By itself, standard self-measured blood pressure (SMBP) monitoring has minimal effect on blood pressure control. But when SMBP is accompanied by co-interventions, particularly clinical support, it has several significant benefits, including more accurate diagnosis, lower blood pressure and better control of hypertension.

Less is understood, however, about the effectiveness of using a SMBP device that has connectivity to smartphone applications compared to a standard SMBP device that does not have connectivity.

A study published in *JAMA Internal Medicine* examines whether the use of SMBP devices enhanced with connectivity to smartphone applications have significant benefits over the use of standard self-measured blood pressure devices. For both groups of patients participating in the study, neither co-interventions nor clinical support were provided.

**High hopes for technology**

SMBP can improve blood pressure control when it is accompanied by co-interventions, such as telehealth-based medication management, education and support programs for medication titration, and automated transmission of SMBP measurements to clinical teams.

“These approaches require substantial programmatic investments by health systems in technology infrastructure, personnel or clinical workflow redesign,” wrote the authors, who include the AMA’s Michael Rakotz, MD, vice president of health outcomes, and Gregory Wozniak, PhD, vice president of health outcome analytics.

That is where commercially available smartphone-connected devices might help. They are capable of transmitting BP measurements wirelessly to the patient’s smartphone, where an app can support...
tracking, visualization, interpretation, reminders, recommendations and communications, including to family members and clinicians.

“Use of this functionality by patients does not require health system investment, and the devices are only slightly more expensive than standard SMBP devices,” the authors noted.

Learn what needs to happen for self-measured blood pressure to take root.

Isolating the variable

The study’s researchers worked with 23 health systems participating in the National Patient-Centered Clinical Research Network (PCORnet), to assign more than 2,100 patients with uncontrolled blood pressure to standard or enhanced SMBP. All had reported having uncontrolled blood pressure at their last clinic visit. They also had expressed a desire to lower their BP and had a smartphone.

Each patient was mailed a self-monitoring device, and in-person clinic blood pressure measurements taken during ambulatory visits were used over six months of follow-up to compare changes in blood pressure from baseline.

"We did not provide any connectivity to EHR systems or deliver BP measurements in any other way to clinicians," Dr. Rakotz said in an interview. “In other words, this study did not look at SMBP as a clinical tool with co-interventions. Rather, it was designed to have two groups of patients self-measure their BP using different types of devices. We then looked for differences in the change in BP between the two groups over the next six months.”

Learn what doctors with patients knew about home BP measurement.

Surprising results

The study found that “enhanced SMBP paired with a smartphone application is not superior to standard SMBP for reducing BP or raising patient satisfaction,” the authors wrote, when no additional clinical support is provided.

The average drop in systolic blood pressure for the enhanced group was 10.8 mm Hg, compared with a 10.6 mm Hg average decrease for the standard group, which is not a significant difference.

Also, patients using a smartphone enabled SMBP device were not more likely to share SMBP data with their doctor than those using standard SMBP devices, “which was surprising,” Dr. Rakotz said,
noting that this might explain why there was no difference in the primary outcome.

“We did not study whether using an SMBP device capable of connecting to a smartphone app that automatically makes SMBP data viewable by a patient’s health care team is more effective than using a device that does not have that capability,” Dr. Rakotz said. “That might be an important question to answer next.”

Consult the AMA’s 7-Step SMBP Quick Guide for an easy-to-use checklist for helping patients achieve and maintain their blood pressure goals.

Other tips for addressing hypertension are available through AMA MAP BP™, a leading evidence-based quality improvement program that provides a clear path to significant, sustained improvements in BP control. Offered at no cost, with AMA MAP BP, health care organizations can increase BP-control rates quickly. The program has demonstrated a 10% increase in BP control in six months with sustained results at one year.