

Neither detection nor control of high blood pressure improved by self-monitoring during pregnancy

May 3 2022



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Self-monitoring of blood pressure during pregnancy neither results in earlier detection of high blood pressure, nor helps with blood pressure

control in those who are pregnant, suggest the results of two new papers based on research from the University of Oxford and King's College London (funded by the National Institute of Health and Care Research).

The findings, published in two papers in the *Journal of the American Medical Association (JAMA)*, come from the largest randomized controlled trials of blood [pressure](#) self-monitoring in [pregnancy](#) to date addressing those at risk of high blood pressure alongside those with pregnancy hypertension. These findings, which come from 15 maternity units around England, are applicable to routine antenatal care.

Dr. Katherine Tucker, lead author on the paper looking at early detection of high blood pressure and a Senior Researcher at the Nuffield Department of Primary Care Health Sciences, University of Oxford says that "around one in ten people who are pregnant will have high blood pressure, also called hypertension. For around half of them this can develop into preeclampsia, a condition that puts both mother and baby at risk."

"We know that self-monitoring of blood pressure in the [general population](#) has been shown to improve the diagnosis and management of hypertension, however, prior to these studies, little was known about its usefulness in pregnancy."

Professor Lucy Chappell, Professor of Obstetrics at King's College London, says that they "set up the BUMP trials to find out if home blood pressure monitoring might help early identification of hypertension in pregnancy, or the control of blood pressure for those with pregnancy hypertension."

The BUMP1 trial identified those at higher risk of pre-eclampsia—according to medical guidelines—who were randomly assigned to either usual care or usual care plus self-monitoring of high

blood pressure with telemonitoring using an app. BUMP2 focused on those who were pregnant with either existing high blood pressure or high blood pressure that appeared during pregnancy, and again assigned them to either usual care or usual care plus self-monitoring of high blood pressure with telemonitoring using an app.

Altogether over 3000 participants took part in the trials across 15 hospitals throughout England, making these the largest completed investigations into pregnancy-related blood-pressure self-monitoring to date."

Professor Richard McManus, practicing GP and Professor of Primary Care at the Nuffield Department of Primary Care Health Sciences, University of Oxford, says that "the studies had broad inclusion criteria, meaning we had good representation across different ethnicities and levels of social deprivation across England. While we found that self-monitoring made no difference to the timing of diagnosis or control of [high blood pressure](#), it does appear to be safe and well tolerated."

"We found that over half of the women in the self-monitoring group of BUMP1 did record a raised blood pressure reading at home—around one month prior to their clinic diagnosis. While this was not reflected in the overall results, it provides a marker for the future direction of our research."

Professor Chappell said of the BUMP2 results: "We found that self-monitoring of [blood](#) pressure alongside telemonitoring did not lead to improved clinic-based [blood pressure control](#) in with hypertension during pregnancy—when compared with the NHS usual standard of care."

"Importantly neither trial found any problem with self-monitoring and there were high levels of acceptability. Further work will be needed to

investigate if home readings can be used to support improvements in health outcomes for this group. In the meantime, women and pregnant people who wish to self-monitor can continue to do this and are advised to share their readings with their midwives/other clinicians. We would now like to consider how to develop the interventions further so that we can understand how we can improve [health outcomes](#) for women with pregnancy [hypertension](#)."

More information: Katherine L. Tucker et al, Effect of Self-monitoring of Blood Pressure on Diagnosis of Hypertension During Higher-Risk Pregnancy, *JAMA* (2022). [DOI: 10.1001/jama.2022.4712](https://doi.org/10.1001/jama.2022.4712)

Lucy C. Chappell et al, Effect of Self-monitoring of Blood Pressure on Blood Pressure Control in Pregnant Individuals With Chronic or Gestational Hypertension, *JAMA* (2022). [DOI: 10.1001/jama.2022.4726](https://doi.org/10.1001/jama.2022.4726)

Provided by University of Oxford

Citation: Neither detection nor control of high blood pressure improved by self-monitoring during pregnancy (2022, May 3) retrieved 27 January 2023 from <https://medicalxpress.com/news/2022-05-high-blood-pressure-self-monitoring-pregnancy.html>

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