

uninsured, leading to decreased access to care and ability to attend HCV follow-up appointments. ED HCV screening programs are still in their infancy and have opportunities to improve their linkage to care rates. Additional interventions are needed to better connect patients screened positive in the ED to HCV specialist care, preserving equity across racial groups.

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### Assessing the Relationship between Resilience and Pain Catastrophizing in Patient Reported Outcomes following Total Knee Replacement

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**OBJECTIVES/SPECIFIC AIMS:** The aim of the present study is to explore the relationships between resilience, pain catastrophizing, and functional outcomes in pre-and post-operative TKR patients. The primary outcome is the ability of the Brief Resilience Scale (BRS) to predict function using the Knee injury and Osteoarthritis Outcome Score Joint Replacement (KOOS, JR.) and overall health on the Patient-Reported Outcome Measurement Information System Global Health (PROMIS GH). **METHODS/STUDY POPULATION:** Recruited patients will provide informed consent during in-person office visits. At the pre-surgery intake appointment, patients will provide demographic information and complete baseline questionnaires assessing resilience, pain catastrophizing, knee stiffness, pain, and function, and impression of overall health. In-person or electronic follow-up assessments will be administered post-surgery at 6-week, 3-month, and 6-month appointments. **RESULTS/ANTICIPATED RESULTS:** We aim to recruit 150 patients for this study. We do not expect a difference in sociodemographic characteristics of the patient sample. P-values will be based on t-tests and correlations calculated by comparing only non-missing values. Each outcome measure will be examined at each time point and trajectories will be calculated to determine the change in each outcome over time. Using latent class growth modeling we will examine individual change over time for each outcome (BRS, PCS, PROMIS GH, and KOOS JR.), and the association of resilience and pain with change in function (KOOS, JR. total score) and overall health (PROMIS GH). **DISCUSSION/SIGNIFICANCE OF IMPACT:** To our knowledge, this is the only known study that will compare resilience, pain catastrophizing and longitudinal health outcomes in a single paradigm. Results will hopefully inform the design and implementation of future studies that will assess the impact of preoperative treatment of vulnerable patients. The ultimate goal is to improve functional recovery by using pre-identified psychological constructs as intervention points. Ideally, the same measures would be implemented, however, details of this plan will be established following completion of this study.

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### Association of ancestral genetic admixture and obesity at 12 months of age

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**OBJECTIVES/SPECIFIC AIMS:** We intended to investigate the relationship between children's genetic admixture proportions and the incidence of obesity at 12 months of age **METHODS/STUDY POPULATION:** 821 twelve month old children were included and

their genetic admixture was estimated using the ancestry and kinship toolkit (AKT). Weight for Length Percentile (WFLP) at 12 months of age was categorized as <95<sup>th</sup> percentile and ≥95<sup>th</sup> percentile. Multiple logistic regression analysis was performed to calculate odds ratios (ORs) with 95% confidence intervals (CIs) for association of admixture proportion including EUR, AMR, AFR, EAS and SAS with WFLP categories adjusting for maternal education, birth weight, frequency of breast feeding and juice consumption **RESULTS/ANTICIPATED RESULTS:** 821 children were included; WFLP <95<sup>th</sup> percentile = 671 (81.7%) and WFLP ≥95<sup>th</sup> percentile = 150 (18.3%). Crude odds ratios showed EUR admixture was protective (OR 0.45 (95% CI 0.27–0.74)) whereas AMR (OR 3.85 (95% CI 1.92 –7.70)) and AFR (OR 5.70 (95% CI 2.19 –14.85)) were positively associated with obesity. After adjusting for confounding variables, only AFR was associated with WFLP≥95<sup>th</sup> (OR 7.38 (95% CI 2.31 – 23.59)), AMR and EUR were no longer associated with WFLP≥95<sup>th</sup> **DISCUSSION/SIGNIFICANCE OF IMPACT:** The AFR admixture proportion remains associated with early childhood obesity after accounting for confounding variables, suggesting the ancestral genetic background may contribute to the differences seen in early childhood obesity

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### Asthma and Depression in Children: the Role of Family Structure

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**OBJECTIVES/SPECIFIC AIMS:** Our objective is to examine the relationship between depression, childhood asthma and family structure. **METHODS/STUDY POPULATION:** We analyzed data from The National Survey of Children's Health 2011-2012 for the variables family structure, parent's smoking, education, poverty, available emotional support, and children's age, gender, race/ethnicity, asthma, physical/mental health, access to care, and insurance. Data were analyzed using multiple logistic regression in STATA 14 (sampling and weight). **RESULTS/ANTICIPATED RESULTS:** Of the 95,000 participants, 3.8% had depression, 5.1% had anxiety, 8.5% had emotional, developmental, or behavioral problem, 14.6% had asthma and 19% were single-parent family. Asthmatics had higher chance for depression relative to non-asthmatics (Adjusted Odds Ratio (AOR)=1.5, 95% confidence interval (CI)=1.2-1.8, p=0.001). Those living in a single-family home had higher chance for depression than those living in 2-parents homes (AOR=2.5, 95% CI=1.9-3.2, p=0.001). Other predictors were lack of emotional support, age, poverty <100%, poor health, and smoking parent (p<0.05). **DISCUSSION/SIGNIFICANCE OF IMPACT:** We concluded that depression was associated with asthma in children from poor single family who lack an emotional support. Management of asthma should include screening and management of psychosocial factors.

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### Bowel Ischemia after Continuous Flow Ventricular Assist Device Therapy: A Single Center Analysis

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**OBJECTIVES/SPECIFIC AIMS:** The purpose of the study was to describe patient characteristics associated with subsequent

development of bowel ischemia. Primary outcomes were survival to discharge, 30-day and 1-year survival in patients with LVAD who subsequently develop bowel ischemia. Secondary outcomes included characteristics of patients who survive to discharge after bowel ischemia and those who do not. These included markers of patient condition prior to surgical/endoscopic intervention such as lactate levels, ICU admission, ventilator dependence, vasopressor and renal replacement requirements, as well as presence of sepsis. Of these, we predicted that lactate levels and white blood cell count would be significantly elevated pre- and post-operatively in patients who do not recover from bowel ischemic event. We used Mann-Whitney U Test to examine lactate levels between the two groups as our sample size was <30 and therefore necessitated the use of non-parametric testing. METHODS/STUDY POPULATION: In this single-center retrospective study, we analyzed all patients who underwent durable, CF-LVAD implantation at Duke University Medical Center (DUMC) between January 2008 and November 2018. Patients were screened using CPT codes for abdominal surgical exploration or ICD codes for intestinal vascular insufficiency. Final cohort was selected with confirmed diagnosis of intestinal ischemia based on surgical exploration or endoscopic intervention. Patient characteristics including pre-LVAD comorbidities, indication for LVAD implant, and clinical picture prior to bowel ischemic event were collected. Specific characteristics related to bowel ischemia were summarized, including diagnostic imaging, time from imaging study to operative intervention, and intraoperative details. Patient outcomes including survival to discharge, 30-day-, and 1-year survival were summarized. Patients were stratified based on survival to discharge status. Continuous variables were reported as median and interquartile range and compared using Mann-Whitney U test. Categorical variables were reported as proportions and compared using Fisher's exact test as appropriate. RESULTS/ANTICIPATED RESULTS: A total of 754 patients underwent durable, CF-LVAD implant at DUMC, of which 21 subsequently developed intestinal ischemia (incidence 2.8%). The majority were male (81%) and treated as destination therapy (76.2%). Ten patients (50%) survived to discharge (one remains hospitalized). The proportions of patients receiving HeartMate II (60% vs. 50%,  $p=1.0$ ), HeartMate III (20% vs. 10%,  $p=1.0$ ), and HeartWare (20% vs. 40%,  $p=0.6$ ) were not significantly different between patients who survived to discharge and patients who did not. Median time from LVAD implant to diagnosis of bowel ischemia did not vary significantly between the patient groups (11.5 days, IQR 34.75 vs. 16.5 days, IQR 173.8;  $p=0.40$ ), nor did the median time from diagnosis to surgical intervention (264.5 minutes, IQR 497.8 vs. 323 minutes, IQR 440,  $p=0.82$ ). In the 48 hours leading to diagnosis and intervention, renal replacement therapy (50% vs. 0%,  $p=0.033$ ) was more prevalent in patients who did not survive to discharge. Differences in pre- and post-operative lactate levels were not significantly different in patient groups. A similar pattern of diagnostic study preference emerged from both groups, with CT being the most common (76.2%) followed by KUB (42.9%). Upper endoscopy/colonoscopy was performed in 7 patients (33.3%), of which 5 also had operative exploration. A total of 19 patients underwent abdominal exploration (90.5%). Nine had large bowel resection (42.9%) while 14 had small bowel resection (66.7% with average 75cm removed). Overall survival at 1-year was 33%. For those making it to discharge ( $n=10$ ), one year survival was 60%. DISCUSSION/SIGNIFICANCE OF IMPACT: This is the first institutional study to our knowledge to describe intestinal ischemia in patients receiving CF-LVAD therapy. Intestinal ischemia in patients receiving CF-LVAD therapy is associated with high mortality and morbidity. Diagnosis of bowel ischemia should be considered in patients

presenting with clinical symptoms of bowel ischemia in addition to requirement of renal replacement therapy. Imaging modalities used were dependent on the clinical situation and were not always necessary prior to intervention. Further investigation is warranted to identify predictors of this morbid complication.

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### Breast Cancer Surgical Management: Novel Surgical Trends, Appropriate Axillary intervention, and associated Complications

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OBJECTIVES/SPECIFIC AIMS: Treatment of breast cancer surgery can be classified into two overall groups: Breast-Conserving Therapy (BCT) (including partial mastectomy (PM) and oncoplastic surgery (OS)) and MAST (including mastectomy (M) and M with breast reconstruction (M+R)). Breast reconstruction (OS or M+R) offers patients an improved quality of life by aesthetically symmetric breast, higher patient satisfaction and reduced re-excision rates. Furthermore, subgroups of M+R, mastectomy with implant placement (M+I) has doubled to 21%, meanwhile mastectomy with muscular flap reconstruction (M+MF) has declined to only 2% of overall breast cancer intervention. Furthermore, in patients with ductal carcinoma in situ (DCIS), published national guidelines recommend that sentinel lymph node biopsy (SLNB) should be offered when treated with M and should not be offered when treated with BCS. Overall complication rates for breast cancer surgery vary depending on short-term or long term outcome but are approximately 2-40%. Mortality and overall morbidity are overall low in less than 5% of cases. Known wound or infectious complications have been associated with smoking, radiation, obesity and diabetes. Nevertheless, other patient comorbidities and surgical predictors influencing acute postoperative complications are contentious. Single institutional studies or reviews compared single or two groups of breast cancer interventions for post-operative complication rates. Few studies with large enough patient cohort to analyze all possible variables influencing post-operative acute complications following all breast cancer surgeries. Understanding surgical complications is crucial to patient safety and improving health outcomes. Therefore, this study examines the 30-day postoperative complication rates in breast cancer patients who underwent a PM, M, M+R, or OS. Using the NSQIP database, we aim to elucidate these surgical trends and complications trends, while expanding our understanding of predictive surgical factors. We also examined appropriate axillary management associated with surgical interventions between 2005 and 2016. METHODS/STUDY POPULATION: A retrospective cohort analysis was conducted using the ACS-NSQIP database from 2005 to 2017. All participant user files (PUF) were obtained and approved by ACS NSQIP. The Tufts Medical Center Institutional Review Board deemed this study exempt from institutional review, given ACS NSQIP database is a de-identified data set. Inclusion criteria for this study were women with classified post-operative diagnosis of invasive breast cancer (IBC) or ductal carcinoma in-situ (DCIS) breast cancer who underwent either any BCT or any MAST procedure. Post-operative diagnosis was classified according International Classification of Diseases Ninth/Tenth Revision (ICD-9/10) code for IBC or DCIS. Surgical (M, PM, OS, M+R) and axillary lymph node categorization were done using CPT codes known for each intervention. Exclusion criteria included males, benign breast surgery, surgery for benign