INTRODUCTION or BACKGROUND

- Heart Failure is a complex clinical condition that results from an underlying impairment of ventricular filling or ejection, ultimately contributing to pulmonary congestion. Consequences of HF include peripheral edema, dyspnea, and fatigue, which limit physical activity and undermine quality of life.
- Outpatient management of HF proves due to poor patient insight and lack of patient-provider communication, contributing to hospital admissions. HF-related Spending approaching $31 billion with a ≥50% readmission rate within 6 months of HF-related hospitalization discharge. #1
- This study demonstrates a simple, automated system designed to facilitate intervention before worsening symptomatology develops into debilitating decompensations.
- Remote monitoring may facilitate early detection and improved management of HF decompensations. Previous investigations were promising but ultimately inconclusive in demonstrating the effect of telemonitoring on symptom control and resource utilization. #2

METHODS

- A team of SLU SOM and WUSTL SOM researchers, patients, physicians, nurses, and medical students developed a telemedicine system designed to work within existing SMS infrastructure.
- A simple algorithm was built to contact HF patients, track their status and to facilitate bidirectional communication between providers and patients (Figure 1, Figure 2).
- We tested subject compliance and satisfaction with the system in a Heart Failure clinic of our affiliated hospital system. Ten subjects were consented and enrolled to receive daily HF messages for 14 weeks.
- Subjects were contacted by the automated system and asked to report their body weight, blood pressure, and heart rate. Patients are also asked to report symptoms of dyspnea, orthopnea, edema, and paroxysmal nocturnal dyspnea.
- When a subject reported change beyond set thresholds or worsening of symptoms, an electronic alert was sent to the provider. The provider then contacted them to offer counsel on returning to a stable symptom state.

RESULTS

Figure 3. Percentage of Patients (N=10) engaging with and replying to the Heart Failure text messages. For 13 out of the 14 weeks, between 60% and 100% of the subjects responded to the messages.

Figure 4. Total Number of Messages sent and Average number of alerts generated per patient. Patients engaged with the system over 600 total text messages. Eight alerts were generated on average per person.

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REFERENCES