A Nationwide Telehealth Heart Failure Program: Can Remote Patient Monitoring and Guideline Directed Treatment Protocols Help Bridge the Gaps in Heart Failure Management?

David I. Feldman, MD MPH [1,2]; Sarine Babikian, PhD [2]; Dmitri Repnikov, MA [2]; Melanie Coletta, DNP [2]; Nicki Pincus, NP [2]; Ana Patsiornik, NP [2]; Catherine Chmiel, NP [2]; Toni Almeida, NP [2]; Nicole Comstock, NP [2]; Theodore Feldman, MD [2,3,4]; Marat Fudim, MD, MHS [2,5,6]

[1] Division of Cardiology, Massachusetts General Hospital, Boston, MA, USA
[2] Cadence Health, New York, NY, USA
[3] Miami Cardiac and Vascular Institute, Baptist Health South Florida, Miami, FL, USA.
[4] Herbert Wertheim College of Medicine, Florida International University, Miami, FL, USA.
[5] Division of Cardiology, Duke University Medical Center, Durham, North Carolina, USA
[6] Duke Clinical Research Institute, Durham, North Carolina, USA

INTRODUCTION

Despite compelling evidence demonstrating the clinical importance of optimizing guideline-directed medical therapy (GDMT) for patients with heart failure with reduced ejection fraction (HFrEF), several challenges prevent widespread adoption for patients nationwide.

HYPOTHESIS

We hypothesized that an independent, multi-disciplinary, advanced practice provider led virtual heart failure program that leverages remote patient monitoring (RPM) and technology-enabled treatment protocols would result in improved heart failure-specific health outcomes, in particular increased use and dose of GDMT.

METHODS

Cadence is an independent healthcare technology organization that enrolled patients into a virtual heart failure program at two community cardiology practices in North Carolina from August 12th, 2021, to December 31st, 2021. Eligible patients were Medicare enrollees with an ejection fraction of less than 40%. Using a cellular enabled blood pressure cuff, heart rate monitor and weight scale, a dedicated multidisciplinary clinical team monitored patient vitals daily. Leveraging technology-enabled clinical protocols, guideline-directed clinical interventions were implemented to facilitate symptom, vital and medication optimization.

RESULTS

Ninety-seven patients (mean [SD] values: age, 75 [10] years; ejection fraction, 36 [11] %; systolic blood pressure (SBP), 135 [21] mmHg; n [%] values: 36 women [37%]; 87 individuals [90%] in NYHA Class II and III) were followed for a median of 94 days. After ~3 months, there was a significant decrease in patients' blood pressure (SBP -9 mmHg; p<0.001) but not pulse or weight. Patients experienced significant increases from baseline in the use of mineralocorticoid receptor antagonists (41 [42%] to 63 [65%]; p=0.03) and SGLT2i (17 [18%] to 51 [53%]; p<0.001) but not ß-blockers or renin-angiotensin system antagonists. The percentage of patients on ≥50% target dose also significantly increased for all pillars of GDMT other than ß-blockers (Figure). Lastly, there was a significant increase in the percentage of patients on all 4 pillars of GDMT at follow up compared to baseline (38 [39%] vs. 7 [7%]; p<0.001).

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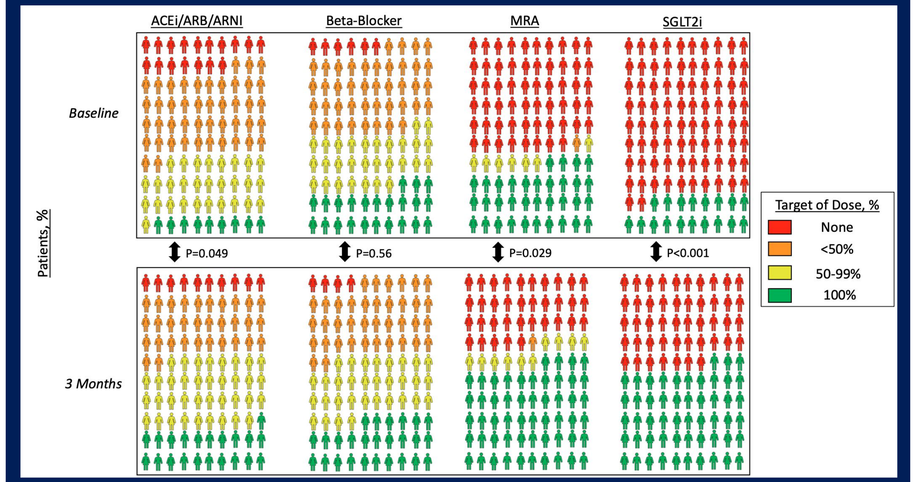
CONCLUSIONS

An advanced practice provider-led telehealth heart failure program that leverages RPM and guideline-directed treatment protocols represents a scalable strategy to address significant gaps in use and dose of GDMT nationwide.



Central Illustration: Dosing and Usage of GDMT at Baseline and at 3 Months after Implementation of the Cadence Virtual Heart Failure Program

For more information
Email: David.Feldman@cadencerpm.com
Twitter: @Difeldman4
Website: Cadence.care

CADENCE

DISCLOSURES

DIF, TF and MF receive consulting fees from Cadence. All other authors are Cadence full-time employees.

Figure 1: Remote Patient Intervention Program Baseline Characteristics

Baseline Characteristic	No. (%) (n = 97)
Age, mean (SD), y	75 (9.7)
Ejection fraction, mean (SD), %	36 (11.4)
Female	36 (37)
New York Heart Association functional class II or III	87 (90%)
Diabetes	24 (25)
Atrial fibrillation	44 (45)
Coronary artery disease	30 (31)
Hyperlipidemia	55 (57)
Hypertension	74 (76)
Ventricular tachycardia	11 (11)

Figure 2: Remote Patient Intervention Program Vitals

Vital	Baseline	Follow-Up	p-value
Systolic blood pressure, mean (SD), mm Hg	135 (21)	126 (18)	p <0.001
Diastolic blood pressure, mean (SD), mm Hg	82 (11)	73 (10)	p <0.001
Heart rate, mean (SD), bpm	73 (13)	69 (12)	p = 0.08
Weight, mean (SD), lbs	182 (47)	181 (48)	p = 0.145

Figure 3: Change From Baseline in Use of GDMT by Drug Category