (41.5%) were normal and 2 (2.1%) were high. The dose was increased in 38.9% (7/18) following a low level, in 35.5% (11/31) following a low-normal level, and in 20.5% (8/39) following a normal level. Dose increases varied but were most commonly 300mg. Treatment duration was increased in 12.9% (4/31, low-normal), 20.5% (8/39, normal), and 50% (1/2, high).

Levels were low in 49/94 (52.1%) batches. Dose increases were more likely following a low or low-normal level, although impact on treatment outcome remains uncertain. Duration increases occurred regardless of rifampicin level, perhaps reflecting unmeasured clinical factors. TDM may benefit some patients; further research is needed to guide treatment decisions.

Abstract supplement (free paper abstracts)

222: Characterisation of patients with COVID-19 infection in Glasgow, Scotland.

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Background

Coronavirus disease 2019 (COVID-19) remains a global threat and continues to be an important diagnostic and therapeutic challenge. Our aim was to evaluate the characteristics and outcomes of patients infected with COVID-19.

Method

A retrospective analysis was performed from the 1st to the 12th April 2020. Data was analysed from university teaching hospitals within Greater Glasgow and Clyde, the largest health board in the UK, serving a population of over 1.2 million patients. All symptomatic patients clinically suspected of having COVID-19, who had a radiological diagnosis and tested PCR positive as part of their initial assessment, were included. The patient demographics, length of stay and thromboembolic complications were reviewed. Each case was assessed for evidence of bacterial, fungal or viral co-infection.

The 30-day/all-cause mortality rate was determined for the study population.

Results

A total of 1688 patients were identified. 210 had a radiological diagnosis of COVID-19 and a corresponding initial PCR positive result. 98% of these patients were admitted to hospital, with 33% requiring intensive care. The mean BMI was 30. Over 50% of patients had ischaemic heart disease/hypertension. 5% of patients had a thromboembolic complication. The mean length of stay was 15.7 days. Less than 10% of patients had a bacterial co-infection; with *E.coli*, *Enterobacter* and *Klebsiella* species being the predominant respiratory tract isolates cultured. The rate of fungal co-infection was less than 1%. The mortality rate was 31%.

Conclusions

Our study population reflects the pattern of disease and those patients at increased risk of poor outcome.

Abstract supplement (free paper abstracts)

223: An investigation of a nosocomial COVID-19 outbreak reveals a high level of asymptomatic staff infection

Dr Rhys Wenlock¹, Dr Robert Mann¹, Dr Amy Arnold¹, Dr Matija Tausan¹, Dr Winifred Garr¹, Dr Rebecca Preston¹, Dr Jennifer Hoban¹, Dr Charlotte Quick¹, Dr Sam Robson², Dr Catherine Sargent¹

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Background

COVID-19 posed an unprecedented challenge to infection control and prevention measures within hospitals. This abstract describes an outbreak of COVID-19 on Ward A (at the time designated COVID-19 free) at a UK teaching hospital.

Methods

After identification of the first COVID-19 positive patient on Ward A contact tracing was undertaken to identify patients with epidemiological links. Exposed staff underwent PCR testing. Genomic sequencing was performed on the viral samples.

Results

In a 6-patient bay of Ward A, a patient unexpectedly tested PCR positive for COVID-19. The next day the other patients in the bay were swabbed and found to be positive. The remainder of the patients on Ward A were tested and 2 more were found to be positive.

All of the staff exposed to the positive patients were offered PCR testing and 8 were found to be positive. 5 of them were completely asymptomatic.

Genomic analysis of 6 samples (2 patient and 4 staff) revealed 5 identical viruses and one 2 SNPs different. The similarity of these viruses is highly suggestive of nosocomial transmission. The remainder of the samples are awaiting genomic sequencing.

Discussion

Genomic analysis complements epidemiological investigation to better understand the transmission of COVID-19. Here we describe a nosocomial outbreak of COVID-19 involving staff and patients and highlight the potential for asymptomatic staff infection. In addition, we provide evidence in support of asymptomatic testing of exposed patients and staff to detect further cases.

Abstract supplement (free paper abstracts)

224: Antibiotic Guardian Ambassadors Pilot Project for World Antibiotic Awareness Week (WAAW) 2019

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¹Public Health England

For WAAW 2019, the Antibiotic Guardian Ambassadors Project was piloted. Ambassadors are health care workers or scientists who engage with and share knowledge on antimicrobial resistance and infection prevention and control with schools or community groups.

After recruitment, 76 ambassadors signed up. Including public health specialists, scientists, nurses and pharmacists.

A webinar was organised and a toolkit provided. This contained resources to deliver presentations to both primary and secondary school children via a teaching session or school assembly. If unable to deliver a presentation, ambassadors were able to provide a school newsletter piece. e-Bug resources were used.

From the feedback survey 24 (n=34) confirmed they participated in the programme, 13 delivered a session, 7 provided a newsletter piece and 4 selected 'other'. Of those that participated in the programme, 75% stated that taking part in this programme helped them either personally, professionally, or both.

The programme reached at least 1,900 children, via presentation or newsletter. All 24 respondents agreed or strongly agreed that the children they presented to understood at least some of the concepts covered in their presentation, and that they would be likely to run the programme again or recommend to another colleague.

The key barriers expressed by ambassadors, were difficulty in engaging schools and that 18-25 November is a busy time of year for some ambassadors and schools.

The next step is a further pilot for WAAW 2020. This will have updated toolkit that is COVID-19 appropriate, with remote engagement by Ambassadors and 'social distancing friendly' resources.

Abstract supplement (free paper abstracts)

225: Neutrophil: Lymphocyte Ratio – a useful prognostic marker in COVID-19 infection

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Introduction: Predicting severity in COVID-19 is difficult, and has implications for resource allocation and clinical prognosis. The neutrophil-to-lymphocyte ratio (NLR) has been used in various disorders to predict severity. Full blood count is a routine and low-cost test performed in all patients admitted to hospital. As the NLR can be calculated from this alone, it is attractive as a prognostic marker.

Method: A prospective observational study on inpatients with confirmed COVID-19 in a 1300-bed London teaching hospital was undertaken. We recorded patient demographics and laboratory results, including admission neutrophil: lymphocyte data, from electronic records. We subsequently collected 30-day mortality outcomes.

Results: We reviewed 76 admissions with COVID-19 on 23/3/20; 58 (76%) were admitted to Critical Care and 18 to a non-critical COVID Ward. 53 (70%) were male and 50 (66%) >55 years. At 30 days 38 (50%) patients had died (mean NLR of 10); 25 (33%) patients were discharged (mean NLR of 8.13); 13 (17%) remained inpatients (mean NLR of 6).

When comparing mean NLR with age, patients >65 years who died had a mean NLR of 15.7 compared to those who were discharged (mean NLR 11.2). In <65 year category the mean NLR of those who died was 12.8 compared to those discharged with mean NLR of 11.9.

Discussion: NLR can be used as an early prognostic indicator in patients hospitalised with COVID-19.

Age >65 and NLR >12 suggests increased risk of mortality at 30 days post admission and may warrant critical care review.

Abstract supplement (free paper abstracts)

226: Evaluation of remote triazole capillary blood testing to facilitate remote Therapeutic Drug Monitoring (TDM): a validation study

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Background

The advent of COVID 19 has meant that patients with chronic disease may need to shield, however investigations are needed to guide continual management of their disease. Remote monitoring options should be evaluated to ensure standard of care is not compromised.

Objectives

The aim was to validate remote (postal) capillary triazole blood testing and evaluate potential role for remote TDM of chronic antifungal therapy.

Method

A single-centre prospective cross-sectional study of remote finger prick capillary blood testing compared to gold standard venesection was performed. Comparative statistical analysis: paired t-test, correlation and Bland-Altman were used to determine if there was agreement or association between the sampling methods.

Results

66 patients receiving triazole therapy were recruited and 57 pooled pairs of remote capillary and venous triazole concentrations and metabolites were prospectively analysed, with the rest of the blood samples not being analysed due to insufficient sample, haemolysis, or undetectable triazole level of <0.2mg/L. There was significant difference in the comparison of the two methods of sampling with paired t-test at $p < 0.0001$. Bland-Altman analysis yielded wide bias (-49.07%) and wide limits of agreement (-85.5% to -12.64%). On average capillary triazole concentrations were 37% lower than venous concentrations. There was however very strong correlation between capillary and venous tests (Pearson's correlation coefficient $r = 0.9219$, $p < 0.0001$).

Conclusions

Remote capillary triazole sampling does not appear interchangeable with venous sampling, but being strongly correlated and on average 2/3rd the venous value, could be a predictor of venous triazole level, or be useful for intra-patient longitudinal monitoring.

Abstract supplement (free paper abstracts)

228: Presenting a case for caesarean section surgical site infection surveillance

Ms Lilian Chiwera¹, Dr William Newsholme¹, Dr Neil Wigglesworth¹

¹*Guy's & St Thomas' Nhs Foundation Trust*

Introduction

Although most elective surgical work reduced significantly or stopped at the peak of the COVID-19 pandemic, elective or emergency caesarean section (CS) procedures and other emergency surgery continued. Given psychological and other pressures brought about by the pandemic, CS surgical site infection (SSI) surveillance and prevention work should now be part of any surgery recovery plans to facilitate adequate scrutiny of SSI prevention measures.

Rationale

Engaging with CS SSI surveillance and prevention work is beneficial for mothers who can focus more on looking after their babies and full recovery rather than looking after infected wounds.

Background

CS rates are high globally despite the procedure carrying a higher morbidity than vaginal delivery. We already know that at least 10% of women in England develop a CS SSI and that CS SSI incidences of up to 24% in Brazil, 11% in Tanzania and at least 20% in some other African regions are reported. Variations in SSI incidences between hospitals or regions, and internationally between countries can be due to variations in surgical care provision or data collection approaches used to record SSIs at hospital and community level. We must therefore undertake collaborative work to build on prior CS SSI work.

Proposals & next steps

We're calling on organisations wishing to collaborate on work to create seamless CS surgical pathways from pre-assessment-hospital-community care and review post-surgery. This will be done by first establishing cost effective robust SSI surveillance and prevention programmes that yield useful data for informing and improving clinical practice.

Abstract supplement (free paper abstracts)

229: Underreporting of carbapenemase-producing organism (CPO) colonisation at a district general hospital: universal screening may help cost-effectively control transmission.

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¹Royal Free London NHS Foundation Trust, Barnet and Chase Farm Hospitals, ²SingHealth, SKH

Objective:

Assess the potential of hospital-wide routine screening by determining the prevalence and incidence of CPOs isolated from rectal screens at Barnet and Chase Farm Hospitals.

Methods:

3553 samples were collected between 01/12/2018 and 31/08/2019: from adult critical care wards (universal screening - admission, discharge and weekly), from medical wards with risk-factor based screening according to the PHE CPE screening guidelines) or on an ad-hoc basis. Prevalence was defined as previously documented positive CPO colonisation or new positive status, as a proportion of all eligible samples. Incidence was defined as all newly positive patients per 1000 patient-days.

Results:

Overall CPO prevalence was 2.1% (95% CI: 1.61 – 2.58%). Inpatient prevalence was significantly higher at 2.6% vs outpatient at 0.5% ($p < 0.001$).

Incidence was 0.44 per 1000 patient-days (95% CI: 0.33 – 0.57), with a rate ratio between Barnet and Chase Farm of 4.9 ($p = 0.013$). Incidence was highest where universal screening strategy was applied (3.9 per 1000 patient-days, 95% CI: 2.4 – 5.91). This was 2.5 times higher than risk-factor based screening ($p = 0.005$) and 23.5 times that of wards without routine surveillance implemented ($p < 0.001$).

Conclusion:

Surveillance remains a cornerstone in controlling CPO transmission. Our local incidence, lacking hospital-wide screening, significantly exceeded the reported UK average (0.007 per 1000 patient-days in 2014). Universal screening could help to uncover the true prevalence and incidence of CPO, thereby providing the necessary information to properly control transmission, reducing nosocomial outbreaks and ultimately reducing the overall cost to healthcare.

Abstract supplement (free paper abstracts)

232: The cost of unsubstantiated antifungal drug interactions – A large tertiary hospital's experience of antifungal prophylaxis in haematology patients

Dr Daniel Ng¹, Dr Matthew Routledge¹, Christianne Micallef¹, Netta Tyler¹, Dr Vanessa Wong¹, Dr David Enoch¹

¹NHS

Patients with haematological malignancies are at high-risk of developing invasive fungal infections due to prolonged periods of neutropenia, often related to immunosuppressive therapy. Some patients require antifungal prophylaxis during their treatment. In this context, liposomal Amphotericin B (L-AmB) is often used as intravenous primary prophylaxis due to concerns surrounding potential drug interactions between triazole antifungals and commonly used chemotherapeutics (e.g. Vincristine, Gemtuzumab, and Cyclophosphamide). Posaconazole, is an attractive alternative, as it gives similarly broad antifungal cover and can be given orally. On reviewing the literature, there is good evidence to support avoiding triazole use with Vincristine. However, we could find no convincing evidence for significant toxic drug interactions between the triazoles and Gemtuzumab or Cyclophosphamide that cannot be mitigated by monitoring liver function.

We conducted a retrospective study of L-AmB prescribing in our large tertiary hospital over a 3-month period. Fifty high-risk haematology patients were prescribed L-AmB, of which 34 (68%) were on a prophylactic regimen. Of those 34 patients, six were prescribed L-AmB to avoid drug interactions with Gemtuzumab (n=3) or Cyclophosphamide (n=3). None had additional contraindications to the use of triazoles. Of interest, a further patient on Gemtuzumab received Posaconazole with no adverse effects. An economic cost analysis of the six patients identified in our study found there were potentially substantial cost-savings to using Posaconazole instead of L-AmB for primary prophylaxis. Therefore, Posaconazole may be a suitable option in these patients and a larger study should be performed to investigate this further.

Abstract supplement (free paper abstracts)

234: Mouth care matters – a HAP prevention strategy

Mark Garvey¹, Amy Wallett, Caroline Smith, Elisabeth Holden, Martin Kiernan

¹*University Hospitals Birmingham*

Hospital acquired pneumonia (HAP) is the most prevalent healthcare associated infection in the UK. Non ventilated (NV) HAP places a significant burden of healthcare being associated with a significant increase in patient mortality and hospital length of stay. At Queen Elizabeth Hospitals (QEHB) part of University Hospitals Birmingham (UHB) NHS Foundation Trust we undertook one intervention between May to October 2019 to reduce the prevalence of NV-HAP. The intervention aimed at improving the delivery of basic mouth care to patients through education via a dental nurse. A point prevalence survey (PPS) for NV-HAP was conducted across 6 pilot wards pre and post interventions. The mean NV-HAP per 1000 bed days before the intervention was 63.5, whilst after the intervention it was 5.95, comprising a 90.63% reduction. A Poisson regression model on the number of NV-HAP's indicated the reduction associated with the mouth care matters campaign was significant ($p = 0.03851$). There was no change in NV-HAP's across 6 control wards where no interventions were undertaken. A basic oral nursing care package 'mouth care matters' led to a 90% reduction in the occurrence of NV-HAP. We show the importance of oral mouth care in the reduction of NV-HAP and believe this should be undertaken in all healthcare settings to prevent NV-HAP.

Abstract supplement (free paper abstracts)

235: We're staying ahead of the NHS digital revolution curve in SSI surveillance

Ms Lilian Chiwera¹, Dr William Newsholme¹, Dr Neil Wigglesworth¹, Miss Amal Hussein¹, Miss Kathleen Byrne¹

¹*Guy's & St Thomas' Nhs Foundation Trust*

Introduction

The COVID-19 pandemic accelerated the use of digital platforms for team meetings, conferences and even patient assessments. It is hoped that these established gains will be maintained and upgraded where possible.

Methods

In October 2018, we launched electronic surgical wound documentation in e-Noting® at Guy's & St Thomas' NHS Foundation. Since the introduction of this revolutionary and objective electronic surgical wound documentation platform, we have run continuous campaigns to promote its use. We also report documentation compliance together with surgical site infection (SSI) data regularly to clinical directorates.

Results

Documentation compliance has been consistently high for very engaged surgical specialties including the mandated orthopaedic specialty. Some specialties required additional support. We encountered initial challenges in adult gastrointestinal surgery and had to provide additional staff support including 1:1s and freebies. Once a consultant SSI lead was appointed, engagement and compliance with surgical wound assessment documentation improved.

Discussion

We are continuing to develop and update our digital SSI surveillance platforms. Documentation compliance increased from 15% to consistently being greater than 70% even at the peak of the COVID-19 pandemic in adult GI surgery. We felt this improvement was attributed to the passion that was brought about by the new SSI Consultant; who together with other senior leadership teams took clinical ownership of this initiative. We have successfully embraced the use of technology to improve patient safety and efficiency and will continue exploring other quality improvement opportunities if necessary. We're definitely staying ahead of NHS digital revolution agenda in SSI surveillance.

Abstract supplement (free paper abstracts)

236: Antimicrobial resistance and mitigation strategies in healthcare settings: A scoping review

Mr. Bernard Okeah¹, Prof. Valerie Morrison¹, Dr. Jaci Huws¹

¹*Bangor University*

Background: An estimated 3.2 million healthcare associated infections (HAIs) and an associated 37,000 deaths are reported annually in the EU. Multi-drug resistant organisms (MDROs) such as *Clostridioides difficile* and *Klebsiella pneumoniae* belonging to the broader group of ESCAPE pathogens account for a significant proportion of the HAIs burden.

Aims: This review aimed at identifying literature on interventions targeting *Clostridioides difficile* and *Klebsiella pneumoniae*, their key outcomes, and the extent to which behavioural theory has been applied in such interventions.

Methods: This review was conducted in accordance with PRISMA-ScR guidelines. The databases searched include MEDLINE, PubMed, Web of Science, and CINAHL. The process for screening articles and data extraction was undertaken in duplicate. A narrative synthesis of the results is provided.

Results: The review included 34 studies. The interventions targeting *Clostridioides difficile* and *Klebsiella pneumoniae* include Education, Surveillance/Screening, Consultations, Audits, Policies and Protocols, Environmental measures, care Bundles, Isolation, as well as Notifications or alerts (ESCAPE-BIN). The identified outcomes include antimicrobial use, resistance rates, risk reduction, adherence to contact precautions, hospital stay, and time savings. Only one study incorporated Kotter's stages of behaviour change and recorded the second largest (75%) sustained reduction in antimicrobials use whereas the remainder of the studies were devoid of behavioural approaches.

Conclusion: This scoping review identified the interventions targeting *Clostridium difficile* and *Klebsiella pneumoniae* in healthcare settings as well as the key outcomes. There is need for further investigations on the feasibility of behaviour-based approaches in improving adherence of health workers to interventions targeting the above organisms.

Abstract supplement (free paper abstracts)

237: Reducing ventilator associated pneumonia - a basic oral hygiene training package

Dr Mark Garvey¹, Miss Katrina Pegg¹, Mrs Tracey Martin¹, Dr Elisabeth Holden¹, Miss Amy Wallett¹, Miss Caroline Smith¹

¹University Hospitals Birmingham

Ventilator-associated pneumonia (VAP) is the most frequent infection in mechanically ventilated patients. VAP is the most common nosocomial infection in patients in intensive care units (ICU). At Queen Elizabeth Hospitals (QEH) part of University Hospitals Birmingham (UHB) NHS Foundation Trust we undertook an oral hygiene intervention to reduce the prevalence of VAP on ICU. A retrospective snapshot on the prevalence of VAP was undertaken in ICU. This was followed by a six month project where a dental nurse/s provided specialist advice and education to ICU nurses on optimum oral hygiene for patients. An assessment tool was implemented on the unit for staff to assess patients that require a higher level oral hygiene, this included: mouth assessment within 6 hours on admittance with the skin assessment, teeth present and location, tooth brushing, secretion/coatings removal from gingival/oral mucosa, dry mouth treatment, lip care and documentation of care given and any other findings for example ulcers to review. After the six months education package another point prevalence survey of VAP was undertaken on ICU to observe any affects from the oral hygiene training package. The mean number of VAP infections before the intervention was 6 per week, whilst after the intervention it was 1, comprising an 86% reduction. A Chi-squared test on the number of VAPs indicated the reduction associated with the oral hygiene teaching package campaign was significant ($p < 0.05$). A basic oral nursing care package seems to have led to a reduction in the occurrence of VAP on an ICU.

Abstract supplement (free paper abstracts)

238: Five-year retrospective review of the prevalence of *Staphylococcus aureus* isolated from patients with identified or suspected infection in a tertiary teaching hospital, China

Dr Bin GAO^{1,2}, Ms Wei SUN², Mrs Qunli ZHAO³, Ms Wenqing LV², Mrs Chunhong CHEN³, Mrs Chunhua MA⁴, Mr Weidong SU³, Dr Peng WANG¹, Dr Qiang FU⁵

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Background:

Staphylococcus aureus (*S. aureus*) is one of the major pathogens of hospital- and community-acquired infections and the cause of a tremendous economic and societal burden on healthcare systems. Investigating the epidemiology of *S. aureus* is crucial to guiding infection prevention and control strategies, as well as measures for the containment of antimicrobial resistance at the hospital level.

Methods:

Demographic, epidemiologic and microbiologic data were retrieved from the electronic patient records of a tertiary teaching hospital in China between July 2015 and June 2020 to investigate the prevalence and distribution of *S. aureus*.

Results:

Of 1297 *S. aureus* isolates collected in the hospital, 409 (31.5%) were methicillin-resistant *S. aureus* (MRSA). Methicillin resistance rates varied from 16.2% in the second half of 2016 to 47.0% in the first half of 2020 during the COVID-19 pandemic. Hospital-acquired MRSA accounted for 81.7% ($P < 0.05$).

Conclusion:

A comprehensive review of routinely collected laboratory data allows clinicians, infection control staff and those involved in antimicrobial stewardship to effectively monitor and respond to the challenge of antimicrobial resistance in a timely manner at the hospital level.

Abstract supplement (free paper abstracts)

Quick reference guide

By topic, paper number and presentation type

Paper number	Title	Topic	Type	Session details
30	Anti-adhesion polymer therapy for the neutralization of Cholera Toxin	Antimicrobial agents	Poster	N/A
32	In vitro activity of cefiderocol against Gram-negative clinical isolates from the UK across a range of infection types	Antimicrobial agents	Poster	N/A
62	A review of thrice weekly teicoplanin dosing in the OPAT setting	Antimicrobial agents	Poster	N/A
83	Dalbavancin: a cost-effective management strategy for deep-seated methicillin-sensitive Staphylococcus aureus (MSSA) infection in a prisoner	Antimicrobial agents	Poster	N/A
94	The role of antimicrobial dosing in patients with sepsis-induced acute kidney injury; a single centre observational study.	Antimicrobial agents	Poster	N/A
108	Temocillin 4g or 6g? Breakpoints vs Practise	Antimicrobial agents	Poster	N/A
111	A retrospective audit reviewing the safety of Teicoplanin administered via the Outpatient Parenteral Antimicrobial Therapy (OPAT) service, over a 5-year period.	Antimicrobial agents	Poster	N/A
114	Hospital-acquired pneumonia: data supporting the use of doxycycline in a large subgroup of patients	Antimicrobial agents	Poster	N/A
173	The use of high concentration intrathecal amikacin for gentamicin-resistant Gram negative ventriculitis: A case report and review of the literature".	Antimicrobial agents	Poster	N/A
213	Managing antiretroviral therapy in patients with swallowing difficulties	Antimicrobial agents	Poster	N/A
215	Polypyridyl di/mono-nuclear ruthenium complexes: An answer to relieving the antimicrobial resistance crisis?	Antimicrobial agents	Poster	N/A
220	Exploring the utility of rifampicin levels during the management of tuberculosis	Antimicrobial agents	Poster	N/A
232	The cost of unsubstantiated antifungal drug interactions – A large tertiary hospital's experience of antifungal prophylaxis in haematology patients	Antimicrobial agents	Poster	N/A
19	Resistance and virulence traits of Staphylococcus strains isolated from maternity unit	Antimicrobial resistance	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
33	In vitro activity of cefiderocol against UK Gram-negative clinical isolates resistant to current comparator antimicrobials	Antimicrobial resistance	Poster	N/A
87	10-year review of pathogens and their antimicrobial resistance patterns at a tertiary neonatal intensive care unit (NICU) in the North East of England. Do we have the right antibiotic policies? Monica Arend-Trujillo ¹ , Manjusha Narayanan ² , Isha Rizal ² , Naveen Athiraman ¹ . Royal Victoria Infirmary, Newcastle upon Tyne Hospitals NHS Foundation Trust. 1. NICU, Royal Victoria Infirmary 2. Microbiology/Virology department, Newcastle Hospitals	Antimicrobial resistance	Poster	N/A
97	Hypervirulent <i>Klebsiella pneumoniae</i> : An emerging nosocomial threat	Antimicrobial resistance	Oral	MS - Tuesday 10 November from 11:00-12:15
119	International travel and admission to hospital when back home: travel behaviour, risk perception and carriage of highly resistant microorganisms of patients admitted to a large tertiary care hospital	Antimicrobial resistance	Poster	N/A
149	Using metagenomics to study the impact of hospital stay on the human gut resistome	Antimicrobial resistance	Oral	FP - Tuesday 10 November from 08:00 to 09:00
178	Antimicrobial Synergy Testing of Extensively-Drug Resistant <i>Escherichia coli</i> isolates at an Organ Transplant Center in Nepal	Antimicrobial resistance	Poster	N/A
203	Should Scotland Adopt the Canadian Definitions of MDR & XDR Gram-negative organisms?	Antimicrobial resistance	Poster	N/A
236	Antimicrobial resistance and mitigation strategies in healthcare settings: A scoping review	Antimicrobial resistance	Poster	N/A
12	Procalcitonin as an antibiotic stewardship tool in COVID-19 patients in the intensive care	Antimicrobial stewardship	Oral	FP - Wednesday 11 November from 08:00 to 09:00
25	A retrospective study of vancomycin prescribing and therapeutic drug monitoring in adult patients with a high creatinine clearance at a large teaching hospital in the East of England, UK: Implications for clinical practice	Antimicrobial stewardship	Poster	N/A
26	Deep learning model for prediction of extended-spectrum beta-lactamase (ESBL) production in community-onset Enterobacterales bacteraemia from a high ESBL prevalence multi-centre cohort	Antimicrobial stewardship	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
46	An audit to assess the use and safety of nitrofurantoin for lower urinary tract infections in patients aged = 65	Antimicrobial stewardship	Poster	N/A
47	Carbapenem Stewardship in a large English teaching hospital - can microbiology right the ship	Antimicrobial stewardship	Poster	N/A
67	Community-acquired bacterial co-infection is rare in COVID-19 ICU admissions	Antimicrobial stewardship	Poster	N/A
77	Procalcitonin (PCT) trends in patients admitted with confirmed COVID19 in Doncaster Royal Infirmary (DRI)	Antimicrobial stewardship	Poster	N/A
98	A Retrospective Study exploring the impact of changes to the Vancomycin Order Panel in the Hospital Electronic Prescribing (EP) System on vancomycin prescribing and therapeutic drug monitoring.	Antimicrobial stewardship	Poster	N/A
99	Supporting One Health: scoping review of approaches for improving antimicrobial stewardship in livestock farmers and veterinarians	Antimicrobial stewardship	Poster	N/A
101	Impact of a dedicated Clostridium difficile infection isolation ward on clinical outcomes	Antimicrobial stewardship	Poster	N/A
105	Decision making on the route and duration of antibiotic therapy in acute cellulitis: A systematic review and meta-analyses considering the effectiveness and harms of antibiotic treatment.	Antimicrobial stewardship	Poster	N/A
125	Computer says no: Integrating antimicrobial stewardship into electronic prescribing – early lessons in infective exacerbations of chronic obstructive pulmonary disease (IE-COPD) prescribing	Antimicrobial stewardship	Poster	N/A
139	Leadership to reduce antimicrobial resistance in Uganda; Teams Kyenjojo and Kabarole, affecting long term change with ownership by frontline healthcare workers	Antimicrobial stewardship	Poster	N/A
147	Review of patients admitted with Community Acquired Pneumonia: compliance with local guidance	Antimicrobial stewardship	Poster	N/A
148	Review of positive microbiology cultures results of respiratory tract specimens in confirmed COVID-19 in-patients	Antimicrobial stewardship	Poster	N/A
177	Assessing Antibiotic Allergy to Improve Antimicrobial Stewardship	Antimicrobial stewardship	Poster	N/A
179	Impact of an empiric therapy manual on antibiotic usage in a large Italian teaching hospital: an interrupted time series analysis, 2015-2019.	Antimicrobial stewardship	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
188	Assessment of the accuracy of penicillin allergy documentation and investigation in to whether or not those labelled as penicillin allergic could potentially be de-labelled through pharmacist involvement.	Antimicrobial stewardship	Poster	N/A
190	Using Big Data to Evaluate the Time to Achieve an Initial Therapeutic Vancomycin Pre-dose Level and Optimal Dosing of Vancomycin in Patients with High Renal Clearance	Antimicrobial stewardship	Poster	N/A
206	Septic Screen in Patients with COVID-19 Infection	Antimicrobial stewardship	Poster	N/A
209	Absence of inflammatory marker responses to antibiotics facilitate antimicrobial stewardship in COVID-19	Antimicrobial stewardship	Poster	N/A
226	Evaluation of remote triazole capillary blood testing to facilitate remote Therapeutic Drug Monitoring (TDM): a validation study	Antimicrobial stewardship	Poster	N/A
23	Tuberculosis with a genitourinary component	Clinical cases	Poster	N/A
35	Case report: A fall in the forest	Clinical cases	Oral	BIA - Wednesday 11 November at 15.30
37	Fusobacterium nucleatum: An unusual cause of paediatric septic arthritis.	Clinical cases	Poster	N/A
42	A case of Capnocytophaga canimorsus endocarditis in a non-immunosuppressed host: The value of 16S PCR for diagnosis	Clinical cases	Poster	N/A
44	Opportunistic Infection in the Immuno-compromised Child: A Multi- Disciplinary Management of A Paediatric Crohn's Patient with Listeriosis	Clinical cases	Poster	N/A
45	Prosthetic Joint Infection secondary to Bacteroides infection	Clinical cases	Poster	N/A
56	Advanced HIV-1 infection discovery at post-mortem raises questions about confidentiality and disclosure	Clinical cases	Poster	N/A
57	A case of necrotising otitis externa in a type 2 diabetic	Clinical cases	Poster	N/A
58	A case of embolic spread of Fusobacterium necrophorum from presumed pharyngitis	Clinical cases	Poster	N/A
59	A case of treatment refractory necrotising otitis externa progressing to skull base osteomyelitis	Clinical cases	Poster	N/A
63	Botulism in a pregnant adolescent: a case report	Clinical cases	Poster	N/A
88	Mycotic Aneurysm due to Prostatitis	Clinical cases	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
95	Cryptococcus gattii cryptococcosis microbiological diagnosis in an immunosuppressed traveller to a non-tropical endemic region	Clinical cases	Oral	BIA - Wednesday 11 November at 15.30
100	An unusual diagnosis of neck pain: Sternoclavicular osteomyelitis secondary to Aggregatibacter aphrophilus	Clinical cases	Poster	N/A
112	COVID-19 related encephalitis is not an unusual presentation	Clinical cases	Oral	MS - Tuesday 10 November from 11:00-12:15
113	USE OF HIGH FLOW NASAL OXYGEN IN COVID-19: EXPERIENCE FROM A UKTEACHING HOSPITAL	Clinical cases	Poster	N/A
134	A confusing drug eruption	Clinical cases	Poster	N/A
156	COVID-19: case report of a probable re-infection in a lupus patient	Clinical cases	Poster	N/A
160	Disseminated Ureaplasma urealyticum infection in an immunocompromised patient	Clinical cases	Oral	BIA - Wednesday 11 November at 15.30
165	Solitary Syphilitic gumma as a possible cause of Brown-Sequard Syndrome in HIV: a diagnostic dilemma	Clinical cases	Poster	N/A
168	Is Mycobacterium tuberculosis infection life-long?	Clinical cases	Oral	BIA - Wednesday 11 November at 15.30
199	Native mitral valve Citrobacter koseri endocarditis following urinary tract infection	Clinical cases	Poster	N/A
204	Septic arthritis attributed to Acinetobacter nosocomialis	Clinical cases	Poster	N/A
207	Blood stream infection with Actinomyces funkeii in an intravenous drug user	Clinical cases	Poster	N/A
210	CMV colitis in a young immunocompetent patient	Clinical cases	Oral	BIA - Wednesday 11 November at 15.30
212	A case of Plasmodium falciparum 13 years after leaving an endemic area	Clinical cases	Oral	BIA - Wednesday 11 November at 15.30
219	Multiple splenic abscesses in a returning traveller	Clinical cases	Poster	N/A
20	Impact of antibiotic timing on mortality from Gram negative Bacteraemia in an English District General Hospital: the importance of getting it right every time	Clinical microbiology	Oral	MS - Tuesday 10 November from 11:00-12:15

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
29	Investigation of bacteraemia. Do we still need more than one set of blood cultures for initial diagnosis?	Clinical microbiology	Poster	N/A
66	Towards a dialogue about a Scottish ESBL reporting national consensus plan	Clinical microbiology	Poster	N/A
93	Utility of repeat Covid-19 Testing in the Mid West of Ireland	Clinical microbiology	Poster	N/A
96	A Retrospective Analysis of Enterococcus faecium Bacteraemias in NHS Greater Glasgow and Clyde in 2019	Clinical microbiology	Poster	N/A
137	Fungal Fournier's – an unusual organism	Clinical microbiology	Poster	N/A
152	Microbial profile with Antibiotic Resistance pattern in bile from Cholecystectomised Patients by Culture and Multiplex PCR	Clinical microbiology	Poster	N/A
167	A comparison of the severity of clostridioides difficile infections using traditional scoring compared with ATLAS scores over a period of one year	Clinical microbiology	Poster	N/A
175	Infections caused by Fusobacterium spp: a 3-year retrospective cohort study from West of Scotland	Clinical microbiology	Poster	N/A
196	Appendiceal abscess and bacteraemia caused by Eggerthella lenta: an emerging anaerobe	Clinical microbiology	Poster	N/A
238	Five-year retrospective review of the prevalence of Staphylococcus aureus isolated from patients with identified or suspected infection in a tertiary teaching hospital, China	Clinical microbiology	Poster	N/A
60	Safety in the practice of decontaminating filtering facepiece respirators: a systematic review	Decontamination	Poster	N/A
73	Broad Spectrum Antimicrobial Activity of 405-nm light as a Pathogen Reduction Treatment for Blood Plasma	Decontamination	Poster	N/A
79	The efficacy of universal disinfection wipes in an Acute Medical Unit: a comparison with a Chlorine-releasing agent.	Decontamination	Poster	N/A
90	Operating room fomites as potential sources for microbial transmission in burns theatres	Decontamination	Poster	N/A
128	Metal Oxide-doped Elastomeric Materials for Enhancement of 405-nm Light-based Antimicrobial Surface Decontamination	Decontamination	Poster	N/A
129	One wipe or two? Surface cleaning with commercially available wipes.	Decontamination	Poster	N/A
130	Efficacy of Low Irradiance Antimicrobial 405-nm Violet-Blue Light for the Inactivation of Nosocomial Bacteria	Decontamination	Poster	N/A
133	Physiological Effects of Antimicrobial 405nm light on Red Blood Cell Products	Decontamination	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
181	Clostridioides difficile Spore Survival Upon Recommended Exposure to Sodium Hypochlorite Disinfectant	Decontamination	Oral	FP - Tuesday 10 November from 08:00 to 09:00
201	Pilot evaluation of vapourised hydrogen peroxide for large-scale decontamination of FFP3 masks in a hospital setting	Decontamination	Poster	N/A
202	Microbiological evaluation of ready-to-use flexible gastroscopes in clinical use after different interval following reprocessing	Decontamination	Poster	N/A
21	Implementation of Central venous catheter maintenance bundle in an intensive care unit in Kuwait: Effect on central line-associated bloodstream infections	Device related infection	Poster	N/A
54	Whose Line Is It Anyway?	Device related infection	Poster	N/A
126	An interesting case of Mycobacterium abscessus peritonitis	Device related infection	Poster	N/A
132	Risk evaluation of duodenoscopy-associated infections in the Netherlands calls for a heightened awareness of device related infections: a systematic review	Device related infection	Poster	N/A
138	Sustained antimicrobial efficacy of antibiotic-eluting biodegradable polymer coatings for medical devices	Device related infection	Poster	N/A
140	Transmission of a susceptible microorganism through a contaminated duodenoscope in a non-outbreak setting; a case study.	Device related infection	Poster	N/A
159	Experience of CLABSI prevention measures in a medical ICU in a tertiary care hospital in a developing country	Device related infection	Poster	N/A
161	Early intravenous to oral switch of antibiotic therapy in deep, post-operative spinal infection – a single centre case series	Device related infection	Poster	N/A
185	The consequences of protracted Hospital admission with CoVID-19 infection: Hospital acquired Serratia marcescens aortic valve endocarditis	Device related infection	Poster	N/A
2	Comparison of PCR-detected bacterial gastroenteritis cases with their clinical phenotypes: are we over-estimating incidence in hospitalised patients?	Diagnostics	Poster	N/A
7	Selective use of Cepheid Xpert MTB/RIF based on NICE guidelines maintains a high rate of rapid pulmonary TB diagnosis	Diagnostics	Poster	N/A
24	Enhancing clinical impact by rapid bacterial identification from blood cultures: the York Teaching Hospital UK experience	Diagnostics	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
36	Lymphopenia is not a reliable predictor of COVID-19: Association between lymphopenia and COVID-19, influenza, respiratory syncytial virus and bacteraemia in hospitalised patients.	Diagnostics	Poster	N/A
48	Clinical utility of 16S rRNA PCR on clinical specimens in patient management at the Queen Elizabeth University Hospital, Glasgow	Diagnostics	Poster	N/A
53	Validity of Pneumonia Severity Assessment Scores in Low- and Middle-Income Countries: A Systematic Review and Meta-Analysis	Diagnostics	Poster	N/A
81	The impact of on-site testing on turnaround time based on a cross-sectional survey of molecular testing of CSF samples by laboratories in the UK	Diagnostics	Poster	N/A
92	SARS-CoV-2 confirmatory testing in a low prevalence setting helps guide protocols for the future	Diagnostics	Poster	N/A
115	An Evaluation of Beta D-Glucan Testing as an Antimicrobial Stewardship Tool in a Tertiary Referral Hospital	Diagnostics	Poster	N/A
122	Rapid diagnostics of orthopaedic implant-associated infections using nanopore shotgun metagenomic sequencing	Diagnostics	Poster	N/A
131	The Great ESKAPE: Are we Misdiagnosing Infections from Closely Related Species?	Diagnostics	Poster	N/A
158	An audit investigating the reporting of invasive Salmonella Infection in adults and children in Greater Glasgow & Clyde (GGC):	Diagnostics	Poster	N/A
169	Diagnostic performance of SARS-CoV-2 serological assays: comparison of three chemiluminescent immunoassays and two rapid IgG/IgM antibody tests	Diagnostics	Poster	N/A
171	Evaluation of the diagnostic accuracy of a rapid dengue NS1 antigen lateral flow immunochromatography test in UK returned travellers	Diagnostics	Poster	N/A
180	Genotypic characterisation of non-tuberculous mycobacteria from clinical samples suspected of tuberculosis	Diagnostics	Poster	N/A
183	Clinical and laboratory correlation of a screening reactive cytomegalovirus (CMV) IgM antibody	Diagnostics	Poster	N/A
198	Proof-of-concept trial to assess the impact of Biofire FilmArray panel for rapid diagnosis of meningoencephalitis	Diagnostics	Poster	N/A
211	DETECTION OF CAUSATIVE AGENTS OF INFECTIOUS KERATITIS IN PATIENTS FROM WESTERN INDIA	Diagnostics	Poster	N/A
217	Comparison of ISO 11731:2017 culture methods versus a real-time quantitative (q)-PCR (Biotecon-microproof® Legionella Quantification LyoKit) for the detection and enumeration of Legionella pneumophilla (LP) in hospital waters	Diagnostics	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
41	Survey of UK healthcare workers' knowledge, attitudes and behaviours on antibiotics, antibiotic use and antibiotic resistance	Education and training	Poster	N/A
70	Lumbar punctures: Who's doing them and how long are they taking?	Education and training	Poster	N/A
127	Adapting Infection Prevention & Control Training During and Beyond COVID-19 in Singapore	Education and training	Poster	N/A
142	Specialised training to protect humans and the environment to pandemics	Education and training	Poster	N/A
143	Novel resources for teaching and learning medical parasitology	Education and training	Poster	N/A
176	A cross-sectional survey of the perceived workload of UK infection specialists related to Lyme disease	Education and training	Poster	N/A
224	Antibiotic Guardian Ambassadors Pilot Project for World Antibiotic Awareness Week (WAAW) 2019	Education and training	Poster	N/A
31	Creating and Maintaining a Blue Ward within the COVID-19 pandemic	Environment	Poster	N/A
52	VRE acquisition on an oncology ward: The impact of environmental controls	Environment	Poster	N/A
91	Are the use of manually operated electric floor scrubbers a mechanism by which Carbapenemase Producing Enterobacterales (CPE) could be dispersed within the healthcare environment?	Environment	Poster	N/A
124	Persistence of <i>Pseudomonas aeruginosa</i> (PA) in hospital shower waters and drains and presence of antimicrobial resistance in the augmented-care setting	Environment	Oral	FP - Tuesday 10 November from 08:00 to 09:00
135	The use of the index of microbial air contamination in healthcare setting: a review of published studies from 2000 to 2020	Environment	Poster	N/A
141	Annual presence of <i>Anncaliia algerae</i> in water environments from Leicestershire, UK.	Environment	Poster	N/A
155	MDR bacteria in the hospital environment: case of the operating room	Environment	Poster	N/A
205	Real-time Monitoring of Aerosol Generating Dental Procedures	Environment	Oral	FP - Tuesday 10 November from 08:00 to 09:00
14	To report a rare case of fungal necrotising otitis externa (NOE) centred on the left temporomandibular joint (TMJ).	Fungal infections	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
61	Review of anti-fungal use in severe COVID-19 patients: the need for antifungal stewardship	Fungal infections	Poster	N/A
65	Not such a fun-guy: A case series of severe urological infections secondary to <i>Nakaseomyces glabrata</i> infection at Nottingham University Hospitals between 2017 and 2019.	Fungal infections	Oral	MS - Tuesday 10 November from 11:00-12:15
86	Severe COVID-19 infection and invasive pulmonary aspergillosis: a retrospective review from a UK centre.	Fungal infections	Poster	N/A
103	A Rare Case of Eumycetoma of the Hand in an Immunocompetent Patient: A Neglected Tropical Disease Lacking in Accurate Incidence/Prevalence Data and Which Poses Particular Diagnostic and Therapeutic Challenges.	Fungal infections	Poster	N/A
104	Fusarium keratitis: a challenging diagnosis and long road to recovery	Fungal infections	Poster	N/A
110	Evaluation of Aspergillus Lateral Flow Device in the diagnosis of Invasive Fungal Infections	Fungal infections	Poster	N/A
13	Addressing Refugee Health During the COVID-19 Pandemic and Future Ones	General	Poster	N/A
49	Remote risk stratification of dyspnoea in acute respiratory disorders and applications for COVID-19 and future pandemics: a systematic review of the literature	General	Poster	N/A
51	Assessing outpatient parenteral antimicrobial therapy for the treatment of intra-abdominal collections in a London teaching hospital	General	Poster	N/A
80	Fight COVID with COVID, and Learning from COVID- Kettering General Hospital story	General	Poster	N/A
106	Immunodeficiency Screening in Invasive Infections with Encapsulated Bacteria	General	Poster	N/A
151	Endocarditis outcomes and characteristics in a UK tertiary centre with high prevalence of intravenous drug use.	General	Poster	N/A
154	The COVID-19 staff testing service at Nottingham University Hospitals: description of the service and analysis of the results	General	Poster	N/A
118	The effect of Infection Control measures on the rates of nosocomial COVID-19 infection in a suburban hospital over time	Innovation in IPC (techniques/equipment)	Poster	N/A
123	COVID learning: Green is not always green, day 5-7 re-swab is essential	Innovation in IPC (techniques/equipment)	Poster	N/A
170	Rapid molecular testing to reduce the number of days spent in respiratory isolation for inpatients under investigation for pulmonary TB in a high incidence setting	Innovation in IPC (techniques/equipment)	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
191	A novel communications strategy for optimising COVID-19 Prevention and Control in non-English speaking communities in Ireland	Innovation in IPC (techniques/equipment)	Poster	N/A
193	Early clinical assessment tool alongside testing pathway to aid patient placement in healthcare to reduce healthcare associated COVID-19	Innovation in IPC (techniques/equipment)	Poster	N/A
234	Mouth care matters – a HAP prevention strategy	Innovation in IPC (techniques/equipment)	Poster	N/A
34	Ethnicity, Age and COVID-19: Experience of a London District General Hospital	Outbreaks	Poster	N/A
78	The Elephant in the Medical Admissions Unit: Cognitive Bias in the COVID-19 Pandemic	Outbreaks	Poster	N/A
107	Investigation of a coronavirus disease 2019 (COVID-19) outbreak in an elderly nursing home in France.	Outbreaks	Poster	N/A
150	Rapid assessment of possible price instability and shortages of medicines and equipment during the COVID-19 pandemic across Asia and the public health implications	Outbreaks	Poster	N/A
157	Serratia marcescens outbreak in a neonatal intensive care unit and the potential of whole-genome sequencing	Outbreaks	Oral	FP - Tuesday 10 November from 08:00 to 09:00
164	FIGHT AGAINST COVID-19 IN AFRICA: POSITIVE LESSONS FOR FUTURE PANDEMICS FROM GHANA	Outbreaks	Oral	FP - Wednesday 11 November from 08:00 to 09:00
172	Activities in Namibia to limit the impact of COVID-19 versus Europe and Iran and the implications for the future	Outbreaks	Poster	N/A
182	An outbreak of SARS-CoV-2 infection on a long-stay hospital ward in March 2020, identified at the onset of inpatient testing in England	Outbreaks	Poster	N/A
218	Is Corynebacterium striatum an emerging healthcare pathogen? A multi-site ICU outbreak during COVID-19 pandemic	Outbreaks	Poster	N/A
223	An investigation of a nosocomial COVID-19 outbreak reveals a high level of asymptomatic staff infection	Outbreaks	Poster	N/A
225	Neutrophil:Lymphocyte Ratio – a useful prognostic marker in COVID-19 infection	Outbreaks	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
231	Genomic and epidemiological investigations help to clarify the extent of healthcare-associated infection during a hospital outbreak of COVID-19	Outbreaks	Oral	FP - Wednesday 11 November from 08:00 to 09:00
17	Prevalence of the kleboxymycin biosynthetic gene cluster in Klebsiella spp.	Pathogenesis	Poster	N/A
68	Paediatric bone and joint infections in Oxford: a 10-year retrospective review	Pathogenesis	Poster	N/A
1	A Prospective Audit of Antimicrobial Stewardship and 'Start Smart – then Focus' Compliance on A Vascular Ward.	Quality improvement	Poster	N/A
4	Quality Improvement Project.Are we inoculating enough blood volume in paediatric blood culture bottle?	Quality improvement	Poster	N/A
9	The quality of life and cost benefits of domiciliary 24-hour piperacillin/tazobactam 13.5g infusion in patients with necrotising otitis externa.	Quality improvement	Poster	N/A
18	How good is the hand hygiene of surgeons? A data-driven strategy for long-term behavioral change	Quality improvement	Poster	N/A
28	Using Quality Improvement Methodology to Enhance Antenatal Infection Screening	Quality improvement	Poster	N/A
39	Can rationalization of frequent respiratory samples culture requests from an ITU lead to cost savings?	Quality improvement	Poster	N/A
50	Availability of Hand Sanitisation in a District General Hospital	Quality improvement	Poster	N/A
75	Identifying the World Health Organization's fifth moment for hand hygiene: Infection prevention in the operating room.	Quality improvement	Poster	N/A
82	Audit to monitor adherence to national treatment guidelines for C. difficile infection, to evaluate epidemiology of C. difficile infection, to assess the adherence to specimen collection guidance and infection prevention precautions to prevent spread of C. difficile infection at South Warwickshire NHS Foundation Trust (SWFT) between September 2018 and August 2019	Quality improvement	Poster	N/A
85	Influenza testing – an evaluation of understanding and application among clinical staff.	Quality improvement	Poster	N/A
102	A local audit on the initiation and dosing of gentamicin on surgical patients	Quality improvement	Poster	N/A
162	Procalcitonin and antibiotic stewardship at BSUH during the Covid-19 pandemic.	Quality improvement	Poster	N/A
184	Developing a Ward Team Approach to Antimicrobial Stewardship: Can Addition of an Antimicrobial Pharmacy Technician to the Multidisciplinary Team Improve Antimicrobial Stewardship and Patient Care?	Quality improvement	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
200	Management of the interaction between tetracycline and fluoroquinolone antibiotics with cation-containing products: Is there room for improvement?	Quality improvement	Poster	N/A
216	A quality improvement project (QIP) to improve antibiotic prescribing practice in general surgery using a daily ward-round checklist, ABBDDOMM.	Quality improvement	Poster	N/A
237	Reducing ventilator associated pneumonia - a basic oral hygiene training package	Quality improvement	Poster	N/A
121	Surgical site infection surveillance: Right tools, right care	Surgical site infections	Poster	N/A
228	Presenting a case for caesarean section surgical site infection surveillance	Surgical site infections	Poster	N/A
235	We're staying ahead of the NHS digital revolution curve in SSI surveillance	Surgical site infections	Poster	N/A
43	Evaluation of Novodiag CarbaR+ for the detection of carbapenemase producing organisms from faeces – NUH prevalence study 2020	Surveillance and epidemiology	Poster	N/A
72	COVID-19 The Irish Public Health Experience: The first 100 days in a large Regional Department of Public Health	Surveillance and epidemiology	Poster	N/A
74	The detrimental unintended consequences of lockdown on People Who Inject Drugs in NHS Lothian"	Surveillance and epidemiology	Poster	N/A
76	An Observational Study on Carbapenem Resistant Enterobacteriaceae (CRE) colonization and subsequent risk of infection in adult ICU patients	Surveillance and epidemiology	Poster	N/A
89	Local monitoring of microbiology and antimicrobial susceptibility in acute bacterial otitis media and rhinosinusitis in Ukrainian pediatric sample	Surveillance and epidemiology	Poster	N/A
120	Antimicrobial resistance pattern of Community-acquired Urinary Tract Infection from different geographical regions of India	Surveillance and epidemiology	Oral	MS - Tuesday 10 November from 11:00-12:15
136	Extended-spectrum β -lactamase-producing Enterobacterales acquisition and incidence of bloodstream infections after relocating to a new hospital with 100% single-occupancy rooms: the MOVE study	Surveillance and epidemiology	Oral	FP - Tuesday 10 November from 08:00 to 09:00
145	Active follow-up of patients identified with highly-resistant microorganisms in a large tertiary care centre	Surveillance and epidemiology	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
163	A review of symptomatology, clinical progression and transmission dynamics in confirmed COVID-19 patients and potential contribution of demographic characteristics on disease susceptibility – preliminary analysis. Keywords: COVID-19, SARS-COV-2, symptoms, demographics, susceptibility, transmission dynamics.	Surveillance and epidemiology	Oral	FP - Wednesday 11 November from 08:00 to 09:00
186	Impact of the COVID-19 pandemic on Infections of IPC interest at Birmingham Children's Hospital, UK	Surveillance and epidemiology	Poster	N/A
187	What does an Incidence survey tell you about hospital epidemiology that Prevalence surveys do not?	Surveillance and epidemiology	Poster	N/A
195	Enhanced surveillance of Staphylococcus aureus bacteraemia (SAB) in Glasgow	Surveillance and epidemiology	Poster	N/A
214	Prevalence of healthcare-associated infections and antimicrobial use: the four years' experience of two acute-care hospitals in North-West Italy	Surveillance and epidemiology	Poster	N/A
229	Underreporting of carbapenemase-producing organism (CPO) colonisation at a district general hospital: universal screening may help cost-effectively control transmission.	Surveillance and epidemiology	Poster	N/A
10	Urogenital schistosomiasis in fishermen in the Mangochi district of Malawi: short-term dynamics of Schistosoma haematobium infections and morbidity after praziquantel treatment	Tropical infections	Poster	N/A
27	Retrospective descriptive study of patients with Strongyloides positive serological diagnostic markers referred to a regional infectious diseases unit	Tropical infections	Poster	N/A
64	Let off the 'Leish' in Egypt: Sun, Sea, Sand and Splenomegaly	Tropical infections	Poster	N/A
71	Adherence to new Entamoeba histolytica guidelines in inflammatory bowel disease: An audit of practice at a UK teaching hospital	Tropical infections	Poster	N/A
11	Investigations, actions and learning from an outbreak of SARS-CoV-2 infection among health care workers in the United Kingdom	Viral infections	Oral	FP - Wednesday 11 November from 08:00 to 09:00
38	A 5 year retrospective analysis of the clinical management of varicella zoster CNS infections	Viral infections	Poster	N/A
55	Flu through the hospital or not? Prospective follow up of multiple contacts of 25 patients with influenza in a South London hospital	Viral infections	Poster	N/A

Abstract supplement (free paper abstracts)

Paper number	Title	Topic	Type	Session details
84	Quinine inhibits infection with SARS-CoV-2 in vitro - a new potential therapeutic approach in combating the current SARS-CoV-2 pandemic	Viral infections	Poster	N/A
153	When is query COVID not COVID? A systematic review of misdiagnoses during the 2009 H1N1 influenza and COVID-19 pandemics where presumed diagnoses of pandemic respiratory virus were overturned.	Viral infections	Poster	N/A
192	Clinical and Laboratory profile of Dengue infection: A Hospital-based study in Rajasthan, India	Viral infections	Poster	N/A
197	Persistent Influenza A(H1)pdm09 shedding in an immunocompromised patient	Viral infections	Poster	N/A
222	Characterisation of patients with COVID-19 infection in Glasgow, Scotland.	Viral infections	Poster	N/A
230	Hospital-wide SARS-CoV-2 antibody screening in 4153 staff in a UK hospital - patterns of antibody detection	Viral infections	Oral	FP - Wednesday 11 November from 08:00 to 09:00