RESULTS: Compared to controls, mice that received 200mM and 300mM butyrate in drinking water exhibited shallower SI crypts in the proximal, middle and distal regions of the intestine ($p<0.05$). No change in villus height was observed. CPI in butyrate-treated animals was higher than controls ($p<0.05$), although absolute number of BrdU-positive crypt cells did not differ.

CONCLUSION: Enteral butyrate supplementation causes shallowing of SI crypts without inhibiting proliferation in the intestinal stem cell compartment. Extrapolating from butyrate's effect in colonic epithelium, these data suggest that increased luminal butyrate promotes SI crypt cell loss, possibly via apoptosis. These findings support a link between the microbiome and SI epithelial proliferation that warrants further study.

Evaluation of 30-day Visits to the Emergency Department after Pediatric Ambulatory Surgical Procedures

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INTRODUCTION: Although 60% of procedures are conducted in ambulatory settings, quality and outcome metrics for ambulatory surgical care are lacking. We sought to examine the association of patient characteristics with 30-day returns to the Emergency Department (ED) following ambulatory procedures for children at either freestanding ambulatory surgery centers (ASC) or hospital-based outpatient settings (HOPS).

METHODS: We used the 2017 State Ambulatory Surgery and Services and State ED Databases from three states (Florida, New York, and Wisconsin) for patients ages 0-18 years, focusing on the top 16 procedures performed across ASC and HOPS. Bivariate analyses and multiple logistic regression modeling were used to examine risk factors for post-procedural ED visits.

RESULTS: A total of 153,768, 2,106,404, and 70,710 pediatric patients received a procedure in an ambulatory setting from Florida, New York, and Wisconsin, with respective return to ED event rates of 6.31%, 4.57%, and 6.06%. Minority race/ethnicity was a significant predictor for ED revisits in Wisconsin (Black) and in New York (Black, Hispanic) relative to Caucasian. Patients with Medicaid and lower zip code-based income were more likely to have ED revisits in all three states. Having a procedure done at an ASC (vs HOPS) was protective against ED revisit after adjusting for chronic conditions. Most common reasons for return to ED included post-procedural fever, respiratory symptoms (unspecified asthma or cough, URI), pain, or vomiting.

CONCLUSION: Minorities and publicly insured patients are more likely to have ED revisits following ambulatory surgical procedures.

Factors Affecting Increased Postoperative Opioid Prescriptions in Children

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INTRODUCTION: A major factor contributing to opioid dependence and addiction is over-prescription of opioids after surgery. Opioid prescriptions in teenagers in particular correlate with an increased likelihood of abuse and dependence in adulthood. This study evaluates what factors increase postoperative opioid prescriptions in children at our institution.

METHODS: We conducted a single-institution retrospective review of pediatric patients (<18 years) who underwent common pediatric surgical procedures from 2012-2019. Patients were excluded if discharged from a long-term ICU, hospital discharge >7 days postoperatively, conversion to major laparotomy, or chronic narcotic use. Univariate and multivariate analysis evaluated trends in opioid prescriptions with sub-analyses performed to evaluate the role of discharging service, patient age, obesity, and other factors.

RESULTS: 1865 cases met inclusion criteria. Mean age was 9.3 years, and average post-op stay was 1.5 days. 1157 patients (62.0%) were prescribed an opioid on discharge. As a discharge service, Pediatric Surgery prescribed significantly higher opioid doses than Pediatrics ($p<0.0001$) and PICU ($p=0.0001$), but less than Urology ($p=0.044$). 83.7% of patients older than 13 years (548/655) vs 50.3% of patients less than 13 years (609/1210) were prescribed an opioid ($p<0.0001$). The change in opioid prescription over time by age remained significant in multivariate modeling ($p<0.0001$). Obesity did not affect opioid prescriptions in appendectomy patients ($p=0.415$).

CONCLUSION: Several factors influence opioid prescription in postoperative pediatric patients, including age and discharging service. Variable prescribing patterns may benefit from implementation of practice guidelines, particularly in teenage patients.

Gastroschisis Prognostic Score Predicts High-risk Newborns with Gastroschisis in a Middle-income Country

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INTRODUCTION: The Gastroschisis Prognostic Score (GPS) stratifies patients as high or low-risk based on the visual assessment of intestinal matting, atresia, perforation, or necrosis shortly after

birth. Its applicability to low and middle-income settings remains unknown. This study aimed to validate the GPS as a prognostic tool in a public hospital within a middle-income country.

METHODS: With REB approval, we conducted a prospective study of all newborns with gastroschisis in a Brazilian neonatal public hospital from 2015-2019. Infants were stratified into low and high-risk cohorts based on the GPS. In addition to basic demographics, data collected included duration of parenteral nutrition (TPN), mechanical ventilation (MV), length of stay (LOS), sepsis, and mortality. Univariate and multivariate analyses were conducted to identify which outcomes the GPS independently predicted.

RESULTS: Sixty-one newborns with gastroschisis were treated in our center. The mean birth weight, gestational age, and 5' Apgar score were 2258g, 36weeks, and 9. Accordingly to the GPS, 24 infants (39.3%) were identified as low-risk and 37 (60.7%) as high-risk. The high-risk group presented with prolonged use of TPN ($p<0.001$), MV ($p<0.001$), and LOS (p:0.002). There was no association between GPS with sepsis or mortality in this study.

CONCLUSION: This is the first study that validates the GPS as a prognostic tool in a middle-income country. Several important outcome measures were predicted by the GPS allowing for better parental counseling and resource allocation. The GPS is a reliable tool that can be used in various resource settings.

Hepatitis B Vaccination Is Associated with Reduced Infectious Complications in Preterm Neonates

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INTRODUCTION: Sepsis remains a leading cause of mortality among preterm infants. Hepatitis B (HepB) vaccination has evidence of non-specific effects (NSEs) against heterologous infections. We hypothesized that early HepB vaccination in preterm neonates is associated with advantageous NSEs on infectious complications and mortality during primary admission.

METHODS: A single-center retrospective study of preterm neonates (<37-week gestational age) admitted to a 72-bed quaternary referral NICU from January 2015-January 2020 was performed. Patients were grouped as: 1) HepB vaccinated <48h after birth (n=69), 2) HepB vaccinated >48h after birth (n=65), and 3) unvaccinated gestational age-matched controls (n=47). Administered vaccines were consistent to all patients. Demographic and outcome data were collected and analyzed by one-way ANOVA and Chi Square.

RESULTS: There were 181 patients included. Cohort median gestational age was 35 weeks; 51% of patients were male. Early and late HepB vaccinated patients had a lower incidence of sepsis and necrotizing enterocolitis vs. controls [$X^2(2, N=181)=13.3$, $p<0.01$; $X^2(2, N=181)=7.87$, $p=0.02$, respectively]. HepB vaccinated groups also had lower in-hospital mortality [$X^2(2, N=181)=21.7$, $p<0.01$]. There were no significant differences in these outcomes between early and late vaccinated groups. No adverse events were attributed to vaccine administration.

CONCLUSION: HepB vaccination in preterm neonates is safe and associated with fewer infectious complications and lower in-hospital mortality. Given our sample size, there is insufficient evidence to support early vs late vaccination. HepB vaccination likely promotes heterologous immunity via NSEs. A larger prospective study is warranted to characterize optimal timing of vaccination and the significance of these preliminary findings.

Impact of Yearly Admission Volume Status on Pediatric Trauma Outcomes

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INTRODUCTION: Progressive lowering of pediatric age cutoffs has made it increasingly difficult for many Pediatric Level I Trauma Centers to meet the current 200 patients per year minimum admission volume required for recertification. This study hypothesizes that patient outcomes do not significantly differ between trauma facilities that admit 200+ and those that admit between 150 and 199 patients yearly.

METHODS: Data were analyzed from the 2014 NTDB for patients <15 years old who were admitted to a facility with both pediatric beds and trauma surgeons. Facilities were grouped based on yearly pediatric trauma patient admissions: ≥200 (Group 1), 150-199 (Group 2), <150 (Group 3). Patient outcome measures included mortality, complications, duration of mechanical ventilation (Vent Days), hospital length of stay (Hosp LOS), and pediatric intensive care unit LOS (PICU LOS). Statistical analysis included adjustment for patient injury severity (Injury Severity Score) and trauma mechanism (head injury, penetrating trauma).

RESULTS: No statistically significant differences were observed in any of the five patient outcomes between facilities that admit 200+ vs 150-199 cases/year.

CONCLUSION: Centers earning Level 1 status have demonstrated institutional resources and commitment to excellent pediatric