tupelolife
DIGITAL THERAPEUTICS

THE IMPACT OF REMOTE PATIENT MONITORING FOR HYPERTENSION CONTROL

EXECUTIVE SUMMARY

The incidence rate of hypertension, or high blood pressure, continues to grow over the years affecting nearly one in every two adults in the United States. Uncontrolled hypertension has a widespread impact on the U.S. economy with medical costs estimated between $131 billion to $198 billion each year and is a major preventable risk factor for both heart disease and stroke. [1]

The 2020 Coronavirus pandemic along with new CMS reimbursements of remote patient monitoring (RPM) has led to an accelerated adoption of RPM technology by both patients and healthcare providers. Cellular based technology requires minimal patient effort and provides daily biometric data for trending over extended periods of time. As a result, RPM has become an effective tool for healthcare providers to understand how the patient's medication regime, lifestyle, and knowledge of their health condition can impact quality of life.

TupeloLife Digital Therapeutics created a value-based RPM program that applies cellular-based biometric devices integrated into TupeloLife's Precision Care Platform to help engage, monitor, and triage patients living at home with chronic conditions.

To evaluate the effectiveness of the Precision Care Platform and our Clinical Care Team's approach to reduce and control patient's blood pressure readings, a study was implemented focusing on Medicare and disabled Medicare beneficiaries living at home with hypertension working closely with their healthcare provider to avert a health crisis, slow disease progression, and reduce emergency visits, and hospitalizations.

---

[1] U.S. Department of Health and Human Services. *The Surgeon General's Call to Action to Control Hypertension*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; 2020.

THE CHALLENGE

Hypertension is also known as, “the silent killer,” because it generally has no noticeable signs or symptoms. The lack of awareness and understanding of the importance of managing uncontrolled high blood pressure may lead to damaged body systems and organs. Federal data shows that up to 55% of the Medicare population has hypertension, including nearly 40% of disabled Medicare beneficiaries. Hospital inpatient costs of patients with high blood pressure are 2.5 times the rate of patients without high blood pressure and incur almost double the outpatient costs, according to the American Heart Association. The average inpatient and outpatient costs can be as much as $5,400 annually, according to the Association.[2]

Just as with Diabetes, people living with hypertension must understand their blood pressure values, both systolic and diastolic, as they learn to manage and control it. Under value based care, healthcare providers are rewarded for helping patients improve their health, by reducing the effects and incidence of their chronic disease.[3] To better serve patients and their healthcare provider’s practice, TupeloLife created a hypertension control program working at the convergence of technology, science, and “personal touch” customizing patient support based on intensity needs.

TupeloLife recognizes the paradigm shift within our industry that steadily has been transitioning from reactive care to preventative care. This approach enhances the value proposition TupeloLife delivers to their partnership with physicians, hospitals, and medical groups which greatly contributes to their performance outcomes.

OUR APPROACH

Could combining the three interventions of daily patient blood pressure monitoring, ongoing patient education, and close collaboration with the patient's primary care provider, lower blood pressures within HEDIS performance measures?

---

[2] Dickinson, V. (2018, October, 10) CMS may expand Medicare coverage for blood pressure screening. *Modern Healthcare.* https://www.modernhealthcare.com/article/20181010/NEWS/181019993/cms-may-expand-medicare-coverage-for-blood-pressure-screening

[3] NEJM Catalyst. (2017, January 1) What Is Value-Based Healthcare? https://catalyst.nejm.org/doi/full/10.1056/CAT.17.0558

To address the question, a blood pressure journal was created to facilitate weekly telephonic sessions utilizing evidence based research and guidelines by the American Heart Association. A hard copy of the blood pressure journal was provided to each patient, at no cost, with the intended approach to provide one-on-one weekly sessions with a registered nurse.

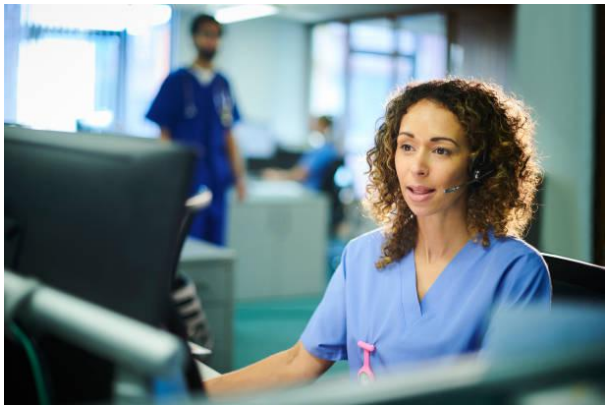
The targeted “High-Tech, High-Touch” population had a two-week average ≥140/90. The spiral bound paper journal entitled “My Wellness Journey " was designed as a weekly guide to educate patients on hypertension and provide strategies to achieve blood pressure control specific to disease education, understanding, and self-management.

HIGH-TECH, HIGH-TOUCH COMPONENTS

CELLULAR BASED BIOMETRIC DEVICES

INTEGRATED OMNI-CHANNEL RPM PLATFORM (DIGITAL & HARDCOVER JOURNAL)

RN-LED CLINICAL CARE TEAM



PRIOR RPM MODELS ADDRESSING HYPERTENSION

Program Model	Program Description	Starting Avg. BP	Ending Avg. BP	Avg. Systolic Difference
Low-Tech, Low-Touch	Self-reporting, self-monitoring BP program. Patients report and track their own data by entering on an online portal. Online educational content was provided by a healthcare provider.	129/80	126/79	↓ -3 mmHg
High-Tech, Low-Touch	Self-monitoring BP program using connected blood pressure devices to automatically capture daily readings, with no clinical guidance except critical values reported to the provider.	141/78	146/81	↑ +5 mmHg

LOOKING BACK

Low-Tech, Low-Touch Program

Considerations:

- Relied on self-reporting, self-discipline, and device accuracy
- Self-service approach, with resources to help manage their BP
- Goal was for people take initiative and be motivated to be more proactive about modifying lifestyles to positively impact their BP

Lessons Learned

- Add connected technology to simplify program for ease of use for both the patient and providers

High-Tech, Low-Touch Program

Considerations:

- Patients received daily reminders to take blood pressure readings
- Providers were largely focused on addressing critical alert values

Lessons Learned:

- Understand the patient's knowledge deficits, their motivating factors, and provide education
- Need to address patient interactions for patients outside of HEDIS or great than 140/90

NEW APPROACH TO DELIVER RPM

According to the United States Surgeon General, only about one in four people with hypertension have it under control. Based on our prior experience from Low-Tech, Low-Touch and High-Tech, Low-Touch with minimal or no blood pressure control outcomes, the High-Tech, High-Touch program was developed.

TupeloLife incorporated the following strategies into the High-Tech, High-Touch program, outlined In the *Surgeon General's Call to Action to Control Hypertension*:

Surgeon General Recommendation	**TupeloLife Digital Therapeutics Actions Taken**
Enhance Electronic Health Records	The Precision Care Platform is an enhanced RPM EMR to improve clinical workflows by securely transmitting daily readings electronically to the patient, their healthcare provider, and clinical care team. The RPM nurse team utilized the Precision Care Platform for reporting weekly averages to the patients and their providers to improve blood pressure control.
Implement Treatment Protocols	TupeloLife Clinical Care team interventions are driven by the physician's protocols based on the American Heart Association guidelines. These protocols were integrated into "My Wellness Journey". The patient journal, was created for simplicity with clear messaging to provide targeted educational weekly one-on-one telephonic sessions with the patient. The goal was to empower patients with knowledge to understand the health threats of hypertension and how it could potentially affect them personally.
Expand the Use of Integrated Care Teams	Promoting shared management through self-measured blood pressure monitoring, the platform provided an average blood pressure to the provider which resulted in telehealth and face-to-face clinic visits for medication and treatment plan changes. Having access to the provider's EMR, the clinical care team, post visit, was able to provide education and reinforce the provider's message and improve adherence. Communication and collaboration with the healthcare provider was seamless with a clinic based RPM team champion model.
Prioritize Medication Adherence	TupeloLife's registered nurse team provided targeted medication messaging, as simple as taking medications as prescribed, reinforcing frequency and dosage timing, which was critical to the success of decreasing blood pressure.
Promote Self-Managed Blood Pressure Monitoring	Empowering patients to self-manage was a natural progression as a result of consistent messaging between real-time biometric readings, their provider, and TupeloLife's Clinical Care Team. Patients received actionable data and timeliness of interventions which was key to sustained success.

RESULTS

Below is a breakdown of the High-Tech, High-Touch impact per weeks completed:

Weeks Completed	Avg. Age	Pre-Program Averages			Post Program Average		
		Avg. Starting Systolic	Avg. Starting Diastolic	% Meeting HEDIS Performance Metrics	Avg. Ending Systolic	Avg. Ending Diastolic	% Meeting HEDIS Performance Metrics
Completed 13 weeks	68	149	84	20%	135	76	↑ 60%
Completed 3-9 weeks	69	145	81	30%	140	78	↑ 57%

Lessons Learned:

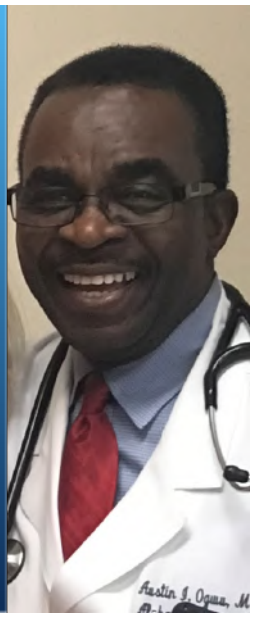
- Providers had increased ability to drive blood pressure metrics within HEDIS by integrating RPM to capture daily and weekly averages, while working with the clinical care team.
- Patients were able to lower and self-manage blood pressure by the intensity of engagement with the clinical care team.
- Slow disease progression by daily blood pressure monitoring, ongoing patient education, close collaboration with patient's primary care provider.
- Medicare population required increased technology support and benefit from personal interaction
- One-on-one sessions were labor and time intensive, reducing quantity of patients outreached
- RPM care management and telephonic skill set is required to engage patients for extended weeks
- There is a need to balance human interaction from the clinical care team versus artificial intelligence

For future considerations, while the High-Tech, High-Touch had a positive impact, scalability and sustainability of the program will be challenging in regard to cost. Sustainability of the guided High-Tech, High-Touch program can be a financial challenge and so we look to balance the intensity of service by team members with artificial intelligence.

"Home blood pressure monitoring system implemented by TupeloLife and Alpha Medical Center has been a tremendous help in ensuring control of our patients blood pressure.

Since implementing this program, health awareness as it applies to hypertension control has greatly increased."

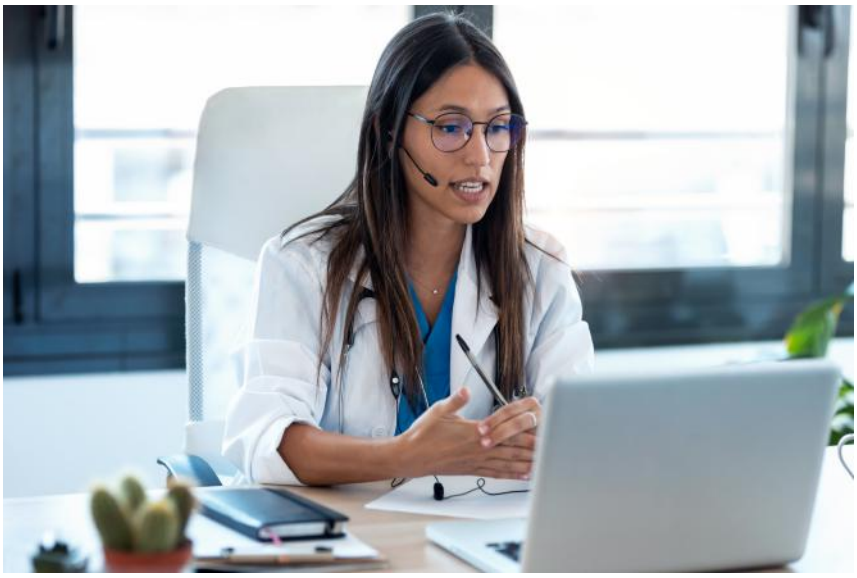
Austin I. Ogwu, MD
President and CEO
Alpha Medical Center



SUMMARY

Our findings suggest that the use of connected blood pressure devices with data integrated into the Precision Care Platform with RN-led health coaching, substantially improves patient outcomes as it pertains to blood pressure control.

Prior RPM models failed to make a significant impact on the way patient's managed, engaged, and communicated with their healthcare providers. The current state of RPM including the reimbursement and technology advancements have made RPM a more appealing option for providers to use. Utilizing a clinical care team to help monitor, triage, educate, and engage patients on a routine basis has helped to avert health crisis, slow disease progression, impact population health metrics, and improve patient satisfaction.



ABOUT TUPELOLIFE DIGITAL THERAPEUTICS

TupeloLife Digital Therapeutics is working at the convergence of technology and science to lower healthcare costs, improve healthcare access, and advance health outcomes for populations with chronic conditions. TupeloLife delivers remote patient monitoring software and services to health systems, health centers, physician practices, and employer wellness programs using the Precision Care Platform which provides clinicians secure access to patient data to monitor and intervene appropriately. The Platform also includes the Association's CarePlans with the aim of engaging patients to better manage their hypertension through behavior change. TupeloLife is an Innovator's Network Member of the American Heart Association Center for Health Technology & Innovation.

tupelolife
DIGITAL THERAPEUTICS

American Heart Association.
Center for Health Technology & Innovation

TupeloLife is an Innovator's Network Member of the American Heart Association Center for Health Technology and Innovation