

Remote, online support for at-home blood pressure management is effective, low-cost

20 January 2021, by University Of Oxford



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At-home blood pressure monitoring using a web-based system offering personalized support and linked to a remote healthcare professional can result in better hypertension management than face-to-face consultations, finds a study led by University of Oxford, Bristol and Southampton researchers.

In the United Kingdom, more than 30 percent of adults have raised [blood](#) pressure, also known as hypertension, which is a major risk factor for cardiovascular disease internationally. With GP surgeries currently requesting that many patients opt for virtual consultations to avoid exposure to coronavirus infection, the clinical monitoring of hypertensive patients using face-to-face consultation is a challenge for [primary care](#).

The Home and Online Management and Evaluation of Blood Pressure (HOME BP) randomized controlled trial evaluated the combination of regular self-monitoring at [home](#) with a web-based tool that offered reminders, predetermined drug changes, lifestyle advice and motivational support.

In their paper, published today in the *BMJ*, the researchers report that for participants managing

their blood pressure at home, mean [systolic blood pressure](#) was significantly lower after 12 months compared with those managed exclusively in the clinic, giving a mean difference of -3.4mm Hg between groups. Those who were self-monitoring at home were also more likely to have their treatment adjusted by their healthcare professional. The approach was not expensive, at £11 per mm Hg reduction in blood pressure.

622 participants aged 18 or over with hypertension were recruited into the trial from 76 general practices across the UK, with half assigned to managing their blood pressure at home. The trial was funded by the National Institute for Health Research.

HOME BP trial lead, Professor Richard McManus, a GP and professor of primary care at the University of Oxford's Nuffield Department of Primary Care Health Sciences, said, "We already know from research that when patients self-monitor and manage their blood pressure they typically have better control of their hypertension. Yet these systems often rely on relatively expensive technology, complex instructions and/or time-consuming training. We combined self-monitoring with an easy-to-use and inexpensive digital tool that provides feedback to the patient and their clinician and aims to support healthy behaviors. Our trial found this can lead to lower blood pressure at low additional cost compared to usual, face-to-face care.

"At a time when many people are unfortunately unable to visit their GP in person, this digital and remote approach could provide a simple way for GPs to effectively manage hypertension in many members of their community, reducing their need to visit the practice for regular check-ups."

Professor Lucy Yardley, from the School of Psychological Science at the University of Bristol and the School of Psychology at the University of

Southampton, said: "Our findings are especially important now that the coronavirus pandemic has made it urgent and vital to be able to offer remote, high-quality care to patients with high blood pressure. The HOME BP trial was developed with extensive feedback from people with high blood pressure and primary care staff to ensure that patients and clinicians found it helpful and trustworthy."

Professor Paul Little, professor of primary care research within Medicine at the University of Southampton, said: "Given the trial results, if this approach was implemented at scale then we would expect it to result in a reduction of 10 to 15 percent in patients having a stroke and a reduction of five to 10 percent in patients experiencing coronary events. With a low marginal cost, this could make a major difference to the millions of people being treated for hypertension in the UK and worldwide."

Cathy Rice, a stroke survivor who contributed to the development of the HOME BP trial, said: "I was amazed when I first heard how many people in the UK don't have their blood pressure well controlled. It's very satisfying that this project was so successful at working with patients to measure their own blood pressure and reduce it."

As well as enabling a patient's GP to adjust drug treatment based on regular blood pressure readings, the HOME BP system offered evidence-based tips on diet and weight-loss, exercise, salt and alcohol reduction. One-to-one behavioral support was also made available through practice nurses and healthcare assistants.

At least 30 to 40% of people with hypertension already check their own blood pressure but many do not mention this to their GP or nurse. Accurate monitors can be purchased for around £20 and have a useful life of around five years. This study suggests that current efforts to encourage people to self-monitor could reap real dividends for both the NHS and people with high blood [pressure](#).

While the study found this digital approach to managing hypertension was beneficial overall, for participants aged 67 or over the reduction in [blood pressure](#) compared with usual care was found to be

less pronounced than in those aged under 67. This was unexpected and at odds with similar research in this area, and the researchers say that further work is needed to understand whether this is a real effect.

More information: Richard J McManus et al. Home and Online Management and Evaluation of Blood Pressure (HOME BP) using a digital intervention in poorly controlled hypertension: randomized controlled trial, *BMJ* (2021). [DOI: 10.1136/bmj.m4858](https://doi.org/10.1136/bmj.m4858)

Provided by Nuffield Department of Primary Care Health Sciences, University of Oxford

APA citation: Remote, online support for at-home blood pressure management is effective, low-cost (2021, January 20) retrieved 18 September 2022 from <https://medicalxpress.com/news/2021-01-remote-online-at-home-blood-pressure.html>

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