

anesthesia ranged from 0 - 95%. EEG data were acquired using a variety of recording systems with variable number of leads and heterogeneous outcomes reported. The periods of anesthesia monitoring were also heterogeneous. Characteristics of the studies are presented in Table 1. 495 references were imported for screening with 13 final references for data extraction. EEG abnormalities were reported in 204/649 (31.4%) subjects ranging in age from neonate to 18 years; the majority of studies utilized less than 16 channels of (10/13, 76.9%) (Table 1). There was variability in sevoflurane dosing, premedication (e.g., midazolam, hydroxyzine), and periods of anesthesia monitored. **DISCUSSION/SIGNIFICANCE:** There was heterogeneity noted across reviewed literature including study design, phases of anesthesia, ventilation methods, number of EEG leads recorded and adjuvant anesthetics administered. Nevertheless, this review rigorously classified epileptiform activity during Sevoflurane thereby influencing modern anesthesia.

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### Likelihood of live birth following fertility preserving treatment among reproductive-age women diagnosed with gynecologic malignancies or pre-malignancies\*

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**OBJECTIVES/GOALS:** To determine the impact of fertility preserving treatment (FPT) on likelihood of live birth in a cohort of reproductive-age women (18-45 y) after diagnosis of gynecologic malignancy or pre-malignancy **METHODS/STUDY POPULATION:** We performed a retrospective cohort study of women ages 18-45 seen by gynecologic oncologists for newly diagnosed cervical cancer (CC), endometrial intraepithelial neoplasia (EIN) or endometrial cancer (EC), and borderline ovarian tumor (BOT) or invasive ovarian cancer (OC) at an academic center from 2015-2019, excluding women who completed childbearing. Our primary outcome was live birth after diagnosis and our exposure was FPT defined as services received by reproductive endocrinology and infertility specialists. We performed Pearsons Chi-squared and log binomial regression to assess association between live birth and FPT with adjustment for patient demographic and disease factors. **RESULTS/ANTICIPATED RESULTS:** Out of 220 women (median age 36 y), most were White (54% vs. 25% Black) and 37% percent were diagnosed with BOT/OC (vs. 35% EIN/EC; 28% CC). After diagnosis of disease, 19% of women (n=41) had documented FPT and 8% of women (n= 17) had a live birth. By the end of follow-up, 6% of women who did not receive FPT had a live birth (n=11/178) compared to 15% of those who did (n=6/40, p=0.12). In univariate regression, women who received FPT were 2.4 times more likely to have a live birth after disease diagnosis than those who did not receive FPT (p-value = 0.06). However, after adjusting for age at diagnosis, relationship status, disease stage and disease type, the association between FPT and live birth was less robust (RR = 1.4, p-value = 0.6). **DISCUSSION/SIGNIFICANCE:** In this study, a minority of women had FPT or live births. Our data suggest that FPT benefit should be considered in context of age, relationship status, and disease characteristics for reproductive-age women diagnosed with gynecologic malignancies. Given the complexity, women should be offered referral for consultation with a fertility specialist.

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### Use of a Propensity Score to Examine Association between Rates of In-Hospital Decongestion and Mortality and Cardiovascular Outcomes Among Patients admitted for Acute Heart Failure

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**OBJECTIVES/GOALS:** Decongestion, or fluid removal, is an important goal in the management of acute heart failure (AHF) among patients with heart failure with reduced ejection fraction (HFrEF). We sought to examine whether the rate of decongestion is associated with mortality and cardiovascular (CV) outcomes. **METHODS/STUDY POPULATION:** Using data from the Efficacy of Vasopressin Antagonism in Heart Failure Outcome Study With Tolvaptan (EVEREST) trial (n=4133), we evaluated the rate of decongestion by using linear mixed models to derive the in-hospital slope of b-type natriuretic peptide (BNP) and hematocrit as proxies of volume overload and hemoconcentration, respectively. A propensity score was developed to match patients from the quartile with most rapid rates of decongestion to the three quartiles with slower rates. Cox proportional hazards regression models were fitted to assess the association between rate of decongestion with risk of all-cause mortality and a composite of CV mortality or AHF hospitalization. **RESULTS/ANTICIPATED RESULTS:** Slower rates of in-hospital decongestion were associated with increased risk of both outcomes over a median 10-month follow-up. Those with slower rates of BNP decline, in comparison to the propensity-score matched patients with the most rapid rates of BNP decline, had higher hazards of mortality (HR=1.73 [1.23, 2.42]) and the composite outcome (HR=1.48 [1.18, 1.86]). Those with slower rates of hematocrit increase, in comparison to the propensity-score matched patients with the most rapid rates of hematocrit increase, showed a trend toward higher hazard of mortality (HR=1.17 [0.95, 1.43]) and an increased risk of the composite outcome (HR=1.26 [1.08, 1.47]). **DISCUSSION/SIGNIFICANCE:** Among patients with HFrEF admitted for AHF, slower rates of decongestion are associated with increased risk of mortality, CV mortality and AHF hospitalization. It remains unknown whether more rapid decongestion provides cardiovascular benefit or if it serves as a proxy for less treatment resistant heart failure.

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### Defining Developmentally High-Risk Full Term and Late Preterm Infants in the Neonatal Intensive Care Unit

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**OBJECTIVES/GOALS:** We aim to describe the preschool age developmental outcomes of children born full term or late preterm requiring care in the Childrens Wisconsin (CW) neonatal intensive care unit (NICU). Our objective is to develop a model to predict which NICU infants are at high risk for abnormal preschool age

development based on their neonatal characteristics. **METHODS/STUDY POPULATION:** Retrospective cohort study including full term (≥37 weeks) and late preterm (34-36 weeks) infants admitted to the CW NICU between 1/1/2013-12/31/2015 with a developmental assessment by a general practitioner or neuropsychology evaluation between 3-6 years of age. Data extraction will include maternal history, neonatal and delivery factors, and developmental evaluation results. Descriptive statistics will be used to determine the proportion of patients with abnormal preschool development stratified by NICU diagnoses, surgical procedures, subspecialty involvement, and patient demographics. Decision tree analysis will be performed to generate a prediction model identifying those infants at higher risk than their peers for an abnormal developmental assessment at 3-6 years of age. **RESULTS/ANTICIPATED RESULTS:** Analysis to date reveals 1360 patients ≥34 weeks gestation admitted to the CW NICU between 1/1/2013-12/31/2015. 80 patients received neuropsychology evaluations and the remaining 1280 patients had general practitioner developmental assessments. We anticipate that those infants referred for neuropsychology evaluation will have a higher proportion of abnormal developmental assessments when compared to those patients with routine general practitioner assessments. In addition, we hypothesize that common neonatal factors among the infants who received neuropsychology assessments will best predict abnormal preschool development within the decision tree analysis. **DISCUSSION/SIGNIFICANCE:** This study is one of the first to define risk factors in full term and late preterm infants cared for in the NICU associated with abnormal preschool age development. Identifying these infants at high-risk early on will allow providers to initiate early developmental interventions, schedule close NICU follow-up care, and provide parental counseling.

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### Sociodemographic and clinical variation in rates of hospitalization for diabetic ketoacidosis

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**OBJECTIVES/GOALS:** Diabetic ketoacidosis (DKA) is a life-threatening complication of diabetes. Though largely preventable, DKA is one of the most common acute complications of diabetes. In the US, rates of DKA hospitalization and associated costs have been increasing over the past two decades. **METHODS/STUDY POPULATION:** In this study, we used the Kentucky Statewide Inpatient Database (2010-2019) and the Nationwide Readmission Database (2010-2018) to explore variation in rates of DKA hospitalization across key sociodemographic subgroups (age, sex, race/ethnicity, rural/urban, insurance coverage, and county-level poverty index) and identify clinical predictors of DKA hospitalization. The primary outcome was hospitalization with a first diagnosis of DKA identified using ICD-9 and -10 codes. Crude rates were calculated using state- and county-level population estimates obtained from the US Census Bureau and are presented as the total number of events per 10,000 people. Regression models will be used to examine the associations between DKA hospitalization and clinical predictors. **RESULTS/ANTICIPATED RESULTS:** In Kentucky, from 2010-2019, rates of DKA hospitalization increased by 45% (from 65.5 to 94.8 per 100,000). The largest variation was observed by age, race/ethnicity, and insurance. In those aged 15-44, rates of DKA hospitalization were three times higher than rates in the youngest (<15) and oldest (>75) groups (>130 vs <45 per 100,000). Non-Hispanic Blacks

experienced rates of DKA hospitalization that were 2x higher than rates observed in non-Hispanic Whites (183.9 vs 92.6 per 100,000). Those covered by Medicaid had the highest rates of DKA hospitalization (171.3 vs 32.4 per 100,000 in commercially insured). Small, but consistent, disparities were observed in rural vs urban counties and higher poverty rates. Predictors of DKA hospitalization are being examined in the Nationwide Readmission Database. **DISCUSSION/SIGNIFICANCE:** Our findings underscore significant variation in DKA risk across key sociodemographic subgroups and will examine and confirm previously identified clinical predictors of DKA. Because DKA is largely preventable, identifying individuals at higher risk and targeting interventions and services to these individuals may help reduce DKA rates.

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### Physical activity patterns in adolescents and young adults with intellectual and developmental disabilities<sup>\*,†</sup>

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**OBJECTIVES/GOALS:** Individuals with intellectual and developmental disabilities (IDD) have lower levels of moderate-to-vigorous physical activity (MVPA) and a greater risk for sedentary-related comorbidities compared to their typically developing peers. Understanding activity patterns may provide opportunities for targeted physical activity interventions. **METHODS/STUDY POPULATION:** Secondary analyses were performed on baseline accelerometer data pooled from 2 clinical trials and a pilot study in adolescents (11-17 years) and young adults (18-21 years) with IDD. MVPA was assessed using accelerometers worn on the non-dominant hip during waking hours over 7 consecutive days. Data were collected at 60 hertz and activity counts were aggregated over 60 second epochs. Wear time was determined with the Choi algorithm and MVPA was classified using the Troiano adult or Freedson age-specific child cut-points. Mixed effects linear regressions were used to determine the effects of day of the week, time of the day, and season on MVPA. Diagnosis, gender, and age were used as fixed effect covariates with random intercepts varying among the participants and days of observation within each participant. **RESULTS/ANTICIPATED RESULTS:** There were 231 individuals (15.6 ± 2.8 years, 51.5% female) who had IDD (36.8% Autism, 48.1% Down syndrome) with 22,498 minutes of MVPA. Individuals with IDD wore the accelerometers an average of 592 ± 254 min./day and completed 13.5 ± 17.9 min./day of MVPA. Average MVPA was lowest in individuals with Autism (12.6 ± 11.4 min./day) and Down syndrome (13.2 ± 9.3 min./day) when compared to those with other IDDs (16.8 ± 10.8 min./day). Participation in MVPA was similar in males (13.4 ± 10.7 min./day) and females (13.7 ± 9.9 min./day). Mixed effects linear regressions showed that individuals participated in fewer minutes of MVPA on the weekend ( $\hat{\beta} = -0.75$ ,  $p < 0.001$ ) and from 12-3 pm (reference) when compared to before 12 pm ( $\hat{\beta} = 0.87$ ,  $p < 0.001$ ) and 3-7 pm ( $\hat{\beta} = 0.66$ ,  $p = 0.007$ ). No significant seasonal effects were found. **DISCUSSION/SIGNIFICANCE:** Individuals with IDD were significantly less active on the weekend, but they did participate in more minutes of MVPA in the morning and late afternoon/early evening. Physical activity interventions aiming to increase MVPA on the weekend and during the early afternoon may increase the number of weekly minutes of MVPA in individuals with IDD.