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Self-management of blood pressure following a hypertensive pregnancy

Submission date
17/05/2024

Recruitment status
No longer recruiting

Registration date
11/06/2024

Overall study status
Ongoing

Last Edited
22/10/2025

Condition category
Circulatory System

[X] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
High blood pressure (BP) (hypertension) during and following pregnancy affects around 80,000 women each year in the UK, and can lead to very serious problems such as pre-eclampsia or stroke. In the longer term, women who had high BP during pregnancy have an increased risk of heart attack and stroke, and this seems to be linked to their blood pressure in the early weeks following birth.
After birth, women's BP can remain elevated, but in most cases it returns to normal over 2–12 weeks. During this time, blood pressure medication needs to be adjusted to achieve the correct control. Previous research suggests that better BP control during this time is associated with improved long-term health outcomes. This trial aims to test whether women with high BP, can achieve lower blood pressure than is usual in the weeks and months following birth, through self-monitoring and adjusting their own medication.

Who can participate?
Women aged 18 years or over in the postnatal period who have had a hypertensive pregnancy

What does the study involve?
Women recruited to the study will be randomly assigned to one of two groups: either monitoring their own blood pressure and using this to manage their blood pressure medication, or receiving the standard care that they would otherwise have. Participants allocated to 'usual care' will have their BP monitored and medication adjusted by their obstetrician, GP and midwife as normal. Participants allocated to the 'self-management' group will use a home BP monitor daily following discharge from hospital after birth until their blood pressure has settled, and then once a week. They will be provided with an individualised schedule (via a specially designed app) for gradually adjusting their medication(s) in line with their BP readings, overseen by their obstetrician, GP and midwife.

What are the possible benefits and risks of participating?
Taking part in the study may give participants better information and understanding about their blood pressure. If possible, it is hoped that achieving better blood pressure control in the period after birth may contribute to better long-term health outcomes. However, the study is being conducted as it is not clear if medication adjustments (facilitated by the app and directed by

clinicians' review) can achieve better blood pressure control than standard care.
It is hoped that information from this work will improve the care of women with raised blood pressure after birth in the future. The researchers think there is very little risk of harm in taking part.
All women will still receive their usual care while in this study. The only disadvantage is the extra time taken to measure blood pressure for women allocated to the self-management group and the additional time spent with the study team at the follow-up visits. Other than the time taken to undertake the study, we do not anticipate any other disadvantage from taking part.

Where is the study run from?
University of Oxford - Primary Care Clinical Trials Unit (UK)

When is the study starting and how long is it expected to run for?
July 2023 to January 2027

Who is funding the study?
NIHR - Programme Grants for Applied Research (UK)

Who is the main contact?
SNAP2 Trial Manager, snap2trial@phc.ox.ac.uk

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Prof RIchard McManus

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Additional identifiers

Integrated Research Application System (IRAS)
332333

Central Portfolio Management System (CPMS)
59560

Study information

Scientific Title
Randomised controlled trial of self-management of postnatal antihypertensive treatment

Acronym
SNAP2

Study objectives
Self-management of blood pressure reduces diastolic blood pressure following a hypertensive pregnancy

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 09/05/2024, South Central - Oxford B Research Ethics Committee (Bristol Research Ethics Committee Centre, Whitefriars Level 3, Block B Lewin's Mead, Bristol, BS1 2NT, United Kingdom; +44 (0)207 104 8178; oxfordb.rec@hra.nhs.uk), ref: 24/SC/0071

Study design
Multicentre interventional randomized controlled trial

Primary study design
Interventional

Study type(s)
Efficacy

Health condition(s) or problem(s) studied
Monitoring of hypertension in women following hypertensive pregnancy

Interventions
Women recruited to the study will be randomly assigned to one of two groups: either monitoring their own blood pressure and using this to manage their blood pressure medication, or receiving the standard care that they would otherwise have.

Participants allocated to the ‘self-management’ group will use a validated monitor and titration of antihypertensive therapy guided by a specially developed digital intervention (a smartphone app), daily following discharge from hospital after birth until their blood pressure has settled, and then once a week. They will be provided with an individualised schedule via the app for gradually adjusting their medication(s) in line with their BP readings. This will be overseen, with any change approved by their own health care professionals who review the uploaded readings and respond to tele-monitored abnormal readings in a timely fashion. All intervention participants will in addition receive usual NHS care.

Participants allocated to ‘usual care’ will have their BP monitored and medication adjusted by their obstetrician, GP and midwife as normal.

Randomisation will be completed by site staff on randomising software Sortition.

Intervention Type
Other

Primary outcome(s)
Current primary outcome measures as of 22/10/2025:

Mean daytime ambulatory diastolic blood pressure measured using an ambulatory blood pressure monitor at 26-39 weeks.

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Previous primary outcome measures:

Mean daytime ambulatory diastolic blood pressure measured using an ambulatory blood pressure monitor at 26 weeks.

Key secondary outcome(s))
Current secondary outcome measures as of 22/10/2025:

1. Mean daytime ambulatory systolic blood pressure measured using an ambulatory blood pressure monitor at 26-39 weeks
2. Mean 24-hour and nocturnal ambulatory blood pressure measured using an ambulatory blood pressure monitor at 26-39 weeks
3. Systolic and diastolic blood pressure at follow-up (mean of 2nd/3rd readings and mean of 2nd – 6th readings) measured in clinic or at home at baseline, 6 weeks, 12 weeks, 26-39 weeks and 48-60 weeks
4. Maternal health-related quality of life measured using EQ-5D-5L health questionnaire results at baseline, 6 weeks, 12 weeks, 26-39 weeks and 48-60 weeks
5. Anxiety associated with self-management of BP measured using the short-form anxiety inventory questionnaire at baseline, 12 weeks and 48-60 weeks
6. Medication adherence measured by the presence of urinary antihypertensive metabolites at 6 weeks and the Medication Adherence Rating Scale (MARS) at baseline and 6 weeks
7. Postnatal readmissions measured using all-cause admissions, pregnancy hypertension admissions and cardiovascular events at records review
8. Healthcare resource use and cost analysis of key cost drivers between study arms measured using participant resource use data collection at baseline, 12 weeks, 26-39 weeks and 48-60 weeks
9. Cost-consequence analysis presenting costs and key outcomes in a disaggregated manner measured over the trial period
10. Long-term modelled cost-utility analysis using quality-adjusted life years (QALYs) measured using Modelled lifetime horizon and Sensitivity analysis to judge time to benefit/harm
11. Qualitative process evaluation measured using in-depth semi-structured interviews over the trial period

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Previous secondary outcome measures:

1. Mean daytime ambulatory systolic blood pressure measured using an ambulatory blood pressure monitor at 26 weeks
2. Mean 24-hour and nocturnal ambulatory blood pressure measured using an ambulatory blood

pressure monitor at 26 weeks
3. Systolic and diastolic blood pressure at follow-up (mean of 2nd/3rd readings and mean of 2nd – 6th readings) measured in clinic or at home at baseline, 6 weeks, 12 weeks, 26 weeks and 52 weeks
4. Maternal health-related quality of life measured using EQ-5D-5L health questionnaire results at baseline, 6 weeks, 12 weeks, 26 weeks and 52 weeks
5. Anxiety associated with self-management of BP measured using the short-form anxiety inventory questionnaire at baseline, 12 weeks and 52 weeks
6. Medication adherence measured by the presence of urinary antihypertensive metabolites at 6 weeks and the Medication Adherence Rating Scale (MARS) at baseline and 6 weeks
7. Postnatal readmissions measured using all-cause admissions, pregnancy hypertension admissions and cardiovascular events at records review
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11. Qualitative process evaluation measured using in-depth semi-structured interviews over the trial period

Completion date
31/01/2027

Eligibility

Key inclusion criteria
1. Participant is willing and able to give informed consent for participation in the study
2. People who have recently given birth within the last 7 days
3. Aged 18 years or above
4. Participant with pregnancy hypertension including: chronic/essential hypertension (predating current pregnancy or requiring treatment before 20/40), or gestational hypertension (new-onset hypertension from 20/40 of index pregnancy) or pre-eclampsia (hypertension (GH or with proteinuria or metabolic changes), prior to their discharge from hospital post-delivery.
5. Participant still requiring antihypertensive medication at randomisation following delivery
6. Able and willing to comply with trial requirements
7. Willing to allow their primary and secondary healthcare teams, if appropriate, to be notified of participation in the trial
8. Access to a smartphone compatible with the app

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
50 years

Sex
Female

Key exclusion criteria
1. Participant does not wish to self-monitor/self-manage their blood pressure
2. Participant already taking part in another trial that might affect their anti-hypertensive prescription

Date of first enrolment
24/06/2024

Date of final enrolment
30/11/2025

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Oxford University Hospitals NHS Foundation Trust
John Radcliffe Hospital
Headley Way
Headington
Oxford
United Kingdom
OX3 9DU

Study participating centre
Manchester University NHS Foundation Trust
Cobbett House
Oxford Road
Manchester
United Kingdom
M13 9WL

Study participating centre
NIHR Guy's and St Thomas' Clinical Research Facility
16th floor Tower Wing

Guy's Hospital
Great Maze Pond
London
United Kingdom
SE1 9RT

Study participating centre
Chelsea and Westminster Hospital NHS Foundation Trust
Chelsea & Westminster Hospital
369 Fulham Road
London
United Kingdom
SW10 9NH

Study participating centre
Barts Health NHS Trust
The Royal London Hospital
80 Newark Street
London
United Kingdom
E1 2ES

Study participating centre
Airedale NHS Foundation Trust
Airedale General Hospital
Skipton Road
Steeton
Keighley
United Kingdom
BD20 6TD

Study participating centre
Blackpool Teaching Hospitals NHS Foundation Trust
Victoria Hospital
Whinney Heys Road
Blackpool
United Kingdom
FY3 8NR

Study participating centre

Chesterfield Royal Hospital NHS Foundation Trust
Chesterfield Road
Calow
Chesterfield
United Kingdom
S44 5BL

Study participating centre
University Hospitals Dorset NHS Foundation Trust
Management Offices
Poole Hospital
Longfleet Road
Poole
United Kingdom
BH15 2JB

Study participating centre
East Lancashire Hospitals NHS Trust
Royal Blackburn Hospital
Haslingden Road
Blackburn
United Kingdom
BB2 3HH

Study participating centre
East Suffolk and North Essex NHS Foundation Trust
Colchester Dist General Hospital
Turner Road
Colchester
United Kingdom
CO4 5JL

Study participating centre
Imperial College Healthcare NHS Trust
The Bays
St Marys Hospital
South Wharf Road
London
United Kingdom
W2 1BL

Study participating centre
Kingston and Richmond NHS Foundation Trust
Galsworthy Road
Kingston upon Thames
United Kingdom
KT2 7QB

Study participating centre
Lewisham and Greenwich NHS Trust
University Hospital Lewisham
Lewisham High Street
London
United Kingdom
SE13 6LH

Study participating centre
Mid and South Essex NHS Foundation Trust
Prittlewell Chase
Westcliff-on-sea
United Kingdom
SS0 0RY

Study participating centre
Royal Berkshire NHS Foundation Trust
Royal Berkshire Hospital
London Road
Reading
United Kingdom
RG1 5AN

Study participating centre
University Hospitals Sussex NHS Foundation Trust
Worthing Hospital
Lyndhurst Road
Worthing
United Kingdom
BN11 2DH

Study participating centre
West Hertfordshire Teaching Hospitals NHS Trust
Trust Offices

Watford General Hospital
Vicarage Road
Watford
United Kingdom
WD18 0HB

Study participating centre
Frimley Health NHS Foundation Trust
Portsmouth Road
Frimley
Camberley
United Kingdom
GU16 7UJ

Study participating centre
Whittington Health NHS Trust
The Whittington Hospital
Magdala Avenue
London
United Kingdom
N19 5NF

Study participating centre
Buckinghamshire Healthcare NHS Trust
Amersham Hospital
Whielden Street
Amersham
United Kingdom
HP7 0JD

Sponsor information

Organisation
University of Oxford

ROR
https://ror.org/052gg0110

Funder(s)

Funder type
Government

Funder Name
Programme Grants for Applied Research

Alternative Name(s)
NIHR Programme Grants for Applied Research, PGfAR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from the chief investigator Prof. Richard McManus (richard.mcmanus@phc.ox.ac.uk)

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes