determinants of health of populations at risk; this information is currently not available in electronic health records (EHR) but we show that it could be accessed by linking area deprivation index to EHR. OBJECTIVES/GOALS: To inform care delivery and policy, health care systems are studying ways of improving social determinants of health (SDoH) in patients with chronic disease such as diabetes (DM). Our goal was to better characterize the SDoH of a cohort of DM patients by using the area deprivation index (ADI). METHODS/STUDY POPULATION: Our study population included DM patients seen in primary care practices in 2013-2017. We integrated ADI levels to data extracted from electronic health records (EHR). ADI ranks neighborhoods by socioeconomic status calculated from income, education, employment and housing quality. ADI has 10 levels that we grouped into 5 categories of 2 levels. Addresses were geocoded using ArcMap to obtain census block groups information. We used multivariable logistic regression to calculate odds ratios (OR) and 95% confidence intervals [], with diabetic complications as a binary dependent variable, ADI levels as the exposure, and demographics, smoking status and number of comorbidities as confounders. RESULTS/ANTICIPATED RESULTS: Our study population included 8,558 patients: 56% were female, 61% white, 31% black, 28% were on Medicare, 66% on commercial insurance, median age was 55 years, 57% never smoked, 10% had no comorbidities, 42% had 3 or more comorbidities, and 37% developed diabetic-related complications. After evaluating collinearity and adjusting for confounders, our multivariable analysis showed that worsening ADI was associated with higher likelihood of complications. Compared to ADI level 1&2 (least disadvantaged), the ORs for patients residing in neighborhoods with ADI levels 3&4, 5&6, 7&8, 9&10 (most disadvantaged) were respectively 1.01 [0.88-1.16), 1.20 [1.04-1.39], 1.15 [0.99-1.33], 1.30 [1.11-1.52]. DISCUSSION/SIGNIFICANCE OF FINDINGS: Neighborhood ADI could provide precious information to health care providers when associated to the EHR. We found that neighborhoods with ADI level 9&10, which is not collected in the EHR, was significantly associated with a higher burden of disease. ADI could serve as a proxy for evaluating SDoH.

78595

Assessing the influence of comorbidities in patients undergoing sternal reconstruction following cardiac surgery: a single institution's 15 year review

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ABSTRACT IMPACT: Current practice guidelines offer a variety of treatment options for sternal reconstruction but complications and infections remain a serious surgical problem. This work seeks to provide a comprehensive picture of the com-morbidities and reconstructive methods that lead to success and improve patient outcomes. OBJECTIVES/GOALS: Patients that undergo cardiac surgery via the median sternotomy approach are at risk of wound complications that require repair. We seek to evaluate how outcomes of sternal reconstruction are influenced by patient comorbidities, flap usage and internal mammary artery grafts and methods of sternal closure. METHODS/STUDY POPULATION: We identified patients between 2005 and 2020 who underwent sternotomy followed by debridement and flap coverage at our institution. Comorbidities, method of reconstruction, demographic data, surgical history, and other factors pertaining to mortality and morbidity were collected. The data will then be analyzed to identify population characteristics using logistic regression variables to determine univariate and adjusted multivariable measures of association with mortality. We present the pre-liminary data analyzed using chi-square and one-way anova in R. RESULTS/ANTICIPATED RESULTS: In this study we present a preliminary characterization of one institution's sternal reconstruction patient outcomes with a variety of reconstruction methods including pectoralis advancement flaps, omental flaps and latissumus dorsi flaps. Notable preoperative comorbidities include 50% of patients > age 60, 18% with diabetes mellitus, 18 % with diagnosed hypertension, 18% with COPD, and 9% with a smoking history DISCUSSION/SIGNIFICANCE OF FINDINGS: In an evolving cardiothoracic landscape, clinical characteristics of patients being treated for sternal reconstructive surgery present a moving target. Understanding current risk factors, preoperative management and timing for aggressive surgical treatment offers an opportunity to update treatment protocol and maximize successful outcomes.

93137

Interrogating cardio-protective MTSS1 variants in human populations*

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ABSTRACT IMPACT: It is our hope that a better understanding of the relationship between genetic variants that influence heart failure precursor traits will not only inform clinical care, but enable better assessment of inherited risk and will identify new biological targets for drug development. OBJECTIVES/GOALS: In this project, using a large-scale human genomic dataset with extensive phenotype data available, we intend to interrogate the known MTSS1 variants that have been associated with heart failure (HF) in previous GWAS studies in order to understand the directionality and mechanisms of their effects. METHODS/STUDY POPULATION: Data was obtained from the UK Biobank, a large prospective cohort of ~500,000 patients across the United Kingdom with extensive phenotype data, including ~50,000 patients with cardiac MRI and ~200,000 with whole exome sequencing. We test for associations between genetic variants at the MTSS1 locus and HF precursor traits using logistic regression or linear regression, adjusting for age, gender, and principal components (PCs) of ancestry. For rare variant analyses we 'bin' rare variants (MAF < 0.01) using the software tool BioBin to aggregate low frequency genetic variants into single genetic units. RESULTS/ANTICIPATED RESULTS: Preliminary data have shown that variants in the known MTSS1 enhancer region which reduce MTSS1 expression are associated with smaller, more contractile hearts. We anticipate that common variants known to reduce enhancer activity will attenuate heart failure precursor traits, will be associated with a reduced risk clinical heart failure, and will favorably impact clinical outcomes once HF is established. We also anticipate that rare exonic variants predicted to impair MTSS1 function

will attenuate heart failure precursor traits. DISCUSSION/ SIGNIFICANCE OF FINDINGS: Through this work, we intend to take advantage of multiple novel approaches to better understand a complex disease process, identify a new potential therapeutic target (namely one that targets cardiac function), and to determine which patient subgroups will benefit from this our therapeutic interventions and why.

95871

Mortality in Castration-Resistant Prostate Cancer Patients with Pre-existing Cardiovascular Comorbidities Receiving Oral Androgen Signaling Inhibitors

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ABSTRACT IMPACT: Limited research has been conducted on the survival of men with castration-resistance prostate cancer (CRPC) with a pre-existing history of cardiovascular disease, receiving oral androgen signaling inhibitors. This study highlights all-cause and prostate cancer-specific mortality for elderly patients with CRPC with pre-existing history of cardiovascular disease. OBJECTIVES/GOALS: Inadequate knowledge is known about the survival of men with castration-resistance prostate cancer (CRPC) with pre-existing history of cardiovascular disease (CVD), receiving oral androgen signaling inhibitors (OASI). We compared all-cause and prostate cancer-specific mortality for elderly patients with CRPC with pre-existing history of CVD. METHODS/STUDY POPULATION: An active comparator, new user design, was used to identify 2,608 men older than age 65 years with CRPC using the Surveillance, Epidemiology, and End Results (SEER)-Medicare linked database from 2011 to 2015. Patients were grouped into two analytical cohorts by CVD history. Within each analytical cohort patients were divided into two arms based on their new-user status (OASI vs. chemotherapy). All demographics and clinical characteristics were adjusted by inverse probability treatment weights (IPTWs). Unadjusted and IPTW-adjusted time-dependent Cox models, and Fine and Gray's models were conducted to evaluate associations between OASI and all-cause and prostate cancer-specific mortality. RESULTS/ANTICIPATED RESULTS: Nearly 64.5% of patients had pre-existing CVD. We observed a lower all-cause mortality in the pre-existing CVD cohort compared to the no pre-existing CVD cohort (IPTW-adjusted hazard ratio [AHR], 0.59; 95% Confidence Interval [CI], 0.54 to 0.64; IPTW-AHR, 0.68; 95% CI, 0.59 to 0.78, respectively). Similarly, the prostate cancer specific-mortality was showed to be lower in the pre-existing CVD cohort compared to the no pre-existing CVD cohort when comparing OASI versus chemotherapy by the IPTW-adjusted time-dependent Fine and Gray's models (IPTW-AHR, 0.60; 95% CI, 0.55 to 0.66; IPTW-AHR, 0.68; 95% CI, 0.59 to 0.80, respectively). DISCUSSION/SIGNIFICANCE OF FINDINGS: OASI showed a significant protective effect against all-cause and prostate cancer-specific mortality compared with chemotherapy; however, were less protective among patients without pre-existing CVD. Further studies are needed to investigate OASI in patients with and without pre-existing CVD.

98179

Identifying Low-Value Care Across A Statewide Health System: Collaboration Between Quality, Population Health, Informatics, and Health Services Research

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ABSTRACT IMPACT: This project demonstrates that addressing low-value care, which has the potential to cause patient harm, relies on novel data tools and collaboration between health system and research stakeholders. OBJECTIVES/GOALS: Reducing low-value care, or patient care that offers no net benefit in specific clinical scenarios, is an important approach to improving value as it can simultaneously lower health care spending and improve quality. We describe an initiative to identify such care in a large statewide employer. METHODS/STUDY POPULATION: Claims data for self-funded University of California (UC) Preferred Provider Organization (PPO) plan members during 2019 were abstracted from the University of California Health (UCH) Clinical Data Warehouse, a unique central database that includes electronic medical record data from >5 million patients across UC medical campuses and all claims from UC self-funded health plans. UCH spans six academic health systems across California. The Milliman MedInsight Health Waste Calculator, a proprietary algorithm-based software tool, was used to identify low-value care and estimate associated spending. The HWC measures 48 low-value services using recommendations from the Choosing Wisely Campaign, the US Preventive Services Task Force, and other clinical specialty guidelines. RESULTS/ANTICIPATED RESULTS: Of 43,882 members of the UC PPO, 11,174 (25.4%) received at least one low-value service. The HWC identified 50,103 eligible services and classified 35% as low-value. Total spending on low-value services ranged between $2,209,516 and $5,089,866, based on a more or less conservative estimate. Across the five sites, the proportion of low-value services ranged from 31% to 39%. Five services comprised 65% of costs from low-value care: annual EKGs, preoperative baseline labs for low-risk surgeries, vitamin D deficiency screening, imaging for eye disease, and headache imaging. The top five services by order frequency were annual EKGs, vitamin D tests, preoperative labs, antibiotics for upper respiratory infections, and imaging for eye disease. DISCUSSION/ SIGNIFICANCE OF FINDINGS: Low-value care is prevalent and costly within a large statewide employer. Collaborative multidisciplinary partnerships between employers, health systems, informatics, and researchers can leverage existing data to identify opportunities for improving the value of care for covered populations.

Digital Health/Social Media

38029

Helping Patients with Chronic Conditions Overcome the Challenges of High Deductible Health Plans

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ABSTRACT IMPACT: With a growing number of Americans enrolled in high-deductible health plans, patients, especially those