including antibiotic use and offending organisms. We compared the cumulative incidence of reinfection between those with or without suppression using a competing risk model, with death and revision for mechanical failure as competing risks.

**Results.** The median age was 77 years (range, 48–94). Gender distribution was equal. The median Charlson Comorbidity Index (CCI) was 3 (1–11), while median BMI was 30.1 (17.8–59.5). Eleven of 51 patients received antibiotic suppression after spacer retention. A history of prior antibiotic suppressive therapy was the only variable associated with being placed back on antibiotic suppression after spacer retention [OR 18 (95% CI 3.2–100)]. During the median follow-up period of 31.3 months, there were five re-infections. The cumulative incidence of re-infection was not significantly different between suppressed and unsuppressed groups (P = 0.89). The re-infecting pathogens were different from the index offending organisms. Only the presence of preoperative draining sinus was significantly associated with re-infection [OR 10 (95% CI 1–99.6)].

**Conclusion.** In infected patients where a second-stage prosthesis re-implantation is not an option, and retention of “temporary” antibiotic loaded spacer is surgically preferred, the risk of re-infection was not prevented by prolonged antibiotic suppression. The presence of a draining sinus was significantly associated with re-infection, often with new pathogens.

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### 323. Childhood Outcomes Following Parechovirus Central Nervous System Infection in Young Infants at a US Children's Hospital

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**Session:** 55. CNS Infections

**Background.** Parechovirus (PeV), specifically Parechovirus A type 3 (PeV-A3), is a picornavirus associated with severe infection in young infants, with disease manifestations ranging from undifferentiated fever, to sepsis like illness, and meningoencephalitis. There are limited data regarding long-term outcomes of infected infants. The objective of this study was to describe early childhood outcomes following infantile PeV-CNS infection.

**Methods.** Families of Infants hospitalized during 2014 with laboratory confirmation of PeV CNS infection were contacted for neurodevelopmental follow-up. Testing included medical history, standard neurologic examination, parent completion of Ages and Stages questionnaire (ASQ) and determination of Bayley III cognitive, motor, and language quotients. Neurodevelopmental impairment (NDI) was considered present if Bayley III motor and language quotients were >1 standard deviation (mild) or >2 SD (severe) below the testing norms, the presence of cerebral palsy (CP), or sensory (vision/hearing) impairment. Relationship of children’s outcomes to severity of PeV disease (uncomplicated febrile illness [mild], disseminated disease [moderate] or advanced disease requiring intensive care [severe]) was assessed by chi-square analysis.

**Results.** Nineteen children were available for testing at approximately 3 years of age (31–38 months), 12 (63%) with mild, five (26%) moderate, and two (11%) with severe disease. Mean Bayley quotients were within normal limits (see table), one infant had mild CP (5%) and two (11%) had mild NDI. There was no apparent relationship of NDI to infant clinical presentation. Bayley III results included 11% at referral level and 32% suspect, and were unrelated to severity of the viral illness. However, all parents of children with moderate or severe presentations of infantile PeV disease had medical or behavior concerns at 3 years of age compared with 25% of those with mild presentation (P = 0.007).

| Bayley Quotients          | Mean | Range |
|---------------------------|------|-------|
| IQ                        | 98   | 85–125|
| Motor                     | 108  | 91–130|
| Language                  | 103  | 89–118|

**Conclusion.** Neurodevelopmental impairments may be seen following infant PeV disease, but may not correlate with severity of clinical disease. Longitudinal monitoring of developmental status through early childhood following PeV infantile disease is warranted.

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### 324. Lack of Accuracy of the International Classification of Disease, Ninth (ICD-9) Codes in Identifying Patients With Encephalitis

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**Session:** 55. CNS Infections

**Background.** ICD-9 codes have been widely used in studies utilizing large national databases that evaluate the clinical epidemiology of encephalitis in the United States. Many studies have shown that ICD-9 codes have poor accuracy in stroke, multiple sclerosis and pulmonary fibrosis but their utility in encephalitis is unknown.

**Methods.** Retrospective study of all adults with a discharge diagnosis of encephalitis by an ICD-9 code. The study was performed in 17 hospitals from the Memorial Hermann Hospital and Harris Health Hospital system in the Greater Houston area from March 2010 until July 2015. Medical records were reviewed and a case was considered accurately classified as encephalitis if they met the definition established by the International Encephalitis Consortium.

**Results.** A total of 1,241 cases were identified by a discharge diagnosis of ICD-9 code as having encephalitis. The most common cause identified was not having a central nervous system infection in 580 (46.7%) patients. A total of 244 (19.6%) patients were correctly identified as having encephalitis. Other causes identified were nosocomial meningitis (11.9%), community-acquired bacterial meningitis (8.1%), aseptic meningitis (5.8%), fungal meningitis (5.4%), tuberculosis (2.0%), and parasitic meningitis (0.2%).

**Conclusion.** ICD-9 codes have poor reliability in identifying patients with encephalitis questioning the accuracy of large nationwide studies that utilize them to identify patients.

**Table 1:** Correct Clinical Diagnosis in 1,241 Patients with a Discharge Diagnosis of Encephalitis by ICD-9 Codes.

| Diagnosis                     | Number of Patients (%) |
|-------------------------------|------------------------|
| Non-CNS infection             | 580 (46.7)             |
| Encephalitis                  | 244 (19.6)             |
| Nosocomial meningitis         | 148 (11.9)             |
| Bacterial meningitis          | 101 (8.1)              |
| Aseptic meningitis            | 72 (5.8)               |
| Fungal meningitis             | 68 (5.4)               |
| Tuberculous meningitis        | 25 (2.0)               |
| Parasitic meningitis          | 3 (0.2)                |

Abbreviation: ICD-9, an International Classification of Disease, Ninth; CNS, Central Nervous System.

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### 325. Neurosyphilis Management in the Post-Procaine Penicillin Era

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**Session:** 55. CNS Infections

**Background.** Neurosyphilis (NS) is an infection of the central nervous system caused by Treponema pallidum. Intramuscular (IM) penicillin (PCN) G procaine is a treatment option for those who cannot receive or decline intravenous (IV) therapy. Since August 24, 2016, it has been unavailable from the manufacturer, necessitating the use of IV PCN for NS. Our institutions organized a multidisciplinary, coordinated care system to expedite outpatient treatment of NS upon diagnosis. We report successful management of NS at an urban safety-net hospital in the post-procaine PCN era.

**Methods.** We identified patients with suspected NS from the King County Public Health STD and Harborview Infectious Disease clinics from October 2016 to February 2018. Demographic, clinical symptoms, diagnostics, treatment, and outcomes were chart reviewed. Successful NS treatment was defined as resolution of cerebrospinal fluid (CSF) pleocytosis or elevated protein, improvement in neurological symptoms or appropriate decrease in serum rapid plasma reagin (RPR) or CSF Veneral Disease Research Laboratory (VDRL) titers.

**Table 1:** Demographic and Socioeconomic Characteristics

|               | Total = 43 |
|---------------|------------|
| Gender        |            |
| Male          | 39 (91)    |
| Race          |            |
| White         | 29 (67)    |
| Black         | 3 (7)      |
| Asian         | 3 (7)      |
| Homeless      | 5 (12)     |
| Insurance status* |        |
| Private       | 15         |
| Medicaid      | 20         |
| Medicare      | 8          |
| Charity care  | 11         |
| Substance use disorder | 15 (35) |
| HIV Positive  | 22 (51)    |
| Viral load suppressed ≤ 200 copies/mL | 13 (30) |

*Represents more than one payer per patient.
326. Malaria vs. Bacterial Meningitis in Children With Spinal Tap in the Luanda Children's Hospital, Angola

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Background. In Sub-Saharan Africa, both malaria (M) and bacterial meningitis (BM) are common diseases that cause severe meningitis, and central nervous system (CNS) disturbances. The diagnosis of this disease is important due to their prevalence, characteristics, outcome, and risk factors for poor outcome to better understand the clinical impact of suspected CNS infection in children.

Methods. We conducted a prospective study in the Children’s Hospital (HPDR) in the province of Angola that attends 300 newborns daily. Spinal tap (STP) was performed for children presenting with altered consciousness, convulsions, prostration, or meningeal. The analysis included children aged 15 months to 15 years with confirmed discharge diagnosis in 2016–2017.

Results. Of 941 children, the diagnosis was M in 56% (525), BM in 12% (61) epilepsy/convolusions in 9% (88), and other infections in 6% (60). Of all children, 16% (150/941) died, 6% (54/733) had severe, 14% (93/655) any neurological sequela, and 27% (243/879) either died or had neurological sequelae. In children with M, the corresponding figures were 11% (31/281), 6% (22/369), 27% (25/93), and 7% (12/174). The figures were 41% (47/116), 15% (8/54), 33% (11/33), and 55% (58/105), respectively. Comparing with M, children with BM were younger (median age (IQR) 28 (61) vs. 60 (68) months, P < 0.001), had a shorter duration of illness (4 (4) vs. 3 (3) days, P < 0.001), worse outcome (80% vs. 72%, P < 0.001), and more complications (11% (47/422) vs. 1.5% (7/476), P < 0.001). They have to provide a detailed summary of the clinical course, compared with BM.

Conclusion. Our study showed that BM was the final diagnosis in most children with CNS infection, compared with M. This group seems to be useful, and the organization at a national level is also the opportunity to extend our network in the field of neurological infections, and to use the submitted cases as education material for young ID fellows.

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328. National Expertise Group to Improve Management of Complex Encephalitis Cases

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Background. Incidence of infectious encephalitis in France is evaluated to be 0.5 to 1/100,000 inhabitants. That means encephalitis are rare infections, and not all physicians do not have expertise about this disease. In case of complex presentations, they need to consult from advices and guidance from a multidisciplinary group. The French infectious diseases society implemented a group of expertise in 2016 to address clinicians’ difficulties with complex cases in a timely manner.

Methods. Experts were delegated by scientific societies (Infectious Disease, Microbiology, Neurology, Intensive care and Public Health) with regards to their expertise in brain infections. Any physician felt ineffective to manage a patient presenting as a complex case can ask for advice, using a specific e-mail address (encephale.sp@infectiologe.com). They have to provide a detailed summary of the clinical case, together with all available biological and etiological results and, when possible, an access to brain images. The case has to be evaluated by mail or discussed in a conference call, within 48 hours. At the end of the discussion, a written answer is produced (detailed recommendations and justification). The traceability of the advice is kept by the French infectious diseases society for both teaching purposes and legal matters.

Results. So far we had to manage 15 cases, providing an expert opinion in a national level of almost all mainland French, West Indies and Polynesia: 15 from university hospital and 7 from nonuniversity hospitals. Questions (overlapping in some cases) were related to diagnosis procedure (12), to treatment (4), to interpretation of imaging (5), to management (6), and interpretation of test results (10). Our answers: investigation for autoimmune or inflammatory disease (15); investigation for tuberculosis and/or treatment (14); investigation for tumour (3); complementary tests for an unusual pathogen (10). Pertinence of the advices was adapted in 20 cases (30 evaluated).

Conclusion. Such a group seems to be useful, and the organization at a national level is also the opportunity to extend our network in the field of neurological infections, and to use the submitted cases as education material for young ID fellows.

Disclosures. All authors: No reported disclosures.