**Abstract title**: Increase in the hospital readmission rate among heart failure patients in a population-based study.

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**Introduction:**  Readmission of patients who are discharged alive with a diagnosis of heart failure (HF) is common and associated with high mortality and financial burden. However, the time trends of readmission, cardiovascular (CV) mortality and all-cause death have not been adequately explored.

**Hypothesis:** We hypothesize that the rate of HF readmissions increased during the study period while the rate of CV mortality decreased.

**Methods:**  This study includes 89,738 patients who were discharged alive with a first diagnosis of HF between January 1st2000, and December 31st2014. Data were obtained from the Myocardial Infarction Data Acquisition System (MIDAS), a statewide database of all hospitalizations for CV diseases in New Jersey with longitudinal follow-up for more than 20 years. HF was identified by ICD-9 code 428.xx, and CV mortality (ICD-10-CM codes from I00 to I78). The temporal trends in the rate of HF specific and all-cause readmission as well as CV and all-cause mortality at 30-days, 90-days, 180-days and 1-year were examined using multivariable logistic regression models.

**Results:** Data analysis identified male gender, black race, Medicare/Medicaid, history of MI, chronic obstructive pulmonary disease, diabetes, hypertension, stroke, admission to hospital without cardiac catheterization lab facility or located in inner city and non-teaching hospitals (p<0.001 for all) as important predictors of HF readmission. Age, male gender, length of stay, history of MI, anemia, COPD, hypertension, stroke, and hospitalization in non-teaching hospital were associated with CV mortality (p<0.001 for all). The rate of HF readmission increased during the study period (p<0.001) while the rate of CV mortality remained relatively unchanged.

**Conclusion:** Rate of CV mortality among HF patients did not change significantly between 2000 and 2014 while rates of readmission have increased for the same period. This tendency is probably due to comorbidities, patient and family attitudes, diagnostic criteria and payer mix.