Introduction:

We present a case of gram-negative neurosurgical meningitis in a neonate, refractory to optimal intravenous therapy and removal of ventriculo-peritoneal shunt. Cerebrospinal fluid was sterilized within 24 hours using intraventricular colistin. This is the first report of intraventricular colistin use in neonatal meningitis due to *Enterobacter cloacae*.

Disclosure of Interest Statement: None.
CANDIDAEMIA IN THE CANBERRA REGION: INCIDENCE AND CLINICAL FEATURES

Authors:
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Introduction: Candida species represent an important cause of bloodstream infection, however there is considerable geographical variation in its presentation.

The aims of this study are to describe the clinical features and population incidence of candidaemia in the Canberra region.

Methods: Candida species bloodstream isolates between 2004 and 2015 from the two Canberra public hospitals were extracted from ACT Pathology laboratory information system. Clinical data was retrospectively collected from medical records and local infection control databases. Residents of the Canberra Region included those that reside in the Australian Capital Territory and Queanbeyan-Palareng area of NSW. The population incidence was calculated after excluding non-Canberra region residents and using population data from the Australian Bureau of Statistics.

Results: A total of 218 episodes of candidaemia were identified. The median age was 63 (IQR 50 - 73), with 57% occurring in males. Most episodes were healthcare-associated (77% inpatient onset, 13% non-inpatient onset). Intestinal/biliary (25%), intravascular device (24%) and urinary tract (16%) were the most common sources of infection, although the source remained unknown in 22%. Candida albicans (47%), C. glabrata (26%) and C parapsilosis (10%) were the most common species. 25% of episodes were polymicrobial. The 7- and 30-day all-cause mortality was 15% and 27%.

61% of episodes occurred Canberra region residents. The overall population incidence was 2.95 per 100,000 per year (range 1.75 to 4.97) with no significance change in incidence over the study period.

Conclusion: Candidaemia remains predominantly a healthcare associated infection associated with high mortality. The urinary tract was an unexpected common source of infection.

Disclosure of Interest Statement: NIL
A REGISTRY FOR PATIENTS WITH ASPLENIAS/HYPOSPLENISM REDUCES THE RISK OF INFECTIONS WITH ENCAPSULATED ORGANISMS: TIME FOR A NATIONAL REGISTRY?

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5Infection Prevention and Healthcare Epidemiology Unit, Alfred Health

Introduction: Overwhelming post-splenectomy infection is a serious complication of asplenia, and associated with significant morbidity and mortality. Awareness and adherence to preventative measures have generally been found to be poor.

Methods: We reviewed data from the Victorian Spleen Registry and linked data on invasive pneumococcal disease (IPD), invasive meningococcal disease (IMD) and Haemophilus influenzae type b (Hib) from the Victorian Public Health Events Surveillance System between 2000 and 2014. The risk reduction post-registration was estimated using a poisson regression.

Results: In 3221 Victorian participants, the median age at splenectomy was 38 years (IQR 21.58 years) and the age of registrants in April 2014 was 59 (IQR 49-70 years). In registrants on the VSR, there were 28 notifications, including 27 of IPD and 1 of IMD. No cases of Hib were reported. The rate of IPD/IMD was 150 per 100,000 patient years prior to registration and 36 per 100,000 patient years after registration; registration with the VSR was associated with an 69% reduction in the risk of infection (incidence rate ratio 0.31, 95% CI: 0.12, 0.83, p=0.019).

Conclusion: Infections due to vaccine preventable, encapsulated bacteria, particularly S. pneumoniae, occurs at a much higher incidence in this patient group than in the general population. We have previously shown good adherence to measures to prevent infection in registrants. A patient registry for patients with asplenia/hyposplenism that provides education, clinical advice and health promotion reminders was associated with a significant reduction in the risk of infection with encapsulated bacteria.

Disclosure of Interest Statement: Spleen Australia is funded by Alfred Health, the Victorian Department of Health and Human Services, the Tasmanian Department of Health and Human Services and Queensland Health.
POINT PREVALENCE SURVEY OF ANTIMICROBIAL USE IN A REFERRAL HOSPITAL IN BHUTAN

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Introduction: The emergence of multi-resistant microorganisms is a major public health concern including in resource-limited settings. Limited data is available regarding antimicrobial use in Bhutan. As part of a newly set up Antimicrobial Stewardship Program, this study was performed to identify the prescribing trends and areas of improvement in the hospital antimicrobial prescribing practices.

Methods: A point prevalence survey (PPS) was performed by a physician and a pharmacist on all admitted in-patients on a designated day using a standardised data collection form. The data collected and analysis includes indications for antimicrobial use, documentation of indication and an assessment of appropriateness.

Results: Results of the PPS would be presented at the conference.

Conclusion: This is the first antimicrobial use PPS to be conducted in Bhutan. Many key areas of poor antimicrobial prescribing practices were identified. Lessons learnt will be used to plan strategies to improve knowledge, attitudes and practices. Future plans include regular annual PPS and expansion of antimicrobial use PPS to regional hospitals.

Disclosure of Interest Statement: No conflicts of interest to declare
CONTINGENCY ANTIBIOTIC PRESCRIPTIONS IN PRIMARY CARE: USE, DEMOGRAPHICS, AND CLINICAL VARIABLES

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Introduction: Contingency antibiotic prescriptions can be used to potentially mitigate antibiotic use. We sought to determine how frequent these prescriptions would be used in three community primary care clinics over the 2015-2016 respiratory virus season in the lower mainland near Vancouver, Canada.

Methods: Consecutive tabulation was made for such prescriptions that were given to a total of 101 patients. Clinical and demographic data were obtained for each patient. Prescriptions were monitored through a provincial pharmacy network.

Results: Fifty-three (52.5%) of contingency prescriptions were filled through a pharmacy: 19 on the same day, 19 within 1-3 d., and the remaining 15 after four days of clinic visit. Of the total, 68 (67.3%) of the antibiotics were macrolides and 24 (23.8%) were doxycycline; there was no significant difference in antibiotic categories for those who did or did not fill the prescriptions (p>0.13 for all comparisons). Seventy-four (73.3%) of patients presented with lower respiratory infections, but there was no association of antibiotic use with type of infection (p>0.24 for all comparisons). There was also no association of antibiotic prescription filling with gender, ethnicity, immigrant status, clinic location, fever at presentation, days of disease prior to presentation, or several co-morbidities (p>0.12 for all comparisons). Patients who did not have prescriptions filled were significantly more young (p=0.008).

Conclusion: Contingency antibiotics are modestly used, and, apart from age, there is no consistent clinical predictor at the time of prescription to determine which patient subset is more likely to consume them.

Disclosure of Interest Statement: No pharmaceutical grants were received in the conduct of this study.
IMMUNODEFICIENCY AND INTERFERON-GAMMA ANTIBODY

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Clinical Presentation: A 58 yr. old Vietnamese-born male presented for follow-up of a resolving pneumonia which was diagnosed in an emergency department during the previous week in July, 2013. He had co-morbidities of diabetes, hypertension, and hyperlipidemia. Eight months later he began to lose weight and complained of persistent cough. The chest X-ray continued to be abnormal but work-up for sputum AFB was negative. By July 2014, he was febrile and continued to lose weight. His blood count showed considerable neutrophilia. Within the next month, cultures of blood, urine, and bronchoscopic washings all yielded Mycobacterium avium, susceptible to clarithromycin. He was treated initially with ethambutol and clarithromycin. His clinical course was complicated by the findings of an evolving left upper lung mass, pulmonary emboli, deep vein thrombosis, anemia, hypercalcemia, decompensated diabetes, retinopathy, lytic bone lesions, low grade fever, and persistent cachexia. The neutrophilia persisted despite treatment. No evidence of HIV or HTLV infection nor myeloproliferative disorder or other malignancy was found. Interferon-gamma antibodies were detected by December, 2014. Rifampin was added to his treatment. Rituximab was administered beginning in March, 2015. Within one month, he began to gain weight and his neutrophilia began to normalize. The chest X-ray had also considerably improved. He continues with periodic rituximab and anti-MAC therapy and has been in remission since.

Conclusion: This patient’s course typifies the emerging recognition of interferon-gamma antibody-associated immunodeficiency which is especially being seen among Asian populations. A unifying causation theory is yet to be defined.

Disclosure of Interest Statement: No pharmaceutical grants were received in the development of this study.
RANDOMISED CONTROLLED TRIAL OF SHORT COURSE INTRAVENOUS ANTIBIOTIC THERAPY FOR Erysipelas AND CELLULITIS OF THE LOWER LIMB (SWITCH TRIAL)

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Introduction: The diagnosis of cellulitis is clinical without a gold standard diagnostic test, and many disease mimics. There is currently no consensus for optimal treatment based on method of antimicrobial delivery or duration of treatment.

Methods: Randomised controlled open label multicentre trial to determine the safety and efficacy of 24 hours of intravenous (IV) therapy compared to >72 hours of IV therapy both followed by oral therapy to a maximum of 7-10 days duration for the treatment of lower limb cellulitis.

Results: Over 40 months 80 patients were randomised at 4 of 10 trial sites. 39 patients were assigned to 24 hours IV antibiotics and 41 to 72 hours or greater IV antibiotics (See Table 1). Five patients did not achieve an adequate response, with protocol was broken by study clinicians and antibiotics continued beyond 10 days. Only 2 patients experienced self-limiting adverse effects of treatment.

Conclusions: Non-inferiority of short-course IV therapy cannot be determined from this trial. More patients in the intervention arm self-withdrew from the trial after providing consent. Cellulitis is a condition which is fundamentally difficult to study in a randomised controlled trial. Recruitment is marred by lack of funding and difficulties with accurate clinical diagnosis. Responses as determined by treating clinicians are subjective, based on visual assessment. There are differences in clinician practices for treating cellulitis both within and between institutions, a lack of gold standard for route of therapy, and no tools readily available to assess response to therapy.

Table 1: Responses to treatment by study arm

<table>
<thead>
<tr>
<th></th>
<th>24 hour intervention arm</th>
<th>72 hours or more control arm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients recruited</td>
<td>39</td>
<td>41</td>
</tr>
<tr>
<td>Patients who self-withdrew after consenting</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Patients removed by investigators and protocol broken</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Patients not achieved an adequate response to therapy</td>
<td>3</td>
<td>2</td>
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Disclosure of Interest Statement: No pharmaceutical grants were received for the development or completion of this study.
SIGNIFICANT IMPROVEMENTS IN ANTIBIOTIC PRESCRIBING FOR COMMUNITY ACQUIRED PNEUMONIA AT CABOOLTURE HOSPITAL WITH THE IMPLEMENTATION OF AN AMS PROGRAM.

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Introduction: Caboolture hospital is a 216 bed hospital providing care to patients in South East Queensland. An Antimicrobial Stewardship (AMS) program was initiated at the start of 2016. We report on the impact of this program on antibiotic prescribing for community acquired pneumonia (CAP)

Methods: The AMS program consisted of infectious disease led ward rounds involving case review and real time feedback to prescribers as well as a formal education program.

Pre-implementation (2015) and post implementation (2016) audits of prescribing characteristics were performed by retrospective chart review. Severity was assessed using CURB-65 and CORB severity tools. Concordance of prescribing was assessed according to Therapeutic Guidelines 2015 (eTG).

Results: 75 and 91 records were reviewed for 2015 and 2016 respectively. The populations were similar although almost 10 years older in 2016. Ceftriaxone was the most commonly prescribed antibiotic for pneumonia in 2015, compared with Benzyl penicillin in 2016. Compliance with eTG rose from less than 30% in 2015 to over 60% in 2016. The average duration of intravenous antibiotic therapy reduced from 4.8 days to 3.5 days. 30 day readmission and mortality rates were similar in both years (12% and 6% in 2015 vs 19% and 7% in 2016 respectively).

Conclusion: The implementation of an AMS program at Caboolture hospital has significantly altered the prescribing characteristics for CAP by shortening the duration of antibiotics and reducing the reliance on 3rd generation cephalosporin.

Disclosure of Interest Statement: There are no conflicts of interest to disclose.
RARE AS RATS’ TEETH?: TWO CASES OF RAT BITE FEVER

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Introduction: Streptobacillary Rat Bite Fever is a systemic bacterial infection characterised by fever, migratory polyarthralgia/arthritis and rash. It is spread by rat bite or close contact with rats and untreated has a reported mortality rate of 10%. Rat Bite Fever is not a notifiable disease and as such, its incidence is not known, however the literature describes Rat Bite Fever as a disease that is rare and difficult to diagnose. The causative organism, *Streptobacillus moniliformis*, is a pleomorphic, fastidious Gram-negative bacillus that is difficult to culture, slow-growing and for which there is no serological test.

We report two cases of Streptobacillary Rat Bite Fever in one hospital in the Hunter region over a 3-month period. Both patients had received rat bites prior to the development of their symptoms. Both cases were symptomatic with fevers, joint symptoms and gastrointestinal symptoms. Both patients had inflammatory arthritis on clinical examination; one case had a haemorrhagic pustular rash on his palms and soles. Gram-negative rods were isolated in blood cultures taken from both patients and were identified as *Streptobacillus moniliformis* in both cases. The treatment for the two patients was with intravenous benzyl-penicillin through the hospitals ‘Out and About’ program.

These two cases raise questions about the supposed rarity of Rat Bite Fever in Australia. They also highlight the importance of understanding the clinicians’ clinical reasoning in making the challenging diagnosis of Rat Bite Fever. This poster will share some insights of how, when and where the diagnoses were made.

Disclosure of Interest Statement: No conflicts of interest to declare.
MULTIDRUG RESISTANT TUBERCULOSIS IN AUCKLAND

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Introduction: The emergence and spread of Multidrug-resistant tuberculosis (MDR-TB) is a significant threat to the global control of tuberculosis. While uncommon in New Zealand, an increase in cases has been observed.

Methods: This was a retrospective review of all MDR-TB isolates processed at LabPlus, Auckland. Electronic chart review was undertaken for cases who received care in the Auckland region.

Results: 50 cases of MDR-Tb were identified from 1989 to 2016, with 36 receiving care in the Auckland region. While there was an increase in cases from 2004, these have since stabilised at 2 cases annually since 2007. The median age was 28 years. 22 (61%) were female. 31 (66%) were from Asia, 3 (8%) from Africa and 1 (3%) each from Papua New Guinea and South America. 2 (5%) cases had HIV infection. 10 (28%) reported having received prior TB treatment. Of the 31 (66%) patients with pulmonary involvement, 12 (39%) were smear positive at diagnosis, with 9 (29%) being either 3+ or 4+. 18 (50%) completed treatment in New Zealand, with 1 still receiving treatment. There was one case of relapse following an abbreviated course of treatment. All patients who received treatment had adverse effects with the most frequent being gastrointestinal (47%), ototoxicity (34%) and psychiatric (32%).

Conclusion: The incidence of MDR-TB in Auckland remains low but most cases have pulmonary involvement with many being highly infectious. This emphasises the need for ongoing vigilance to reduce the risk of transmission in the community.

Disclosure of Interest Statement: No conflicts to disclose.
Introduction: Pyogenic vertebral osteomyelitis (PVO) is a common infection, but the best investigation strategy and duration of antibiotic therapy are controversial. Despite this, there is little evidence to guide its management, and there are few Australian data on investigation, management and outcomes.

Methods: We conducted a single centre retrospective cohort study of PVO at an Australian teaching hospital. We included all adults with a first episode of radiologically confirmed PVO admitted between 2006 and 2015. Data were extracted from medical records. The main exposures of interest were investigation strategy and duration of antibiotic treatment. The main outcome measures were mortality, symptom resolution during the index admission and attributable readmission within 2 years.

Results: Of 131 included patients, 89 (68%) were male and the mean (sd) age was 61 (15) years. Open biopsy (94%) and fine needle biopsy (71%) were more likely to be culture positive than core biopsy (50%, p=0.007). The mean duration of IV antibiotics was 44 days, and 82% were also given oral antibiotics (mean duration 92 days). Hospital mortality was 5%, but 85% of patients had persisting symptoms on discharge, including 94% with ongoing pain and 25% with residual neurological impairment. 18% of patients had an attributable readmission within 2 years. Contrary to expectation, those with a causative organism identified were no less likely to have a poor outcome (25/114, 22%) than those treated empirically (3/17, 18%).

Conclusions: Despite a high proportion of patients with an identified causative organism and long courses of antibiotics, outcomes were poor.

Disclosure of Interest Statement: No pharmaceutical grants were received in the development of this study and none of the authors have any conflicts of interest to declare.
ANTIMICROBIAL ANAPHYLAXIS: THE CHANGING FACE OF SEVERE ANTIMICROBIAL ALLERGY

Authors:
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Introduction: Recent Australian data demonstrates medication-related anaphylaxis is increasing. The epidemiology, clinical characteristics and outcomes of antimicrobial anaphylaxis (AA) remain ill-defined.

Methods: A retrospective cohort study of AA was conducted at Austin and Alfred Hospitals (Jan 2010 – Dec 2015). Cases of AA were identified from ICD-10 coding and adverse drug reaction (ADR) committee databases. Demographics, clinical characteristics, age-adjusted Charlson Comorbidity Index (CCI), drug history, treatment and outcome data were collected. Follow-up questionnaire was conducted as a pilot for Austin Hospital patients.

Results: We identified 210 patients with AA [median age 50 (IQR; 35, 66) years and CCI 1 (IQR; 0, 3)]. Female predominance (58%, 123/210) was noted and 29% (59/210) had a previous episode of anaphylaxis. Of 240 implicated antimicrobials, amoxicillin (18%, 42/240), cephalaxin (15%, 37/240), amoxicillin-clavulanate (10%, 24/240) and cefazolin (10%, 24/240) were the most common. In regards to antimicrobial class, 1st generation cephalosporins (30%, 71/240) predominated [Figure 1]. More than 1 drug was implicated in 78% (165/210). Of patients transferred to hospital via ambulance, 65% (71/108) received adrenaline en route. Twelve percent (26/210) of patients required adrenaline infusion, 18% (37/210) ICU-admission, and 30 day inpatient mortality was low – 1/210. Only 70% of patients (146/210) had the implicated antimicrobials listed in the discharge summary. After discharge, 25% (12/48) carried a medic alert device and 16.7% (8/48) were referred for allergy testing.

Conclusion: The epidemiology of AA is changing with amino-penicillins, amino-cephalosporins, and 1st generation cephalosporins becoming more prevalent over “penicillins”. AA contributes to significant morbidity, however, discharge documentation and follow-up testing remain poor. A national assessment will be undertaken to examine the burden of AA and risk factors for severe outcomes to define effective management strategies.

Figure 1: Antimicrobial classes implicated in anaphylaxis at Austin and Alfred Health (2010-2015).
Definitions/Abbreviations: Penicillin - penicillin V/G, flucloxacillin, dicloxacillin; Aminopenicillin –amoxicillin, ampicillin; Beta-lactam/lactamase - piperacillin-tazobactam, ticarcillin-clavulanate, amoxicillin clavulanate

Disclosure of Interest Statement: No conflicts to declare.
BRAIN ABSCESS FOLLOWING TONGUE SCRAPING

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Introduction: We report a case of a brain abscess with a constellation of mouth organisms following recent practice of tongue scraping, which is largely an Eastern tradition.

Our patient reported symptoms of a headache for one week and brain imaging showed a lesion which turned out to be an abscess. The only significant history obtained consequently was that of recent practice of tongue scraping. The abscess consisted mainly of Aggregatibacter aphrophilus, but also had Streptococcus anginosus and mixed anaerobes. Interestingly, our patient was also later found to have a patent foramen ovale which was surgically fixed.

This case highlights the importance in questioning alternative practices such as tongue scraping in patients demonstrating brain abscesses with a preponderance of mouth flora. It also potentially outlines the danger in using such devices.

Disclosure of Interest Statement: There are no conflicts of interest.
IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME WITH THE USE OF INTERFERON-GAMMA THERAPY FOR REFRACTORY DISSEMINATED MYCOBACTERIUM ABSCESSUS INFECTION

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Introduction: Mycobacterium abscessus is an emerging infection with significant clinical challenges including resistance to antimycobacterial agents. Novel treatment options are required to treat this infection and interferon-gamma (IFN-γ) is one option that has been employed.

We report a case of a 66-year-old gentleman with a history of self-prescription of high dose hydrocortisone who presented with a fever of 38.5°C and multiple cutaneous abscesses on his limbs. Blood and swab cultures from the abscesses grew M. abscessus.

Despite four weeks of in vitro susceptible antimycobacterial therapy with amikacin, cefoxitin, imipenem, tigecycline and oral clofazimine, he had persistent fevers and new biopsy proven M. abscessus cutaneous lesions. Adjunctive therapy with IFN-γ was initiated at a dose of 50µg/m\textsuperscript{2} subcutaneously, thrice weekly. Following IFN-γ commencement, his fevers resolved and the cutaneous lesions began to heal more rapidly. Despite this initial clinical improvement, three days after the first dose his fevers recurred and rapid development of new cutaneous abscesses was observed. Therapy was continued with the potential diagnosis made of an immune reconstitution inflammatory syndrome (IRIS) occurring due to the IFN-γ. Following this episode, his fevers and lesions resolved.

This case adds to the limited available evidence supporting the consideration of IFN-γ in those with RGM infection who fail conventional antimycobacterial therapy and documents a new phenomenon of potential IRIS after IFN-γ initiation. Research is required to define optimal duration of IFN-γ therapy and elucidate the optimal target patient population.

Disclosure of Interest Statement: No disclosure of interest to declare.
IS ROUTINE TRANSOESOPHAGEAL ECHOCARDIOGRAPHY NECESSARY IN HOSPITAL ACQUIRED STAPHYLOCOCCUS AUREUS BACTEREMIA IN A REGIONAL CENTRE?

Authors:
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Introduction: The aim of the study was to establish whether transthoracic echocardiography (TTE) or TOE is necessary in all hospital acquired (HA) SAB (in a regional centre), or just in patients who have high-risk factors. The hypothesis for the study was that TOE will be unnecessary in patients with HA SAB in the absence of valvular heart disease and prolonged duration of documented bacteremia.

Methods: A retrospective cohort study was performed investigating all patients with SAB from 2013 to 2015 from a regional hospital in Queensland. Patients were identified through the hospitals infection control unit database. Details collected from Electronic medical records and physical chart audit included: demographic details, type of organism grown, source of infection, patient medical co-morbidities. Descriptive data analysis was performed

Results: 24 patients were included in this study (16 male, 8 female). 75% of patients had intravascular access devices as their source of SAB. 25% of patients were investigated by TOE; 75% by TTE only. 45.8% of patients had high-risk factors. Accrued 30-day mortality was 16.7% in patients who received TOE and 27.8% in those who received TTE only.

Conclusion: This audit has found that compliance with routine TOE is poor in the regional centre studied. Due to insufficient numbers, we are unable to draw substantial conclusions. Multi-centre analysis of HA SAB in Australian regional hospitals would best answer our hypothesis and give more reliable findings

Disclosure of Interest Statement: There are no conflicts of interest surrounding this project and poster presentation.
CRYPTOCOCCAL INFECTIONS OVER A 15 YEAR PERIOD AT A TERTIARY FACILITY & IMPACT OF GUIDELINE MANAGEMENT

Authors:
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Introduction: The aim of this research paper is to determine the incidence, risk factors and clinical outcome of all patients diagnosed and treated for cryptococcosis at our institution. We also aim to compare treatment outcome following introduction of the 2010 Infectious Disease Society of America (IDSA) guidelines.

Methods: Retrospective analysis of all patients diagnosed and treated for cryptococcal infection occurring between January 2001 and December 2015.

Results: Of 102 patients diagnosed with cryptococcal infection, 97 were eligible for study inclusion. There appears to be an overall increased incidence of cryptococcosis in both transplant and non-transplant cohorts with a peak in 2015 of 6 transplant and 13 non-transplant cases. 38/52 (73%) of identified isolates were C. neoformans, and 14/52 (27%) were C. gattii. Notably, 14/14 (100%) of C. gattii isolates were associated with meningitis, as compared to only 38/64 (59%) C. neoformans associated with meningitis (p: 0.003). It appears that patients presenting with cough are less likely to have meningitis, 17/27 (63%), (p: 0.005). When stratifying for culture positive meningitis lumbar puncture opening pressure, the median in the culture positive cohort was 31.5cmH2O compared with 15.5cmH2O (p: 0.036). Multiple admissions were required prior to diagnosis in the majority of cases with only 18/72 (25%) diagnosed on 1st presentation. Post-guideline mortality has improved from 17.1% to 6.1% (p: 0.046)

Conclusion: Cryptococcal infection remains relatively uncommon, but there appears to be an increasing trend in incidence. Overall mortality is relatively low and has improved since introduction of the 2010 IDSA guidelines.

Disclosure of Interest Statement: No conflicts to declare.
GONOCOCCAL PROSTHETIC JOINT INFECTION

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Introduction: Neisseria gonorrhoea is a common sexually transmitted infection worldwide. Disseminated gonococcal infection is an infrequent presentation and rarely can be associated with septic arthritis. Incidence of this infection is rising both internationally and in older age groups. We present the first documented case of N. gonorrhoea prosthetic joint infection of an elderly gentleman, successfully treated with laparoscopic debridement and antimicrobial therapy.

Disclosure of Interest Statement: Nothing to disclose
THE HIGH COST OF MULTI-DRUG RESISTANT TUBERCULOSIS (MDR-TB)

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Introduction: A 22 year old female from Northern India presented with cough, weight loss, and radiological findings of extensive left upper lobe cavitation. Sputum samples showed profuse acid fast bacilli, and multi-resistant MTB, rapidly diagnosed using GeneXpert (Cepheid).

Based on initial MTB resistance data, amikacin, moxifloxacin, ethionamide, ethambutol and pyrazinamide were commenced, in conjunction with oral contraception following a negative pregnancy test, at an estimated cost of $8000 per month. Post initiation the patient experienced persistent nausea and vomiting despite metoclopramide and ondansetron. Therapy was ceased and the patient discharged to home isolation

Patient treatment was re-instituted due to non-adherence to isolation and return of definitive resistance sensitives. The regimen was changed to amikacin, cycloserine, linezolid, bedaquiline, amoxycillin/clavulanic acid, and pyrazinamide (despite resistance) at an estimated cost of $12000 per month, with predicted treatment duration of 2 years. A second pregnancy test, 4 weeks after the initial test, was positive, around 6 weeks gestation. Safety concerns of this regimen in pregnancy resulted in a medical termination. A decline in the patient’s mental health occurred during the admission with a self-harm episode in an attempt to hasten discharge

Initiation with 4 drugs for non-resistant TB is around $200/month compared to $12000 for this patient with MDR-TB. This case highlights the high cost associated with MDR-TB, including increased duration, toxicity profile, loss of a viable pregnancy, decline in the patient’s mental health after 4 weeks in isolation, unfamiliarity, and ongoing risks of, and monitoring for, potential drug induced adverse effects.

Disclosure of Interest Statement: No conflicts to disclose.
THE USE OF VETERINARY SUBCUTANEOUS IVERMECTIN FOR STRONGYLOIDES STERCORALIS HYPERINFECTION

Authors:
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Abstract: A 60-year-old Vietnamese male, treated with azathioprine 150mg/day for ulcerative colitis, developed severe pemphigus vulgaris. After an eight-month evolution, control was finally achieved with high dose prednisone (150 mg/daily), for several weeks prior to admission.

Abdominal pain prompted admission, with initial chest radiography demonstrating diffuse infiltrates. There was no peripheral eosinophilia. Induced sputum was PCR positive for Pneumocystis jirovecii, treated with sulfamethoxazole/trimethoprim and steroids. Cytology and special stains, on sputum, demonstrated eggs, larvae and adult forms of Strongyloides stercoralis.

Ivermectin was commenced orally, however rapid respiratory deterioration progressed to intubation. An ileus contributing to possible drug malabsorption, necessitated parenteral therapy. Hospital drug committee approval was obtained for subcutaneous ivermectin from a local veterinary practice. Nasogastric albendazole was co-administered.

Daily sputum cultures remained positive until day 20. Anthelmintic were ceased after a month, with no further evidence of infection. Unfortunately, two weeks later, his pemphigus progressed, eventually involving 50% of body surface area. High dose steroids, rituximab, intravenous immunoglobulin and plasmapheresis failed to the control disease. Isoniazid and entecavir were administered for tuberculosis and hepatitis B prophylaxis, following positive quantiferon gold and anti-HBc serology. He passed away four months into admission from pseudomonal sepsis, after transfer to a burns unit.

This case demonstrates the importance of screening for opportunistic pathogens before immunosuppression, the value of induced sputum and microscopy for early diagnosis, the rare presentation of all stages (eggs, rhabditiform and filariform larvae and gravid adult females) in sputum and the role of subcutaneous ivermectin in managing life-threatening strongyloides hyperinfection.

Disclosure of Interest Statement: There are no reported conflicts of interests. No financial grants to disclose.
PUSHING AGE BOUNDARIES: EFFICACY AND SAFETY OF OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY IN NEONATES

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Introduction: Outpatient parenteral antimicrobial therapy (OPAT) is increasingly used to treat adults and children at home, but there has never been a study in neonates. We aimed to describe the use, appropriateness and outcomes of OPAT in neonates, compared to older infants.

Methods: In this 4-year prospective study we compared neonates (<28 days) to older infants (29-365 days) treated with OPAT via hospital-in-the-home (HITH) at The Royal Children’s Hospital, Melbourne. Clinical and treatment data were collected with the main outcome measures length of stay, antibiotic appropriateness, adverse events and readmissions.

Results: There were 38 neonates and 214 older infants admitted to HITH for OPAT for 39 and 223 treatment episodes respectively. Meningitis was the most common diagnosis requiring OPAT in both groups (66% and 38% respectively). Neonates were less likely to have a positive bacterial culture than older infants (42% versus 62%, p=0.02). The most frequently prescribed antibiotic was ceftriaxone for both groups (65% and 45% respectively). Mean length of OPAT stay was 8.4 days in neonates and 6.8 days in older infants (p=0.6). Appropriateness of antibiotic choice (94% versus 93% respectively, p=1.0) and application (88% versus 89%, p=1.0) were similar. Unplanned readmissions were few: 5% in neonates and 7% in older infants (p=0.5). OPAT-related adverse events were vascular access rather than antibiotic complications: 18% in neonates and 14% in older infants (p=0.5).

Conclusion: OPAT is safe and effective in a selected group of clinically stable neonatal patients. Despite high rates of appropriate antibiotic use, improvements can still be made.

Disclosure of Interest Statement: No conflicts of interest to disclose
MANAGEMENT AUDIT AND REVIEW OF EPIDEMIOLOGY OF CANDIDAEMIA IN ADULTS IN A TERTIARY CENTRE IN NEW ZEALAND OVER 10 YEARS (2005-2014)

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Introduction: Candidaemia is a major cause of morbidity and mortality. A retrospective audit was undertaken to explore the epidemiology in our hospital.

Methods: A laboratory database was searched for Candida sp. blood culture isolates in patients aged 16 years and over from 1/1/05 to 31/12/14. Laboratory information included culture date, speciation, susceptibility data and follow-up cultures. Clinical information captured co-morbidities, mortality, length of hospital stay, speciality service and total occupied bed days. Antifungal therapy, treatment length, ophthalmology review, echocardiography and presence of central lines was obtained from clinical notes and drug charts.

Results: There were 132 isolates over the 10 year period from 70 patients. Median age was 61 years (range 16-89) and 23/70 (32.9%) had a malignancy. The predominant species was C. albicans (52/70, 74.3%), followed by C. glabrata (16/70, 22.9%). More than one Candida sp. was found concurrently in 8/70 (11.4%) cultures and 7/70 patients (10%) had a co-existent bacteraemia. Those with malignancy were significantly more likely to have infection with non-albicans Candida sp. (p=0.02). Mortality was 23/70 (32.9%) at 30 days and 26/70 (37.1%) at one year. Median length of stay was 24 days (range 1-172). Of those who received active management 33/50 (66.7%) received at least two weeks of appropriate antifungal therapy.

Conclusion: Candidaemia is a relatively rare event in our hospital. The audit suggests inconsistency of antifungal therapy and highlights the need for standardisation of clinical management at our institution. To aid adherence to standard treatment and protocols a multi-disciplinary management approach might be beneficial.

Disclosure of Interest Statement: Nothing to declare.
WHAT ARE YOU ACTUALLY PLANTING? VAGINAL SEEDING AND NEONATAL HERPES SIMPLEX INFECTION

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Introduction: Vaginal seeding is a new practice with limited safety data, which aims to restore a ‘normal’ microbiome in caesarean delivered newborns.

Case report: A female infant, born at term by elective caesarean section, developed vesicular lesions over both eyelids on day 7 of life. She presented to a paediatric hospital at 14 days of life with vesicles clustered on her eyelids. These were confirmed to be herpes simplex virus (HSV) type 1 on PCR. There were no corneal lesions. The infant appeared systemically well with unremarkable haematological and biochemical parameters. Cerebrospinal fluid (CSF) examination was HSV PCR negative. The infant was admitted for management of neonatal HSV disease (skin, eye, mucous membrane type) and received intravenous aciclovir 20mg/kg thrice daily for 14 days.

The mother reported that “vaginal seeding” was performed at birth; a past history of occasional oral “cold sores” but no history of genital herpes.

Discussion: Vaginal seeding is the practice of transferring the mother’s vaginal microbiome to the surfaces of caesarean delivered infants. A piece of gauze, incubated in the maternal vagina, is rubbed against the skin, eyelids and mouth of the newborn soon after birth.

It is unclear whether this infant developed HSV infection as a result of vaginal seeding, but the prominent localisation of vesicles over both eyelids, where she was swabbed, raised this important possibility. HSV-1 is an increasing cause of genital herpes (up to 50%) which is often asymptomatic. Inadvertent transfer of HSV to the infant can lead to serious neurodevelopmental sequelae. We suspect that vaginal seeding was the mode of acquisition of herpes simplex virus in this case.

Conclusion: As far as we know, this is the first case of neonatal herpes simplex infection following vaginal seeding.

Disclosure of Interest Statement: There are no disclosures of interest.
PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY IN HEPATITIS C VIRUS RELATED T-CELL LYMPHOPAENIA

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Introduction: Progressive multifocal leukoencephalopathy (PML) is known to occur in setting of T-cell immune suppression.

Methods: A case of PML from hepatitis C virus (HCV) infection related peripheral T-cell lymphopaenia is presented. Clinical stabilisation, immunological, microbiological and radiological recovery ensued with treatment of HCV.

Results: A 65-year-old male with transfusion-related HCV infection (genotype 2b, Child-Pugh B cirrhosis) presented with progressive pyramidal pattern weakness in lower limbs. Serial magnetic resonance imaging demonstrated multiple areas of progressive demyelinating lesions corresponding to neurological deficits, raising the possibility of PML. Lumbar puncture on two separate occasions confirmed the presence of John-Cunningham virus (JCV) by polymerase chain reaction (PCR) at low viral loads. Investigations for other infective and non-infective causes of brain lesions proved negative. Persistent lymphopaenia over the previous two years was noted, with peripheral CD4+ and CD8+ T-cell counts at 183(38%) cells/mm³ and 134(28%) cells/mm³ respectively at diagnosis. Exhaustive investigations for the aetiology of lymphopaenia including human immunodeficiency viruses, human T-lymphotropic viruses, autoimmune diseases and malignancies were negative. Putative association between PML and HCV-related lymphopaenia was made and the patient was treated with 12 weeks of sofosbuvir, ribavirin, and mirtazapine. Peripheral T-cell count recovery ensued within a month corresponding to HCV suppression, also with clinical and radiological stabilisation. Repeat lumbar puncture was negative for JCV PCR at 3 months. Unfortunately, sustained virologic response at 12-weeks post-HCV treatment was not achieved but CD4+ count remained at 305(40%) cells/mm³.

Conclusion: PML due to lymphopaenia putatively driven by HCV infection is unusual. Possible immunological mechanisms will be discussed.

Disclosure of Interest Statement: Nothing to disclose.
OPT-M: OPTIMISING THE APPROPRIATE USE OF MEROPENEM AT A PAEDIATRIC TERTIARY CENTRE

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Introduction: Broad-spectrum “last-line” antimicrobials are frequently used in hospitals to treat resistant organisms, but paradoxically increase selection pressure for antimicrobial resistance. We explored a targeted approach to optimising the appropriate use of meropenem.

Methods: This was a single-centre prospective study conducted at a paediatric tertiary centre in NSW. Hospital-wide medication chart surveys were conducted over a two-week period (T0) in August 2016. Meropenem prescriptions (encounters) were audited daily for appropriateness using the National Antimicrobial Prescribing (NAPS) tool and reviewed by 2 investigators. This was followed by educational campaigns in August/September targeting Intensive Care and Haematology/Oncology medical, nursing and pharmacy staff. Post-intervention evaluation of meropenem use and appropriateness was conducted during 2 two-week periods (T1, T2) in October and December.

Results: Meropenem was prescribed by haematology/oncology and transplant, paediatric intensive care, neurosurgical and general surgical units. Common indications were: sepsis, fever in oncology patients, neurosurgical meningitis and intra-abdominal abscess. Total meropenem encounters declined from 60 to 24 and 15 in 12(T0) to 5(T1) and 4(T2) patients, respectively (figure 1). Appropriate meropenem use improved from 38% of encounters in T0 to 73% in T2 (p<0.05). Compliance with hospital approval system for meropenem also increased by 39% between T0 and T2 (p<0.01). There were no adverse drug events, readmissions or deaths in study-patients post-intervention.

Conclusion: A targeted approach to antimicrobial stewardship consisting of engagement and education of medical, nursing and pharmacy staff, improved the use and appropriateness of meropenem over a short time frame.

Disclosure of Interest Statement: There are no conflicts of interest to declare.

Figure 1: Use and appropriateness of meropenem by time period
THE IMPACT OF INTRAVENOUS CEFTRIAXONE AT HOME ON NASAL STAPHYLOCOCCUS AUREUS IN CHILDREN WITH CELLULITIS

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Introduction: Staphylococcus aureus, methicillin-sensitive (MSSA) and resistant (MRSA), is an important pathogen in children and colonises the nose. Risk factors for MRSA acquisition include antibiotics and hospitalisation, although risks for MSSA are less well characterised. We aimed to compare acquisition of S. aureus in children treated with intravenous antibiotics at home versus in hospital.

Methods: This was a prospective study of children receiving intravenous antibiotics for cellulitis comparing flucloxacillin in hospital with ceftriaxone at home (necessitated by once daily administration). Patients had a nasal swab at baseline and 12-24 months post treatment. Other antibiotic use and hospitalisations were collected.

Primary outcome: S.aureus nasal carriage 12-24 months after antibiotics.

Results: 81 children were included: 59 had a nasal swab at baseline and 62 at 12-24 months, with 40 at both. Of the 59 at baseline 58% were treated at home and 42% in hospital. S. aureus carriage rates were low overall at 8%: MSSA 5% and MRSA 3% (table). At 12-24 months, colonisation (all MSSA) had increased to 17/62 (27%) (p=0.009). However, this was different between the home group 6/34 (18%) and the hospital group 11/28 (39%) (p=0.05). When considering just the 40 patients who had both swabs, this difference was even more marked (9% versus 41%, p=0.02).

Conclusions: Intravenous antibiotics were associated with increased colonisation with MSSA. Despite using a broader spectrum antibiotic for home treatment, there was a greater increase in carriage with hospitalisation. This information further supports clinicians’ decisions to choose home/ambulatory versus hospital treatment when possible.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Home n=44</th>
<th>Hospital n=37</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal swab - baseline</td>
<td>34 (58)</td>
<td>25 (42)</td>
<td></td>
</tr>
<tr>
<td>- 12-24m</td>
<td>34 (55)</td>
<td>28 (45)</td>
<td>0.38 0.05*</td>
</tr>
<tr>
<td>S. aureus (all) - baseline</td>
<td>4 (12)</td>
<td>1 (4)</td>
<td>0.75 0.05*</td>
</tr>
<tr>
<td>- 12-24m</td>
<td>6 (18)</td>
<td>11 (39)</td>
<td>3 (13)</td>
</tr>
<tr>
<td>MSSA - baseline</td>
<td>2 (6)</td>
<td>1 (4)</td>
<td>0.12 NA</td>
</tr>
<tr>
<td>- 12-24m</td>
<td>6 (18)</td>
<td>11 (39)</td>
<td>2 (9)</td>
</tr>
<tr>
<td>MRSA - baseline</td>
<td>2 (6)</td>
<td>0 (0)</td>
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</table>
Disclosure of Interest Statement: No conflicts to disclose.
CAN A CLINICAL SCORING SYSTEM TELL WHICH CHILDREN WITH CELLULITIS NEED INTRavenous ANTIBIOTICS?

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Introduction: There are currently no standardised guidelines for treating cellulitis in children particularly, whether oral or intravenous (IV) antibiotics should be used. Admission to hospital for IV antibiotics can lead to hospital-acquired infections, family disruption and resource implications. We aimed to investigate which clinical features in children with cellulitis were associated with being prescribed IV therapy.

Methods: This was a 15-month prospective observational study of children (6 months-18 years) presenting to the Emergency Department (ED) with cellulitis. Data collected: demographics, prior oral antibiotics, cellulitis size and systemic symptoms/signs. Subjective scores for severity of erythema (0-5), tenderness (0-5) and swelling (0-3) were obtained. Outcomes: re-presentation and duration of IV treatment.

Results: 247 patients received oral antibiotics and 132 IV antibiotics (table). Children receiving IV antibiotics were more likely to have had prior oral antibiotics, systemic features and a larger area affected. The scores for tenderness, erythema and swelling were higher in the IV group, although 26% had ≤24 hours of IV antibiotics. Re-presentation was less than 5% in both groups.

Conclusions: Unsurprisingly IV antibiotics are prescribed with more severe features. However, low re-presentation rates and a high proportion of short course IV therapy suggests physicians have a low threshold for starting IV antibiotics, perhaps unnecessarily. The clinical features will be used to form a clinical scoring system, to be evaluated prospectively.

Disclosure of Interest Statement: No conflicts to disclose.
<table>
<thead>
<tr>
<th></th>
<th>Oral N=247 (%)</th>
<th>IV N=132 (%)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>6.1</td>
<td>6.8</td>
<td>0.14</td>
</tr>
<tr>
<td>Prior oral antibiotics</td>
<td>74/243 (30)</td>
<td>71/132 (54)</td>
<td>&lt;0.01*</td>
</tr>
<tr>
<td>Presence of systemic</td>
<td>30 (12)</td>
<td>44 (32)</td>
<td>&lt;0.01*</td>
</tr>
<tr>
<td>features</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean %BSA affected</td>
<td>0.3</td>
<td>0.8</td>
<td>0.04*</td>
</tr>
<tr>
<td>Tenderness score &gt;2</td>
<td>16/103 (16)</td>
<td>78/132 (59)</td>
<td>&lt;0.01*</td>
</tr>
<tr>
<td>Erythema score &gt;2</td>
<td>28/112 (25)</td>
<td>82/124 (66)</td>
<td>&lt;0.01*</td>
</tr>
<tr>
<td>Moderate/Severe Swelling</td>
<td>19/85 (22)</td>
<td>95/132 (72)</td>
<td>&lt;0.01*</td>
</tr>
</tbody>
</table>
OVERWHELMING POST SPLENECTOMY SEPSIS REPORTED TO SPLEEN AUSTRALIA IN 2016.

Authors:
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Objective: Overwhelming post splenectomy sepsis (OPSI) is a recognised complication of asplenia. We present a cluster of cases of OPSI occurring within a two month period.

Background: Spleen Australia (SA) has registered over 6,500 patients since commencing in 2003. SA’s primary aim is to reduce the occurrence of OPSI through education and improved adherence to best practice preventative measures in people with asplenia/hyposplenism.

Cases Summary: Four cases of OPSI were reported to SA in 2016 within a 2 month period. The age range of cases was 58-74 years. Splenectomy was performed 26, 41, 50+ and 66 years prior to OPSI. Indications for splenectomy were hereditary spherocytosis (2), trauma and lymphoma. The causative organism in all cases was Streptococcus pneumoniae (3/4 had serotype 23B). Complications included meningitis, aortic arch mycotic aneurysm, septic arthritis and paravertebral abscess. Each patient required an ICU admission and prolonged hospitalisation. In each case vaccine history was incomplete and antibiotics were not used; no other epidemiological links were present.

Conclusion: It is considered that the OPSI risk is greatest within the early years post splenectomy. However the risk remains life-long. Prolonged time from splenectomy can result in the belief that there is no longer a risk of OPSI. Previous SA data have documented 23 cases of OPSI requiring ICU in patients >10 years after splenectomy (incidence 0.6 per 1000 patient years); this highlights the need for strategies to ensure long term adherence to preventative strategies: education, appropriate vaccines and access to antibiotics.

Disclosure of Interest Statement: Nil
IDENTIFYING HOSPITAL INPATIENTS WITH SEPSIS TO IMPROVE TIMELINESS OF MANAGEMENT

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Introduction: Adherence to a sepsis resuscitation bundle has been shown to reduce mortality in sepsis. Bundle elements include obtaining blood culture and lactate level, administering intravenous (IV) fluids and antibiotics. We aimed to improve the identification and management of hospital inpatients with sepsis.

Methods: A multi-faceted intervention was implemented including a sepsis guideline, review of processes and documentation, education and audit and feedback. Outcomes were measured before and after the intervention. The primary outcome was the proportion of patients where the resuscitation bundle was completed within one hour of a Medical Emergency Team (MET) call for suspected sepsis.

Results: After adjusting for illness severity, there was an improvement in completion of the entire resuscitation bundle (18.1% vs. 38%, p=0.023) and lactate (42.4% vs. 66.7%, p=0.03) within one hour. There was no change in antibiotic administration (70.9% vs. 66.7%, p=0.48), blood culture collection (59.8% vs. 66.7%, p=0.79) or IV fluids within one hour (92.1% vs. 92.9%, p=0.69). Mortality was lower in the post intervention period (24.3% vs. 10%, p=0.09).

Conclusion: The intervention resulted in an improvement in bundle completion. This was primarily due to improvements in lactate, and performance of other bundle components is comparable to reported performance in studies elsewhere. We observed a decrease in case fatality, but this is likely to be attributed to earlier recognition of patients with a lower severity of illness. Further interventions with a focus on nursing education and engagement may improve timely antibiotic administration. Work is required to ensure antibiotic prescribing is appropriate.

Disclosure of Interest Statement: Nil conflicts of interest
**ENTERIC FEVER IN CHILDREN IN WESTERN SYDNEY, AUSTRALIA, 2003-2015**

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**Introduction:** Enteric fever is a vaccine-preventable disease with cases in Australia predominantly acquired overseas. The aim of this study was to define the burden of enteric fever in children presenting to a paediatric hospital in Western Sydney between 2003 and 2015.

**Methods:** Cases between January 2003 and December 2013 were ascertained through medical records using ICD-coded discharge diagnoses, cross-referenced with microbiology laboratory data for all isolates of *Salmonella enterica* serovar Typhi (S. Typhi) and *Salmonella enterica* serovar Paratyphi. Prospective cases from January 2014 to April 2015 were additionally captured through records maintained by the infectious diseases team.

**Results:** 71 cases of enteric fever were identified over 12.3 years with an average of 4 cases/year between 2003-2008 and 7 cases/year between 2009-2014. Two were visitors to Australia, 8 were recent migrants, and 59 were Australian residents returning from overseas travel. Two children had no history of overseas travel. Countries of travel predominantly included the Indian subcontinent (60/69) and South East Asia (7/69). Of 30 children with information available on pre-travel medical consultation, one was offered and received Typhoid vaccine. 94% of children (67) required admission for 1-28 days (median 5 days). 3 children required readmission, with one case of presumed relapse. 90% (64) were diagnosed by blood or stool culture with S. Typhi the predominant organism (54/64).

**Conclusion:** In Australia, hospitalisations for paediatric enteric fever appear to be increasing; predominantly occurring in Australian-resident children. Greater awareness and education is required for parents and clinicians regarding travel health risks and prevention strategies.

**Disclosure of Interest Statement:** No external funding was received for this study and the authors have no conflicts of interest or financial disclosures to make.
NECROTISING SOFT TISSUE INFECTIONS; SHOULD EMPIRIC THERAPY BE SO BROAD?

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Introduction: Necrotising soft tissue infections (NSTI) result in significant mortality. Current guidelines (eTG) recommend combining meropenem/vancomycin/clindamycin as empiric therapy. We conducted a retrospective study to determine outcomes of patients with NSTI at Nepean hospital with local empiric strategies often different to eTG.

Methods: Medical records of all patients with NSTI between January 2009 and July 2016 were reviewed. Diagnosis was based on clinical picture, radiology and/or histopathology. Empiric therapy was defined as narrow spectrum if it contained a penicillin or first generation cephalosporin ± clindamycin/metronidazole; all other combinations were considered broad spectrum.

Results: 48 patients were included. Commonest site was lower limb (LL; 52%), followed by perineum (29%), abdominal wall (8%), upper limb (UL; 8%) and neck (2%). Comorbidities were diabetes (48%), obesity (44%), immunosuppressive treatment (27%), and peripheral vascular disease (17%). Most patients had polymicrobial infection (67%).

Surgeons were consulted for 98%; fewer underwent surgery (89%). An equal number received empiric broad or narrow spectrum antimicrobials. Empiric therapy was more often narrow for limb infection (75% UL; 64% LL).

16 patients died; 9 of these received narrow spectrum empiric antibiotics. The odds ratio for mortality between empiric narrow spectrum vs. broad spectrum therapy was 1.46 (95% CI 0.44, 4.87). When adjusted for age, site of infection, number of organisms grown, and obtaining ID consult, the odds ratio was 0.35 (95% CI 0.04, 3.00).

Conclusion: We saw 33% mortality among our patients with NSTI, the majority had polymicrobial infection. Using a narrow spectrum empiric antibiotic strategy was not associated with an adverse outcome.

Disclosure of Interest Statement: No conflicts of interest. Ethics approval was granted by the NBMLHD Human Research Ethics Office for this study.
A CASE OF RELAPSING WHIPPLE’S DISEASE WITH CENTRAL NERVOUS SYSTEM INVOLVEMENT AND LITERATURE REVIEW

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**Introduction:** A 51-year-old man presented with abdominal pain, diarrhoea, weight loss, and arthralgia in 2001. The diagnosis of Whipple’s disease (WD) was made by endoscopy with duodenal biopsies. He was treated with 12 months of oral sulfamethoxazole+trimethoprim (SXT).

Symptoms recurred in 2010, with WD confirmed on duodenal biopsies. He had ceftriaxone (CTX) followed by 36 months of oral SXT.

He had a relapse in 2014 with acute confusion. *Tropheryma whipplei* polymerase chain reaction was detected on the cerebrospinal fluid. He was given CTX, then oral doxycycline (DO) and hydroxychloroquine (HQ). Due to photosensitivity, treatment was changed to SXT.

He had another relapse with central nervous system (CNS) involvement in 2016 whilst on treatment. He had lethargy, fevers, agitation and a new brain lesion, and was treated with CTX, then DO and HQ.

Five months later, he had another CNS relapse, with short term memory loss and a new hypothalamic lesion, and was treated with CTX, then oral SXT with DO and HQ.

We review the current knowledge and new findings relating to WD. WD is a rare multisystem infection caused by *T. whipplei*. It is a “great mimicker” of many conditions, and its clinical spectrum has broadened. Recent advances in microbiology and diagnostic methods have improved our understanding of the disease and clinical approaches. A number of treatment regimens are available. However, the optimal treatment strategies for relapses of CNS disease are not well defined. Relapses continue to pose clinical treatment challenges and are largely responsible for the mortality and prognosis.

**Disclosure of Interest Statement:** Nil.
**ENTEROBACTER BACTERAEMIA AT AN AUSTRALIAN TERTIARY HOSPITAL: INCIDENCE, CLINICAL FEATURES AND ANTIMICROBIAL RESISTANCE**

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**Introduction:** The aims of this study are to describe the incidence, clinical features, outcome and antimicrobial susceptibility of *Enterobacter* bacteraemia within a tertiary institution over an eleven-year period.

**Methods:** All episodes of *Enterobacter* species bacteraemia in patients admitted to the Canberra Hospital between 1 January 2004 and 31 December 2014 were identified from a prospectively collected bacteraemia database. All-cause mortality and disposition at day 7 and 30, clinical features and patient co-morbidities were obtained retrospectively from electronic clinical records and Charlson score calculated.

**Results:** 172 episodes of *Enterobacter* bacteraemia occurred. Incidence increased from 12 episodes in 2004 to 33 episodes in 2014, with increased inpatient hospital associated infections of 3 to 19 cases per annum. Most episodes were healthcare associated (142; 82.6%), including 103 (59.9%) inpatient and 39 (22.7%) non-inpatient healthcare associated episodes. The 7- and 30-day mortality was 10.5% and 18.6% respectively. On χ² analysis Charlson scoring was statistically significantly associated with mortality, p = 0.045 at day 7 and p=0.005 at day 30.

Healthcare-acquired inpatient bacteraemia showed resistance to more antibiotic classes than non-inpatient or community–acquired bacteremia. Carbapenem resistance was found in two isolates and six isolates were regarded as multi-drug resistant organisms.

**Conclusion:** This study indicates an increase in incidence of *Enterobacter* bacteraemia. The mortality rate is at the lower end of the mortality rate of 15-69% previously cited. Observed multi-drug resistance is higher than the Australian gram negative surveillance report of 2013, 12.6%.

**Disclosure of Interest Statement:** Nil.
IMPACT OF PCV13 IN LAO PDR

Authors:

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Introduction: The World Health Organization has pneumococcal conjugate vaccine impact evaluation guidelines, yet few low-income countries (LICs) can employ the methodologies outlined. Lao PDR introduced the 13-valent PCV (PCV13) in 2013. We describe PCV13 impact methods to augment existing guidelines and describe preliminary findings.

Methods: Hospitalised pneumonia burden: a retrospective review of children 2-59 months admitted to all hospitals in Vientiane, before and after PCV13 introduction.

Hospital-based carriage surveillance: a prospective study of children 2-59 months admitted to one hospital in Vientiane with acute respiratory infection. PCV13 status is documented, and nasopharyngeal (NP) swab taken. PCV13 coverage is documented.

Invasive pneumococcal disease (IPD) surveillance: a prospective study of all ages admitted to one hospital in Vientiane with IPD.

Community carriage: a cross-sectional NP carriage survey of healthy infants 5-8 weeks and toddlers 12-23 months, before and after PCV13 introduction.

Results: Pre-PCV13: Estimated incidence of hospitalised pneumonia in under-5s was 1,530/100,000 (95% CI 1,477 – 1,584) and 20.3% of all-cause hospitalisations were due to pneumonia. 70.2% of IPD was due to a PCV13 serotype. 13.9% and 55.7% of healthy infants and toddlers carried pneumococcus; 6.3% and 32.8% carried a PCV13 serotype, respectively.

Post-PCV13 results pending.

Conclusion: This is the first PCV13 impact data from a LIC in Asia.

Disclosure of Interest Statement: No conflicts to disclose.
PREVALENCE OF VANCOMYCIN RESISTANT ENTEROCOCCI CARRIAGE IN FAECAL SAMPLES FROM SOUTH-WESTERN SYDNEY LOCAL HEALTH DISTRICT

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Introduction: Infection due to Vancomycin-resistant Enterococci (VRE) continues to be a problem in our hospitals. In response to an increase in significant vanA VRE infections, and an apparent shift from vanB to vanA genotype, we undertook a survey of vanA and vanB VRE carriage in the South-Western Sydney Local Health District (SWSLHD) to better understand the current epidemiology.

Methods: 1000 consecutive, non-duplicate, faecal samples submitted for routine diagnostic purposes were screened for VRE. Patients were categorised as healthcare associated (HCA) inpatients, HCA non-inpatients, or community patients using standard definitions. Faecal material was plated onto chromogenic agar, and incubated at 37°C for 30 hours. Organism identification was confirmed by Matrix-assisted Laser Desorption Ionization-Time of Flight (MALDI-TOF), and VRE was confirmed by nucleic acid amplification of vanA and vanB genes.

Results: Faecal samples were tested for 433 HCA inpatients, 204 HCA non-inpatients, and 363 community patients. 102 samples were positive for VRE giving an overall VRE carriage rate of 10.2%. VRE carriage rate remained low for community patients (2.8%), but was significantly higher in HCA non-inpatients (10.8%) and HCA inpatients (16.2%). 77.5% of VRE isolates were of vanA genotype and vanA predominance was found across all three patient categories.

Conclusion: Our study shows that the rate of VRE carriage is significantly increased in patients who have been exposed to healthcare in SWSLHD whether as inpatients or non-inpatients. True community carriage appears to be low, but may be higher than what has been reported previously. vanA genotype now dominates VRE in SWSLHD.

Disclosure of Interest Statement: This study was undertaken using Departmental funding only.
CLINICAL EFFICACY OF DAILY PARENTERAL INFUSIONS OF MEROPENEM AND AMPICILLIN IN THE HOSPITAL IN THE HOME SETTING

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1The University Hospital Geelong, Barwon Health

Introduction: To investigate the safety and efficacy of daily infusions of meropenem and ampicillin in the Hospital in the Home (HITH) setting.

Methods: We performed a retrospective review of patients receiving daily intravenous infusions of meropenem or ampicillin through HITH at <Tertiary Hospital> within the last six years. Data collected included comorbidities, diagnosis, microbiology, duration of therapy, cure/suppression of infection, complications, and need for prolonged therapy or readmission.

Results: Within the ampicillin group, 18 of 20 patients were treated for Enterococcus faecalis, and infective endocarditis was the most common indication for treatment. Eighteen of the 20 patients (90%) clinically improved with treatment and achieved either cure or suppression of infection. One patient deteriorated and required palliation, and one required return to ward with emphysema and died of sepsis.

The meropenem group consisted of 41 admissions, whom were mostly treated for serious gram-negative infections. Thirty-six (88%) achieved either cure or suppression of infection, although three patients with bronchiectasis required recurrent admissions, including one return to ward during treatment. Three other patients required return to ward during or shortly after completing treatment, and one patient required multiple readmissions for intra-abdominal sepsis and was palliated.

Adverse effects were uncommon in both groups and included liver derangement, rash, gastrointestinal upset, Clostridium difficile infection and leucopenia.

Conclusion: Despite conflicting reports in the literature regarding the stability of ampicillin and meropenem as daily infusions, this study provides evidence that these antibiotics are both safe and effective when used as daily infusions in the ambulatory setting.

Disclosure of Interest Statement: This study was performed without receipt of a grant, and no authors have any competing or conflicted interests related to the study.
PRE-TRUS BIOPSY CIPROFLOXACIN RESISTANCE SCREENING BY DIRECT DISC METHOD ON MACCONKEY AGAR: A VALIDATION STUDY

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Introduction: Quinolone-resistant Enterobacteriaceae infection rates post TRUS biopsy are increasing. Pre-biopsy rectal screening for quinolone resistance has been proposed as a mitigating strategy. We developed a direct antibiotic disc on MacConkey agar screening method as an alternative to commercial selective media.

Methods: 53 challenge isolates of Enterobacteriaceae were tested at 5x10^5, 5x10^4 and 5x10^3 cfu/mL in a standardized base mixture of ATCC P. aeruginosa, C. albicans and E. faecalis simulating faecal flora. 100μl of each mixture was cultured onto MAC with a 5mcg ciprofloxacin disc placed at the second streakline intersection. Disc zone size was measured after incubation at 35˚C in air for 24hrs. Challenge isolate CIP MICs were determined by gradient strip. Scattergrams and ROC curves were generated for each inoculum level.

Results: Scattergrams demonstrated a better spread at 5x10^5 and 5x10^4 cfu/mL, suggesting the direct disc method is more reliable for higher inocula. CLSI non-susceptibility (MIC>1µg/mL) was well predicted by a <22mm zone cutpoint (AUROC 0.98 at high and medium inocula). For EUCAST non-susceptibility (MIC>0.5µg/mL), a <26mm zone cutpoint performed reasonably at high and medium inocula (AUROC 0.99).

To maximise applicability of our method, we defined CIP MIC>1mcg/mL as the screening breakpoint, encompassing Enterobacteriaceae defined as ciprofloxacin-resistant by EUCAST and ciprofloxacin-intermediate and -resistant by CLSI.

Conclusion: To our knowledge, this is the first validation of a direct disc screening method on MacConkey for ciprofloxacin resistance. A zone cutpoint of <22mm correlates well to CIP MIC>1mcg/mL. The limit of detection for the isolate of interest lies between 5x10^3 to 5x10^4 cfu/mL.

Disclosure of Interest Statement: No conflict of interest to disclose.
HAND HYGIENE PROMOTION – THE FIRST MULTIDISCIPLINARY INTERVENTION TARGETING MOMENT 5 IN BANKSTOWN-LIDCOMBE HOSPITAL

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Introduction: Hand hygiene practice has been shown to effectively reduce hospital-acquired infections. In the National Hand Hygiene Initiative (NHHI) Audit Two period, the overall hand hygiene compliance rate at Bankstown Hospital 2016 was 85.9% (CI:84.8-86.9). Moment 5 had the lowest compliance rate overall (73.8%) and amongst doctors (49.2%). Potential barriers to hand hygiene compliance were the lack of accessibility to hand cleaning facilities in some wards, and the reluctance of doctors to engage in hand hygiene promotion.

Methods: A Hand Hygiene Champion Group consisting of four doctors, three nurses, and an occupational therapist was established at Bankstown Hospital. Baseline data was collected in the NHHI Audit Two period (March-June 2016). On Hand Hygiene Day a hand hygiene mascot poster with visual cues for Moment 5 was introduced placed on doctors’ trolleys. Follow-up data was collected in the NHHI Audit Three period (June-October 2016).

Results: In the NHHI Audit Three period, the overall hand hygiene compliance rate in Bankstown-Lidcombe Hospital of 2016 was 88.4%(CI:87.2-89.6). 78% of the audited beds (n=272) had a bracket for alcohol hand rub within one step of the bed. Of these, only 71% had filled alcohol hand rub available. Moment 5 compliance rate overall was 74.9% and amongst doctors 60.4%.

Conclusion: A multidisciplinary approach to hand hygiene promotion was effective in improving overall hand hygiene compliance rates at Bankstown-Lidcombe Hospital. Of note, the compliance rate of doctors to Moment 5 improved by 11.2% post intervention. Also, accessibility to hand cleaning facilities was found to be suboptimal.

Disclosure of Interest Statement: No pharmaceutical grants were received in the development of this study.
NEEDLE EMBOLISM IN AN INTRAVENOUS DRUG USER WITH STAPHYLOCCUS AUREUS BACTERAEMIA

Authors:
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Introduction: A 41-year-old man presented after 4 days of fevers and lower back pain. He had history of intravenous drug use but denied any use for the past three years.

He had an elevated white cell count and C-reactive protein. Methicillin-sensitive Staphylococcus aureus was isolated from four sets of blood cultures. MRI revealed a small epidural abscess at the L5 level. There was no evidence of endocarditis on echocardiography. A chest radiograph revealed a 4 cm linear radio-opaque foreign body in the heart.

Upon questioning, he recalled a needle breakage while injecting 5 years earlier. Gated cardiac CT demonstrated a needle in the right ventricle partially embedded within the interventricular septum.

Percutaneous needle retrieval via internal jugular vein was enthusiastically attempted under fluoroscopy using a paediatric gasping forceps but was unsuccessful. Right bundle branch block ensued. No further attempt was made to remove the needle and he was treated with six weeks of intravenous antibiotics.

Needle embolism in intravenous drug users often presents incidentally and imaging findings can be subtle. It can be associated with complications such as arrhythmia, cardiac tamponade, infection, or may be subclinical. There is limited data to guide management of intracardiac foreign bodies particularly in the setting of bacteraemia. Asymptomatic foreign bodies without complications may be managed conservatively.

Disclosure of Interest Statement: No conflicts to declare.
THE TROPICAL DISEASE REGIONAL RESEARCH REGIONAL COLLABORATIVE INITIATIVE (TDRRCI): RESPONDING TO DRUG-RESISTANT TUBERCULOSIS AND MALARIA IN THE ASIA-PACIFIC

Authors:
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Introduction: Drug-resistant tuberculosis (DR-TB) and malaria pose a major threat to health security in the Asia Pacific region. A consortium between institutions in Indonesia, Papua New Guinea and Malaysia has been formed with Menzies School of Health Research and the Burnet Institute to address these challenges. This 2 year Australian Government program, Tropical Disease Research Regional Collaboration Initiative (TDRRCI) builds on the Our North, Our Future: White Paper on Developing Northern Australia package of measures. The TDRRCI objective is to strengthen health systems and research capacity, including high-quality operational research to prevent and contain drug-resistant malaria and TB.

Specific malaria aims are to: (1a) strengthen capacity within malaria control programs to apply novel tools for molecular surveillance of drug-resistant malaria; (1b) determine models for implementation of new methods for safe and effective radical cure of malaria, to eliminate latent stages and prevent onward transmission. Specific TB aims are to: (2a) To develop, in PNG, a TB operational research (OR) agenda and conduct structured OR training for key staff from research and service delivery institutions; (2b) Strengthen the capacity of TB programs to measure the impact of programmatic interventions using continuous quality improvement process, and evaluate pilot models of care to enable scale-up.

Implementation activities will primarily occur in Malaysia and Indonesia (Menzies: malaria TB) and PNG (Burnet) with regional engagement through national TB and malaria control programs. This session will outline the background, rationale, proposed activities and expected outcomes of this program to address DR-TB and malaria in the Asia Pacific.

Disclosure of Interest Statement: This study is funded by the Australian Government Department of Foreign Affairs and Trade. No pharmaceutical grants were received in the development of this study.
HCV TREATMENT SCALE-UP IN HIV-POSITIVE MSM: CHARACTERISING A POPULATION AT RISK FOR REINFECTION

Authors:
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Introduction: Targeted direct-acting antiviral (DAA) treatment scale-up in populations at high risk of transmission could reduce HCV incidence and prevalence. This analysis assessed DAA uptake and contemporary behaviours associated with HCV transmission among HIV/HCV co-infected men-who-have-sex-with-men (MSM) in Australia.

Methods: Drug use, sexual behaviour, HCV treatment and perceived reinfection risk following treatment (10-point Likert scale) were analysed among MSM enrolled in the Control and Elimination of HCV from HIV-infected individuals within Australia (CEASE-D) cohort study between July 2014-August 2016.

Results: 321 HIV/HCV Ab-positive MSM (mean age 49 years; HCV treatment experienced 31%) were enrolled. Injection drug use (IDU) ever and current was reported by 80% and 40%, respectively. Condom-less anal intercourse (CAI) with casual male partners (CMP), group sex and amphetamine use within the last 6 months were reported by 53%, 31% and 45% (IDU 36%, non-IDU 24%). Among MSM with CMP, 44% never disclosed their HCV status. Only 70% knew HCV reinfection was possible. Most (70%) felt their risk of reinfection would be low (score 0-3); 6% considered themselves at high risk (score 8-10). MSM who identified as moderate or high risk of reinfection were more likely to report CAI with CMP (75% vs 48%, p<0.001) and amphetamine use (65% vs 40%, p<0.001).

Among those with detectable HCV RNA at enrolment (n=255), 51% initiated interferon-free DAA therapy after July 2014, of whom 86% commenced therapy in 2016.

Conclusion: Ongoing drug use, high-risk sexual behaviours and lack of disclosure may facilitate HCV transmission and reinfection, impacting attempts to achieve HCV elimination in HIV-positive MSM.

Disclosure of Interest Statement: The Kirby Institute is funded by the Australian Government Department of Health and Ageing and is affiliated with the Faculty of Medicine, UNSW Sydney. The views expressed in this publication do not necessarily represent the position of the Australian Government. The Burnet Institute receives funding from the Victorian Operational Infrastructure Support Program. Research reported in this publication was supported by Gilead Sciences Inc. as an investigator-initiated study. The content is solely the responsibility of the authors. None of the authors has commercial relationships that might pose a conflict of interest in connection with this manuscript. Gregory Dore, Margaret Hellard and Gail Matthews are supported by the National Health and Medical Research Council (GD: Practitioner Fellowship; MH: Principal Research Fellowship; GM: Career Development Fellowship).
THE NATIONAL ALERT SYSTEM FOR CRITICAL ANTIMICROBIAL RESISTANCES (CARALERT)

Authors:
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¹ The Australian Commission on Safety and Quality in Health Care

Introduction: CARAlert was established by the Commission in March 2016 as part of the AURA Surveillance System to collect, analyse and report on priority organisms with critical antimicrobial resistances (CARs) to last-line antimicrobials. CARAlert information is provided to states and territories to enhance the opportunity to implement containment strategies.

Methods: Originating laboratories refer potential CARs identified in routine tests to a confirming laboratory. The confirming laboratory advises the originating laboratory of the test result; confirmed CARs are then reported to the requesting institution/practitioner. Details of the CAR are then entered into the CARAlert web portal. Alerts are reported immediately to the Commission, and weekly to nominated state and territory health personnel.

Results: Between March and December 2016, over 640 CARs were reported. All jurisdictions have seen at least one CAR, with carbapenemase-producing Enterobacteriaceae the most frequently recorded CAR. IMP and NDM types accounted for over 80% of all confirmed carbapenemases, although significant variation in the proportion was seen across Australia. Multidrug resistant Shigella, ceftriaxone non-susceptible Salmonella and multidrug resistant Mycobacterium tuberculosis were reported in low numbers. Only four Neisseria gonorrhoeae with either high-level resistance to azithromycin, or ceftriaxone-non-susceptibility, were reported. Daptomycin non-susceptible Staphylococcus aureus were reported in low numbers, and only one vancomycin-intermediate strain was confirmed.

Conclusion: CARAlert improves the timely identification of CARs nationally, especially for cross-sectorial outbreaks. The data will be increasingly useful to guide interventions and improve patient care.

SUB-CLINICAL TUBERCULOSIS DETECTED BY PET/MRI IN HOUSEHOLD TB CONTACTS

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Introduction: It is increasingly recognised that patients infected with tuberculosis (TB) may have subclinical disease activity. We sought to identify this disease state in heavily-exposed household TB contacts using the new imaging modality of positron emission tomography–magnetic resonance imaging (PET/MRI).

Methods: Contacts living with an individual with smear-positive TB for ≥1 month underwent clinical assessment, IGRA testing, chest X-ray (CXR) and PET/MRI scan at a single study visit. PET/MRI was performed using a Siemens Biograph mMR PET/MR scanner one hour after injection with ~150 MBq 18F-FDG. Images were systematically examined for abnormalities. Standardized uptake value (SUV) analysis was performed for each abnormal lesion.

Results: 30 household contacts (40% IGRA positive) of 20 index patients (sputum smear grade ≥3+ in 40%; 40% with cavitary disease) were enrolled. The CXR was abnormal (minor upper lobe scarring) in one contact. The PET/MRI scan was abnormal in 23%, predominantly FDG uptake in hilar lymph nodes or focal areas of the lung apices (SUVmax 1·6 to 3·9). Abnormal MRI findings were seen in all those with abnormal FDG uptake (enlarged lymph nodes, small pleural effusions and focal parenchymal signal abnormalities).

Conclusion: We found evidence of subclinical TB amongst heavily-exposed, asymptomatic household contacts of index cases. These may represent a sub-group at higher risk of later reactivation. PET-based imaging may provide important insights into the natural history of subclinical TB, while MRI alone may be useful in the clinical screening of high-risk TB contacts in well-resourced settings.

Disclosure of Interest Statement: This study was funded by National University of Singapore. No pharmaceutical grants were received in the development of this study. All authors declare no conflicts of interest.
ANTIFUNGAL SUSCEPTIBILITY OF NEW ZEALAND MOULD ISOLATES, 2001-2015: RESULTS FROM THE NEW ZEALAND MYCOLOGY REFERENCE LABORATORY.

Authors:
Morris AJ, McKinney WP, Rogers K, Roberts SA, Freeman JT.

New Zealand Mycology Reference Laboratory, LabPlus, Auckland City Hospital, Auckland, New Zealand.

Introduction: Antifungal susceptibility results are helpful in guiding treatment of patients with invasive fungal infection. Epidemiological Cutoff values (ECVs) help identify isolates which may have acquired antifungal agent resistance.

Methods: Local and referred mould isolates, tested between January 2001-February 2015, had antifungal susceptibility testing performed using the Yeast Sensititre® YeastOne® broth colorimetric micro-dilution method. Results were interpreted following CLSI criteria. Only a patient’s first isolate of a species was included. Agents tested were: AMB, amphotericin B; CAS, caspofungin; FLC, fluconazole; ITC, itraconazole; POS, posaconazole; VRC, voriconazole.

Results: 409 isolates were tested; Aspergillus spp. 44%, other hyaline moulds 32%, dematiaceous species 15% and Zygomycetes 8%. The most common sources were respiratory tract (47%), musculoskeletal tissue (18%) and eye (12%). For the Aspergillus spp. covered by the 2016 CLSI ECVs all were wild-type isolates with respect to AMB, ITC, POS, and VRC. Non-wild-type isolates for CAS were 0%, 4%, 75% and 88% for A.niger (n=7), A.fumigatus (102), A.terreus (4) and A.flavus (8) respectively.

<table>
<thead>
<tr>
<th>Group</th>
<th>Descriptor</th>
<th>AMB</th>
<th>CAS</th>
<th>FLC</th>
<th>ITC</th>
<th>POS</th>
<th>VRC</th>
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<td>180</td>
<td>129</td>
<td>162</td>
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<tr>
<td>MIC range</td>
<td>0.125-4</td>
<td>≤0.008-16&gt;256</td>
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<td>≤0.008-8</td>
<td>0.03-4</td>
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<tr>
<td>Geo MIC¹</td>
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<td>0.06</td>
<td>239</td>
<td>0.17</td>
<td>0.07</td>
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<tr>
<td>Other hyaline moulds</td>
<td>n=132</td>
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<td>76</td>
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<tr>
<td>MIC range</td>
<td>0.25-16</td>
<td>≤0.008-16&gt;256</td>
<td>0.03-16</td>
<td>0.15-16</td>
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<td>61</td>
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<td>0.82</td>
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¹ Geometric mean MIC

Conclusions: The susceptibility of local isolates mirrors other reports. Non-wild-type Aspergillus spp. isolates were only observed for CAS. VRC was the most active of the azoles except for the Zygomycetes where POS was most active.

Disclosure of Interest Statement: No disclosures, this report is self-funded.
ANTIFUNGAL DISC SUSCEPTIBILITY RESULTS OF NEW ZEALAND VAGINAL YEAST ISOLATES, 2001-2015: RESULTS FROM THE NEW ZEALAND MYCOLOGY REFERENCE LABORATORY.

Authors: Morris AJ, McKinney WP, Rogers K, Roberts SA, Freeman JT.

New Zealand Mycology Reference Laboratory, LabPlus, Auckland City Hospital, Auckland, New Zealand.

Introduction: Urogenital candidiasis is common and associated with morbidity. Susceptibility testing is often requested to help guide treatment, especially in recurrent disease.

Methods: Vaginal yeast isolates, referred for testing January 2001-December 2015, had antifungal disc susceptibility performed. Results were interpreted following CLSI and disc manufacturer criteria. Agents tested were: CLO, clotrimazole; FLC, fluconazole; ITC, itraconazole; KET, ketoconazole; MIC, miconazole; NYS, nystatin. Initial isolate results were summarized and the 40 women with sequential isolates had their isolates’ results compared.

Results: 682 isolates were tested; only two isolates were resistant to NYS and both were susceptible to azoles. Isolates non-susceptible to one azole were almost always susceptible to another azole. Sequential isolates from only two women had decreased susceptibility.

<table>
<thead>
<tr>
<th>Group</th>
<th>Descriptor</th>
<th>CLO</th>
<th>FLC</th>
<th>ITC</th>
<th>KET</th>
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<td>C. glabrata</td>
<td>complex</td>
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<td>74</td>
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<td>91</td>
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<td>C. parapsilosis</td>
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<td>n</td>
<td>69</td>
<td>62</td>
<td>63</td>
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<td>70</td>
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<td>%S</td>
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<td>100</td>
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<td>Clavispora</td>
<td>(Candida) lusitanae</td>
<td>n</td>
<td>13</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>13</td>
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<td>89</td>
<td>89</td>
<td>100</td>
<td>85</td>
<td>100</td>
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<tr>
<td>Pichia (C. krusei) kudriavzevli</td>
<td>n</td>
<td>16</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>%S</td>
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<td>60</td>
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<td>Saccharomyces</td>
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<td>21</td>
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<td>94</td>
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<td>Other spp.</td>
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<td>16</td>
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<td>%S</td>
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<td>100</td>
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<td>97</td>
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Conclusions: >90% of isolates were susceptible to all agents except MIC. All isolates were susceptible to at least one agent. C. glabrata complex was the least susceptible group. Sequential isolates rarely have reduced antifungal susceptibility.
Disclosure of Interest Statement: No disclosures, this report is self-funded.
DIAGNOSIS OF ABDOMINAL TUBERCULOSIS IN NEW ZEALAND: A CASE SERIES

Authors:
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Introduction: Abdominal tuberculosis most commonly presents with non-specific abdominal pain. Prompt and accurate diagnosis is critical to improving patient prognosis and avoiding complications. We conducted a retrospective review of cases of abdominal tuberculosis presenting to Christchurch Hospital, to explore the epidemiology, clinical features and diagnostic techniques used.

Methods: Cases were identified by searching for relevant ICD discharge codes from January 1996 to January 2016. Data on age, clinical presentation, investigations and microbiological results were obtained.

Results: Twenty patients were diagnosed with abdominal tuberculosis over the study period. The median age was 34 and the majority (12) were from Asia (predominantly India). Abdominal pain was the most common presenting symptom (70%) followed by fever (50%) and night sweats (50%). The C-reactive protein was elevated in 15 (75%) and anaemia was found in 11 (55%). Laparoscopy was undertaken in 10 with 100% of biopsies confirmatory. Ascitic fluid was obtained in nine, with three (33%) having mycobacterial growth from culture. Six colonoscopies were performed; two lymph node biopsies and two formal laparotomies the remaining diagnostic techniques employed. Overall 15 (75%) were able to be microbiologically confirmed, with the remaining five treated presumptively for probable abdominal tuberculosis.

Conclusion: Abdominal tuberculosis is an uncommon presentation at our institution, with an average of one case each year. The typical patient was a young immigrant from Asia or Africa. Diagnostic laparoscopy was the most common means of obtaining a definitive diagnosis and was successful in every case.

Disclosure of Interest Statement: Nothing to disclose.
TITLE: PROBIOTIC RELATED LACTOBACILLUS RHAMNOSUS ENDOCARDITIS IN A PATIENT WITH LIVER CIRRHOSIS.

Authors:
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¹ Liverpool Hospital

Introduction: We report a case of fatal probiotic related *Lactobacillus rhamnosus* (L.rhamnosus) endocarditis and present a literature review.

A 36-year-old lady with alcoholic cirrhosis, presented with fever. She had *Clostridium difficile* colitis seven months prior and since then, was self-medicating with commercially available probiotic formulation (containing *Lactobacillus acidophilus*, *Lactobacillus rhamnosus* and *Saccharomyces cerevisiae*). Echocardiogram revealed 3.2 cm aortic valve vegetation. Blood cultures grew *L. rhamnosus*, confirmed with MALDI-TOF mass spectrometry and 16S ribosomal RNA gene sequencing. The isolate was sensitive to penicillin with MIC of 0.25mg/L. Benzyl penicillin and synergistic gentamicin were administered. Despite directed therapy and aortic valve replacement, multi-organ failure ensued and patient died.

*Lactobacillus* is gastrointestinal and genitourinary commensal, invasive infections such as bacteremia and endocarditis have been reported. It is a causative agent in 0.05-0.4% of all endocarditis. As these infections tend to occur in immunosuppressed patients, the associated mortality is 23-29%. From the literature, there have been only 11 reported cases of adult endocarditis associated with *L. rhamnosus* and of these - two have been linked to probiotic use. To our knowledge, our case represents the first adult case of probiotic related *L. rhamnosus* endocarditis in Australia.

This case highlights that the presence of *Lactobacillus* in blood culture should not be routinely considered contaminant and careful evaluation of patient clinical status is recommended and also linkages to diet and probiotic consumption should be sought. More importantly, it highlights that immunosuppressed patients should be cautious before consuming probiotic or other dietary supplements, which may contain live or lyophilised organism.

To date, there is insufficient standardization of safety protocols for probiotics. There are no TGA regulations about adding specific labelling warnings on probiotics’ packaging. We feel that the responsibility to inform consumers about the potential risks of probiotics for certain categories of individuals with impaired health status should be considered an integral part of the pharmaceutical industry.

Disclosure of Interest Statement: The authors declare that there is no conflict of interest.
CLINICAL SEVERITY OF RSV INFECTION IN AUSTRALIAN INFANTS PRESENTING TO HOSPITAL

Authors:
Nissen M 1, Marshall H 2, Richmond P 3, Buttery J 4, Andrews R 5, Gordon D 6, Reynolds G 7, Booy R 8, Rawlinson W 9

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Introduction: Respiratory syncytial virus (RSV) is a major cause of lower respiratory tract infection in infants. Most infants become infected in their first year of life, with the rest usually infected by their second year. RSV incurs a heavy annual burden on paediatric hospitals, with estimates that it is responsible for 50-90% of bronchiolitis, 5-40% of pneumonia and 10-30% laryngotraceobronchitis admissions. With RSV vaccines being available in the near future, information concerning the epidemiology and severity of RSV infections will be essential in determining the impact of any vaccine(s).

Methods: Prospective recruitment of children <2 years of age presenting to 12 children’s hospitals in Australia with laboratory confirmed RSV infection was performed in the same epidemic season, with collection of detailed epidemiological data and known risk factors for severe RSV disease. Clinical severity was determined on 3 factors; the length of admission, the need for supplemental feeding and oxygen/ventilator support.

Results: A total of 877 children were recruited, with an average age of 223 days, with 11.6% of indigenous descent. The majority were <6 months of age (53.9%), male (56.9%), with an average admission weight of 7.45 kg. The median hospital stay was 5.5 days with 17.7% of infants determined to have severe RSV disease. A family history of atopy was present in 33.5% of infants.

Conclusions: This is the largest cohort of infants with proven RSV infection studied in Australia. Severe RSV disease remains a significant burden on Australian children’s health care resources, particularly for young male infants and those with familial atopy. Any RSV vaccination strategy would need to protect children early in life to prevent severe RSV disease.

Disclosure of Interest Statement: Michael Nissen is currently a full-time employee of GSK Vaccines. This study was performed prior to joining GSK, and funded by Abbott Australasia.
EPIDEMIOLOGY, CLINICAL CHARACTERISTICS, AND SEQUELAE OF ZIKA INFECTION. A SYSTEMATIC REVIEW AND META-ANALYSIS

Authors:
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Introduction: Zika virus was first isolated on Rhesus monkey in the Zika forests in Uganda 1947. Thereafter, occasional cases were detected in tropical countries, however, it has been recently emerging as a global threat. In this study, we aimed to perform a systematic review and meta-analysis to summarize its global epidemiology, clinical characteristics, sequelae and fatal outcome.

Methods: We used the search term ”Zika” to retrieve all relevant studies in February 2016 using eight databases.

Results: The total Zika infected cases were highest in the region of the Americas, followed by African, Western Pacific, European, South-East Asia, and Eastern Mediterranean region. Our pooled results showed that skin rash was the most common clinical sign, followed by fever, arthralgia, headache, conjunctivitis, retro-orbital pain, edema, diarrhea, itches, nausea, vomiting, and chills. All laboratory parameters were normal except for leukopenia and thrombocytopenia, which were found in 31.1 and 15.7% of patients, respectively. The sequelae and bad outcomes were microcephaly (1.7%), Guillain-Barré syndrome (0.36%), death and (0.03%). Causes of death included complications related to severe thrombocytopenia, septic shock, neurological complications, subarachnoid hemorrhage due to a ruptured aneurysm, and sickle cell disease.

Conclusion: Our results provided knowledge gaps in the Zika infection, which is useful for clinicians and researchers.

Disclosure of Interest Statement: This work was supported in part by a "Grant-in-Aid for Scientific Research (B)" (16H05844, 2016–2019 for Nguyen Tien Huy) from Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan. The funders had no role in the study design, data collection and analysis, decision to publish or preparation of the manuscript. No pharmaceutical grants were received in the development of this study.
CRYPTOCOCCUS GATTII INFECTION COMPLICATED BY IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME IN APPARENTLY IMMUNOCOMPETENT CHILDREN

Authors:
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¹ Royal Darwin Hospital; ² Menzies School of Health Research

Introduction: Paediatric Cryptococcus gattii disease is rare, with only two previously reported cases in the Northern Territory (NT) over the preceding 50 years. Immune reconstitution inflammatory syndrome (IRIS) is a recognized complication of C. gattii infection, even in the absence of an identified immunodeficiency syndrome, but limited paediatric data exist.

Methods: We present a series of three paediatric patients with C. gattii infection recently managed in the NT and review the published literature with regards to paediatric C. gattii infection and associated IRIS.

Results: Three paediatric cases of C. gattii meningoencephalitis have been managed in the NT since January 2016. All three were males, aged 13, 11 and 8 years at the time of presentation. Two were Aboriginal Australians from remote NT communities, and the third a Timorese child from a remote district in Timor-Leste. All three were investigated for primary or acquired immunodeficiency syndromes, without any identified. Two had associated pulmonary cryptococcoma, which contributed to clinical suspicion of the diagnosis, before laboratory confirmation. Persistent, extremely high intracranial pressure complicated each case, requiring serial lumbar punctures, and in one case, insertion of an extraventricular drain and subsequently a ventriculoperitoneal shunt. All three cases were diagnosed with IRIS, between 3-8 weeks after commencement of antifungal treatment, and were managed with high dose corticosteroids.

Conclusion: Paediatric C. gattii disease is rare, although 3 recent cases in the NT highlight some of the challenges involved in managing the infection including persistent raised intracranial pressure and complications such as IRIS.

Disclosure of Interest Statement: In this presentation there are no potential conflicts of interest or industry contributions to be disclosed.
COMPLIANCE OF ANTIMICROBIAL PROPHYLAXIS PRACTICE FOR SURGERY IN MALASIAN TEACHING HOSPITAL

Authors:
Pang TW¹, Md-Redzuan A¹, MakmorBakry M¹, Lau CL², Zuhdi Z², Abd Rashid AH², Awang Jalil N², Ramli R², Rahman RA², Wan Mat WR², Petrick P², Jarmin R²

¹ Faculty of Pharmacy, National University Malaysia
² Antimicrobial Stewardship Committee, National University Medical Centre Malaysia

Introduction: Surgical antibiotics prophylaxis (SAP) is essential to prevent surgical site infection and complications, wound healing process and overall hospital stay. However, discrepancies are common surgical antibiotic prophylaxis (SAP) practices which renders need for evaluation of local practices.

Methods: This cross-sectional study was conducted in an 800 bedded teaching hospital, from 17 March 2016 to 15 April 2016. Patients were identified from the general operation theatre (OT) and Trauma OT and followed up at wards post operation. The compliance rate was evaluated in term of antibiotics indication, selection, dose, preoperative dosing time, intraoperative redosing and duration of continuation.

Results: Total 81 patients were included (53 clean, 25 clean-contaminated and 3 contaminated cases). 46 cases (56.8%) were compliant in antibiotic prophylaxis indication, selection and dose. Among noncompliant cases, 3 (3.7%) indicated cases were not given but 9 (11.1%) non-indicated cases were administered antibiotic. 56 cases were administered antibiotics preoperatively in which 53 (96.4%, 1 missing data) were administered within 60mins (median=25minutes, IQR 20minutes). However, among 4 cases that required intraoperative antibiotic dose, 3 cases (5.4%) were not given. In consideration of postoperative antibiotic continuation, after excluding 3 cases with dirty wounds, only 18 cases (34%) continued antibiotics within 24 hours, whereas 35 cases (66%) were continued antibiotic beyond 24 hours (median 3 days, IQR 3 days).

Conclusion: The compliance rate showed that there is gap in current SAP practices and the need to revise local guidelines. Antimicrobial stewardships with regular education and audit are needed to improve the practices.

Disclosure of Interest Statement: No conflicts to disclose.
TRANSIENT PROGRESSIVE PURPURIC ANNULAR ERUPTION ASSOCIATED WITH CAPNOCYTOPHAGA CANIMORSUS BACTERAEMIA

Authors:
Bui J¹, Clark BJ¹, Parham G¹, Chua HC¹, Mesbah Ardakani N¹, Raby E¹

¹ Fiona Stanley Hospital, Murdoch, WA

Introduction: Capnocytophaga canimorsus is a zoonotic pathogen best known as a cause of overwhelming post-splenectomy infection. Skin manifestations include cellulitis and purpura fulminans but an association with progressive purpuric annular eruption has not previously been described.

A 70 year old woman presented with a four day history of rash, fevers and chills on a background of rheumatoid arthritis on methotrexate, plaquenil and tocilizumab. The rash started on her feet with subsequent lesions on the lower legs up to the knee. Each lesion formed a series of non-palpable concentric and enlarging purpuric rings, biopsy showed a mild perivascular lymphohistiocytic infiltrate. C-reactive protein peaked on the day of admission at 8.6 mg/L. Capnocytophaga canimorsus was cultured from two sets of blood cultures. Further questioning revealed a history of dog bite to her right hand 3 weeks prior. Her rash resolved and fevers abated within four days. With no signs of deep seated infection she was switched after seven days of piperacillin-tazobactam to oral amoxicillin-clavulanate for another seven days.

Given the temporal association and resolution with treatment we believe that the distinct and unusual rash in this case was due to C. canimorsus infection. Given the predilection of C. canimorsus for perivascular pathology, the importance of macrophages in the control of infection and the lack of another apparent clinical focus in this case, direct skin infection seems likely although an immunological reaction cannot be excluded. The case also serves as a reminder of the lack of C-reactive protein response in patients receiving tocilizumab.

Disclosure of Interest Statement: No external grants or funding were received in the preparation of this report. The authors declare no conflicts of interest.
HUMAN CYTOMEGALOVIRUS (CMV) NOVEL ANTIVIRALS FOR INFECTION DURING PREGNANCY

Authors: Hamilton ST1,2, Hutterer C4, Egilmezer E1, Milbradt J4, Marschall M4, Rawlinson WD1,2,3

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Introduction: CMV causes congenital malformation and fetal death. There are no licensed therapeutics for CMV infection during pregnancy due to toxicity and limited efficacy. Promising experimental anti-CMV compounds (maribavir, letermovir, brincidofovir) and novel compounds (quinazoline derivative-vi7392, cellular kinase inhibitor-Sc88 and Dual-specificity tyrosine phosphorylation-regulated kinase (DYRK) inhibitors) were investigated in our ex vivo human placental models.

Methods: We studied at therapeutic concentrations (2.5µM) in Merlin-infected (1 pfu/cell) TEV-1 trophoblasts cells and AD169- and Merlin-infected explanted human multicellular placental model. Plaque assays, qPCR, immunofluorescence and western blot analyses were performed.

Results: No cellular toxicity was observed. Treatment of TEV-1 cells with maribavir, letermovir, brincidofovir, vi7392, Sc88, DYRK inhibitors and ganciclovir (GCV) inhibited virus progeny production 7 dpi relative to untreated cells (89%, 82%, 74%, 69%, 99%, 97% and 64% inhibition, p<0.05 compared with mock infected cells). Treatment of ex vivo placental explants 5dpi with maribavir, letermovir, brincidofovir, vi7392, Sc88, DYRK inhibitors, GCV inhibited CMV replication 19dpi. Immunofluorescence and western blots showed antiviral treatment inhibited CMV viral dissemination and protein expression. CMV infection induced focal upregulation of DYRK1A and DYRK1B within the cytoplasm and nucleus respectively in CMV-infected cell cultures, placental explants and clinical placental tissue.

Conclusion: Current experimental and novel anti-CMV compounds may be a viable therapeutic for use during pregnancy. The novel compounds need to be further studied for fetal toxicity in animal and in vitro models. Even with effective vaccination, antivirals will continue to be needed for infections of pregnancy and immunosuppressed patients for at least 30 years.

Disclosure of Interest Statement: No conflicts to declare.
EMERGENCY DEPARTMENT SEPSIS PATHWAY USING ELECTRONIC PROMPTS AND PREDICTIVE VALUE OF THE SOFA SCORE ON 30 DAY INFECTION MORTALITY

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Introduction: During 2016, the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3) recommended the Sequential Organ Failure Assessment (SOFA) score. The utility of the SOFA score in the Emergency Department (ED) is not yet well established. We retrospectively studied the application of the SOFA score in the ED setting.

Methods: At Wellington Hospital ED staff recorded patients with likely sepsis in the ED Information system (EDIS). We analyzed the patients staff had identified with likely sepsis in the ED for the 1 year period July 2015 to June 2016. ED and inpatient clinical records were used to retrospectively ascribe an ED SOFA score to a subset and to compare mortality.

Results: Over the 1 year period there were 479 people recorded in EDIS as likely sepsis. On retrospective review of 157 cases, 139 (88.5%) had infection as a factor in their ED presentation. The 30 day mortality of those with likely sepsis and infection was 19/139 (13.7%). The 30 day mortality was 17/57 (28.8%) for those with a positive SOFA score and 2/82 (2.4%) of those with a negative SOFA score (RR = 12.2; 95% CI: 2.9 - 50).

Conclusion: The SOFA score was highly predictive of mortality and may be a useful tool in the ED setting.

Disclosure of Interest Statement: The authors are all employed by Capital & Coast District Health Board. There was no pharmaceutical or other funding received for this study.
EXCESS COST AND INPATIENT STAY OF TREATING DEEP SPINAL SURGICAL SITE INFECTIONS

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Introduction: We aimed to determine the excess cost and hospitalization associated with surgical site infections (SSI) following spinal operations in a New Zealand setting.

Methods: We retrospectively reviewed all inpatients treated for deep SSI following spinal surgery at Wellington Hospital between 2009 and 2016. SSIs following either primary or revision spinal operations were included. The excess cost and length of stay (LOS) were calculated using the clinical costing system at Capital and Coast District Health Board.

Results: Twenty-eight patients were identified. Twenty-five had metalware in situ following instrumented spinal fusion surgery, while three had non-instrumented decompression and/or discectomy. Five were diagnosed during the same hospitalization as the primary spinal surgery and 23 were acutely admitted due to the SSI. The overall average excess cost of a spinal SSI was NZ$51,434 (range $1,398-$262,206.16) and LOS 37.1 days. The 25/28 infections following instrumented procedures had a much greater average cost ($56,258.90) and LOS (40.4 days), than the average cost ($11,228.61) and LOS (9.7 days) for the 3/28 spinal SSI following un-instrumented procedures, although the number of the latter group observed were few.

Conclusion: The cost associated with spinal SSI and the impact on hospital resources is significant, and the estimate here is likely to be conservative. More awareness of the high costs involved should encourage implementation of infection prevention strategies and research to reduce the impact of these disabling surgical infections.

Disclosure of Interest Statement: The authors DW, CL, CH and NR are employed by Capital & Coast District Health Board. JB was employed by CCDHB at the time of the study and now works in the UK. There was no pharmaceutical or other funding received for this study.
IS IT SAFE TO TREAT CHILDREN WITH ACUTE FEBRILE URINARY TRACT INFECTION WITH INTRAVENOUS ANTIBIOTICS AT HOME?

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1Royal Children’s Hospital Melbourne, 2Murdoch Children’s Research Institute.

Introduction: Outpatient parenteral antimicrobial therapy is increasingly used for stable patients for the latter part of antibiotic courses, but the benefits of home make complete hospital avoidance appealing. We aimed to determine whether treating acute febrile urinary tract infection (UTI) with intravenous antibiotics directly from the Emergency Department (ED) to home was effective and safe.

Methods: Prospective study from Aug 2012-July 2016 of all children with febrile UTI treated with intravenous antibiotics directly from ED to hospital-in-the-home (HITH). Demographic, clinical and outcome data including adverse events and readmissions were collected.

Results: 3 patients with febrile UTI were treated with IV antibiotics directly from ED to HITH. 81% were female with median age 4.6 years (range 14 weeks-15 years). Used antibiotics were gentamicin (83%) and ceftriaxone (14%). Urine culture was positive in 62% patients, most commonly *Escherichia coli* (76%). Median duration of intravenous antibiotics was 2.3 days (range 1-6 days). No patient had antibiotic side effects necessitating change; two patients needed replacement of intravenous access. 11 (17%) patients re-presented to ED during treatment, and 8 were admitted: 3 because of lack of progress, 2 patients had antibiotics changed (to broader cover), 1 related to seizure disorder, 1 required intravenous fluids. No patient required fluid bolus resuscitation.

Conclusion: Selected patients presenting to ED with febrile UTI can be safely treated directly via HITH. To allow generalisability, the next stage is to compare to patients admitted to hospital.

Disclosure of Interest Statement: Nil to disclose
ROUTINE ERTAPENEM PROPHYLAXIS FOR TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY DOES NOT SELECT FOR CARBAPENEM-RESISTANT ORGANISMS: A PROSPECTIVE COHORT STUDY

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Introduction: Post-transrectal ultrasound-guided prostate biopsy sepsis (PBS) is an increasing problem in this era of rising antibiotic resistance. Ertapenem prophylaxis has proven very effective at our institution for reducing this, however has raised local and regional antimicrobial stewardship concerns. This study investigated the possible selective effect of single dose ertapenem prophylaxis on faecal colonisation with carbapenem-resistant Enterobacteriaceae.

Methods: Patients had a rectal swab taken prior to receiving pre-biopsy ertapenem prophylaxis. A second swab was taken at follow-up 4-6 weeks later. Swabs were screened for carbapenem-resistant Enterobacteriaceae (CRE) using an enhanced Centers for Disease Control method. Pre-biopsy swabs were also screened for extended-spectrum and AmpC beta-lactamase-producing (ESBL/AmpC-E) and ciprofloxacin-resistant Enterobacteriaceae. Patients were monitored for PBS.

Results: Three hundred and twenty six patients were enrolled. At baseline, 6.4% and 9.0% of patients had colonisation with ESBL/AmpC-E and ciprofloxacin-resistant Enterobacteriaceae, respectively. No patients had CRE detected at either baseline or follow-up. Colonisation with non-fermentative organisms with intrinsic ertapenem resistance was detected in 29.4% of patients at both baseline and follow up. Three cases (0.9%, 95%-CI 0.2-2.8%) of probable PBS were identified during the study period. None were bacteraemic or required ICU admission.

Conclusion: Single dose ertapenem prophylaxis did not appear to have a significant selective effect on faecal colonisation with CRE or other ertapenem-resistant Gram-negative organisms in this outpatient group. It is highly effective prophylaxis for transrectal ultrasound-guided prostate biopsy. Ertapenem may, in the right setting, represent a useful prophylactic option for prevention of post-transrectal ultrasound-guided prostate biopsy sepsis.

Disclosure of Interest Statement: The study was funded by internal departmental funds allocated to research. No pharmaceutical or other industry grants were received in the development of this study.

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Introduction: Neurosyphilis continues to present diagnostic challenges due to the wide spectrum of clinical presentations and lack of consensus regarding definitions.

Methods: We undertook a retrospective chart review of patients that underwent cerebrospinal fluid (CSF) syphilis serology testing between January 2009 – May 2016. Electronic clinical records were and the local pathology database were reviewed.

Results: We identified 177 CSF specimens and subsequently excluded 32 patients from the analysis due to incomplete documentation. 138(95%) patients were male with a median age of 48years (IQR 37.5-54) and 102 were HIV positive (70.3%) with a median CD4 T-lymphocyte count of 490cell/uL (IQR 313-713). 54% (78/145) patients presented with neurological symptoms with 37% (29/145) with focal cranial neuropathies. 7.6% (11/145) had positive CSF Rapid Plasma Reagin (RPR) and 33% (48/145) had positive CSF Fluorescent Treponemal Antibody (FTA-AB). 55% (80/145) had a CSF protein above the upper limit of normal (CSF protein > 0.4g/L) and 20% (29/145) had a CSF white cell count greater than the cut off limit > 5cells/uL. Patients with a cranial neuropathy trended towards having positive CSF RPR and FTA-AB compared those those without cranial neuropathies [(5 (17%) vs 9 (7.8%), p=0.123] and [14(48%) vs. 32(29%), p =0.052] whilst HIV positive patients were no more likely to have positive CSF RPR or FTA-AB than those that were HIV negative [ 11 (10.7%) vs. 3(7.7%), p= 0.478] and [35(34%) vs. 13 (30%). p=0.633] respectively.

Conclusion: Further analysis is required to determine the usefulness of LP in the management of suspected neurosyphilis.

Disclosure of Interest Statement: No pharmaceutical grants were received in the development of this study.
DONOR DERIVED MYCOPLASMA HOMINIS AND A CLUSTER OF M. HOMINIS CASES IN SOLID ORGAN TRANSPLANT RECIPIENTS.

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Introduction: Invasive and disseminated Mycoplasma hominis infections are uncommon complications in solid organ transplant recipients. In a single center, a cluster of M. hominis infections were identified in lung transplant recipients from the same thoracic intensive care unit (ICU).

Methods: Medical records of the donor and infected transplant recipient were reviewed for clinical characteristics. Clinical specimens underwent routine processing with subculture on Mycoplasma-specific Hayflick's agar. M. hominis identification was confirmed using sequencing of the 16s rRNA gene. M. hominis isolates were subjected to whole genome sequencing (WGS) on the Illumina platform and sequence reads were analyzed using Nullarbor (https://github.com/tseemann/nullarbor).

Results: Three lung transplant recipients presented with invasive M. hominis infections at multiple sites characterized by purulent infections with negative Gram stains. Each patient had a separate donor with pre-transplant bronchoalveolar lavage fluid only available from the donor for Patient 1 which subsequently identified M. hominis. Phylogenomic analysis of whole genome sequences indicated that the isolates from the donor and the corresponding recipient (Patient 1) were closely related and formed a distinct single clade. In contrast, isolates from Patients 2 and 3 were unrelated and divergent from one another. WGS also identified the presence of the tetM gene in the genome of M. hominis from the donor and patient 1 only.

Conclusion: M. hominis should be considered as an uncommon, and potentially underrecognized, cause of donor-derived infection. WGS suggests donor to recipient transmission of M. hominis. Additional patients co-located in ICU, were found to have genetically unrelated M. hominis isolates, excluding patient to patient transmission.

Disclosure of Interest Statement: The authors have no disclosures to make.
SINGLE CENTRE EXPERIENCE FOR MANAGING PROSTHETIC JOINT INFECTIONS

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Introduction: Prosthetic Joint Infections (PJI) occur in <2% joint replacements. Management varies widely. We conducted a retrospective analysis of patients with PJIs at Nepean Hospital.

Methods: Medical records of all patients diagnosed with PJI from January 2010 to December 2016 were reviewed. We attempted to determine risk factors for developing infection and adverse outcome (ongoing pain, relapse, death).

Results: Eighty eight patients (50 males; average age 70 years) were included. Knee was the commonest joint involved (51%), followed by hip (46.6%).

Most infections were late onset (45.5%). 72% of these occurred in the first implant ever; 22.7% had history of a previous infection in the joint. Most infections were monomicrobial (61%); commonest organism was *Staphylococcus aureus* (44%). Debridement and implant retention (DAIR) was the main initial strategy (78%), 2 stage revision in 16%. Median time to surgery was 2 days. In 75% treatment aimed at cure; 25% for chronic suppression. More patients with curative intent had prosthesis removal (41% vs 13.6% in suppression group).

Nineteen patients relapsed; 11 among curative group. Average time to relapse was 8.9 weeks in curative group and 15 weeks in suppression group. All underwent surgery (9 revisions, 2 amputations and 1 arthrodesis).

8 patients died, 5 directly from infection.

The only independent risk factor for an adverse outcome was polymicrobial infection.

Conclusion: In our patients with PJI, late onset infection was more common; *Staphylococcus aureus* the major causative organism. Initial strategy was DAIR with prolonged antibiotic therapy in most. Polymicrobial infection resulted in poor outcome.

Disclosure of Interest Statement: No conflicts of interest. Ethics approval was granted by the NBMLHD Human Research Ethics Office for this study.
**KAZACHSTANIA BOVINA ISOLATED FROM A RENAL TRACT ASPIRATE OF A PATIENT WITH PYELONEPHRITIS – A POTENTIAL HUMAN PATHOGEN?**

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**Introduction:** *Kazachstania bovina* (previously *Candida bovina*) is an uncommon species of yeast within the *K. telluris* complex. This complex has mainly been isolated from birds and animals. *C. bovina* was initially described following isolation from the gastrointestinal tract of cows¹. More recent multigene phylogenetic analysis² of cows, birds and one human isolate has proposed *C. bovina* be renamed *K. bovina*. Despite the use of a human isolate in this analysis, there have been no case reports of human infection with *K. bovina* or *C. bovina*.

**Method and Results:** We report the isolation and identification of *K. bovina* from a percutaneous renal pelvis aspirate of an immunosuppressed, diabetic patient who was transferred to Canberra Hospital with septic shock due to *E. coli* bacteraemia secondary to obstructive pyelonephritis. The yeast was initially identified as *K. telluris* by MALDI-TOF (Bruker) but subsequently confirmed as *K. bovina* by PCR and DNA sequencing of the internal transcriber regions. The patient was managed initially with percutaneous nephrostomy followed by ureteric stenting. She was treated for bacterial sepsis, from which she recovered; however the *K. bovina* was regarded as a contaminant and not treated. Removal of the stent and management of the stone is pending.

**Conclusion:** In the discussion, we provide a description of the *K. telluris* complex, including *K. bovina*, and raise the possibility of this species being a potential human pathogen.

**Disclosure of Interest Statement:** No conflicts to disclose.

**References**

Are we missing warning signs for dengue fever in a non-endemic setting? A review of dengue fever management in Australian travelers

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Introduction: The traditional classification of Dengue fever (DF) has been updated by the revised 2009 WHO guidelines, which classify Dengue into DF, DF with warning signs and severe DF. Assessing the usefulness of these warning signs in identifying need for further medical intervention in the traveler group with DF has been inconclusive from current studies.

Methods: We performed a retrospective cohort study of confirmed and suspect Dengue cases from 2012-2015 across 4 main tertiary centers, Monash Health, Austin Health, Melbourne Health and the Royal Darwin Hospital. Virus by nucleic antigen testing, or detection of Dengue non-structural protein 1 (NS1) antigen in bloods.

Results: A total of 208 patients were included, with ages between 5 and 69 years (median age 32). The main travel destination was Indonesia (45%) followed by Thailand (19%). There was a prominence of gastrointestinal symptoms, (38%) cases with biochemical evidence of hepatitis (76%). Alarming, 84 patients (40%) had warning signs for severe DF. Worryingly, 24% of cases with warning signs received NSAIDs despite recommendation against the practice to the WHO guidelines. One case had severe Dengue, as evidenced by end organ involvement with myocarditis. None of our cases died.

Conclusion: In conclusion, many returned travelers admitted with DF have warning signs, which predict the development of severe end points such as severe organ dysfunction and refractory shock in DF endemic countries. Further research into the utility of warning signs in the travelers with DF, as well specific management strategies in a DF non-endemic setting are needed.

Disclosure of Interest Statement: No conflicts to disclose.
EPIDEMIOLOGY OF VRE BACTERAEMIA IN A VICTORIAN HAEMATOLOGY-ONCOLOGY UNIT

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Introduction: Over the last two decades, vancomycin-resistant enterococci (VRE) have emerged as endemic pathogens in many Australian centres, particularly in immunocompromised populations. We describe the epidemiology of VRE bloodstream infections (BSI) in haematology/oncology patients at a large Victorian tertiary centre.

Methods: Laboratory extracts for VRE BSI in haematology/oncology patients at the Royal Melbourne Hospital for the period 2008-2014. Uniform data, including patient demographics, underlying disease, treatment and outcomes were obtained retrospectively by medical record review. During the study period, active surveillance for VRE was performed at both centres, with isolation/cohorting of positive patients.

Results: A total of 66 vanB VRE bloodstream infections in 61 patients were identified (median days of hospitalisation prior to infection, 17). Median age was 51 years, and an underlying haematological malignancy was present in 56 (92%). Mean chronic disease score was 2.2. Seventeen (25.8%) infections were polymicrobial (coagulase-negative Staphylococcus spp. identified in 11). During the 30-days prior to infection, 9.8% had exposure to cephalosporins, 74.2% to piperacillin-tazobactam and 75.4% to vancomycin. 37/48 (77.1%) VRE-screened patients had a positive result prior to onset of infection. In patients treated, median time to appropriate VRE-active therapy was 2 days. Teicoplanin therapy was administered in 52/66 (78.8%). 95.3% of cases presented with systemic inflammatory response syndrome, 18.0% were admitted to ICU, and 30-day all-cause mortality was 24.6%.

Conclusion: VRE vanB is a significant pathogen in haematology/oncology populations. Active surveillance facilitates timely identification of colonised patients, but early treatment with VRE-active agents is required to improve outcome.

Disclosure of Interest Statement: No conflicts of interest for all authors.
COST EFFECTIVENESS OF A CANCER HOSPITAL-WIDE SEPSIS PATHWAY

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Introduction: A hospital-wide sepsis pathway introduced in the Peter MacCallum Cancer Centre in March 2014 improved recognition and resuscitation of patients with sepsis with significant reductions in mortality. This study evaluated the health economic impact of introducing a sepsis pathway for cancer patients.

Methods: Patients in two main cohorts; historical (pre-pathway implementation) and sepsis pathway (SP, post-implementation) were evaluated for clinical outcomes including intensive care unit (ICU) admission and length of stay. Within the two cohorts, patients were further categorised into haematology, medical oncology and radiation oncology (HMR) and surgical oncology patients and analysed separately. Individual hospitalisation costs were extracted from patient’s hospital administration records based on their date of discharge and hospital resource used for the entire length of their admission. Mean differences between the two cohorts were evaluated using t-test with \( p \)-value <0.05 considered significant.

Results: 275 patients were evaluated consisting of 227 HMR patients (80 historical, 147 SP) and 48 surgical patients (11 historical, 27 SP). Hospital admission cost for HMR patients was significantly lower in SP vs. historical cohorts by \$8,168.88 (95\%CI, \$200.58-\$16137.17, \( P=0.045 \)) whilst higher in the surgical patient groups, there was no significant difference. The HMR SP cohort had significantly lower ICU costs, a difference of \$5,285 (95\%CI, \$1731-\$6839, \( P=0.004 \)). However, on cost-effectiveness analysis, hospital admission cost of HMR SP patients was on average \$7,967 lower than historical cohort whilst for surgical SP patients, the cost was \$38,667 lower (Figure 1).

Conclusion: A whole of hospital SP has demonstrated both cost-effectiveness and reduced mortality.

Disclosure of interest statement: No relevant disclosures to declare.
Figure 1: Cost-effectiveness of the sepsis pathway program for HMR and surgical groups
ANTIBIOTIC ALLERGIES: POTENTIAL FOR DE-LABELLING BASED UPON CLINICAL GROUNDS

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Introduction: Many patients admitted to hospital have antibiotic allergies (AAL) documented in their medical record. Frequently however, the reaction is either not an allergy, may be inaccurately documented or may no longer be relevant. Despite this, the label adversely affects patient care directly in terms of antibiotic selection, and indirectly in terms of patient costs and the development of antimicrobial resistance. The aim of this research was to assess the prevalence of AALs in a hospital patient cohort and investigate the feasibility of de-labelling through re-challenge based solely upon clinical grounds.

Methods: This is a cross-sectional prospective study conducted over a 6 month period on adult inpatients. An allergy history was taken and data regarding allergy and antibiotic selection collected. It was then determined whether a direct re-challenge could be relatively safely performed, if antibiotic selection was appropriate and if skin testing would be beneficial.

Results: 3855 patients were screened, 553 (14.35%) had an AAL, and 352 were interviewed. There were 426 AALs; 276 (64.8%) towards a penicillin. It was felt that a direct re-challenge would be relatively safe in 70.0% (298/426) of AALs, whilst skin testing would have been beneficial for 72.8% (201/276) of penicillin allergies.

Conclusion: De-labelling through direct re-challenge based solely upon clinical grounds appears to be a feasible clinical option in many patients with AALs and this warrants further investigation. Skin testing would be useful in a large proportion of patients with a penicillin AAL and therefore more accessibility to such tests would be beneficial.

Disclosure of Interest Statement: The authors have no conflicts of interest.
A STUDY OF TUBERCULOSIS NOTIFICATIONS IN REGIONAL VICTORIA: IMPLICATIONS FOR PUBLIC HEALTH CARE IN A LOW INCIDENCE SETTING

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Introduction: Reactivation of latent tuberculosis infection (LTBI) in immigrants is the predominant cause of tuberculosis (TB) in Australia [1]. There has been a net increase in migration into Victoria [2], with major regional centers projected to account for up to 47% of the overall population growth by 2031 [3]. We aim to describe the epidemiology of TB notifications in regional Victoria, particularly relating to trends in country of birth.

Methods: This was a retrospective review of all TB notifications in regional Victoria between 01/01/1995 to 31/12/2014. Data was extracted from a centralized database, with 2006/2011 Census data used to calculate population denominators.

Results: There were 459 total TB notifications (Rate 1.7 per 100,000; Range 13 to 41 cases per year) in 158 Australian-born and 292 immigrants, with highest numbers from India, Philippines and Sudan. Figure 1 highlights the trends of TB notifications by country of birth. Regional centers with largest migrant population [4] had the highest numbers of TB. Mean age at diagnosis was 50 years. Cases occurred a median 5 years after arrival in Australia, with 106 (36.3%) reported cases after 10 years of arrival. Pulmonary involvement (279/459; 60.8%) was more common than extra-pulmonary sites (166/459; 36.2%). Overseas born individuals were more likely to have extra-pulmonary TB (n=122; p 0.002).

Conclusion: With an increase in overseas migrant population, regional Australia will expect larger numbers of TB. Additional strategies for preventing LTBI reactivation are necessary for appropriate management of TB in regional areas.

Disclosure of Interest Statement: Nothing to disclose.
A NEUTRALISATION ASSAY FOR ZIKA AND DENGUE VIRUSES USING A REAL-TIME PCR-BASED ENDPOINT ASSESSMENT

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Introduction: The global spread and infective complications of Zika virus (ZKV) and Dengue virus (DENV) have made them flaviviruses of public health concern. Serological diagnosis can be challenging due to antibody cross-reactivity, particularly in secondary flavivirus infections or when there is a history of flavivirus vaccination. The virus neutralisation assay is considered the most specific assay for measurement of anti-flavivirus antibodies. This study describes an assay where neutralisation endpoint is measured by real-time polymerase chain reaction (PCR).

Methods: Virus/antibody mixtures were incubated for 2 hours at 37˚C, transferred to Vero cell monolayers for a further 2 hours, before being replaced by culture media. Following a 48 hour incubation, the supernatant was collected from the cell monolayers for detection of replicating virus by real-time PCR. The neutralisation titre was defined as the highest serum dilution resulting in inhibition of virus replication as compared to non-replicating virus background.

Results: The real-time PCR neutralisation assay produced results within 72 hours. It demonstrated 100% sensitivity (24/24 ZKV and 15/15 DENV) and 100% specificity (9/9 specimens) when testing well-characterised sera. In addition, the assay was able to determine the correct DENV serotype in 91.7% of cases.

Conclusion: The high sensitivity and specificity of the real-time PCR neutralisation assay makes it suitable to use as a confirmatory test for sera that are reactive in commercial IgM/IgG enzyme immunoassays. Results are objective and the PCR-based measurement of neutralisation endpoint lends itself to automation so that throughput may be increased in times of high demand.

Disclosure of Interest Statement: No conflicts of interest to disclose.
ANTIVIRAL USE IN PATIENTS WITH CONFIRMED INFLUENZA: AN OBSERVATIONAL STUDY FROM THE FLUCAN-PAEDS COLLABORATION

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Introduction: Despite recent controversy, individual patient level data meta-analyses demonstrates that antivirals reduces seasonal influenza-associated hospitalization and complications. Data from the pandemic demonstrates a reduction in influenza-associated mortality. Despite this, use in Australian hospitals varies significantly.

Methods: Using prospectively data from the FluCAN network (2010-2015), we examined antiviral use in subjects with laboratory-confirmed influenza. Logistic regression models were used to explore predictors for use and outcomes.

Results: Of 7236 subjects with laboratory-confirmed influenza, antivirals were prescribed in 49.9% (Oseltamivir, 49.8%; Zanamivir, 0.4%), less frequently than antibiotics (63.1%). Antiviral use increased with age (children: 19.5%; adults: 60.4%, p<0.001). Antivirals were more frequently prescribed to children with immunosuppressive conditions and underlying neurological and respiratory disease (aOR: 11.02 [95%CI: 7.91,15.4]; 1.80 [1.22,2.65]; 1.61 [1.10,2.37]) and pregnant and immunosuppressed adults (aOR: 1.87 [1.35,2.60]; 1.51 [1.31,1.74]). Children and adults requiring initial intensive care or high dependency unit admission more frequently received antivirals (aOR: 4.83 [3.38,6.91]; 3.34[2.65,4.20]) as were those with influenza A (aOR: 1.46 [1.11,1.94]; 1.77 [1.55, 2.00]). Indigenous adults less frequently received antivirals (aOR: 0.51 [0.40,0.65]). Antiviral prescription was frequently delayed: median time from symptom onset; 3 days (IQR: 2;6); median time from diagnosis: 1 day (IQR: 0;2). No difference in mortality was noted in those receiving antivirals when compared with those not prescribed antivirals.

Conclusion: Antivirals are underutilized in children and adults hospitalized with influenza, particularly in specific populations including Indigenous Australians. We did not find benefits associated with the use of oseltamivir: this may be due to unmeasured confounding by indication or delayed prescription.

Disclosure of Interest Statement: FluCAN is funded by the Australian Department of Health. PAEDS receives funding from the Australian Department of Health, Departments of Health from participating states and the NHMRC.
DERANGED LIVER FUNCTION TESTS IN MALARIA INFECTION: A RETROSPECTIVE COHORT STUDY

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Introduction: Liver dysfunction has long been described as a clinical feature of severe malaria. However, we have observed delayed elevated liver function tests (LFTs) following treatment in some participants undergoing induced blood stage malaria (IBSM) infection to test developmental and licensed antimalarials. This may be due to the antimalarial drug, other medication (e.g. paracetamol) or the infection itself. We sought to determine if similar LFT elevations occur following naturally acquired infection.

Methods: We performed a retrospective audit of confirmed cases of P. falciparum and P. vivax malaria on the Pathology Queensland database from 2006-2016. All LFT results until 28 days post diagnosis were reviewed to describe the pattern of derangements and identify cases of delayed transaminase elevation.

Results: Hyperbilirubinaemia, elevated Alanine Transaminase, and malaria hepatopathy were observed in 12.4% (n=107/861), 15.0% (n=129/861), and 2.4% (n=21/861) of cases respectively, consistent with previously reported rates. In cases with LFT collection 4 to 11 days after diagnosis, delayed transaminase elevation was observed in 28.8% (n=59/205) cases. Age, gender, infective species, parasitaemia at diagnosis, region of acquisition, and treatment regimen were not associated with delayed transaminase elevation.

Conclusion: LFT derangements are likely an inherent although variable aspect of human malaria. Delayed transaminase elevations occur after naturally acquired infection, are transient, and frequently not associated with elevations in bilirubin. These do not appear related to demographic, parasite or treatment factors. Other individual-specific factors may confer susceptibility to hepatocyte injury associated with parasite clearance.

Disclosure of Interest Statement: No pharmaceutical grants were received in the development of this study.
ADVANCED MEDICAL IMAGING IN SUBPATENT MALARIA: CAN IT HELP US UNDERSTAND WHERE THE PARASITES GO AND ORGAN-SPECIFIC HOST RESPONSES?

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Introduction: Functional imaging to detect and locate biological and biochemical changes is increasingly utilized in infectious diseases; for example, it is now widely used to identify causes of PUO and sites of inflammation. We hypothesized that non-invasive imaging in human experimental malaria may provide insights into both parasite location and disease pathogenesis.

Methods: We performed whole body 18F FDG-PET/MRI at baseline and just prior to treatment in 2 participants undergoing P. falciparum induced blood stage malaria infection. Descriptive review and quantitative 18F FDG uptake estimation in the brain, spleen, liver, bone marrow and skeletal muscle was undertaken to identify changes in host/parasite glucose metabolism as a proxy for parasite location and activity. Dedicated MRI sequences to identify changes in vascular integrity were performed.

Results: Baseline imaging was within normal limits. Parasitaemia levels estimated from qPCR growth curves were 2753 and 2814 parasites/mL at the time of imaging. Preliminary descriptive review of PET and MRI images did not identify any gross changes from baseline. Preliminary quantitative analysis suggested increased post-inoculation 18F FDG uptake in the liver and spleen. More comprehensive data will be presented at the meeting.

Conclusion: Parasite biodistribution was not detectable by simple visual analysis of 18F FDG-PET. Quantitative analysis may enhance the sensitivity of functional imaging, and will be performed in all regions of interest. While MRI has utility in uncomplicated malaria, the sequences used in this study did not detect changes in earlier disease. Imaging sequences will be refined and applied to a further population of P. falciparum and P. vivax participants.

Disclosure of Interest Statement: This project is funded by a HIRF Seed Funding Grant from the Metro North Hospital and Health Service, and by Medicines for Malaria.
HUMAN INTESTINAL SPIROCHAETOSIS: A REVIEW OF 4 CASES IN 2016 IN CENTRAL QUEENSLAND

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Introduction: Human intestinal spirochaetosis has been recognised since the 17th century. The presence of spirochaetes in the gut is still poorly understood as to their state as colonizers or as pathogens. Risk factors for infection have been inconsistent in previous studies. Therapeutic regimens and the indications for treatment are not uniform, but generally metronidazole has emerged as the drug of choice for treatment. In 2016, 4 cases were identified in Rockhampton Base Hospital, Central Queensland Hospital and Health Services in the Capricorn Coast.

Methods: We have done chart reviews of the 4 patients having spirochaetosis in colonoscopy biopsies. Gender, age, symptoms, duration of symptoms, were considered. Risk factors as exposure to contaminated well water, occupation, farm animal contact, travel, and homosexual practice were noted. We also looked at co-existing intestinal parasitism and bacterial causes of colitis. Treatment, duration and findings on repeat colonoscopy (if done) after treatment were also sought.

Results: Active treatment with metronidazole was done with the 4\textsuperscript{th} patient. We are awaiting results of treatment. Findings on the reviews are to be completed and finalised.

Conclusion: There are probably more cases in the region. Molecular testing for Brachyspira/Serpulina is not available. Awareness of the entity needs to be broadened. Other recommendations to be based on the final results.

Disclosure of Interest Statement: Nothing to disclose.
CLINICAL FEATURES OF PATIENTS WITH ZIKA AND DENGUE VIRUS CO-INFECTIONS IN SINGAPORE

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Introduction: We describe the clinical features and outcomes of patients co-infected with both zika virus (ZIKV) and dengue virus (DENV) from the Singapore 2016 ZIKV outbreak. ZIKV/DENV co-infections have been reported from Latin America with few clinical details, and it is not known whether these patients have more severe disease.

Methods: Active testing of ZIKV suspect cases for both ZIKV and DENV were performed from 27 August to 5 September 2016 in Singapore. A ZIKV/DENV co-infection was defined as a patient with both ZIKV and DENV detected by reverse transcriptase polymerase chain reaction (RT-PCR) or serially increasing DENV antibodies. The clinical case records of ZIKV/DENV co-infected cases were reviewed.

Results: 163 cases of ZIKV infection were identified - 149 adults and 14 children. 148 of the 163 patients were tested for dengue NS1, and five cases (3.5%) were positive, of whom four had DENV detected by RT-PCR. The clinical and laboratory features of these cases are summarized in a table.

Conclusion: The rate of ZIKV/DENV co-infection was low despite sympatric circulation and transmission of both viruses via a common vector. This could partly be due to a low force of infection for DENV in Singapore. Diarrhea was a major symptom in 3 (60%) of our co-infected patients, but not in ZIKV mono-infections. Thrombocytopenia has also not been widely reported but was documented in our adolescent patient. Otherwise, clinical features of our co-infected patients do not differ significantly from previous reports of ZIKV infections and we did not find worse outcomes.

Disclosure of Interest Statement: No conflicts to disclose.
A SURVEY OF ADENOVIRAL RESPIRATORY PATHOGENS IN HONG KONG SHOWS “POST-ZOONOTIC” AND GENOME ADAPTED HADV-4 ISOLATES

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Introduction: The oldest human adenoviral pathogen, HAdV-4, was a zoonotic chimpanzee virus. It has been reported as largely confined to military populations, primarily “Basic Military Trainees” on U.S. military bases, and is a causative agent for acute respiratory disease (ARD). Currently, it may be emerging in civilian populations, with reports of sporadic and limited infections and outbreaks globally.

Methods: We examined 100 throat swab specimens collected in 2014 from hospitalized children at Queen Mary Hospital (University of Hong Kong) that were identified as HAdV-positive by Real-time PCR. Ten HAdV-4 isolates were identified and the inverted terminal repeats (ITRs) were sequenced.

Results: All of them possess a human-adapted ITR, i.e., they have the NF-I binding site found in most if not all HAdVs, but is missing in the SAdVs, including chimpanzee AdVs. In contrast, the two older strains of HAdV-4, i.e., prototype (1952) and the “vaccine” (1962), and SAdVs, sequenced to date, contain only the core origin and the NF-III in common with the HAdVs, as well as NF-I that may be optimized for their hosts.

Conclusion: This recombination event resulting in NF-I binding site acquisition presumably allowed HAdV-4 to adapt to a new host and may be the “tipping point” that allows HAdV-4 entry into the general population that is immunologically naïve to its antigenic signature.

Disclosure of Interest Statement: No conflicts to disclose.
POTT'S PUFFY TUMOUR IN CHILDREN – EVIDENCE FOR ANTIBIOTIC MANAGEMENT IN A RARE INFECTION

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Introduction: Pott’s puffy tumour (PPT) is frontal osteomyelitis with subperiosteal abscess. In children, management varies widely due to lack of evidence. Optimal antibiotic choice and duration remain undefined. We aimed to provide evidence for antibiotic management.

Methods: A 10-year (2006-2016) retrospective study of children diagnosed with PPT. Data on clinical features, treatment and outcomes were collected using REDCap and analysed using Stata 13.1.

Results: 32 patients had PPT, with 63% male and mean age 12.8 years (range 5.5-17). 19 (59%) patients had frontal swelling at presentation while 25 (78%) had headache and fever. On imaging 17 (53%) had retrograde abscess, 4 (13%) anterograde and 9 (28%) both. The commonest pathogens were anaerobic Streptococcus spp. (27/41, 66%), Streptococcus pyogenes (5/41, 12%) and Staphylococcus aureus (5/41, 12%). Patients received up to 5 IV antibiotic regimens with 10 different combinations used. 29 (90%) underwent surgery. Mean IV antibiotic duration was 41 days (10-68) and total including oral antibiotics was 54 days (29-125). High CRP, young age and >2 surgical interventions were associated with longer duration IV antibiotics (p=0.05). 4 (13%) patients received only 3 weeks IV antibiotics. They were more likely to have CRP <50 g/L, and <2 surgical procedure (p=0.04) Outcomes were good with all patients recovering with no neurological deficits.

Conclusion: PPT is rare but serious and may be difficult to identify at presentation. Once diagnosed, the variety of antibiotics used is unwarranted. Empiric choices should cover Gram positive organisms. These data suggest selected patients may be treated for <6 weeks and include IV-oral switch.

Disclosure of Interest Statement: No conflicts to declare.
COMMUNITY-ASSOCIATED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS IN THE KIMBERLEY; EPIDEMIOLOGY AND BURDEN ON HOSPITALS

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Introduction: In Western Australia, community-associated methicillin-resistant Staphylococcus aureus (CA-MRSA) is notifiable and rates are increasing, most notably in the Kimberley region.

Methods: Kimberley residents notified with CA-MRSA between 1 July 2003 and 30 June 2015 were included. Notifications are described by year, age, Indigenous status, and Panton-Valentine leucocidin (PVL) status. Individuals were linked to state inpatient and emergency department records. Episodes of care (EOC) and emergency presentations (EP) during which CA-MRSA was identified were described by mean length of stay (LOS), clinical diagnosis, and number of surgical procedures.

Results: Notifications of CA-MRSA increased from 64 in 2003/04 to 1,594 in 2014/15. From 2011 PVL positive (PVL+) clones comprised the majority of yearly notifications. Indigenous people comprise 40% of the population yet are responsible for 87% of notifications. Age-standardised rates in this population increased from 449 notifications per 100,000 population in 2003 to 9,380 in 2015. PVL+ clones were associated with a shorter LOS (3.7 days, 95% CI: 3.4-4.0) than PVL- clones (4.9 days, 95% CI: 4.3-5.5) (p<0.001). The total number of EOC and EP were 1,102 and 2,045 respectively, increasing 17- and 32-fold over the study period. The majority (59%) of EOC were associated with skin and soft tissue infection (SSTI). Of persons with SSTI, 1 in 2 underwent surgical intervention.

Conclusion: Over the last five years there has been a rapid increase in notifications of PVL+ CA-MRSA in the Kimberley. These infections disproportionately affect Indigenous people and are associated with an increasing burden on hospital services.

Disclosure of Interest Statement: No conflicts of interest to declare.
CUTANEOUS MYCOBACTERIUM ABSCESSUS INFECTION FROM TATTOO INOCULATION: A CASE REPORT AND REVIEW OF THE LITERATURE

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Introduction:
There are increasing reports of non-tuberculous mycobacterial infections complicating cosmetic procedures. In particular, Mycobacterium abscessus and Mycobacterium chelonae of the rapidly growing mycobacterium (RGM) group have been associated with clusters of skin and soft tissue infections after tattooing. There is a paucity of data on the management and outcomes of these cutaneous mycobacterial infections in the setting of extended antimicrobial resistance profiles.

We present the case history with clinical and laboratory images of a 59 year old immunocompetent man that presented with a pruritic rash at the site of a recent sleeve tattoo on the left upper limb. The tattoo was applied several weeks earlier in a parlour in Bali, Indonesia. The eruption was characterised by erythematous-violaceous scaly papules and plaques limited to the grey ink of the tattoo. There were no lesions outside of the inked areas, lymphadenopathy, and evidence of secondary cellulitis or systemic signs of infection.

Histopathology demonstrated active dermal inflammation, foci of suppuration and some poorly formed granulomas, with sparse acid fast bacilli on Ziehl-Neelsen and Fite stains. The diagnosis was confirmed by tissue culture and PCR demonstrating atypical Mycobacterium species of the Mycobacterium abscessus group. Despite an extended resistance profile, including inducible resistance to clarithromycin, the patient was treated with a relatively short course of oral clarithromycin and intravenous Tigecycline, with complete resolution of the cutaneous lesions. The literature on skin and soft tissue Mycobacterium abscessus infections from tattoo inoculation is reviewed.

Disclosure of Interest Statement: No conflicts to disclose.