Innovations in Hypertension: Mobile Health Technology
How It Can Improve Patient Engagement and Outcomes
BY SHANNON WALSH

Hypertension (high blood pressure) is among the most prevalent, dangerous, and costly health conditions facing Americans. Nearly one in three adults in the U.S. has hypertension, yet only half have their condition controlled and 20% are unaware they even have the disease. In 2013, high blood pressure was the primary or contributing cause of nearly 1,000 deaths each day. This chronic condition costs the U.S. an estimated $131 billion (directly or indirectly) annually.

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However, hypertension is largely manageable. Informed by many years of research, the American Medical Group Foundation (AMGF) responded with the first national hypertension campaign focused on care delivery: Measure Up/Pressure Down®. By supporting the implementation of eight evidence-based interventions (“campaign planks”) by American Medical Group Association (AMGA) members, Measure Up/Pressure Down® is making measurable improvements in population health.

While many AMGA members have showcased innovation in the implementation of all eight planks, the most advancement has been demonstrated with Plank 5: Prevention, Engagement, and Self-Management Program in Place. For instance, campaign participants now lead hypertension support groups, integrate after-visit summaries with the electronic health record, and offer home blood pressure monitoring loan programs.

Hypertension and Mobile Health Technology
Chronic disease management no longer relies on in-person visits to the provider. Particularly with hypertension, the condition can effectively be managed remotely via new tools such as connected devices.

Patients desire the integration of this technology into their daily care. A recent poll, for instance, shows nearly half of American adults are extremely or very interested in being able to check their own blood pressure using smartphones or tablets. Care teams find value in the ability to make treatment modifications based on routine home blood pressure monitoring rather than waiting months for a follow-up appointment. In fact, 95% of physicians agreed that home blood pressure measurements were useful in making treatment decisions to manage hypertension patients’ condition.

Despite the growing demand, many organized systems of care currently do not have the processes in place to effectively offer such programs. To identify the best practices associated with effective home blood pressure monitoring (also referred to as self-measured blood pressure monitoring) programs and improve patient control rates, AMGF and Measure Up/Pressure Down® recently led a home blood pressure monitoring pilot project. Over the course of 18 months, 150
patients receiving care from four AMGA members—
Billings Clinic, Community Physician Network,
Cornerstone Health Care, and Wilmington Health—
collaborated with their healthcare providers to manage
blood pressure with the assistance of the Withings
Wireless Blood Pressure Monitor, contributed to groups
by project sponsor Withings.

Patients connected the monitor with their compat-
ible iOS or Android devices and took blood pressure
measurements on a regular basis, which were then
transmitted to their healthcare team in real-time via a
dedicated web portal. Based on the provided data, care
teams were able to schedule office visits and/or make
appropriate medication and behavioral changes for
patients with out-of-control readings.

Findings showed that blood pressure control rates
improved from 38.6% to 70.0% when comparing
the first and last blood pressures recorded with the
Withings Wireless Blood Pressure Monitor during the
18-month project. Median blood pressure control rates
improved for patients across the time period of the
project, from 44.1% to 64.7%. According to patient
and provider/staff surveys, both groups generally
enjoyed using the Withings Wireless Blood Pressure
Monitor and expressed that they felt it was useful in
controlling hypertension.

Takeaways from the Project

Based on lessons learned from this pilot project,
Measure Up/Pressure Down® offers the following three
lessons learned and considerations for organizations
considering a similar initiative:

1. Set Clear Patient Characteristic Criteria

As with any disease management initiative, organiza-
tions must clearly define the characteristics needed
for patient recruitment and enrollment. With connected
devices, however, these extend beyond the demograph-
ics typically available in the electronic health record
(EHR) to topics including device ownership, cellular
data access, and comfort with technology. By under-
standing these aspects, your team can save substantial
time in recruiting patients to monitor their blood pres-
sure at home.

During the pilot project, participants were required
to have:

■ Diagnosed hypertension (>140/90 mmHg)
■ A smartphone or tablet device compatible with
  the Withings Wireless Blood Pressure Monitor

AMGF and Withings provided a list to participat-
ging groups of compatible devices and instructions on
how to verify compatibility with the operating system
of a smartphone or tablet. However, many patients
initially recruited did not have a compatible device or
were not comfortable using such a device. Similarly,
addressing patient technology barriers—such as not
knowing how to download an app or not remembering
a device password—took substantial staff time to
address and overcome.

2. Create Efficiencies During Recruitment,
Enrollment, and Ongoing Engagement

Patients should be encouraged to be active partici-
ants in their own health and do what they can to more
effectively manage their health and well-being at home.
In fact, data from the Centers for Disease Control and
Prevention report the average American spends only
one hour per year in a doctor’s office, hospital, or
pharmacy.8

Patient recruitment, onboarding, and ongoing out-
reach into home blood pressure monitoring programs
can take at least an hour. However, consider the follow-
ing efficiencies:

■ Understanding access to and comfort with such
technologies (see above). Often, care teams are
well aware of these topics through their ongoing
engagement with patients.

■ Relying on direct referrals by the healthcare
provider or the immediate care team. This tactic
proved to be the most successful during the pilot
project. As one group noted, “Once we told
patients that this program was recommended by
their provider, that made all the difference. If the
doctor tells you to do something and you trust
them, you’ll do it.”

■ Providing printed materials that educate patients
how to use the specific device and ensure proper
body positioning (e.g., feet flat on the floor, back
supported) for an accurate reading.

■ Incentivizing patients to participate in the
program. One successful example from the pilot
project was a raffle, with an entry awarded
based on the frequency (e.g., weekly) of blood
pressures taken over the course of the project.
Many groups also offered ownership of the
Withings Wireless Blood Pressure Monitor as an
incentive for participation and engagement.

■ Contacting all patients throughout project.
For most participating groups, staff originally
outreached only to patients whose blood pres-
sure readings were not being taken regularly.
However, groups also began to contact patients whose blood pressure readings were properly recorded to remind them that a medical group staff member was reviewing all blood pressure and encourage future engagement.

3. Integrate Results from the Monitor Directly into EHRs

EHR integration is critical to offer timely point-of-care treatment and protect patient safety. During the pilot project, for instance, staff used upcoming patient appointment schedules to ensure the device readings were communicated with and accessible to the care team prior to and during the patient’s visit. Without this critical step, the care teams would not be able to make treatment modifications, such as medication titration, using the most recent device data.

Lack of coordination among medical devices—for example, the blood pressure monitor with an EHR—can also impact patient safety. In fact, half of respondents in a national survey of more than 500 nurses said they witnessed a medical error resulting from a lack of coordination among medical devices—including blood pressure cuffs—in a hospital setting. Three in five also said medical errors could be significantly reduced if medical devices were connected and shared data with each other automatically.

During the pilot project, EHR integration was not implemented, due in part to the short-term nature of the pilot, along with the barrier of coordinating integration across four different provider groups, four different EHR vendors, and a device company. Instead, participating groups used a secure web-based portal to access the systolic blood pressure, diastolic blood pressure, and heart rate.

All participating groups expressed that direct integration of device results into the EHR is a needed step to extend the project. Without EHR integration, project staff spent substantial amounts of time reviewing the portal, recording the readings in the EHR, and communicating the results with the care team.

Incorporating mobile health technology—including home blood pressure monitoring—to enhance patient and provider engagement, improve patient outcomes, and lower cost of care can be exciting and challenging. With the growing demand from both patients and providers, organized systems of care must be equipped to integrate such technology into their daily practice, manage technology demands and EHR integration, and interact with patients differently.

Note: These findings were developed from data in an observational study. By nature, observational studies cannot be used as a reliable source to make statements of fact about the safety, efficacy, or effectiveness of a practice or device. As AMGF and Withings did not collect and analyze all factors that can potentially contribute to hypertension control, there is no means of verifying that the improvements occurred because of enrollment in this project or use of the Withings Wireless Blood Pressure Monitor.

References

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