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TURNING SCIENCE INTO ACTION

# Remote Cardiovascular Hypertension Program Enhanced Blood Pressure Control During the COVID-19 Pandemic

The following is a synopsis of "Remote Cardiovascular Hypertension Program Enhanced Blood Pressure Control During the COVID-19 Pandemic" published in March 2023 in the *Journal of the American Heart Association*.

## What is already known on this topic?

Hypertension control is a national public health priority and optimizing patient care is among the top goals to support and promote blood pressure control.[1] Hypertension, also known as high blood pressure, increases the risk of heart disease and stroke, which are the leading causes of death and disability in the United States.[2] In 2021, hypertension was the primary or contributing cause of over 600,000 deaths in the United States.[2] Nearly half of the adults in the United States (120 million) have hypertension; however, only 1 in 4 (27 million) have their condition under control.[3]

Several socioeconomic and behavioral factors contribute to poor blood pressure control, including access to health care services, medication adherence, lifestyle behaviors, and home blood pressure monitoring.[1] While successful hypertension control programs and strategies are available, the COVID-19 pandemic worsened existing barriers to blood pressure control by disrupting routine medical care, including the assessment and management of hypertension.[4,5] Telehealth involves the use of technology, such as computers and mobile phones, to deliver long-distance clinical health care and patient education.[6] During the COVID-19 pandemic, telehealth utilization increased given its inherent ability to enable the remote delivery of health care.[6] This innovative response to the pandemic showcased telehealth as a vital resource for improving patient access to health care services.[6]

## What is added by this article?

This study observed how a fully remote hypertension management program was implemented prior to the pandemic and adapted in light of the pandemic to achieve blood pressure control. The team-based, remote hypertension management program was implemented within an integrated health system. Researchers identified 1,256 patients enrolled in the program during two six-month periods, including a pre-pandemic period (September 15, 2019, to March 15, 2020) and a pandemic period (March 15, 2020, to September 15, 2020). Patients received a digitally connected home blood pressure monitoring device, which was mailed to their homes. Patients were educated by non-licensed program navigators on proper blood pressure measurement techniques via phone and video resources. Modes of communication between patients and navigators included telephone and messaging by text or through a secure electronic portal.

Navigators delivered evidence-based algorithmic medication titrations, to enhance hypertension control, with the support of pharmacists, nurse practitioners, and physicians. The algorithm was later adapted in response to pandemic-related challenges. Outcome data were collected through internal program reporting and review of patient charts in the Electronic Health Record for at least six months of program participation for any given patient. The primary outcome was a mean change in home systolic blood pressure (SBP) and diastolic blood pressure (DBP).

Following six months of program participation, the pre-pandemic group's mean change in SBP was -9.9 mm Hg, and mean change in DBP was -6.1 mm Hg. The pandemic group's mean change in SBP was -10.1 mm Hg and mean change in DBP was -5.6 mm Hg. Goal blood pressure was reached by 39.3% of patients in the pre-pandemic group and 47.8% of patients in the pandemic group. Among patients in the pre-pandemic group, 51.8% were able to maintain their goal blood pressure levels, and 50.5% of patients in the pandemic group were able to maintain their goal blood pressure levels. This study demonstrates that an adapted, integrated, fully remote, team-based hypertension control program can improve blood pressure control and home blood pressure quality, despite major disruptions in healthcare delivery due to the COVID-19 pandemic.

Data analysis also revealed that the implementation of home blood pressure monitoring helped detect white coat hypertension, a condition where blood pressure readings are higher when taken at the doctor's office, due to nervousness, (in 15% to 27% of patients). This helped to prevent excessive medication and potential adverse effects, which was valuable during the pandemic since access to laboratory monitoring was restricted. In addition, on average, patients in the pandemic group measured their blood pressure at home more frequently.

Researchers also found changes in patient demo-graphics during the pandemic period. The proportion of non-White participants increased by nearly 60% and the proportion of non-English speaking patients increased by more than fivefold.

## What are the implications of these findings?

Study results highlight that the fully remote management of hypertension can improve blood pressure control, despite a national disruption of traditional hypertension care. In addition to achieving favorable results, the program also enrolled a larger proportion of patients who are non-White and non-English speaking, during the COVID-19 pandemic period. Authors share that this observed shift in program patient demographics could have been driven by the expansion of the program's Spanish-speaking navigator team, and enhancements in the delivery of inclusive care by partnering with the health system's population health group and interpreter services to increase program awareness for non-English speaking people among providers caring for patients who are underserved. Additional factors that may have contributed to promising outcomes include the provision of free cellular-based blood pressure monitoring devices that did not require using

Wi-Fi, downloading third-party applications, or pairing with additional devices. This approach was taken to help facilitate home blood pressure monitoring among patients with lower incomes and older patients, both of whom might feel less comfortable using technology. Findings also support the integration of non-licensed navigators, which allowed for two patient interactions per week and more time to provide recurrent support such as lifestyle counseling. As telehealth use becomes more common, efforts are needed to support its accessibility and utilization.

## Resources

**Hypertension Control Change Package**
Million Hearts® (hhs.gov)

**Self-Measured Blood Pressure Monitoring**
Million Hearts® (hhs.gov)

**Best Practices for Heart Disease and Stroke: A Guide**
Centers for Disease Control and Prevention

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## Citation


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