

### 2309. Epidemiology of Meningitis and Encephalitis in Infants and Children in the United States from 2011 to 2014

Rodrigo Hasbun, MD, MPH<sup>1</sup>; Ning Rosenthal, MD MPH<sup>2</sup>; Joan-Miquel Balada-Llasat, Pharm D, PhD<sup>3</sup>; Jessica Chung, PhD MPH<sup>2</sup>; Steve Duff, MS<sup>4</sup>; Samuel Bozzette, MD PhD<sup>5</sup>; Louise Zimmer, Research Coordinator<sup>5</sup> and Christine Ginocchio, PhD MT<sup>5</sup>; <sup>1</sup>Division of Infectious Diseases, University of Texas Health Science Center at Houston, McGovern Medical School, Houston, Texas, <sup>2</sup>Premier Research, Charlotte, North Carolina, <sup>3</sup>Clinical Microbiology, The Ohio State University Medical Center, Columbus, Ohio, <sup>4</sup>Veritas, Carlsbad, California, <sup>5</sup>bioMérieux, Durham, North Carolina

Session: 251. Pediatric Potpourri  
Saturday, October 7, 2017: 12:30 PM

**Background.** Large epidemiological studies evaluating the etiologies, management decisions and outcomes of infants and children with meningitis and encephalitis in the United States (US) are lacking.

**Methods.** Infants (<1 year old) and children (1–17 years) with meningitis or encephalitis by principal or secondary discharge ICD-9 diagnosis codes available in Premier Healthcare Database (PHD) during 2011–2014 were analyzed. PHD contains hospital discharge data including discharge diagnoses, diagnostic and treatment procedures, medications, and cost information from over 700 geographically diverse US hospitals. Descriptive statistics were used to describe the characteristics, etiologies, management decisions and outcomes of study population. Statistical comparisons were made between infants and children.

**Results.** A total of 6,665 patients with meningitis or encephalitis were identified; 3,030 (45%) infants and 3635 (55%) children. Infants were more likely than children to be hospitalized (91.1% vs 76.3%  $P < 0.01$ ) and have lumbar puncture done as an inpatient (22.5% vs 17.0%,  $P < 0.01$ ). Overall, the most common etiology was enterovirus (3892, 58.4%); followed by unknown (1546, 23.2%), bacterial meningitis (869, 13.0%), non-infectious (209, 3.1%), herpes simplex virus (HSV) (103, 1.5%), other viruses (47, 0.7%), arboviruses (36, 0.5%), and fungal (3, 0.05 %). Overall, empirical antibiotics (97.7% vs. 87.6%,  $P < 0.001$ ) and antivirals (42.4% vs 21.7%,  $P < 0.001$ ) were more likely to be administered in infants than in children and the use varied by etiologies. Adjunctive steroids were utilized more frequently in children than in infants (11.8% vs. 3.63%,  $P < 0.001$ ). The overall median length of stay in infants and children was 3 and 2 days, respectively; the longest duration was seen in those infants and children with HSV (20 days/6.5days), and with bacterial meningitis (1days/10 days), respectively. Overall inpatient mortality and readmission rates were low (<1% in both infants and children).

**Conclusion.** Viruses are the most common cause of meningitis and encephalitis in infants and children and are treated with antibiotic therapy in the majority of cases.

**Disclosures.** R. Hasbun, Biomerieux: Consultant, Consulting fee; Biofire: Speaker's Bureau, Speaker honorarium; Merck: Speaker's Bureau, Speaker honorarium; Pfizer: Speaker's Bureau, Speaker honorarium; Medicine's Co: Speaker's Bureau, Speaker honorarium; S. Duff, Veritas Health Economics Consulting: Consultant, Consulting fee; S. Bozzette, bioMérieux: Employee, Salary; C. Ginocchio, bioMérieux: Employee and Shareholder, Salary; Biofire Diagnostics: Employee, Salary

### 2310. Quality of Life Following Childhood Bacterial Meningitis in Luanda, Angola

Mariia Karppinen, MD<sup>1,2</sup>; Emilie Rugemalira, MD<sup>1,2</sup>; Okko Savonius, MD<sup>1,2</sup>; Manuel Leite Cruzeiro, MD<sup>3</sup>; Irmeli Roine, MD, PhD<sup>4</sup>; Heikki Peltola, MD, PhD, Professor<sup>1,2</sup> and Tuula Pelkonen, MD, PhD<sup>2,3</sup>; <sup>1</sup>Children's Hospital, Helsinki University Hospital, Helsinki, Finland, <sup>2</sup>Faculty of Medicine, University of Helsinki, Helsinki, Finland, <sup>3</sup>Hospital Pediátrico David Bernardino, Luanda, Angola, <sup>4</sup>Faculty of Medicine, University Diego Portales, Santiago, Chile

Session: 251. Pediatric Potpourri  
Saturday, October 7, 2017: 12:30 PM

**Background.** Survivors of childhood bacterial meningitis (BM) from low-income countries are at increased risk of sequelae. How BM survivors' daily life is affected in the developing world, is not known. We aimed to investigate the quality of life among pediatric survivors of BM in Luanda, Angola assessing both physical and psychosocial health-related quality of life (HRQL).

**Methods.** Survivors from two BM treatment trials (ISRCTN62824827; NCT01540838) from Luanda Children's Hospital were called to follow-up visits in January 2017 with a median duration of 26 months after BM. We administered Pediatric Quality of Life Inventory™ (PedsQL™) 4.0 Generic Core Scales and Infant Scales, designed to measure HRQL in children, to patients and/or parents. The generic core scales were administered to 64 and 32 families, and the infant scores to 8 and 3 care-givers of patients and controls, respectively. We used age-appropriate versions of the scales. We calculated the total, physical and psychosocial HRQL domains. To determine internal consistency, Cronbach's alpha coefficients were calculated for generic score scales.

**Results.** In all, 73 survivors of BM and 36 control children participated. 18 (51%) of controls were siblings of survivors; others visited the hospital for vaccinations. The median age of children was 6 years (81 months, IQR 85 months). Survivors of BM scored significantly lower on the PedsQL™ 4.0 generic core and infant scales than control children according to parent proxy reports indicating lower HRQL (total score 81.04 vs. 91.30,  $P = 0.001$ ; physical health 87.50 vs. 100.00,  $P = 0.0002$ ; psychosocial health 79.06 vs. 90.00,  $P = 0.001$ ). Child self-report scores were also lower within BM survivors who were able to answer; however, the difference was not statistically significant. In total sample of survivors, the Cronbach's alphas reached sufficient reliability of 0.70 in all three domains calculated (total score,  $\alpha = 0.79$ ; physical health  $\alpha = 0.77$ ; psychosocial health  $\alpha = 0.89$  for child self-reports and  $\alpha = 0.91$ ,  $\alpha = 0.91$ , and  $\alpha = 0.84$  for parent proxy-reports, respectively).

**Conclusion.** The survivors of pediatric BM endure a clearly suboptimal quality of life compared with siblings and other control children. HRQL can be measured reliably among BM patients in developing country setting.

**Disclosures.** All authors: No reported disclosures.

### 2311. Visitor Restriction Policies and Practices in Children's Hospitals: Results of an Emerging Infections Network Survey

Alice Pong, MD<sup>1</sup>; Mekleet M. Faltamo, BA<sup>2</sup>; Susan E. Beekmann, RN, MPH<sup>3</sup>; Philip M. Polgreen, MD<sup>3</sup> and Andi L. Shane, MD, MPH, MSc, FIDSA, FPIDS<sup>4</sup>; <sup>1</sup>Pediatric Infectious Diseases, Rady Children's Hospital San Diego, University of California San Diego, San Diego, California, <sup>2</sup>Emory University College of Arts and Sciences, Atlanta, Georgia, <sup>3</sup>University of Iowa Carver College of Medicine, Iowa City, Iowa, <sup>4</sup>Pediatrics, Emory University School of Medicine, Atlanta, Georgia

Session: 251. Pediatric Potpourri  
Saturday, October 7, 2017: 12:30 PM

**Background.** Balancing the prevention of infections in pediatric healthcare settings with family-centered care is challenging. Visitor restriction policies (VRP) are difficult to implement and enforce. The purpose of this study was to delineate the timing, indications for, and assessment of VRP in pediatric facilities.

**Methods.** The Infectious Diseases Society of America Emerging Infections Network surveyed 334 pediatric infectious disease consultants via an electronic survey. Descriptive analyses were performed.

**Results.** One hundred and seventy (51%) of eligible respondents completed a survey between 12 July and 15 August 2016. Of these, 44 (27%) reported not knowing if their facility had a VRP and 17 (10%) reported having a policy but were unfamiliar with details; both groups were excluded from further analyses. 104 (61%) reported being somewhat familiar with the details of their VRP and 92 (88%) had a VRP in all inpatient units. Age-based VRP were reported by 77/104 (74%), symptom-based by 101 (97%), and outbreak-specific by 78 (75%). VRP were also implemented in the emergency department by 5 (5%), outpatient clinic by 9 (9%), day surgery by 6 (6%), or radiology by 3 (3%). Symptom-based VRP were seasonal in 24 (24%) of facilities, with 71 (70%) implemented year-round. Communication of VRP to families occurred at admission at 89 (87%) and through signage in care areas by 65 (64%). Communication of VRP to staff occurred by email for 79 (77%), by meetings for 56 (55%) and by signage in staff only areas for 50 (49%). Enforcement was the responsibility of nursing (82, 80%), registration clerks (59, 58%), unit clerks (54, 53%), the infection prevention team (32, 31%), or clinicians (16, 16%). The effectiveness of VRP was assessed by 63 (62%) through active surveillance of hospital acquired respiratory infections; 29 (28%) used active surveillance of healthcare worker exposures and 30 (29%) used patient/family satisfaction.

**Conclusion.** VRP vary in scope, implementation, enforcement, and physician awareness in pediatric facilities. A prospective multisite evaluation of outcomes would facilitate the adoption of uniform guidance.

**Disclosures.** All authors: No reported disclosures.

### 2312. Epidemiology of Serious Bacterial Infections in a Cohort of Infants in the Military Health System from 2005 to 2015

Nanda Ramchandrar, MD, MPH<sup>1</sup>; Uzo Chukwuma, MPH<sup>2</sup>; Sarah Gierhart, MS<sup>2</sup> and Edmund Milder, MD, MSCE<sup>3</sup>; <sup>1</sup>Pediatrics, Naval Hospital Camp Pendleton, Oceanside, California, <sup>2</sup>Epidata Center, Navy and Marine Corps Public Health Center, Portsmouth, VA, <sup>3</sup>Pediatrics, Naval Medical Center San Diego, San Diego, California

Session: 251. Pediatric Potpourri  
Saturday, October 7, 2017: 12:30 PM

**Background.** Management of suspected serious bacterial infection (SBI) in infants less than 3 months old is a challenge faced by all who care for neonates. Understanding the epidemiology of SBI is required to help guide management decisions. Recent publications have challenged the previously accepted distribution of infection by specimen source and identified pathogens.

**Methods.** We conducted a retrospective analysis of the Department of Defense (DOD) Military Health System (MHS) database to identify SBI cases among term infants less than 90 days of age born between January 1, 2005 and September 30, 2015. We defined an SBI case as any infant with positive cultures for an accepted pathogen from blood, urine or cerebrospinal fluid (CSF). Infants with multiple positive cultures represent a single case. Infants with chronic medical conditions or premature birth were excluded by ICD-9 code.

**Results.** There were 678,214 live births during the study period. Out of 3496 infants with positive cultures, 1963 were excluded based on nonpathogenic isolates, and ICD-9 codes. Of the 1533 episodes of SBI there were 278 episodes of bacteremia, 57 of meningitis, and 1427 of urinary tract infection (UTI). The study period incidence was 2.3 cases/1000 live births. There was a significant trend down from 3.4 cases/1000 live births to 1.7 cases/1000 live births over the study period ( $P < 0.0001$ , Figure 1) which was primarily driven by decreasing *Escherichia coli* (*E. coli*) UTI. The most common pathogens were *E. coli* (52.1%), Group B *Streptococcus* (GBS) (8.0%), and *Enterococcus* (16.3%). *E. coli* accounted for 60.1% of UTIs, 10.5% of meningitis, and 19.8% of bacteremia. GBS accounted for 32.7% of bacteremia, 22.8% of meningitis, and 2.7% of UTIs. There were no cases of *Listeria*.

**Conclusion.** In this retrospective review of SBI in a large cohort of infants, the case incidence was found to be 2.3/ 1,000 live births. The most common pathogens were *E. coli* and GBS. Consistent with recent studies we found no cases of *Listeria*, however, GBS accounted for a higher percentage of bacteremia and meningitis cases. The significant down trend in incidence over the study period warrants further investigation to assess possible ways to protect infants from this common source of morbidity and mortality.