Background
Heart failure (HF), a chronic condition, represents a significant health burden to the United States; about 5.1 million people in the US suffer from heart failure. Tragically about half of people who develop heart failure die within 5 years of diagnosis.1 Heart failure costs the nation an estimated $32 billion each year.2 Daily weight monitoring may improve care plan compliance and clinical outcomes for those with heart failure, whose weight gain can be related to fluid retention.3,4 This HF daily health monitoring program was designed to test an early alert process to ensure timely interaction between HF patients and their care team; improve condition-related staff efficacy, treatment adherence and related clinical outcomes.

Objectives
To measure the impact of a health plan’s HF remote monitoring program on related healthcare utilization and clinical outcomes.

Methods
Study Design: Historical, cohort, with a propensity score matched comparison group
Study Period: June 1, 2017 to August 31, 2017 (program ongoing)
Data Source: Web-based application programming interface (i.e., a real-time display of program participant weight), and medical claims.

Study Sample: A total of 490 persons with Medicare Advantage health plan coverage from Humana Inc., 245 patient program participants from 7 primary care clinics; 245 individuals selected for the comparison group based propensity score matching.

• Eligibility: Age 65 and older, heart failure diagnosis stage D, stroke, Type 2 diabetes, or hospice utilization, ability to comprehend and perform program instructions.

• Propensity Score Matching Characteristics: Age, sex, HF stage, behavioral health conditions, Alzheimer’s/dementia, depression, arthritis, chronic obstructive pulmonary disease, angina, acute myocardial infarction, evidence of stroke, diabetes, obesity, a variety of health index scores (e.g., Charlson Comorbidity Index), provider type and location.

Program:

- Weigh-ins: Patient participants were asked to weigh themselves daily (i.e., approximately the same time each day) at home with their cellular enabled scale.

- Weight alerts: Initial and failed weigh-ins, and rapid weight change sent real-time alerts to the care team.

- Interventions: The care team responded (same day) to alerts by phoning the patient at home, assessing the patient’s needs, and providing the appropriate intervention(s), e.g., fluid restriction, medication adjustment, increase in daily office visit or hospital visit, immediate emergency department visit.

Measures:

- Independent: Program participation (participant group, comparison group).

- Dependent: Healthcare utilization (HF related admissions, all-cause hospital admissions, physician office visits, emergency department visits, echocardiogram tests and HF progression from stage B to C to D) as identified by medical claims.

Analysis: A difference in difference model estimated the effect of the program, by comparing changes in the dependent measures before and after the program, between the program participant and comparison group.

Results

There was no significant pre-post change in inpatient admissions between the participant and comparison groups. More patients progressed from HF stage B to C in the participant group than the comparison group. There were no differences in progression from HF stage C to D between the groups (Actual patient counts were too low to report).

Conclusion
According to our model, the HF daily health monitoring program had no significant effect on physician office visits.

This data reflected only a 3-month observation window of the HF daily health monitoring program. As the program continues, we may observe a sustained increase in physician office visits and subsequent reduction in inpatient admissions.

Limitations

- Due to limited sample size, this study may be under powered; which increases the likelihood of Type II error.

- Limitations common to claims data apply to this study (e.g., coding errors, missing data, fixed variables).

- Diagnoses were identified to the extent such information was available from administrative medical claims.

This study included patients from select clinics and one health plan, and therefore may not be generalizable to all populations.

References