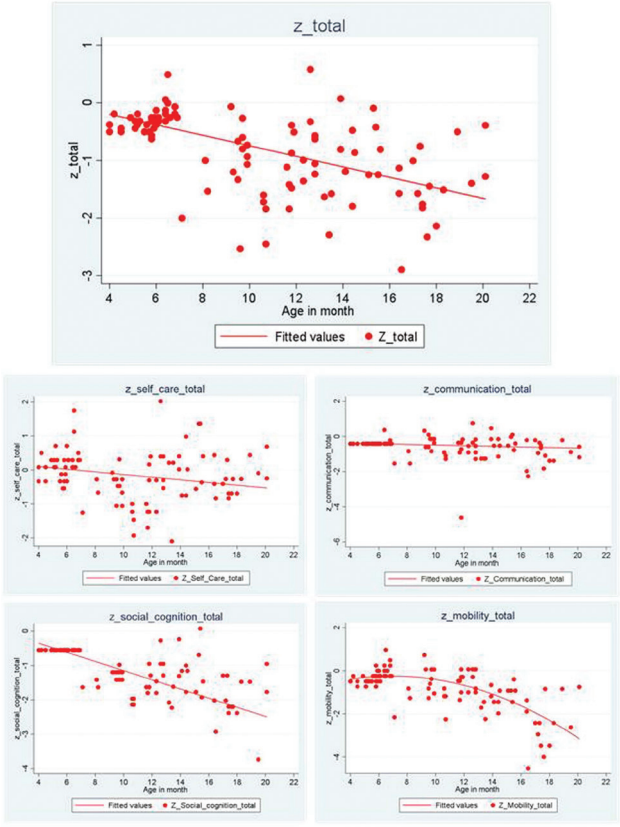
Results. Seventy-two non-CZS infants had neurodevelopmental tests; 40 were at a mean (SD) of 5.7 (0.9) months and 66 were at 13.5 (3.2) months of age. Thirty-four had two assessments. The total WIDEA, social cognition, and mobility domain scores became more abnormal with postnatal age (figure). The AIMS scores were similar to the normative sample. Three infants had an AIMS score < 2 SD's below the norm. On cranial US, 19 infants (26%) had a nonspecific finding (lenticulostriate vasculopathy, choroid plexus cysts, subependymal cysts, and/or calcification). Infants with a US finding had a lower WIDEA mobility score than infants with normal US ($P = .054$). There was a trend toward lower AIMS scores in infants with US findings compared with infants with normal US ($P = .26$). AIMS Interrater agreement on video-based scoring was good (ICC = 0.73, 95% CI 0.42, 0.87).

Conclusion. ZIKV-exposed infants without CZS are at risk for neurodevelopmental delay. Nonspecific cranial US findings may represent mild ZIKV-related injury. Long-term neurodevelopmental follow-up is important for all ZIKV-exposed infants.



Disclosures. **All Authors:** No reported Disclosures.

1873. Pregnancy and Birth Outcomes Among Colombian Women with Zika Virus Disease in 3 Surveillance Sites, Proyecto Vigilancia de Embarazadas con Zika

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Background. Proyecto Vigilancia de Embarazadas con Zika (VEZ) was an intensified surveillance system built upon existing national surveillance of pregnant women with symptoms of Zika virus (ZIKV) disease and conducted in three Colombian cities with a high prevalence of Zika. This analysis of data from VEZ estimates the risk of Zika-associated birth defects among pregnant women with symptoms of ZIKV disease, and among a subset with laboratory evidence of possible ZIKV infection during pregnancy.

Methods. During April–November 2016, pregnant women were enrolled if they were reported to the surveillance system (Sivigila) or visited participating clinics with symptoms of ZIKV disease. Maternal and pediatric data were abstracted from prenatal care, ultrasound, and delivery records, as well as from pediatric or specialist visit records. Available maternal and infant specimens were tested for the presence of ZIKV RNA and/or anti-ZIKV immunoglobulin (IgM) antibodies.

Results. Of 1,223 women enrolled, 47.8% and 34.3% reported first or second trimester symptom onset, respectively. Of 381 pregnancies with maternal and/or infant specimens tested, 108 (29%) had laboratory evidence of possible ZIKV infection during pregnancy; half of these (53.3%) were positive for ZIKV RNA only, 37.4% for IgM antibodies only, and 9.3% for both. Of 1,190 of pregnancies with known outcome, 63 (5%) had Zika-associated brain or eye defects; among the subset with any laboratory evidence, 12 (11%) had Zika-associated brain or eye defects. The prevalence of Zika-associated brain or eye defects was 5.9% (35/593) and 4.5% (19/423) among pregnancies with symptom onset in the first and second trimester, respectively.

Conclusion. Among pregnant women with symptoms of ZIKV disease enrolled during the height of the ZIKV epidemic in Colombia, prevalence of any Zika-associated brain or eye defect was 5%, with a higher prevalence among those with laboratory evidence of possible ZIKV infection. Rapid enhancements to Colombia's national surveillance enabled the estimation of the risk of birth defects associated with ZIKV disease in pregnancy.

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1874. Comparison of the Risk of Birth Defects in Live Births From Pregnant Women Infected and Not Infected by Zika Virus in Guadeloupe, 2016–2017

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Background. In the French Territories in the Americas (FTA), the risk of birth defects possibly associated with Zika virus (ZIKV) infection was estimated at 7% among fetuses/infants in a cohort of 546 women who developed a symptomatic RT-PCR confirmed ZIKV infection during pregnancy (NEJM 2018;378:985–94). There was no concomitant prospective cohort of pregnant women without ZIKV infection to use as a control group.

Methods. In Guadeloupe, one of the 3 FTAs that participated in the FTA cohort study, pregnant women were recruited at the time of delivery and tested for ZIKV infection. Women who had a confirmed negative IgG serology test for ZIKV at delivery and no other positive ZIKV test during pregnancy were considered to be ZIKV noninfected. Information on the course of the pregnancy was collected retrospectively and outcomes of live born infants of ZIKV noninfected women were analyzed, using the same definition criteria as those used for the FTA cohort study. Pregnancy outcomes were compared with those of the 241 ZIKV-exposed live born infants in Guadeloupe, extracted from the FTA cohort.

Results. Of the 490 live born infants without in-utero exposure to ZIKV, 42 infants (8.6%) had neurological abnormalities that were described as "potentially linked to ZIKV infection"; all but one of these were microcephaly without any other brain or clinical abnormalities. The proportion of such abnormalities was not statistically different from that observed in the 241 live born infants with ZIKV exposure (6.6%, $P = 0.36$). When re-considering the combined 8 fetuses and 241 infants of women with confirmed ZIKV infection in Guadeloupe from the FTA cohort, only two (0.8%) live born infants and three (1.2%) medically aborted fetuses had birth defects that could still be linked to ZIKV infection.

Conclusion. Isolated anthropometric and other mild neurological abnormalities had the same prevalence among live born infants with and without *in utero* ZIKV exposure. The high prevalence of isolated microcephaly among ZIKV noninfected women in our study population suggests that the sensitive definition for microcephaly, using a −2 SD cut-off with international growth curves, may lead to an overestimate of the rate of neurological complications of ZIKV infection during pregnancy.

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1875. La Crosse Virus Neuroinvasive Disease in Children: A Contemporary Review and Evaluation for Predictors of Disease Severity

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Background. La Crosse Virus (LACV) is the most common neuroinvasive arboviral disease in children. Contemporary data on clinical presentation, management, outcomes, and predictors of disease severity are lacking.

Methods. A retrospective analysis was performed of children (0–18 years) admitted to Nationwide Children's Hospital from January 2009 to December 2018 diagnosed with LACV neuroinvasive disease (LACV-ND). LACV-ND diagnosis was defined as a compatible clinical illness and serum serologic detection of LACV in the absence of other infectious etiologies. Demographic, clinical, laboratory, electroencephalography (EEG), radiologic, and outcome data were recorded. Severe disease was defined as the presence of clinical or electroencephalographic status epilepticus, SIADH, PICU

admission, mechanical ventilation (MV), parenteral/tube feeding, inpatient rehab, or intracranial pressure monitoring. Single variable and multivariate analyses were performed to determine factors predictive of disease severity.

Results. Of the 140 patients, 76 (54%) males with a median age of 8 years [10 months-16 years], were identified with LACV-ND. Symptoms at presentation, laboratory abnormalities, EEG, radiography, and outcomes are shown in Table 1. Fifty-seven (41%) patients met criteria for severe disease, notably for PICU admission (n = 41), status epilepticus (n = 35), MV (n = 13), and inpatient rehab (11). No in-patient deaths were observed. Exploratory analysis revealed that patients with severe disease were often younger at presentation, had higher rates of altered mental status (AMS), and seizures. Elevated serum white blood cell counts (WBC) and polymorphonuclear cell (PMN) predominance in serum and cerebrospinal fluid (CSF) were observed more frequently in severe disease. Multivariate analysis revealed presentation with seizures (OR 4.7 [95% CI 1.7–12.6], P = 0.001), elevated serum WBC (OR 1.7 [95% CI 1.2–2.5], P = 0.004), and a higher CSF PMN% (OR 1.03 [95% CI 1.01–1.06, P = 0.003) to be independent predictors of severe disease.

Conclusion. At presentation, patients with severe disease tended to be younger, have greater rates of neurologic symptoms, and leukocytosis with PMN predominance in blood and CSF. These clinical and laboratory findings may serve as useful biomarkers to predict disease severity.

Table 1: Clinical, Laboratory, Radiographic Findings, and Outcomes with Pediatric La Crosse Virus Neuroinvasive Disease

	Cohort (n=140)	Severe (n=57)	Non-severe (n=83)	P-value
Clinical Findings At Presentation				
Age, in days, median [IQR]	8 [6-11]	7 [4-11.5]	8 [6-11]	0.44
Age ≤ 5 years, n (%)	34 (24%)	19 (33%)	15 (18%)	**0.046**
Age > 5 years, n (%)	106 (76%)	38 (67%)	68 (82%)	
Duration of symptoms, in days, median [IQR]	4 [3-5]	3 [2-4.5]	4 [3-5]	**0.0004**
Fever, n (%)	128 (91%)	49 (86%)	79 (95%)	0.056
AMS, n (%)	84 (60%)	47 (82%)	37 (45%)	**<0.0001**
Seizures, n (%)	52 (38%)	38 (66%)	14 (17%)	**<0.0001**
Abdominal pain, n (%)	43 (31%)	11 (19%)	32 (39%)	**0.016**
Laboratory Values				
Serum WBC (10^3/μL) , median [IQR]	14.0 [11.2-18.8]	17.3 [12-21.1]	13.3 [10.1-16.9]	**0.0005**
Serum ANC (10^3/μL) , median [IQR]	11.7 [8.5-15.4]	12.9 [9.9-16.6]	10.6 [8.0-13.5]	**0.011**
CSF WBC (/mm³), median [IQR]	136 [59-252]	116 [47-267]	162 [76-248]	0.25
CSF PMN (%), median [IQR]	34 [11-55]	49 [23-68]	25 [6-44]	**0.0001**
CSF Lymph (%), median [IQR]	48 [28-70]	35 [16-63]	56 [37-73]	**0.0028**
Hyponatremia at presentation, n (%)	28 (20%)	11 (19%)	17 (20%)	0.86
Hyponatremia at any time, n (%)	42 (30%)	18 (32%)	24 (29%)	0.74
Radiographic/EEG Results, n/total (%)				
Abnormal Head CT	15/108 (14%)	9/55 (16%)	6/53 (11%)	0.58
Abnormal Brain MRI	59/82 (72%)	35/42 (83%)	24/ 40 (60%)	**0.027**
Abnormal EEG	64/66 (97%)	45/46 (98%)	19/20 (95%)	0.52
Outcomes, n (%)				
Receipt of Anti-epileptic Drugs	51 (36%)	41 (72%)	10 (12%)	**<0.0001**
Seizures During Hospitalization	33 (24%)	28 (49%)	5 (6%)	**<0.0001**
Seizure at Any Time	60 (43%)	44 (77%)	16 (19%)	**<0.0001**

AMS, Altered mental status; WBC, white blood count; ANC; absolute neutrophil count; CSF, cerebrospinal fluid; IQR, interquartile range; PMN; polymorphonuclear cells; EEG: electroencephalography; CT, computed tomography; MRI, magnetic resonance imaging

Disclosures. **All Authors:** No reported Disclosures.

1876. A Hepacivirus-Like Protein Is Targeted by the Antibody Response to Kawasaki Disease (KD)

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Background. Clinical and epidemiologic data support a viral cause of KD, but the etiology has eluded 50 years of study. We previously identified virus-like intracytoplasmic inclusion bodies (ICI) in ciliated bronchial epithelium of KD children but not infant controls, but the antigens within the ICI were unknown. At 1–2 weeks following infection, 75% of peripheral blood plasmablasts (PB) specifically target the infectious agent. We cloned the PB response to KD to identify KD-specific antibodies and their target antigens.

Methods. We isolated single PB from children with KD 1–3 weeks after fever onset by flow cytometry, and amplified immunoglobulin VDJ and VJ genes from each PB by RT-PCR. We sequenced the products and made monoclonal antibodies (Mab) from clonally expanded PB in individual patients. Mab were tested for binding to KD tissues and to a viral peptide array containing 29,939 peptides from known B cell epitopes of animal viruses (www.iedb.org).

Results. We sequenced 1156 PB from 11 KD patients, and identified 44 clonally expanded sets of PB. We prepared 61 Mab from clonally expanded and highly mutated IgA PB, and found that 33/61 bind to KD ICI, 10 strongly and 23 weakly. Of 10 Mab that strongly bind, 2 were VH3-33 (single patient), 2 VH3-23 (single patient), 1 VH3-15, 1 VH3-74, 3 VH1-46 (2 patients), and 1 VH4-59. These Mab CDR3s varied from 11 to 20 aacids, with 4–28 aacid mutations. Mab KD4-2H4 recognized multiple similar peptides from nonstructural protein 4A of hepacivirus C; pt KD4 sera was negative for hepatitis C by fourth-generation ELISA. Amino acid substitution analysis yielded an optimized peptide, and 6 KD Mab recognized this peptide by ELISA. These 6 Mab derived from 3 KD patients, all of whom had coronary aneurysms, and were VH3-74 (n = 1), VH3-33 (n = 2, single patient), VH1-45 (n = 1), and VH3-72 (n = 2, single patient). Strong binding of KD Mab KD4-2H4 and KD6-2B2 to ICI was totally blocked by pre-incubation with optimized peptide. KD but not control sera react with optimized peptide expressed as a glutathione *S*-transferase fusion protein by western blot.

Conclusion. Children with KD make antibodies to a hepacivirus-like protein, and KD ICI contain this protein. These results strongly suggest that a previously unidentified hepacivirus with a respiratory portal of entry is etiologically related to KD.

Disclosures. **All Authors:** No reported Disclosures.

1877. Evaluation of Antibiotic Utilization After Introduction of a Dedicated Infectious Diseases-Critical Care Medicine Service in Critical Care Units

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Background. Infection is a leading cause of admission to intensive care units (ICU), with critically ill patients often receiving a high volume of empiric broad-spectrum antibiotics. Nevertheless, a dedicated infectious diseases (ID) consultation and stewardship team is not routinely implemented. An ID-Critical Care Medicine (ID-CCM) pilot program was designed at a large tertiary hospital in which an ID attending was assigned to participate in daily rounds with the ICU team, as well as provide an ID consult on select patients. We sought to evaluate the impact of this dedicated ID consultation and stewardship program on antibiotic utilization in the ICU.

Methods. This is an IRB-approved single-site retrospective study. We analyzed antibiotic utilization in the ICU during the post-intervention period from January 1, 2017 to December 31, 2017 and compared it to antibiotic utilization in the same ICU during the pre-intervention period from January 1, 2015 to December 31, 2015. Using Poisson regression analysis, we evaluated antibiotic utilization of each agent, expressed as days of therapy (DOT) per 1,000 patient-days, between the two groups.

Results. The six most commonly used broad-spectrum antibiotic agents were included in the final analysis. During the intervention period, statistically significant reductions were seen in cefepime (131 vs. 101 DOT per 1,000 patient-days, P = 0.01), piperacillin-tazobactam (268 vs. 251 DOT per 1,000 patient-days, P = 0.02) and vancomycin (265 vs. 228 DOT per 1,000 patient-days, P = 0.01). The utilization of other antibiotics including daptomycin, linezolid, and meropenem did not differ significantly (Figure 1).

Conclusion. With this multidisciplinary intervention, we saw a decrease in the use of the most frequently administered broad-spectrum antibiotics. Our study shows that the implementation of an ID-CCM service is a feasible way to promote antibiotic stewardship in the ICU and can be used as a strategy to reduce unnecessary patient exposure to broad-spectrum agents.

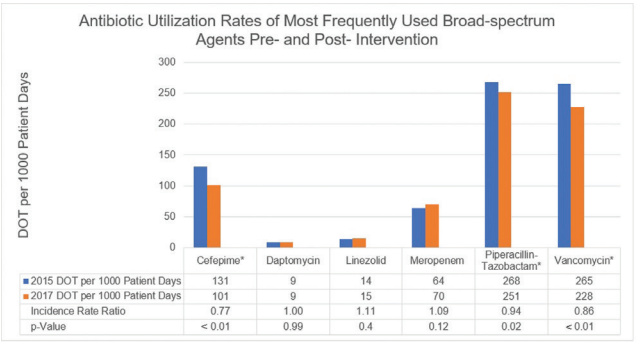

Figure 1. Antibiotic Utilization Rates of Most Frequently Used Broad-spectrum Agents Pre- and Post-Intervention. *Statistically Significant, p-Value calculated using Poisson regression analysis. DOT = Days of therapy.

Disclosures. **All Authors:** No reported Disclosures.

1878. Title: Impact of Antibiotic Stewardship Rounds in the Intensive Care Setting: A Prospective Cluster-Randomized Crossover Study

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Background. The impact of formalized, interdisciplinary antimicrobial stewardship program (ASP) rounds in the intensive care unit (ICU) setting has not been well described.