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# Does use of a new pre-eclampsia screening test reduce pre-eclampsia and preterm birth in the NHS?

**Submission date**
17/12/2024

**Recruitment status**
Recruiting

**Registration date**
14/04/2025

**Overall study status**
Ongoing

**Last Edited**
14/04/2025

**Condition category**
Pregnancy and Childbirth

[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
Pre-eclampsia is a condition that can develop during the second half of pregnancy (from 20 weeks). It causes high blood pressure and strain on the kidneys, liver and other body systems. It can cause the baby to be too small and the baby's placenta to not work properly. Because there is no treatment for pre-eclampsia, once it develops the baby is often delivered, even if the baby is "too early" (known as 'preterm birth'). Being born early can lead to serious health challenges for the baby in the days and weeks after birth, but also life-long health challenges. Pre-eclampsia can also be life-threatening. There is no treatment for pre-eclampsia, but aspirin can be recommended to help prevent pre-eclampsia from developing. This is safe for use in pregnancy and is recommended to be started by the 16th week of pregnancy for people at risk of pre-eclampsia. This STARshiP study is looking at whether using a new pre-eclampsia screening test from the Fetal Medicine Foundation (FMF) reduces preterm births compared to the current National Institute for Health and Care Excellence (NICE) screening strategy in place in the UK. Research suggests the FMF test is even better at identifying who is at risk of the most severe forms of pre-eclampsia.

Who can participate?
Any NHS Trust in England that has not yet implemented the FMF screening test, are not participating in any other study that implements care pathways including first-trimester screening for PE and that can commit to the universal implementation of the FMF screening test for the study.
All pregnant women/people who register for pregnancy care at any of the participating hospitals in the study.

What does the study involve?
This study is taking place in 16 NHS Trusts in England. Throughout the study, all hospitals taking part will switch from using the NICE test to the new FMF test as their usual care. The timing of when a hospital switches its screening test is determined randomly using a computer program. Pre-eclampsia screening will be provided to all women/people attending the hospital for first-trimester pregnancy care. If the hospital is using the NICE screening test, a midwife will ask some

medical history questions and can inform women/people of their pre-eclampsia risk status immediately. If the hospital is using the FMF screening test, similar questions will be asked, and a blood pressure measurement, ultrasound measurement and blood test may be offered at the time of the dating scan. These results will be used to provide a more accurate personalised pre-eclampsia risk score. The result and risk score will not be immediately available until all test results are back; women/people will be informed of their risk level by the hospital staff. With either test women/people with a “high risk” result will be assessed by their hospital team and are likely to be recommended to take a low dose of aspirin daily throughout the pregnancy. Questionnaires will be made available for women/people and professionals (staff at participating NHS Trusts) to provide feedback on their views and experiences of first-trimester screening for pre-eclampsia. Additionally, there will be the option to opt-in for a telephone interview to provide further feedback.

What are the possible benefits and risks of participating?
It is hoped that the results of the study will be beneficial in informing the National Screening Committee’s guidance on which screening test (NICE or FMF) should be used nationally, and which test benefits the most women/people. It is anticipated that the same number of people overall will be advised to take aspirin in pregnancy, but that people can have greater confidence that they, and their baby, will benefit from taking the aspirin using the more personalised test. The STARshiP team do not anticipate any risks from the study.

Where is the study run from?
The STARshiP study is being sponsored by the University of Manchester, in collaboration with Manchester University NHS Foundation Trust (MFT) and the University of Nottingham. The study will be managed by the Nottingham Clinical Trials Unit (NCTU), as a part of the University of Nottingham.

When is the study starting and how long is it expected to run for?
February 2024 to March 2029. The study received its grant award on 01 February 2024, the recruitment is expected to commence in mid-2025 and will continue for 34 months. During this time, NHS sites will begin the study by continuing to use the NICE screening test and will eventually adopt the FMF screening test at various timepoints throughout the study.

Who is funding the study?
1. The National Institute for Health and Care Research (NIHR)
2. Action on Pre-Eclampsia Charity (APEC)

Who is the main contact?
Lilly Collins (Trial Manager) at starship@nottingham.ac.uk

### Study website
https://www.starship@nottingham.ac.uk

# Contact information

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Public, Scientific

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# Additional identifiers

**EudraCT/CTIS number**
Nil known

**IRAS number**
320171

**ClinicalTrials.gov number**
Nil known

**Secondary identifying numbers**
CPMS 53981, NIHR152762

# Study information

**Scientific Title**
STARshiP: Screen and Treat with Aspirin to Reduce Pre-eclampsia

## Acronym
STARshiP

## Study objectives
This study tests the alternative hypothesis that in pregnant women/people in the first trimester of pregnancy, routine implementation of the Fetal Medicine Foundation (FMF) screening test for pre-eclampsia reduces iatrogenic preterm birth compared to the use of the National Institute for Health and Care Excellence (NICE) screening tool for pre-eclampsia.

## Ethics approval required
Ethics approval required

## Ethics approval(s)
Approved 09/04/2025, East Midlands - Derby Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 (0)207 104 8154; derby.rec@hra.nhs.uk), ref: 24/EM/0256

## Study design
Stepped-wedge randomized controlled study

## Primary study design
Interventional

## Secondary study design
Randomised controlled trial

## Study setting(s)
Hospital, Medical and other records

## Study type(s)
Treatment

## Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

## Health condition(s) or problem(s) studied
Pre-eclampsia

## Interventions
Intervention: FMF screening test for pre-eclampsia risk in the first trimester. This algorithm involves a uterine artery Doppler ultrasound measurement (UtI-PI), a blood test (measuring PlGF), maternal blood pressure and maternal risk factors.

Control (Usual care): NHS Trusts will follow the NICE risk factor-based screening approach to identify those at high risk of preeclampsia.

## Intervention Type
Other

## Phase

Not Specified

## Primary outcome measure
Iatrogenic (through inducing labour or by caesarean) preterm (<37 weeks of pregnancy) birth rates (including stillbirths) measured using data extracted from the national routinely collected healthcare system data at one time point

## Secondary outcome measures
The following secondary outcome measures are measured using data routinely collected healthcare system data at one time point:

Maternal:
1. Mortality
2. Postpartum haemorrhage
3. Labour onset
4. Mode of birth
5. Caesarean section indication (Robson Group)
6. Blood transfusion
7. Admission to intensive/high-dependency care
8. Length of stay (postpartum)
9. Length of stay (cumulative per pregnancy)
10. Readmission to hospital (within 42 days)

Neonatal:
1. Stillbirth (death of a baby after 24 completed weeks; occurring before or during birth or timing unknown)
2. Gestational age at birth
3. Small for gestational age neonate (<10th centile for GA)
4. Fetal growth restriction (<3rd centile for GA or <10th centile if born under 34 weeks)
5. Birth weight (grams)
6. Early neonatal mortality (<7 days of age)
7. Extended neonatal mortality (<28 days of age)
8. Admission to neonatal unit
9. Level of neonatal care (level 1, 2 or 3)
10. Length of hospital stay (days)
11. Readmission to hospital (within 42 days)
12. Respiratory morbidity (as recorded):
12.1. Respiratory distress syndrome
12.2. mechanical ventilation
12.3. chronic lung disease
12.4. discharge on oxygen
13. Neurological morbidity (as recorded):
13.1. Seizures
13.2. Hypoxic ischaemic encephalopathy
13.3. Therapeutic hypothermia
13.4. Retinopathy of prematurity
13.5. Hearing impairment
14. Gastrointestinal morbidity:
14.1. Necrotising enterocolitis
14.2. Laparotomy

Process outcomes (collected for the study):
1. Number of pregnant women/people with clinical risk factors for PE and which risk factors they have.
2. Number of pregnant women/people having a blood test taken for PIGF (of all those eligible for this test).
3. Number of pregnant women/people having an ultrasound scan for UtA-PI (of all those eligible for this test).
4. Number of pregnant women/people with a PIGF result of all those having the test taken.
5. Number of pregnant women/people having a blood test for the FMF screening test within the time window (of all those eligible).
6. Number of pregnant women/people having a UtA-PI for the FMF screening test within the time window (of all those eligible).
7. Number of women/people who decline trisomy screening.
8. Number of pregnant women/people with an FMF risk assessment available before 16 weeks.
9. Number of pregnant women/people with a high-risk preterm PE risk screening result who are recommended LDA and accept LDA
10. Number of pregnant women/people with a low-risk test result or no documented risk factors who are recommended and accept LDA (and reasons).
11. The dose and duration of LDA recommended
12. The gestation at which LDA is recommended
13. Number of pregnant women/people prescribed LDA if recommended.
14. Number of pregnant women/people declining LDA when recommended and reason why.
15. Number of pregnant women/people with evidence of continuing LDA adherence reporting until 36 weeks Gestational Age (GA)/ birth).

### Overall study start date
01/02/2024

### Completion date
01/03/2029

## Eligibility

### Key inclusion criteria
INCLUSION CRITERIA FOR THE MAIN STEPPED WEDGE RANDOMISED CONTROLLED STUDY:
There are eligibility criteria at a trust level, which determine which maternity units can participate; at a testing level for women and people giving birth in testing maternity units; and at a dataset level.

INCLUSION CRITERIA - TRUST LEVEL:
1. Located in England.
2. Have a minimum of 2500 births per year (latest full-year data) in the participating National Health Service (NHS) Trust.
3. NHS Trusts with fewer than 2500 births per year may potentially be paired together to create a randomisation unit for the purpose of the study.
4. Committed to universal implementation of the Fetal Medicine Foundation (FMF) screening test within a specified time point following study commencement.

NHS Trusts that have more than one maternity unit will be randomised as a Trust to preserve fidelity of implementation across all maternity units within a Trust.

NHS Trusts with fewer than 2500 births per year may potentially be paired together to create a site for the purpose of the trial. This option will only be pursued if insufficient NHS Trusts are eligible and can commit to STARshiP in a timely manner

Whilst it is possible that maternity units will choose to implement the test outside of our study, this decision would make them ineligible for participation. Importantly, it would also mean that the financial and training resources embedded within our trial design would not be available. Moreover, the draft guidance from the NSC has not recommended the implementation of universal screening.

INCLUSION CRITERIA - INDIVIDUAL LEVEL:
There will be two levels of eligibility for individual women/birthing people, these are testing-level eligibility and dataset-level eligibility.

TESTING LEVEL INCLUSION CRITERIA:
All pregnant women/people receiving antenatal care at participating maternity units within randomised NHS Trusts prior to 16 weeks gestation will be eligible to be screened by either the NICE or FMF strategies. The window for FMF testing is 11+2 to 14+1 weeks (crown-rump length 45-84mm). Eligibility is not dependent on participation in the NHS Fetal Anomaly trisomy screening programme

INCLUSION CRITERIA – DATASET LEVEL
1. All pregnant women/people receiving antenatal care at participating maternity units within randomised NHS Trusts prior to 16 weeks gestation. Individuals may be included more than once if multiple early pregnancy screening episodes in different pregnancies are performed.
2. Women/people who experience a miscarriage or stillbirth after early pregnancy screening will be included as they may have had testing for PE and PE may be implicated in the aetiology of their pregnancy loss.

INCLUSION CRITERIA FOR THE QUALITATIVE STUDY:

QUESTIONNAIRES
Professionals who:
1. Are working in an NHS Trust taking part in the study 7 weeks after the FMF screening has been implemented at the site (clinical and non-clinical staff).
2. Have the ability to complete an online questionnaire through access to a URL or QR code.
3. Have completed the declaration of consent to participate in the questionnaire.

Women/people who:
1. Have commenced maternity care in a participating NHS Trust during the study period.
2. Have the ability to complete an online questionnaire through access to a URL or QR code.
3. Have completed the declaration of consent to participate in the questionnaire.
4. Women/people who were unable or unwilling to undergo PE screening will not be excluded.

INTERVIEWS
Professionals who:
1. Are working in an NHS Trust taking part in the trial and have experience with implemented FMF (clinical and non-clinical).
2. Have completed the online questionnaire and indicated consent to be contacted for a follow up qualitative interview.

Women/people who:
1. Have commenced maternity care in a participating NHS Trust during the study period.
2. Are > 6 weeks and < 6 months postpartum at the time of interview.
3. Have completed the online questionnaire and indicated consent to be contacted for a follow up qualitative interview.
4. Are able to take part in a telephone or video interview, with or without provision of interpretation.
5. Those women/birthing people who were unable or unwilling to undergo PE screening will not be excluded.

## Participant type(s)
Patient

## Age group
Adult

## Sex
Female

## Target number of participants
Planned Sample Size: 235200; UK Sample Size: 235200

## Key exclusion criteria
EXCLUSION CRITERIA - TRUST LEVEL:
1. NHS Trusts will be ineligible to participate in the study if they are:
1.1. Already providing first-trimester screening for pre-eclampsia (PE) as standard care, or participating in another study implementing care pathways which include first-trimester screening for PE
1.2. Unable to commit to the implementation of the FMF screening test at the specified time point. Trusts may still participate where they are able to make a commitment to performing all elements of the FMF screening test where feasible. Trusts would be unable to participate if they are absolute in the knowledge that they would not be possible to perform any UtA-PI measurements following the specified transition time point

EXCLUSION CRITERIA - INDIVIDUAL LEVEL
There will be two levels of eligibility (and thus exclusion) for individual women/birthing people, these are testing level eligibility and dataset level eligibility.

TESTING LEVEL EXCLUSION CRITERIA:
1. Known congenital anomaly incompatible with survival at birth, of a singleton or all multiple fetuses e.g. anencephaly.
2. Fetal demise/miscarriage before PE risk assessment completed.

DATASET LEVEL EXCLUSION CRITERIA:
1. Withdrawal of consent to use data, through either the local study-specific opt-out process or the NHS data-opt-out.
2. Pregnancy outcome data for those screened during the transition phase for each maternity unit will be collected but excluded from the primary outcome analysis; it will be available for use in secondary analyses.

EXCLUSION CRITERIA FOR THE QUALITATIVE STUDY:

QUESTIONNAIRES
Women/people who:
1. Lack of capacity to give informed consent.
2. Those who were unable or unwilling to undergo PE screening will not be excluded.
3. Are more than 6 months postnatal at the time of questionnaire entry.

INTERVIEWS
Women/people who:
1. Have not completed the online questionnaire or who decline consent to contact for the interview.
2. Lack of capacity to give informed consent.
3. Have not experienced in one of the participating NHS Trusts taking part in the study. Those who were unable to unwilling to undergo PE screening will not be excluded.
4. Who are less than 6 weeks, or more than 6 months postnatal at the time of interview.

Professionals who:
1. Have not completed the online questionnaire or who decline consent to contact for the interview study.

### Date of first enrolment
01/06/2025

### Date of final enrolment
01/04/2028

## Locations

### Countries of recruitment
England

United Kingdom

### Study participating centre
**Manchester University NHS Foundation Trust**
Cobbett House
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M13 9WL

## Sponsor information

### Organisation
University of Manchester

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### Sponsor type
Hospital/treatment centre

### Website
https://www.manchester.ac.uk/

### ROR
https://ror.org/027m9bs27

## Funder(s)

### Funder type
Government

### Funder Name
National Institute for Health and Care Research

### Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

### Funding Body Type
Government organisation

### Funding Body Subtype
National government

### Location
United Kingdom

### Funder Name
Action on Pre-Eclampsia Charity

# Results and Publications

### Publication and dissemination plan
Planned publication in a peer-reviewed journal

### Intention to publish date
01/03/2030

### Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be available upon request from the Nottingham Clinical Trials Unit (ctu@nottingham.ac.uk). Participant-level data will not be available, as it is not permitted by the routine data providers under the terms and conditions under which NCTU receives the data.

### IPD sharing plan summary
Available on request