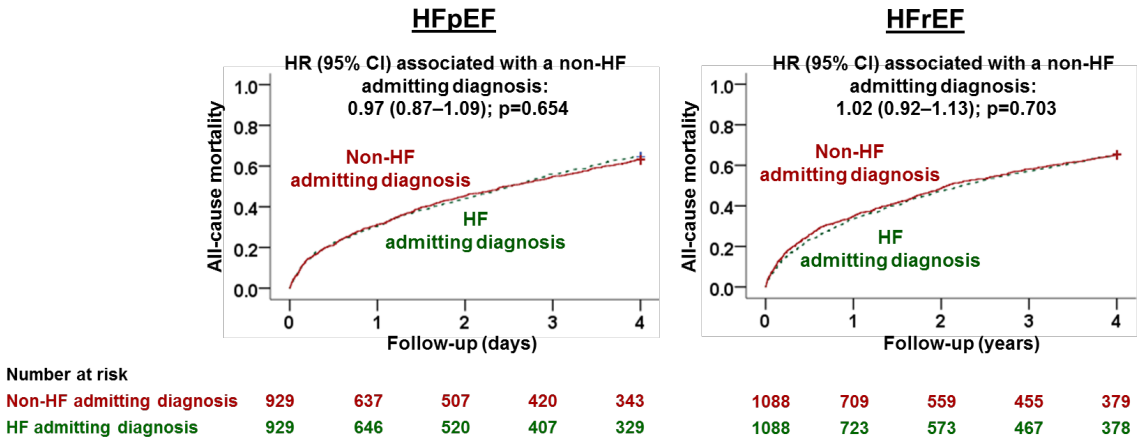
Title: Non-Heart Failure Admitting Diagnosis and Outcomes in Older Patients with Heart Failure with Preserved and Reduced Ejection Fraction (HFpEF and HFrEF)

Background: Heart failure (HF) is a clinical syndrome and can be difficult to diagnose. A missed diagnosis during hospital admission may delay initiation of HF management.

Methods: In Medicare-linked OPTIMIZE-HF, of the 8837 hospitalized patients with HFpEF (EF≥50%) and a principal discharge diagnosis of HF, 967 (11%) had a non-HF admitting diagnosis. Propensity scores for non-HF admitting diagnosis, estimated for each of the 8837 patients, were used to assemble a matched cohort of 929 pairs of patients with and without admitting diagnosis of HF (mean age, 78 years; 67% women; 12% African American). We replicated the process with 10,577 patients with HFrEF (EF≤40%) to assemble a matched cohort of 1088 pairs of patients (mean age, 75 years; 42% women; 15% African American).

Results: HRs (95% CIs) for 4-year all-cause mortality associated with a non-HF admitting diagnosis were 0.97 (0.87–1.09; p=0.654) and 1.02 (0.92–1.13; p=0.703) for matched patients with HFpEF and HFrEF, respectively (**Figure**). Respective HRs (95% CIs) for HF readmission were 0.82 (0.70–0.95; p=0.009) and 0.87 (0.77–0.98; p=0.022). There was no association with all-cause readmission. None of the outcomes were significant at 30 days in either matched HF cohorts.

Conclusion: In hospitalized patients with HFpEF and HFrEF who had a principal discharge diagnosis of HF, a non-HF admitting diagnosis was seen in more than 1 in 10 patients, and had no association with short-term outcomes, but was associated with a lower risk of HF readmission at 4 years.



Number at risk										
Non-HF admitting diagnosis	929	637	507	420	343	1088	709	559	455	379
HF admitting diagnosis	929	646	520	407	329	1088	723	573	467	378

Figure. Kaplan Meier plots for all-cause mortality in propensity score-matched patients with heart failure and preserved ejection fraction (left panel) and reduced ejection fraction (right panel), by admission diagnosis of heart failure vs. others