

# Patient reports via telemedicine result in lower blood pressure

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Using a telemedicine system to engage people in underserved, urban communities to measure and report their blood pressure remotely—outside of the doctor's office—appears to help them achieve blood pressure goals and improve adherence to lifestyle changes and medication recommendations, according to research being presented at the American College of Cardiology's 62nd Annual Scientific Session.

Overall, researchers say that just being in a system of care, with or without telemedicine, can result in important reductions in [blood pressure](#). In a six-month trial, 241 patients with [systolic blood pressure](#) of 140 mmHg or higher, but no evidence of heart disease, were randomized to receive either usual care or telemedicine coupled with home [blood pressure monitoring](#). People in the first group were seen by their primary care provider, who mapped out a treatment plan to help lower their blood pressure, and then had no further communication until the six-month follow-up, unless initiated by the patient. Those in the telemedicine group were trained to use a blood pressure cuff at home and report those readings, along with [heart rate](#), weight, steps taken per day as recorded on a [pedometer](#) and [tobacco use](#). Reports were submitted twice a week by telephone or a secured Internet connection. In response, they received important, easy-to-understand tips and information to help manage their blood pressure.

Nearly all [study participants](#) lowered their systolic blood pressure to some degree, with many reaching normal or pre-hypertensive levels. Altogether, roughly half of all patients achieved their goal blood pressure

regardless of the type of care delivered. However, when looking at non-[diabetic patients](#) only, there was a significant drop in blood pressure among those using the interactive [reporting system](#) compared to those who did not, with an average drop of 19 mmHg for the telemedicine group compared to a drop of 12 mmHg for the [control group](#).

"It seems that when [asymptomatic patients](#) with hypertension are encouraged to measure their blood pressure, record their numbers into a database, track progress and get continuous clinical advice and feedback, they are better able to manage their blood pressure and, thereby, reduce their risk of serious heart problems," said Alfred Bove, MD, past president of the American College of Cardiology, Emeritus Professor of Medicine at Temple University, in Philadelphia., and the study's lead investigator.

In a subgroup analysis, researchers found that diabetics in both groups had a similar reduction in blood pressure. Among those in the telemedicine group, nondiabetics appeared to have a more substantial drop in blood pressure compared to those without diabetes (58.2 vs. 45.2 percent). Researchers say this does not necessarily mean people with diabetes do not benefit from this system.

"Basically what we're doing with this tool is modifying behavior, and diabetics are already in a system of care—they're used to measuring their blood glucose, so they pay attention to [blood pressure] regardless of usual care or telemedicine," Dr. Bove said. "Hypertensive patients, however, are asymptomatic; they don't have any long-term system of care; they may see a doctor two or three times a year. So the telemedicine system is a process for reminding them to measure their blood pressure and manage their blood pressure."

Patients were recruited using the Temple University health system database and advertising in neighborhood and local newspapers asking

people to volunteer to get their blood pressure checked. Each subject was provided a small monetary incentive to cover travel and other expenses related to their participation. Those who had a systolic blood pressure 140 mmHg or higher were eligible. Initial blood pressure was similar in both groups, with an average of 155/88.

All patients had baseline and six-month follow-up visits that included a physical exam with blood pressure screening, electrocardiogram and blood work. A total of 206 patients completed the study. The telemedicine group communicated with their care provider an average of 1.7 times per week via a secured Internet site or by calling in their blood pressure and other health data. They and their primary care doctor also received a personalized monthly blood pressure report along with a list of their medications. Blood pressure-lowering medications increased by 10 percent in the telemedicine group compared to usual care.

While prior studies have shown the benefits of such a program among more affluent subjects, this study focused on an underserved urban community, heavily burdened by high blood pressure and diabetes. A substantial number of those living in low-income, urban areas have high blood pressure—often dubbed the "silent killer" because there are no early symptoms. The danger, experts say, is that high blood pressure is the single most important risk factor for heart disease, heart failure, stroke and kidney disease.

"Many people are unaware of their hypertension, so this kind of communication system has a lot of value in improving awareness and motivation to undergo therapy for hypertension, especially among underserved populations," Dr. Bove said. "We know from national data that underserved populations are more prone to heart disease—they tend to have more cardiac events and shortened life spans. They need earlier surveillance and cardiovascular risk reduction."

Dr. Bove said that through this program, researchers were able to get these patients to be aware of the existing system of care, to use it, and to be able to respond and, in turn, lower blood pressure. The next step will be to adopt this type of a system over the long-term. Dr. Bove said this could involve community centers where blood pressure can be measured using automated kiosks connected directly to individual patient's electronic health record.

**More information:** Dr. Bove will present the study "Managing Hypertension in Urban Underserved Subjects using Telemedicine - a Clinical Trial" on Sunday, March 10 at 9:45 a.m., in Moscone Center, Expo North.

Provided by American College of Cardiology

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