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Abstract submission

Title: Consumer data and risk stratification for Coronary Heart Disease

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Introduction: Throughout the healthcare delivery system, there is an increasing focus on risk stratification for individual patients or patient populations. Many current risk models rely exclusively on outcome data to predict future outcomes. Incorporating consumer transaction history, generally referred to as “consumer data,” within existing risk models may offer additional information on behavioral, economic or social factors that create or enable risk for adverse outcomes.

Methods: Population outcome data from the Centers for Disease Control & Prevention (CDC) 500 Cities project were merged with American Community Survey (ACS) population economic and housing data. Data were merged using FIPS code. Logistic regression with L1 regularization were used to run two prediction models: 1. an outcome only model (base) and 2. An outcome + consumer data model (full). CHD prevalence (high vs. low) was the dependent variable.

Results: The AUROCs for the base and full model were 0.892 and 0.953, respectively. There was no statistically significant difference between the AUROCS (p=0.195). In both models, LASSO selected COPD, diabetes, and hypertension prevalence’s, low cancer and arthritis prevalence’s, along with low insurance coverage. In addition, the full model selected adjusted median income and households with access to cars.

Discussion: While the base and full models did not differ significantly in prediction, this analysis provides justification for the importance of population consumer data in prediction models for CHD prevalence. The use of ACS data as a source for population consumer data is limited. Future research should identify more robust sources of population consumer data.

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