

#AHA23



A NATIONWIDE REMOTE PATIENT INTERVENTION HYPERTENSION PROGRAM: CAN REMOTE PATIENT MONITORING AND A MULTI-DISCIPLINARY TEAM OF CLINICIANS IMPROVE BLOOD PRESSURE CONTROL?

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Hypertension is the most common modifiable risk factor accounting for ASCVD in the US

Clinical Background



Traditional methods for diagnosing and treating hypertension (HTN), which is the most common modifiable risk factor accounting for ASCVD in the US, have been ineffective.



Innovative solutions, like remote patient monitoring (RPM), can transform how we provide longitudinal care for patients with HTN.



Improving blood pressure control can also significantly impact the cost of care for patients and health systems

4,006 patients enrolled in Cadence RPM hypertension program across 11 states

Methods

- Cadence enrolled patients into a virtual hypertension program in primary care clinics in 11 states across the United States from February 2022 to April 2023.
- Eligible patients were Medicare enrollees who had a diagnosis of hypertension based on ICD-10 codes, mean blood pressure (BP) >140/90 (using last 3 EMR-based vitals) and were enrolled for at least 30 days.
- Using daily vitals from a cellular enabled BP cuff and scheduled visits, a team of multidisciplinary clinicians leveraged technology-enabled clinical protocols to facilitate optimization of HTN control.
- A two-sample t-test was used to detect a difference in mean BP.

Evaluating the Effect of RPM on Blood Pressure Control and Total Cost of Care

Methods

- Baseline and follow-up blood pressures were determined using 7 calendar days post enrollment and prior to data analysis cut off date, respectively.
- Cost analysis used 5 years of de-identified healthcare claims data from an Accountable Care Organization (ACO) and calculated average monthly healthcare costs using the 4-month period of January-April for each year.
- We then used a Differences-in-Differences analysis to estimate the effect of Cadence on average monthly healthcare costs for Cadence patients enrolled in the hypertension program compared to ACO patients who were ordered for Cadence but did not enroll.

RPM led by a multidisciplinary virtual clinical team that optimizes vitals and titrates medications



Patient-Centric Experience

Cell enabled devices. No smartphone, app, wifi or bluetooth required. All communication via two-way SMS text or telephone..



High Impact Virtual Visits

The Cadence Medical Group (MDs, NPs, RNs, MAs) provides protocol-driven care for patients with:

- Congestive Heart Failure
- Hypertension
- Type 2 Diabetes



24/7 Access to Care

Patients can reach out to Cadence 24/7. Cadence also promptly responds to vitals alerts.

Patient care pathways determined by clinical acuity & real-time alerts

Care Journey



Initial Clinical Visit

Cadence clinicians develop a treatment plan which may include medication titration after attempting lifestyle modifications.

Regular Follow-ups

Schedule visits to monitor progress, changes in symptoms and to provide coaching with frequency based on acuity and care plan.

Alert Response

Cadence Clinicians contact patient when alert is triggered based on clinical protocols.

Urgent Escalation

Depending on the individual clinical scenario, patient is escalated to Cadence provider, partner physician and/or to appropriate site of care for patients requiring in person care.

Resources available in the *Cadence Medical Group*

Medical Directors

NPs

Medical Assistants

Social Workers

RNs

Pharmacists

Nutritionists

Behavioral Change Specialists

9 and 6 mm Hg reduction in systolic and diastolic blood pressure

Results

Enrolled	4006 patients
Mean age, years	73 +/- 9
Race	70% white
Baseline blood pressure	144/83 mmHg
Mean time in program, days	136 (SD 92)
Reduction in blood pressure (systolic/diastolic)	9/6 (p<0.001)

High levels of patient engagement

Results

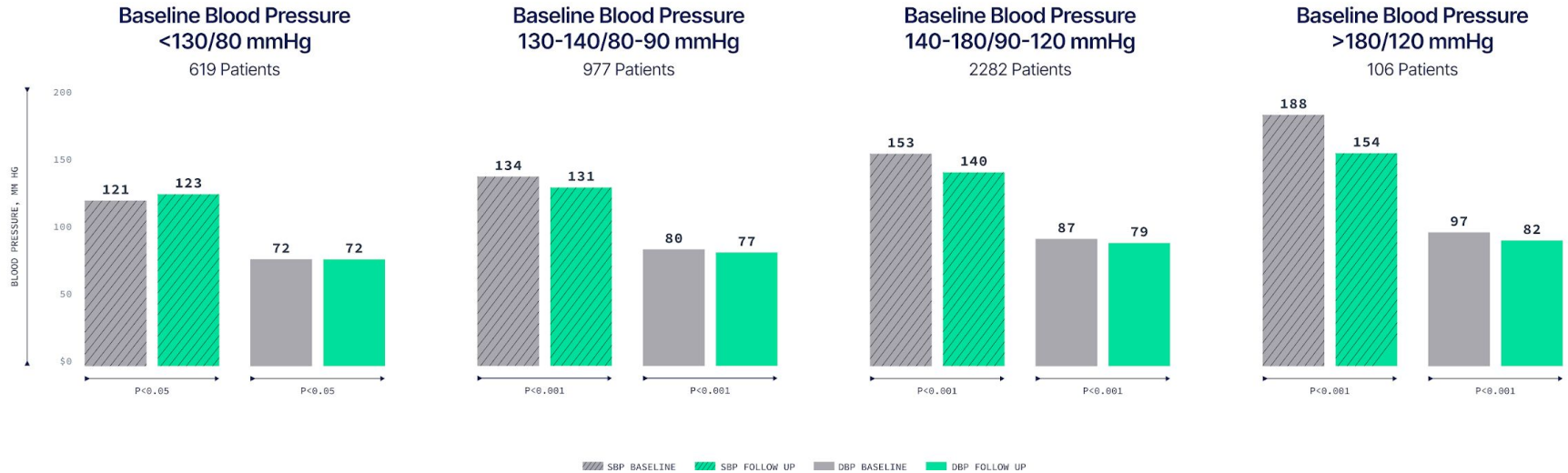
Quantifying the Population Level Clinical Engagement

	TOTAL NUMBER	MEAN (SD)
Vitals	1,476,677	366 (310)
Visits	11,203	3 (2)
Phone Calls	21,442	5 (5)
High Acuity Clinical Alerts	13,278	3 (7)

Total number of vitals recorded, clinical visits and phone calls completed, and high acuity clinical alerts resolved

Graded decrease in blood pressure according to baseline levels

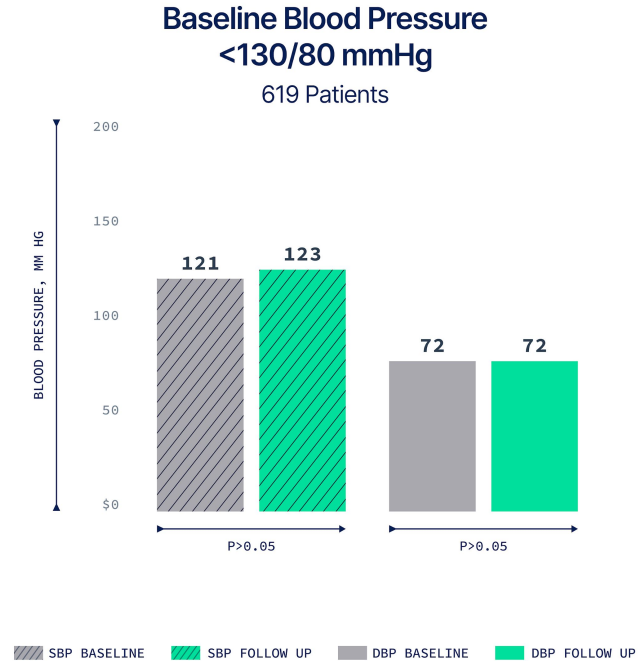
Results



The systolic and diastolic blood pressure reductions by baseline blood pressure strata

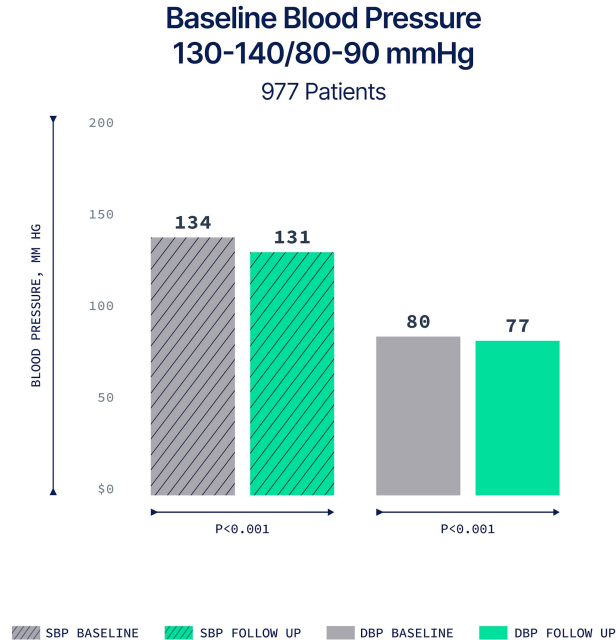
CADENCE RPM HYPERTENSION PROGRAM

Results



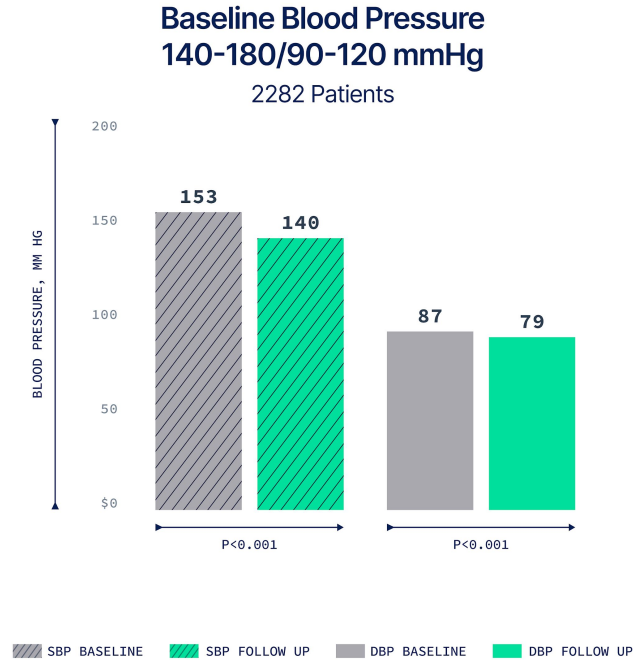
CADENCE RPM HYPERTENSION PROGRAM

Results



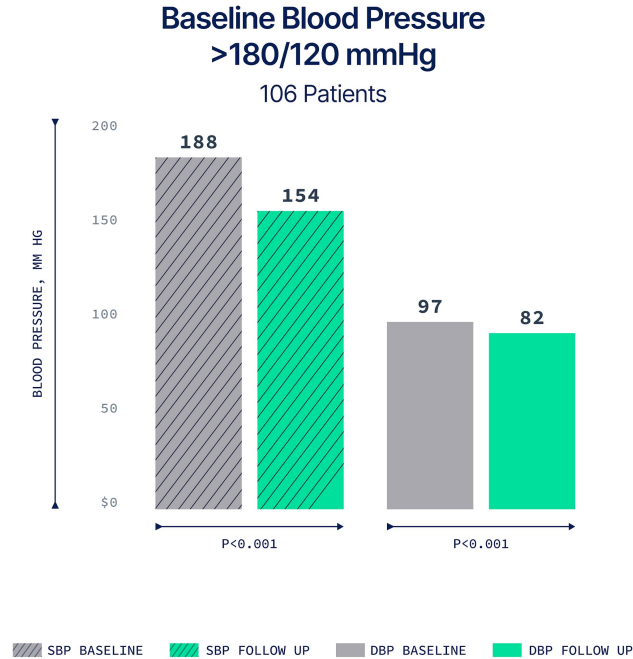
CADENCE RPM HYPERTENSION PROGRAM

Results



CADENCE RPM HYPERTENSION PROGRAM

Results



>2x increase in the number of patients achieving goal blood pressure ($p < 0.001$)

Results

Percentage of Patients at Goal Blood Pressure

BLOOD PRESSURE	BASELINE	FOLLOW UP
<130/80	15%	31%
<140/90	40%	62%

Percentage of patients who achieve goal blood pressure by baseline BP strata

Results

Percentage of Patients Achieving Goal Blood Pressure, Stratified by Baseline Blood Pressure

WEEK 1 BASELINE BLOOD PRESSURE	BLOOD PRESSURE	
	<130/80	<140/90
130-140/80-90	37%	–
140-180/90-120	18%	50%
>180/120	11%	25%

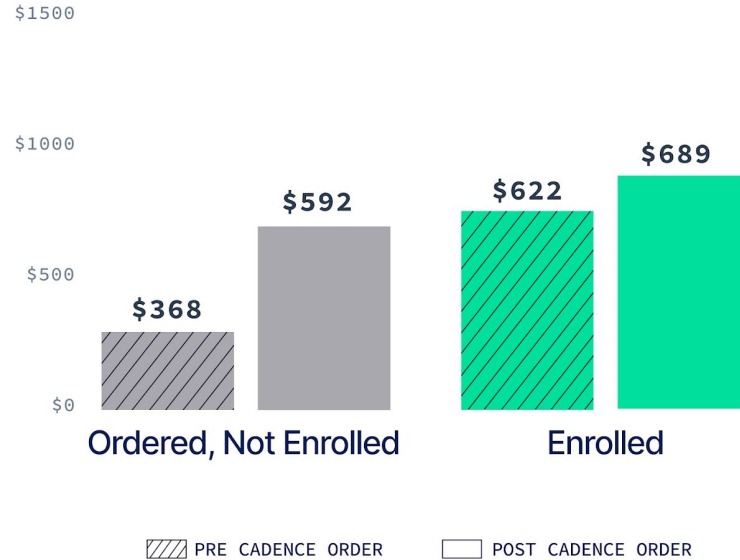
50.1% reduction in total cost of care

Results

Ordered and enrolled	323 patients
Ordered but not enrolled	235 patients
Cost reduction in enrolled vs not enrolled	50.1% (-\$311.55 per hypertension patient per month)

Effect of Cadence RPM Hypertension program on cost in enrolled vs. non-enrolled patients

Results



Cadence RPM significantly reduced blood pressure and total cost of care

Conclusions

- A remote patient monitoring hypertension program not only can improve the diagnosis of hypertension, but also can significantly reduce blood pressure, and in doing so help more patients achieve guideline recommended blood pressure goals.
- An RPM hypertension program can also meaningfully reduce the total cost of care for patients with hypertension.

THANK YOU



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Heart
Association.



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