to children with asthma, we tested the hypothesis that mammalian pets could harbor respiratory pathogens of relevance to disease exacerbation among inner-city children with asthma.

Methods. We tested nasal and pharyngeal biospecimens from subset of 5–17 years old primarily African-American children with asthma enrolled in an ongoing cohort (ECATCH, NCT02321397) prior to trial randomization. At a home visit within three weeks prior to the clinic visit at which children were swabbed, mammalian pets whose owners consented to participate were sampled at nares, mouth, and perineum, depending on animal access and temperament. Aliquots (400 µL) of medium from samples from children and mammalian pets were cultured for multiple respiratory pathogens at the clinical microbiology laboratory at Johns Hopkins Hospital.

Results. We evaluated 95 children with asthma and 60 mammalian pets at the baseline clinic and home visits, respectively. In children, carriage of respiratory pathogens was: Staphylococcus aureus, 36.8%; Moraxella catarrhalis, 8.4%; Group A Strept, 7.4%; Streptococcus pneumoniae, 1%. In mammalian pets, carriage of respiratory pathogens was: Moraxella catarrhalis, 11.7% (1 dog, 6 cats where 5 of the cats were in the same household); Streptococcus pneumoniae, 1.7% (1 dog). In the home where the dog carried Moraxella catarrhalis (perineum site), the child also carried Moraxella catarrhalis (nares site). Children with dogs had 8-fold higher odds of detection of Moraxella catarrhalis (95% Confidence Interval: 1.4, 46.9, P = 0.02), controlling for other pet ownership and demographic variables. Dogs had higher contact with child participants than cats (contact score higher by 0.7 points on average, P < 0.05).

Conclusion. Mammalian pets may harbor respiratory pathogens, including Moraxella catarrhalis. Future studies are needed to determine the direction of transmission and whether mammalian pets can serve as a vehicle or reservoir of pathogens of relevance to respiratory disease in children.

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2332. Higher Pediatric Vancomycin Dosing Trends Toward Improved Therapeutic Troughs

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Background. Vancomycin is challenging to dose due to a narrow therapeu tic index. Inadequate dosing undertreats dangerous infections, while high doses can cause Acute Kidney Injury (AKI). Standard pediatric vancomycin dosing (40–60 mg/kg/day) often produces inadequate troughs. This institution began permitting a higher initial vancomycin dose: 80 mg/kg/day for children 1 month to 12 years old, and 60 mg/kg/day for children ≥ 13 years old. This study aims to determine whether higher dosing has increased the rate of therapeutic troughs or the rate of AKI.

Methods. A retrospective review was conducted of patients < 18 years of age who were admitted to our institution and received vancomycin. 842 unique courses of vancomycin were identified and age, sex, race, vancomycin dosing, trough results, and creatinine clearance were evaluated. 450 troughs were recorded based on criteria of age < 1 month, pre-existing renal failure, or no measured troughs. 392 unique vancomycin courses for 340 unique patients were analyzed. Therapeutic troughs were defined as 10–20 µg/mL. Statistical analysis was performed using Chi-square test, Fisher’s exact test, and unpaired t-test.

Results. Younger patients with higher vancomycin dosing attained an initial therapeutic trough in 41.1% vs. 32.7%.

Conclusion. A higher initial vancomycin dose trended toward an improved rate of therapeutic troughs in children 1 month to 12 years old. There was no evidence of increased risk of AKI or supratherapeutic troughs. While vancomycin dosing remains challenging, a policy permitting higher initial dosing may more adequately treat dangerous infections without risking adverse effects. Further study of higher vancomycin dosing is warranted.

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2333. Practice of Endotracheal Tube Suction Catheter Flushing With Polymyxin in Extremely Low Birthweight Neonates

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Background. Aerosolized or powdered forms of polymyxin have been used as prophylaxis for ventilator associated infections in adults. In 2015, Children’s National added Polymyxin Endotracheal Tube Suction Catheter Flushing with Polymyxin to their protocol for extremely low birthweight neonates (<1,000 g) to reduce respiratory tract colonization with Oropharyngic pathogens.

Methods. A retrospective cohort study of infants weighing <1,000 g ventilated for >48 hours in the NICU, January 1, 2015–June 30, 2016 was performed. Data were collected from an internal NICU database, medication billing data, and through chart review of the electronic health record. Demographics, antibiotic treatment days, ventilator days, length of stay, mortality, and microbiologic culture data were compared between patients receiving polymyxin and saline using chi-squared for binary and t-test for continuous variables.

Results. Of the 71 patients included, 38 received polymyxin and 33 received saline. Mean gestational age at birth was 24.1 weeks (23.9 polymyxin vs. 24.2 saline, P = 0.13) and median age on admission was 0 days (3 vs. 12, P = 0.019); median admission weight 660 g (640 vs. 800, P = 0.002); 52% were male (58% vs. 45% group). Median antibiotic days was 52 (77 vs. 41, P = 0.036), median ventilator days 35 (43.5 vs. 33, P = 0.06). Patterned bacteria was cultured in 38% of patients in whom at least one respiratory tract culture was obtained (62.5% vs. 38.1% P = 0.24). Pathogenic bacteria resistant to at least one antibiotic class to which is normally susceptible was found in 10% (13% vs. 6%, P = 0.32). No differences were seen in mortality (16% vs. 15%, P = 0.94) or median length of stay (101 vs. 92, P = 0.44).

Conclusion. An NICU protocol recommending prophylactic and polymyxin use for ELBW infants was implemented more frequently in younger and more premature neonates. Mortality and length of stay did not differ among babies who received polymyxin. Patients who received polymyxin did not grow a statistically significant higher proportion of pathogenic or resistant bacteria from LRT cultures compared with those who received saline.

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2334. Risk Factors of Multidrug-Resistant Gram-Negative Bacterial Bloodstream Infections in Children’s Hospitals in Japan

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Background. Although multidrug-resistant (MDR) Gram-negative bacilli (GNB) are a serious and growing concern worldwide, the epidemiological data on children are still limited. Our aim was to evaluate the risk factors for MDR GNB bloodstream infections (BSI) in children.

Methods. Patients with GNB BSI were enrolled between April 2010 and March 2017 at eight children’s hospitals in Japan. Clinical and microbiological data were collected retrospectively. The 2012 criteria of the Centers for Disease Control and Prevention were used to define MDR. MDR and non-MDR GNB BSI were then compared in terms of risk factors.

Results. In total, 629 GNB BSI cases were identified. The median age and proportion of males was 2 years (IQR 0.3–8.7) and 50.7%, respectively. Underlying diseases were found in 94% of the patients. The proportion of GNB BSI cases developing after >48 hours from admission was 76.2%. The most common GNB was Escherichia coli (14.3%), followed by Klebsiella pneumoniae (14.3%) and Pseudomonas aeruginosa (16.4%, 103/629). MDR comprised 24.5% (154/629) of cases. The MDR rate for E. coli, K. pneumoniae, and P. aeruginosa was 44.0% (81/184), 23.4% (29/124), and 16.5% (17/103), respectively. The coverage rate of the initial empiric therapy for the MDR and non-MDR GNB BSI cases was 57.1% (124/216) and 60.1% (195/324), respectively. All-cause mortality rate at 28 days of GNB BSI was 10.7% (67/629), 3.6% (11/294), and 9.7% (46/475) for MDR- and non-MDR GNB BSI, respectively (P = 0.167). The all-cause mortality rate at 28 days was 10.4% (14/135) and 7.7% (27/353) for MDR and non-MDR GNB BSI, respectively (P = 0.717) and 18.6% (16/86) for MDR- and non-MDR P. aeruginosa BSI, respectively (P = 0.056). Multivariant logistic regression analysis showed that MDR GNB BSI was