guidance, 48% harbor PGx variants and are taking medications affected. In 10% of participants, pharmacists sent an active alert to the provider to consider/ recommend alternative medication. Most commonly impacted medications included antidepressants, NSAIDS, proton-pump inhibitors and tramadol. To enable the EMR integration of genomic information, we have developed an automated transfer of reports into the EMR with Genetics Reports and PGx reports viewable in Cerner. DISCUSSION/ SIGNIFICANCE: We share our experience on pre-emptive implementation of genetic risk and pharmacogenetic actionability at a population and clinic level. Both patients and providers are actively engaged, providing feedback to refine the return of results. Real time alerts with guidance at the time of prescription are needed to ensure future actionability and value.

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The Effects of PTSD-Dependent Neurogenic Hypertension and Inflammation on Thoracic Aortic Aneurysm Progression*

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OBJECTIVES/GOALS: Nearly all thoracic aortic aneurysm patients suffer from hypertension leading to elevated wall tension and abnormal extracellular matrix remodeling. PTSD patients have higher blood pressure both at rest and in response to stimuli. Although stress is associated with cardiovascular disease, the exact mechanism linking the two is still unknown. METHODS/STUDY POPULATION: Adult C57BL/6 mice underwent a PTSD induction protocol consisting of inescapable foot shock followed by single prolonged stress. The mice were assessed incrementally for their PTSD-like phenotype using specific behavioral tests chosen to assess for each of the human criteria of PTSD according to the DSM-V. Tail cuff blood pressure measurements were taken serially throughout the 16-week protocol. At terminal study, thoracic aortic diameter measurements were obtained through digital microscopy and plasma was harvested for cytokine analysis. Thoracic aortic aneurysms (TAA) were induced through periadventitial application of a calcium chloride solution on the descending thoracic aorta in BPH/2J and BPN/3J adult mice. The thoracic aortic diameter was measured at terminal study through digital microscopy. RESULTS/ANTICIPATED RESULTS: Using our PTSD-like mouse model we have demonstrated that PTSD-like mice have significantly higher systolic blood pressure following a reminder of the traumatic event than control mice recapitulating the human phenotype. They also had increased plasma proinflammatory cytokines and larger thoracic aortic diameters than control mice. Although the increased thoracic aortic diameter is not an aneurysm, it suggests ECM remodeling is occurring predisposing the aorta to aneurysm formation. Finally, we have shown that in neurogenic hypertensive mice, TAA formation was accelerated by 12 weeks with roughly 70% dilation at 4 weeks post-TAA induction surgery as compared to roughly a 20% dilation in control mice. DISCUSSION/SIGNIFICANCE: Altogether, these studies reinforce the link between stress and TAA development, and our mouse model will allow for the underlying mechanism to be elucidated. Better understanding of the mechanism linking PTSD and TAA will allow for the creation of novel therapeutics to treat PTSD symptoms while also delaying TAA progression.

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The Impact of Critical Social Determinants of Health on Personal Medical Decisions: Analysis of Older Americans in All of Us

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OBJECTIVES/GOALS: A growing number of older adults in the United States have multiple social determinants of health (SDoH) that are barriers to effective medical care. We used generalizable machine learning methods to identify and visualize subtypes based on participant-reported SDoH profiles, and their association with delayed medical care (self-reported yes/no). METHODS/STUDY POPULATION: Data. All participants aged >=65 in All of Us with complete data on 18 SDoH self-reported variables, selected through consensus by 2 experienced health services researchers, and guided by Andersen's behavioral model. Covariates included demographics, and the outcome was delayed medical care . Cases (n=4090) consisted of participants with at least one of the 18 SDoH variables, and controls (n=7414) consisted of participants with none of them. Method. (1) Used bipartite network analysis and modularity maximization to identify participant-SDoH biclusters, and visualize them through ExplodeLayout. (2) Used multivariable logistic regression (adjusted for demographics and corrected through Bonferroni) to measure the odds ratio (OR) of each participant bicluster to the outcome, compared with the controls. RESULTS/ANTICIPATED RESULTS: The analysis identified 7 SDoH subtypes (https://postimg.cc/Vd7Pg4xZ) with statistically significant modularity compared with 100 random permutations of the data (All of Us=.51, Random Mean=.38, z=20, P DISCUSSION/SIGNIFICANCE: The results identified 7 distinct subtypes based on SDoH profiles and their risk for delayed medical care, highlighting the importance of addressing specific combinations of barriers, with affordability having the highest risk. Furthermore, the analytical methods used are generalizable and have been made publicly available on CRAN and All of Us.

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The Implications of High Expression of VISTA, a Negative Check Point Regulator, on Prognosis Across Malignant Solid Tumors: a Systematic Review and Meta-Analysis*

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OBJECTIVES/GOALS: Targeting the V-domain immunoglobulin suppressor of T cell activation (VISTA) signaling pathway has been suggested as a promising approach for overcoming resistance to current immune checkpoint therapies in advanced cancer. This review will synthesize the rapidly-expanding literature on VISTA protein expression on prognosis in various cancers. METHODS/STUDY POPULATION: To determine the prognostic significance of high VISTA expression across treatment-naÃ¯ve malignant tumors, a systematic review and meta-analysis will be performed of published

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