outcomes since the first VNS device insertion till the last follow up after AspireSR® (with cardiac-based seizure detection) using McHugh seizure outcome classification. **Results:** The study population was comprised of 15 patients. The mean age at seizure onset was 2.7 years old, with mean age of initial VNS1 placement being 10.1 years and mean age of replacement with VNS2 being 14.9 years of age. Three of the fifteen patients had reported status epilepticus prior to initial VNS insertion, and none reported episodes following insertion. Two patients showed at least one class improvement in McHugh seizure outcomes at last follow up after VNS2. **Conclusions:** Through our preliminary data at the present time, we note that the majority of our patients maintains their seizure control following replacement with VNS2 with a few showing improvement.

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A Retrospective Study of Alberta Emergency Room Utilization by Pediatric Epilepsy Patients

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Background: Epilepsy, a common neurologic condition, instigates a large number of emergency room (ER) visits annually. This project aims to retrospectively review the patterns and characteristics of Alberta ER visits by pediatric epilepsy patients. **Methods:** Methods: Alberta Health administrative databases, including the Inpatient Discharge Abstract Database, the National Ambulatory Care Reporting System, Diagnostic Imaging and Medical Laboratory, were used to identify ER utilization patterns among children with epilepsy in Alberta, Canada between 2012–2018. **Results:** Of 5,419 pediatric epilepsy ER patients between 2012–2018 in Alberta, 59% were developmentally delayed children. Children in this particular group, when compared to developmentally normal children with epilepsy, had the following characteristics: they were significantly more likely to utilize ERs in children's hospitals versus other hospitals; they presented at a significantly younger age; they had a significantly longer length of stay; they had higher triage scores; they were subjected to significantly more investigations; and they had significantly more hospital admissions for epilepsy. **Conclusions:** Discussion: This novel Alberta-wide study of resource utilization of pediatric epilepsy patients shows that developmentally delayed children with epilepsy use significantly higher resources compared to developmentally normal children with epilepsy. Whether this is justified or not requires further study.

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Response to high dose nocturnal diazepam in children with ESES

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Background: To assess the response to high dose daily nocturnal diazepam (HDD) in children with encephalopathy associated with electrical status epilepticus in sleep (ESES). **Methods:** A prospective cohort of patients (4-12 years), newly diagnosed with ESES, initiated on the first course HDD, was followed for ≤ 1-year. Sleep EEG scores (SES) pre and post HDD were evaluated. An EEG grading system based on both sleep spike wave index (sSWI) (Grade: 1-4) and distribution of epileptiform discharges (Grade: 0-4) was used and summed to yield an aggregate SES (ASES) (Grade: 1-8). **Results:** Eighteen eligible children (M:F 12:6; median age, 7.6 years) were initiated on first course HDD (median, 0.5 mg/kg/d). sSWI decreased from 85.7% (mean, SD 13.9) to 32.6% (mean, SD 37.1) at subsequent EEG (95% CI = -70.60- -35.62; $p < 0.001$). ASES decreased from 6.5 (SD 1.3) to 3.1 (SD 1.9) (95% CI = -4.17- -2.60; $p < 0.001$). EEG relapse after a period of improvement occurred in 10 children. Minimal response to HDD occurred in 2 children. Five patients manifested mild side effects; behavior (2), hyperactivity (2), and lethargy (1). **Conclusions:** HDD safely and significantly reduces both SWI and aggregate sleep EEG score in children with ESES.

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Childhood Absence Epilepsy: Prevalence of treatment resistance and neuropsychiatric comorbidity.

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Background: Seizures in childhood absence epilepsy (CAE) are usually easily controlled with anti-seizure medications (ASMs). Factors predictive of treatment resistance remain unclear. Our objectives were to assess prevalence of neuropsychiatric problems and factors influencing refractoriness in a cohort of CAE at a single centre. **Methods:** We retrospectively reviewed patients with CAE (ILAE 2017 classification) diagnosed between January 1999 and December 2016 with at least 1-year follow-up. Treatment resistance was defined as failure to respond to two or more appropriate ASMs. Exclusion criteria included eyelid myoclonia with absence, myoclonic absence, and generalized tonic-clonic (GTC) seizure before developing absences. **Results:** The