Reduced Hospitalizations During Nurse-Led Remote Monitoring for Heart Failure: A Quality Improvement Initiative

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INTRODUCTION

- Congestive heart failure (CHF) is a leading cause of hospitalization, readmission, and adverse patient outcomes.[1-3]
- Remote patient monitoring (RPM) is a promising strategy to enhance early recognition of decompensation, improve patient engagement, and support medication adherence.[4]

OBJECTIVE

The objective of this quality improvement initiative was to evaluate the association between our RPM program and hospitalizations at the University of Mississippi Medical Center (UMMC).

METHODS

DESIGN:

- A retrospective chart review was conducted and included patients active in the RPM program for CHF between January 2023 and July 2025 at the UMMC Center for Telehealth and Emerging Technologies.
- Patients were referred at hospital discharge, during post-discharge transitional care management (TCM) phone calls, or during ambulatory visits.
- Patients received a telemonitoring kit that included a blood pressure cuff and scale for daily reporting. Patients accessed the RPM platform via a mobile app on their personal devices or were sent a tablet with a data plan.
- Registered nurses reviewed biometric trends and conducted monthly outreach calls which included medication reconciliation and addressed any barriers to adherence.

PRIMARY OUTCOMES

- The primary outcome was hospital days per year (HDPY), an annualized measure of proportion of days in the hospital, comparing the 12 months prior to enrollment with the period during RPM participation

INCLUSION CRITERIA:

- Patients enrolled in the RPM program for CHF that completed program onboarding were included in the analysis

STATISTICAL ANALYSIS:

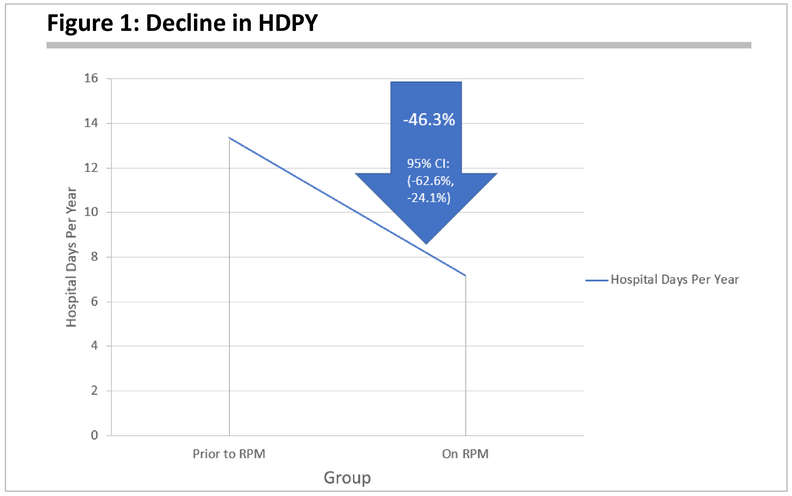
- Outcomes prior to RPM enrollment and during enrollment were compared within cohorts using bootstrapping
- $p < 0.01$ considered statistically significant

RESULTS

- Of the 103 enrollees, 83 patients completed onboarding.
- Nearly half of referrals were received upon inpatient discharge.
- Mean and median duration of RPM program enrollment were 341 and 322 days, respectively

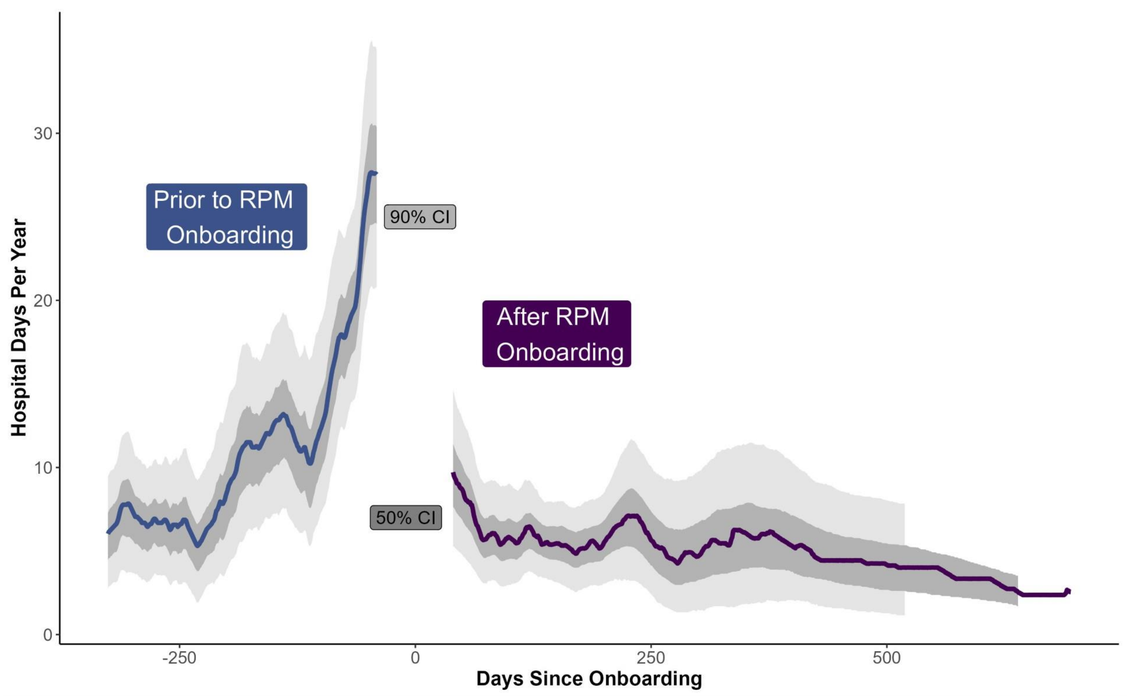
$$HDPY = \frac{DaysHospitalized}{DaysObserved} * 365$$

Figure 1: Decline in HDPY



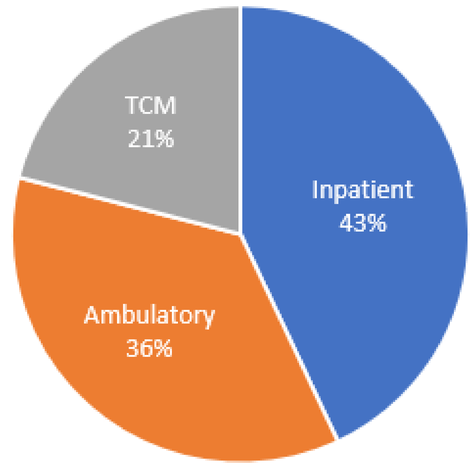
- HDPY declined from 13.36 days in the 12 months prior to enrollment to 7.17 days after onboarding and during RPM participation, an absolute reduction of 6.19 days and relative reduction of 46.3% (p = 0.028)

Figure 2: Moving Average Plot - HDPY



RESULTS

Figure 3: Referral Sources



DISCUSSION

- A CHF RPM program with real-time biometric review, nurse-led onboarding, and monthly outreach was associated with nearly 50% fewer hospital days per year.
- These results highlight RPM as a practical, team-based strategy to enhance care delivery and reduce utilization in CHF at UMMC
- To strengthen this QI initiative, future efforts will focus on improving enrollment, optimizing retention, and more fully integrating RPM into routine clinical workflows.

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This presentation was made possible by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) as part of the National Telehealth Centers of Excellence Award (U66RH31459). The contents are those of the authors and do not necessarily represent the official views of nor an endorsement by the HRSA, HHS or the US Government.