

## **Social Determinants of Health Associated with Inpatient Admissions for Congestive Heart Failure, Diabetes, Chronic Obstructive Pulmonary Disease, and Asthma**

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**Introduction:** The CDC and American Lung Association estimate that congestive heart failure (CHF), diabetes, chronic obstructive pulmonary disorder (COPD), and asthma (COPD/asthma) cost Americans \$30.7 billion, \$327 billion, and \$50 billion respectively each year. They account for most inpatient readmissions at St. Mary Medical Center (SMMC), an urban hospital in Northwest Indiana. There is need for further research on the social, behavioral, and demographic determinants associated with these conditions. This study examined the social, behavioral, and demographic determinants associated with inpatient admission for CHF, diabetes, COPD/asthma in SMMC's service area.

**Methods:** This retrospective study was part of a multi-phased Community-Based Participatory Research partnership between SMMC and Indiana University School of Medicine Northwest. SMMC implemented a pilot screening and referral program to assess social determinants of health in their service area as part of their Hospital Readmission Reduction Program. This study included data from 10,953 inpatient admissions between January 2021 to March 2023, majority of whom were transferred from the emergency department. Data analysis consisted of univariate, bivariate (Chi-square), and multivariate (binary logistic regression) analysis in SPSS 29.0.

**Results:** Bivariate analysis revealed a statistically significant association between CHF and smoking, age, insurance type, and income. Diabetes was significantly associated with smoking, smokeless tobacco use, age group, race, income, and sex. COPD/asthma was significantly associated with smoking, age group, transportation needs, stress, insurance, ethnicity, and sex. Multivariate analysis found the following significant associations: age group with both CHF ( $p < 0.001$ ) and diabetes ( $p < 0.001$ ), former smoking with both CHF ( $p = 0.007$ ) and COPD/asthma ( $p = 0.049$ ), current smoking with COPD/asthma ( $p = 0.016$ ), and sex with diabetes ( $p < 0.001$ ).

**Conclusions:** These findings indicate significant associations between multiple socio-behavioral factors and admission for CHF, diabetes, COPD/asthma. Multi-risk-factor interventions may address these interactions and contribute to reducing readmission.