Penicillin allergy is the most common antibiotic allergy noted within medical records, and its inaccurate reporting leads to increased use of alternative antibiotics that may be less effective, broader in spectrum, more toxic, and costly.

Methods. We retrospectively reviewed the reported allergies to penicillin in patients cared for at 13 hospitals within one health system over a 3-month period (June-August 2016). The data were abstracted from the electronic medical records on penicillin allergy status for both inpatient and outpatient visits. Hospitals were compared on their use of systemic antibiotics for inpatients. The proportions of total defined daily doses (DDD) for quinolones, aztreonam, carbapenems, cephalosporins, and penicillins were compared. Spearman’s rank and Pearson’s correlation were used to evaluate the strength of the relation between increased penicillin allergy reported and the use of the different antibiotic classes.

Results. 23,290 of 169,912 (13.7%); range 8%-20%) patients from 13 hospitals were reported penicillin allergic. There was a strong correlation between the proportion of patients with penicillin allergy and quinolone use (rho=0.77; P = 0.002; Figure 1), cephalosporins excluding fourth-generation (r=0.78; P = 0.007; Figure 2), and a weaker correlation with carbapenem use (rho=0.52; P = 0.168) and aztreonam (r=0.53; P = 0.06). On the other hand, penicillins had a moderate negative correlation (r=-0.58; P = 0.036; Figure 3), and extended spectrum penicillins had a strong negative correlation (r=-0.72; P < 0.005). Fourth-generation cephalosporin use did not correlate with the penicillin allergy rate (rho=0.3; P = 0.92).

Conclusion. Reported penicillin allergy varies between hospitals and is not explained by variation in use of systemic antibiotics. A positive correlation exists between penicillin allergy and use of other antibiotics.

1118. Adverse Events Related to Antibiotic Use in Patients with Myasthenia Gravis

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Session: 141. Clinical Practice Issues
Friday, October 6, 2017: 12:30 PM

Background. Myasthenia gravis is a medical condition involving the neuromuscular junction, characterized by weakness and fatigue of voluntary muscles. While the understanding of myasthenia gravis has progressed over the years, questions remain regarding which antimicrobial agents can be administered safely to these patients. Traditionally, aminoglycosides and fluoroquinolones have been avoided in this patient population, while other antimicrobials may be prescribed with caution. With minimal literature to guide practice, our aim was to review antimicrobial prescribing in patients with myasthenia gravis at our institution.

Methods. We conducted a retrospective chart review of adult patients 18 years of age and older with a diagnosis of myasthenia gravis who were admitted from January 2012 through December 2015. Charts were reviewed for the receipt of any antimicrobial during the course of hospitalization and any adverse events related to receipt of antimicrobials.

Results. 265 patients with a diagnosis of myasthenia gravis were admitted to our institution during the study period. 332 (64.4%) patients were female and ages ranged from 20 to 98 with a median age of 59 years. 159 (77.6%) patients received at least one dose of an antimicrobial during their hospitalization. It was notable that 12.2% and 11.7% of patients received at least one dose of ciprofloxacin or levofloxacin, respectively. Additionally, 3.9% of patients received at least one dose of an aminoglycoside (gentamicin or tobramycin). Five patients experienced a worsening of their myasthenia gravis symptoms with antibiotic use; 2 cases involved levofloxacin and 1 case each involved ciprofloxacin, cefazolin, and clindamycin. Of note, the average duration of therapy prior to symptoms being noted was 2.6 days.

Conclusion. This study highlights the wide variation in antimicrobial prescribing for patients with myasthenia gravis. Our chart review identified few adverse reactions exacerbating disease symptoms related to antimicrobial use. As it is still unclear the exact mechanism for the development of reactions in select patients with myasthenia gravis, further research may be needed to elucidate this information.

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Background. Lyme disease (LD) is an emerging infectious disease in Canada due to northward expansion of the geographic range of Ixodes scapularis, the principal tick vector for the LD agent Borrelia burgdorferi, into central and eastern Canada. This study aims to i) summarize the surveillance data for LD cases reported in Canada between 2009 and 2015, ii) identify potential environmental risk factors and iii) develop an acro-logical risk indicator for passive surveillance of occurrence of human cases.

Methods. We described the distribution, trends, demographic and clinical characteristics of cases of the disease. Logistic regression models were used to identify risk factors for the occurrence of LD: 1) demographic (age and sex), and 2) environmental (type of forest cover, temperature and abundance of ticks). Passive surveillance data were used to develop an acro-logical indicator of at-risk areas for LD.

Results. The number of reported LD cases increased more than six-fold overall, from 144 cases in 2009 to 917 cases in 2015, mainly due to locally acquired infections. LD incidence in Nova Scotia has risen sharply since 2013 and was the highest in Canada over the study period. Children below 15 years and adults of the 55–74 age groups reported highest incidence. Significantly more men than women were infected and men had significantly more symptoms of late disseminated LD than women. Variability in clinical manifestations is observed between provinces, years, for children below 15 years and between age groups. The majority of cases were reported between April and November and there was an increase in risk areas. The abundance of Ixodes scapularis ticks collected on humans and domestic forest cover were significantly associated with the occurrence of LD cases at the municipality scale. Passive surveillance provides a cost-effective alert tool for public health authorities to timely identify risk areas and target vulnerable populations and front-line health professionals by means of awareness campaigns.

Conclusion. These findings showed that LD continues to increase in Canada, both over time and geographically, underlining the need to implement better preventive strategies, early disease recognition and treatment and efficient surveillance systems.

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112. Classical Fever of Unknown Origin: Retrospective Study in Infectious Clinical Hospital №2
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Background. Despite the recent advances in medicine, fever of unknown origin (FUO) remains a diagnostic and therapeutic challenge even to expert physicians. The etiological structure of FUO is determined by many factors, including the one where a person lived and where has been hospitalized. The aim of this study is to investigate the etiology and clinical characteristics of adult classical FUO with more diagnostic available and to analyze the factors for certain disease categories.

Methods. The clinical data were retrospectively analyzed from 80 patients with FUO hospitalized at the Infectious Clinical Hospital №2 between October 2015 and October 2016 the patients who met the D.Durack criteria (1) An auxiliary temperature of -38.0°C, (2) Illness duration is more than 3 weeks; (3) there is no definite diagnosis after three outpatient visits or 3 days in the hospital with relevant investigations. (4) the fever is not related to FUO of other groups: nosocomial FUO, FUO in patients with AIDS, neutropenia were included.

Results. Of the 80 FUO cases, 76 were positively diagnosed with a diagnosis rate of 87.5%. Infectious diseases were still the primary causes of FUO 63% (n = 50). Among them the most frequent diagnoses were bacterial infection of unspecified site 12.5% (n = 10), infective endocarditis 11% (n = 9), as well as pneumonia 7.5% (n = 6) and viral infections of unspecified site 7.5% (n = 6). Connective tissue diseases and other noninfectious inflammatory diseases accounted for 17.5% of the FUO cases among which SLE and autoimmune thyroiditis were the most common etiologies and made up 5% (n = 4) and 3.75% (n = 3), respectively. Neoplasms were 8% (n = 6) in our sample. Also ten patients (12.5%) could not be confirmed until they were discharged from hospital.

Conclusion. Infectious diseases are the major causes of FUO, and the most common cause is bacterial infection of unspecified site. To determine the etiology was difficult due to the limited conditions of the clinical hospital. Infectious endocarditis was found on the second place. The most common causative agents of infective endocarditis were MRSA (3/9) and streptococcus viridans (4/9). The frequency of undiagnosed cases was increasing, but in most FUO cases the causes can be diagnosed eventually after careful analysis of clinical data.

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1122. Responses to Fever Overnight: Do Residents Choose Wisely?
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Background. Residents at our institution rely heavily on the terminology “Full Fever Work Up” (FFWU) as a cognitive tool for cross-covering patients with a fever. Prior survey data revealed that residents vary considerably in how they respond to fevers and what FFWU means. We sought to determine what tests are included in the FFWU, how often the term is adhered to, and if it significantly changes clinical outcomes.

Methods. For 3 months, study investigators collected FFWU instructions for patients who experienced a fever at night. For each febrile episode, investigators reviewed chart data on patient factors, circumstances surrounding the fever, tests ordered, etiologies of the fever, and outcomes (immediately and 30-days after the fever). The UCLA Institutional Review Board approved this study.

Results. We reviewed 253 fever episodes. For 204 episodes, written sign-out by the primary team was available. 59% of the fevers were in male patients and the mean age was 59 years. 12% had an organ transplant and 45% qualified as highly immunocompromised. 79% met SIRS criteria, whereas only 3% met sepsis criteria and 2% required escalation of care.

The cross-covering physician wrote a note in 4% of the cases and evaluated the patient in-person in 12% of the cases per chart review. Residents most often ordered bacterial blood cultures (48%), followed by urinary tests (34%) and chest X-rays (30%). These tests, as well as fungal blood cultures, lactate and CBC, were significantly more likely to be ordered by the cross-covering resident if the sign-out instructed to perform a FFWU.

The mean number of diagnostic tests ordered was 2 and residents started or changed antibiotic in 14% of cases. 88% of the time patients were alive 30 days after their fever. 11% efficacious and cost effective alternative and 8% of patients cultures drawn were positive.

Conclusion. Ordering practices overnight were significantly influenced by the FFWU sign-out instructions, yet evaluating the patient in-person was rare. We hypothesize that the FFWU standardization has replaced a more individualized evaluation overnight. Fortunately, poor outcomes including death, sepsis, escalation of care, or antibiotic-related complications were low in this population.

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1123. Patient Safety and Efficacy of Metronidazole 1 g Intravenous Every 24 Hours
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Background. Metronidazole (MTZ) is an imidazole that is used to treat parasites and anaerobic infections. The traditional dose of 500 mg every 6 to 8 hours achieves adequate serum concentration to treat most anaerobic infections. MTZ has a concentration dependent bactericidal activity with a long half-life of 8 hours and also exhibits post-antibiotic effect. Literature lacks clinical data in regards to a once daily higher dose of IV MTZ.

Methods. A retrospective quality improvement project via electronic medical record review of 88 adults who received MTZ 1 g IV daily at a single tertiary medical center, from April 2014 to October 2016. Inclusion criteria were patients >18 years who received MTZ 1 g IV every day for >/>= 48 hours.

Results. Of the 88 patients who received 1 g of MTZ, 66 met inclusion criteria. Mean age was 58 years (range 24 to 90 years). Indications for use are shown in Figure 1. Mean duration of therapy was 10 days (range 2 to 42 days). Twenty-nine (43.9%) received >/= 6 days and 37 (56.1%) received >/= 7 days. Fourteen (21%) were discharged home on MTZ 1 gm IV daily for >/= 48 hours. One patient had a documented adverse reaction (severe nausea) while the other 65 tolerated well. No documented treatment failure was reported.

Conclusion. MTZ has been used in combination with other antimicrobials to treat anaerobic infections and is generally well tolerated when administered in dosages of -2g per day. Pharmacodynamic studies have demonstrated activity for 12 to 24 hours after administration of 1 gm of MTZ. Our study showed no safety concerns with 1 gm daily dosing and no reported treatment failure. The limitation of our study is passive surveillance cohort. The potential advantages of once daily dosing include optimized bacterial killing, minimization of drug administration, and reduction of the cost of antibiotics as well as the cost of administration. Our safety and quality improvement project support that MTZ 1 gm IV daily dose is potentially a safe, efficacious and cost effective alternative and 8% of good cultures drawn were positive.

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