Methods. Two-twenty veterans with a clinical E. coli isolate (11 FQ-resistant [FQ-R], 11 FQ-susceptible [FQ-S]) and their HH members underwent serial stool sampling (2–6 occasions each). Stool samples were cultured selectively for FQ-S and FQ-R E. coli. Per sample, 10 E. coli colonies underwent PCR-based profiling; one colony per profile underwent pulseotyping and PCR-based ST131 detection, as did all clinical isolates. The FQ-R strains were compared to HH sharing and colonization were estimated.

Results. Of the 11 FQ-R clinical isolates, seven were ST131 and four non-ST131. All FQ-S clinical isolates were non-ST131. The 22 HHs included 68 total subjects (49 humans, 19 pets), with a per-HH mean of three subjects, 9.5 total fecal samples, and 6.7 unique strains. Thirty-nine patients’ stool samples yielded corresponding clinical isolates in ≥ 91% of FQ-S HHs, but only 45% of FQ-S HHs. Sharing of the clinical strain occurred in 45% of FQ-R HHs (43% if ST131, 50% if non-ST131), vs. 27% of FQ-S HHs. For the 22 clinical strains, the extent of within-HH sharing and colonization was greater for FQ-R strains (1.2 vs. 0.7 colonization index, 0.47 vs. 0.14). The FQ-R HHs also yielded 12 additional (non-clinical) FQ-R strains, the FQ-S HHs only 1. Non-clinical FQ-R strains colonized much less extensively than FQ-R clinical strains and were not shared between HH members.

Conclusion. Comparing patients with FQ-S clinical E. coli, FQ-R clinical E. coli more frequently colonized the index patient, are shared among HH members, and co-occur with other HH FQ-R strains, all of which may drive population-level resistance. Given the potentially important clinical implications of within-HH sharing and colonization, better understandings are needed of its mechanisms, including characteristics of the strain, host, and gut microbiota.

Disclosures. J. R. Johnson, Cruccull/Jansen: Consultant, Consulting fee. Allergan: Grant Investigator, Research support. Merck: Grant Investigator, Research support. Melinta: Grant Investigator, Research support. Tetraphase: Grant Investigator, Research support. Syntirion: Consultant, Consulting fee.

657. Epstein–Barr Virus Genetic Diversity in Blood vs. Saliva Samples From Patients with Infectious Mononucleosis

Mariam Abulhassan, PhD1; Haider Khoda1; Booran, PhD1; Jessica Pietryzk, BSc1; Tara Paton, PhD1; Guillermo Casallo, BSc2; and Upton Allen, MD2; 1Division of Infectious Diseases, Hospital for Sick Children, Toronto, ON, Canada, 2Research Institute, Hospital for Sick Children, Toronto, ON, Canada

Session: 65. Pathogenesis and Immune Response
Thursday, October 4, 2018: 12:30 PM

Background. The Epstein-Barr virus (EBV) is associated with several diseases, including infectious mononucleosis, and EBV genetic diversity plays an important role both in the virulence of the virus and disease manifestation or illness severity of interest. Such strains have been defined by genetic variations in the major viral genes. As a first step toward a better understanding of the relationship between strains and clinical outcomes, data are required on the patient’s genetic makeup and the virus in different populations. In this study, we examined the genetic diversity of the BZLF-1 gene, which is a major lytic virus of the gene.

Methods. We sequenced the BZLF-1 gene of EBV following amplification from DNA that was extracted from blood and saliva from previously healthy Canadian children and young adults with infectious mononucleosis. Sequencing was done by Sanger methodology (dideoxy DNA sequencing) and the sequences were aligned with a reference strain of EBV using Geneious software. The variant burden and types of single nucleotide variants were compared in blood and saliva samples.

Results. Twenty-six samples were obtained from 24 patients less than 24 years of age (16 saliva and 10 blood samples). Two subjects provided paired blood and saliva samples at the same visit. Among 36 single nucleotide variations (SNVs), 22 were common to both blood and saliva samples. There was a nonstatistically significant trend for more SNVs among blood compared with saliva samples (median 6 and 1, range 0–16, 0–7, respectively). Of the 36 SNVs, 20 patients (58%) had the greatest frequency of SNVs compared with exons 2 and 3. Among the paired samples of blood and saliva, there were different genetic variants of the BZLF-1 gene in the blood compared with the saliva samples obtained from patients with infectious mononucleosis.

Conclusion. Among patients with infectious mononucleosis, different genetic variants of EBV may be present in blood compared with saliva. Blood samples revealed viral strains with a tendency for more genetic diversity compared with saliva. The potential compartmentalization of strains is of relevance in sample selection for the evaluation of the potential clinical impact of the genetic diversity of EBV. In addition, the potential impact on disease pathogenesis is of interest.

Disclosures. All authors: No reported disclosures.

659. Mumps Outbreak in a High School: Uptake and Parental Perceptions of Third Dose MMR Recommendations, Dallas County, Texas, 2017

Wendy Chung, MD, MS; Joel Henderson, MPH, Meredith Stocks, MPH; Polasuyi Richardson, MPH; Sonya Hughes, MPH and Michelle Wurd, MPH; Acute Communicable Disease Epidemiology, Dallas County Department of Health and Human Services, Dallas, Texas

Session: 66. Public Health: Epidemiology and Outbreaks
Thursday, October 4, 2018: 12:30 PM

Background. In February 2017, a mumps outbreak was identified in a large Dallas high school among students who had previously completed the two-dose MMR vaccination series. Early notification of recommendations for third dose MMR and public health as well as maligning an opportunity to assess vaccine uptake, efficacy, and parental perceptions of third dose MMR recommendations.

Methods. Mumps illnesses were classified as probable or confirmed cases using 2012 CSTO case definitions. Information about vaccination status, exposure history; and patient characteristics and illnesses were collected during face-to-face and medical records. A third MMR vaccine was recommended to all noncase students and offered without charge at school-based vaccination clinics. Supplemental questionnaires assessing parental knowledge and attitudes regarding this third MMR recommendation were administered to guardians of a randomly selected sample of 20 students who received third dose MMR and 50 students who did not receive the vaccine. Fishers exact tests and chi-square were used to compare responses. Data analysis was performed using SAS 9.4.

Results. From February to May 2017, 28 PCR-confirmed and 12 probable mumps cases were identified in students attending one high school campus (24.3 cases per 100,000 students). Of the 1,664 enrolled students, 99.8% had documentation of at least two doses of MMR prior to the outbreak, including all mumps cases. Three undervaccinated students who declined to receive one dose of MMR were excluded from the school during the outbreak. Following public health recommendations for a voluntary third MMR dose, 49 students received a third dose MMR. No mumps cases occurred in students who received a third vaccine dose. Parental perception of protective benefit of an additional third dose of MMR was significantly associated with decisions to receive third dose MMR (OR: 4.9; 95% CI: 1.6–15.3).

Conclusion. Responsiveness to health department recommendations for third MMR vaccination in this outbreak setting was limited, even with broad educational communications and free school-based vaccine clinics. The challenges in achieving robust voluntary uptake of a third MMR dose may not improve substantially despite recent ACP recommendations, in the absence of school mandates requiring third dose of MMR during outbreaks.

Disclosures. All authors: No reported disclosures.

660. Are US Clinicians Thinking Measles in the Post-elimination Era? Surveillance for Measles-Like Illness in a Commercially Insured US Population

Susannah McKay, PhD, MPH1; Jessica Leung, MPH1; Paul Gastanaduy, MD, MPH2; Jared Routh, MD, MHS1 and Rafael Harpaz, MD, MPH1; 1Epidemic Intelligence Service, Center for Surveillance, Epidemiology and Laboratory Services, Centers for Disease Control and Prevention, Atlanta, Georgia, 2Division of Viral Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia

Session: 66. Public Health: Epidemiology and Outbreaks
Thursday, October 4, 2018: 12:30 PM

Background. In September 2016, the Americas was the first region to eliminate measles, which until 2016 was one of the most economically burdensome surveillance systems (MARTS) on routine measles vaccination. In February 2017, a mumps outbreak was identified in a large Dallas high school among students who had previously completed the two-dose MMR vaccination series. Early notification of recommendations for third dose MMR and public health as well as maligning an opportunity to assess vaccine uptake, efficacy, and parental perceptions of third dose MMR recommendations.

Methods. Mumps illnesses were classified as probable or confirmed cases using 2012 CSTO case definitions. Information about vaccination status, exposure history; and patient characteristics and illnesses were collected during face-to-face and medical records. A third MMR vaccine was recommended to all noncase students and offered without charge at school-based vaccination clinics. Supplemental questionnaires assessing parental knowledge and attitudes regarding this third MMR recommendation were administered to guardians of a randomly selected sample of 20 students who received third dose MMR and 50 students who did not receive the vaccine. Fishers exact tests and chi-square were used to compare responses. Data analysis was performed using SAS 9.4.

Results. From February to May 2017, 28 PCR-confirmed and 12 probable mumps cases were identified in students attending one high school campus (24.3 cases per 100,000 students). Of the 1,664 enrolled students, 99.8% had documentation of at least two doses of MMR prior to the outbreak, including all mumps cases. Three undervaccinated students who declined to receive one dose of MMR were excluded from the school during the outbreak. Following public health recommendations for a voluntary third MMR dose, 49 students received a third dose MMR. No mumps cases occurred in students who received a third vaccine dose. Parental perception of protective benefit of an additional third dose of MMR was significantly associated with decisions to receive third dose MMR (OR: 4.9; 95% CI: 1.6–15.3).

Conclusion. Responsiveness to health department recommendations for third MMR vaccination in this outbreak setting was limited, even with broad educational communications and free school-based vaccine clinics. The challenges in achieving robust voluntary uptake of a third MMR dose may not improve substantially despite recent ACP recommendations, in the absence of school mandates requiring third dose of MMR during outbreaks.

Disclosures. All authors: No reported disclosures.
661. Surveillance of Rabies Prophylactic Treatments After Exposure to Animals: 5 Years Experience
Georgios Dougas, DVM1; Vasilisa Konte, MD, MS1; Konstantinos Mitrou, RN, MS2; Emmanuel Christodoulou, MD3; Michail Stavrakakis, DVM2; Agoritsa Baka, MD4; Theoano Georgakopoulou, MD, MSC, MPH, PhD; Symeon Metallidis, MD, PhD5; Ioannis Istkoglu, RN, MS6; Chrysa Pargiana, MD7; Aikaterina Lioni, Adm. 1; Fotini Tsilidou, MD, MS8; Myrini Tzani, DVM, MS9; Marilina Korou, DVM, MSC, PhD10; Konstantia Tisonidi, DVM, MSC, PhD11; Maria Mavroudi, Biologist, MSC, PhD12; Georgia Vrioni, MD, PhD13; and Sotirios Tsiodras, MD, MSC, PhD, FIDSA14.

Background. Management of rabies post-exposure prophylaxis represents a valuable tool for outlining the epidemiological characteristics of the cases where post-exposure prophylaxis is initiated after contact with animals. Department of Molecular Diagnostics, FMD, Virological, Rickettsial & Exotic Diseases, Athens Veterinary Center, Ministry of Rural Development and Food, Athens, Greece.

Methods. Data received from November 2012 to December 2017 on dermatological exposure event, animal species involved, category of exposure (COE) according to WHO, vaccination history, the veterinary evaluation of the animal and the type of treatment administered, were analyzed with Epidata Analysis V.2.2.2.180.

Results. A total of 1,616 cases (63.2% males) received rabies post-exposure prophylaxis. In 94.7% of cases cleansing of the wound before visiting a medical practitioner took place during the first 3 hours after the exposure whereas 75.1% of victims received prophylaxis was initiated after contact with animals.

Conclusion. Maintaining measles elimination requires continued vigilance by clinicians and high-quality case-based surveillance. The estimated rates of MLI investigated cases of thrombocytopenia attributed to TBI in our institution.

Disclosures. All authors: No reported disclosures.

662. Tick-Borne-Associated Thrombocytopenia Among United States Veterans in Long Island New York
Olga Kaplun, MD1; Beth Lemaître, MT2; Zeena Lobo, MD3; and George Psevdos Jr., MD4; Infectious Diseases, Stony Brook University Hospital, Stony Brook, New York.

Background. Long Island, New York, is highly endemic for tick borne illnesses (TBI) with rising numbers of cases in the past years. Thrombocytopenia is a known complication of babesiosis caused by Babesia microti, anaplasmosis caused by Anaplasmaphagocytophilum, and ehrlichiosis caused by Ehrlichia chaffeensis. We identified cases of thrombocytopenia caused by TBI in our institution.

Methods. Retrospective chart review of patients diagnosed with babesiosis, anaplasmosis, and ehrlichiosis from 2000 to 2017 at Northport Veterans Affairs Medical Center, Northport, New York, Infectious Disease, Veterans Affairs Medical Center, Northport, New York, Infectious Diseases, Northport Veterans Affairs Medical Center, Northport, New York.

Results. Thirty-two veterans (VETS) were identified with the following TBI: Babesia 22, Ehrlichiosis 6, Anaplasmosis 4. The majority of cases (19) were from Suffolk County, Long Island. The median (MED) age of this group was 62 years (range 31–89). Ninety-one percent were Caucasian, 9% Black. 37.5% had history of tick bite. The MED temperature on presentation was 101.9°F (range 97.6–105.2°F). 56% had HTN, 6% DM, 37% HLD, 9% hepatitis C, 3% HIV. Laboratory studies: MED platelet count 88,000/µL (36,000–161,000); MED hemoglobin 12 gm/dL (5.6–15.6); MED white blood cell count 88,000/µL (36,000–161,000); MED hemoglobin 12 gm/dL (5.6–15.6); MED platelet count 88,000/µL (36,000–161,000); MED LDH 335 IU/L (193–1,322). Twelve VETS had positive C6 peptide. The peak MED B. microti parasitemia was 1.4% (0.1–3%). PCR tests were available in the later years of the study period: three were positive for E. chaffeensis, two for A. phagocytophilum, and 14 for B. microti. The majority of the cases (19) were observed after year 2010. Morulae were seen in only one case. Haptoglob in eight VETS was undetectable. One veteran with history of splenectomy and babesiosis with 3% parasitemia required exchange transfusion with 12 units of PRBCs. Two other babesiosis cases required regular transfusion of PRBCs. 20 babesiosis cases were treated with azithromycin-ataovaquin and two with clindamycin-primaquine. Doxycycline was used in the other cases. One patient developed NSTEMI and required coronary stent placement. Platelet counts returned to baseline levels with treatment. No deaths occurred.

Conclusion. The incidence of TBI in Long Island, New York is rising. PCR testing for TBI can be utilized in our VETS presenting with febrile illness and thrombocytopenia to help identify the possible tick borne pathogen during the months of high tick activity.

Disclosures. All authors: No reported disclosures.

663. Characteristics, Treatment Patterns, and Outcomes of Outpatients With Rickettsial Diseases in a Large, Commercially Insured Population: United States, 2005–2016
Alison Binder, MS; Amy E. Peterson, DVM, PhD and Paige Armstrong, MD MHS; Rickettsial Zoonoses Branch, Centers for Disease Control and Prevention, Atlanta, Georgia.

Session 66. Public Health: Epidemiology and Outbreaks
Thursday, October 4, 2018: 12:30 PM

Background. Rickettsial Zoonoses Branch, Centers for Disease Control and Prevention, Atlanta, Georgia.

Results. A total of 1,616 cases (63.2% males) received rabies post-exposure prophylaxis. In 94.7% of cases cleansing of the wound before visiting a medical practitioner took place during the first 3 hours after the exposure whereas 75.1% of victims received prophylaxis was initiated after contact with animals.

Conclusion. Maintaining measles elimination requires continued vigilance by clinicians and high-quality case-based surveillance. The estimated rates of MLI investigated cases of thrombocytopenia attributed to TBI in our institution.

Disclosures. All authors: No reported disclosures.