



## Extended Research Article

# Optimising the monitoring and management of raised blood pressure including proteinuria testing during pregnancy: the BUMP research programme including 2 RCTs

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## Plain language summary

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# Plain language summary

## Background and aims

Home monitoring of blood pressure supports the management of raised blood pressure (hypertension) in the general population, but little was known about its use in pregnancy. Similarly, little was known regarding self-testing for protein in the urine, a marker of pre-eclampsia which is a serious condition linked to hypertension in pregnancy.

The BUMP programme aimed to develop and test blood pressure home monitoring and protein self-testing to see if these could improve the detection of raised blood pressure and/or proteinuria and management of hypertension in pregnancy.

## Findings

Focus groups and interviews with healthcare professionals and development work (designing the intervention) with pregnant women supported the development of a user-friendly app, trial design and materials.

A survey identified that one in five of pregnant women currently home monitor blood pressure, increasing to half of those with hypertension, though did not share these readings with healthcare professionals.

The BUMP trials recruited more than 3000 women at higher risk of pre-eclampsia, or those with raised blood pressure. Participating women were randomly allocated to either usual care or usual care plus self-monitoring of blood pressure.

Home monitoring of blood pressure did not result in earlier recording of hypertension in clinic. Over half of the women diagnosed with hypertension had raised blood pressure at home. For women with high blood pressure, home monitoring did not improve blood pressure control. Home monitoring of blood pressure was safe and engagement was high, with the majority of women continuing home monitoring throughout pregnancy. No differences in costs or quality of life were found.

Pregnant women self-tested for urinary protein with similar accuracy to healthcare professionals and were happy to test finding it, convenient and reassuring. Staff found home readings valuable, although some were less willing to incorporate them into antenatal care.

## Conclusions

Home monitoring of blood pressure during higher risk or hypertensive pregnancy was acceptable, safe, and no more expensive than usual care alone but it did not improve the detection of hypertension or blood pressure control in those with hypertension when used alongside usual care. Self-testing of urine for protein could support remote care of hypertensive women.

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