

# Primary prevention of maternal Anaemia to avoid preterm delivery and other adverse outcomes (PANDA Programme NIHR200869)

## Investigating the prevention of anaemia to improve pregnancy outcomes

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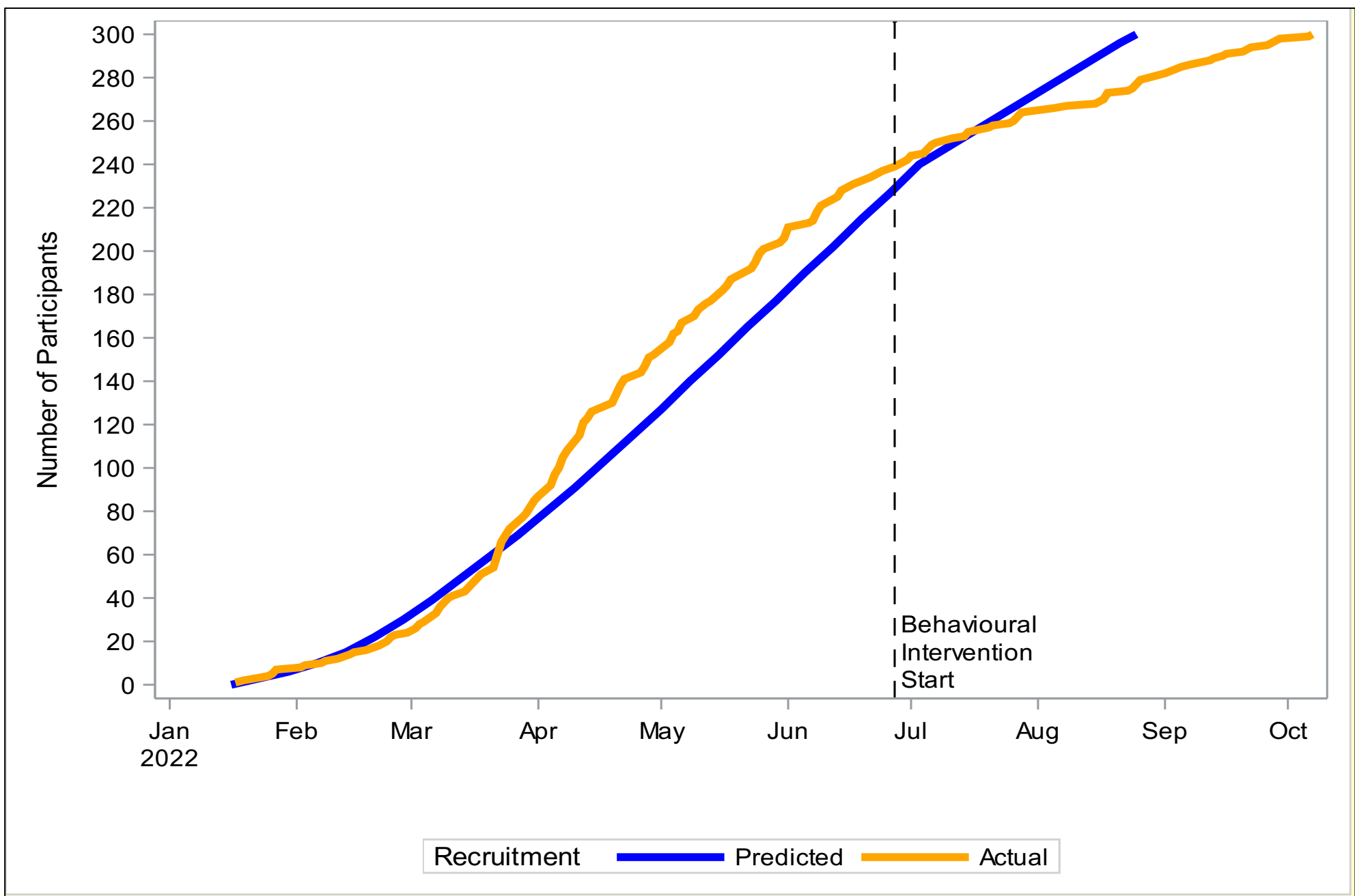
### Background

Among its many associations with adverse obstetric outcomes, iron deficiency anaemia (IDA) is associated with dysfunctional labour and atonic postpartum haemorrhage. Credible mechanisms including cellular hypoxia have been put forward as the cause.

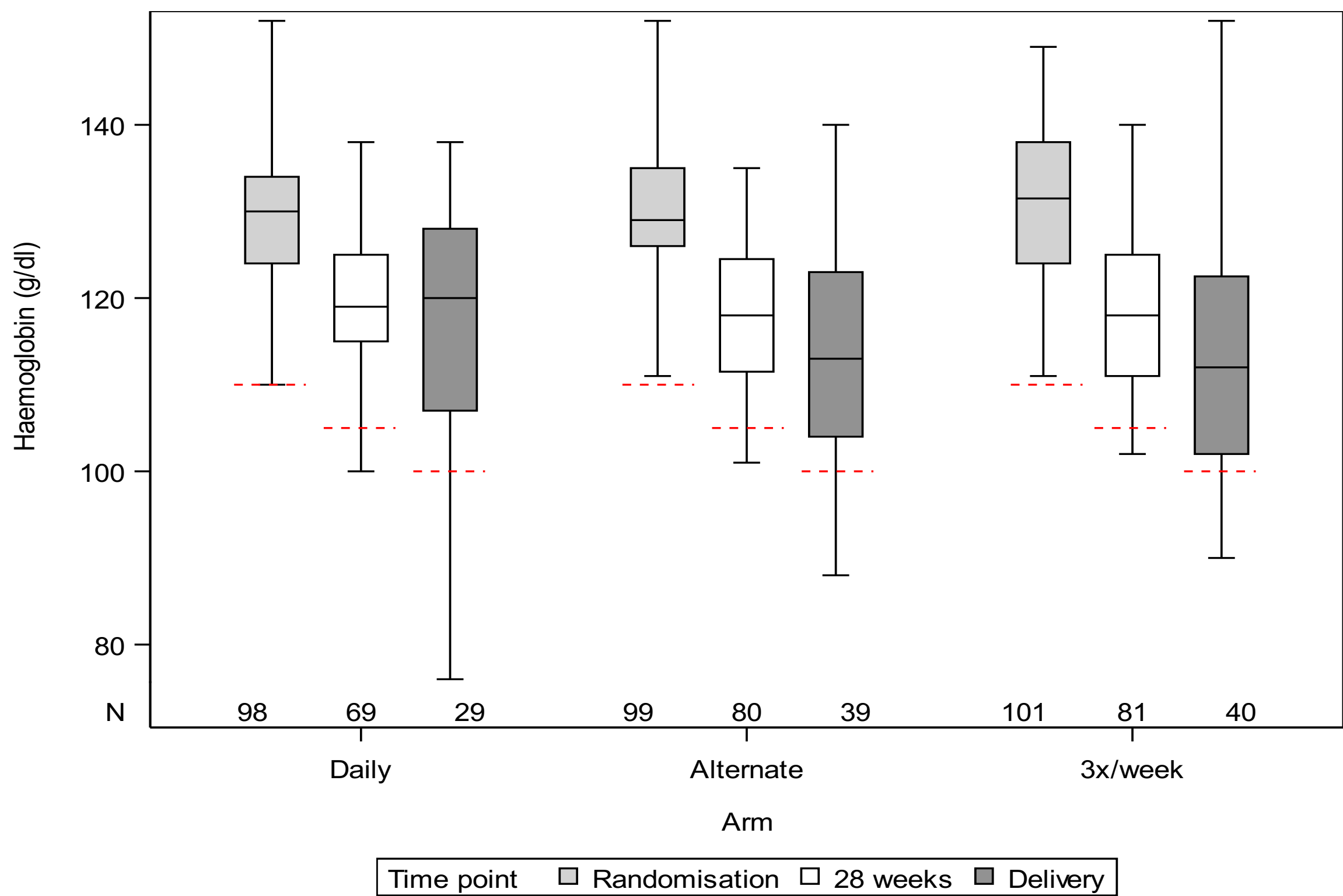
Other associated adverse outcomes are preterm birth, small for gestational age, postnatal depression, stillbirth and neonatal death. It also causes women to experience malaise, fatigue, poor exercise tolerance and impaired cognition. Treatment of IDA is known to be associated with high rates of non-response for many reasons. Uncertainty remains on the clinical impact of oral iron supplementation to prevent anaemia during pregnancy.

The PANDA programme of 5 workstreams is designed to address the problem of prevention.

To choose the optimal dose for a large double-blind placebo-controlled trial we conducted an RCT comparing daily, with alternate day, with 3 times a week. Some results are shown below. There were no differences in adherence, symptoms/side effects and maintenance of haemoglobin between the 3 arms and the daily dose of 200mg ferrous sulphate was chosen to take forward to the main trial.



Adherence to oral iron supplement - tablet count and MEMS data



### Objectives and Methods Main RCT

**Aim:** To evaluate the clinical- and cost-effectiveness of a primary prevention strategy for iron deficiency anaemia in pregnancy with an optimised low dose oral iron supplementation intervention.

**Participants:** We aim to recruit 11,020 non-anaemic pregnant women from participating maternity units over 18 months. We estimate that around 90% of women attending the units for their first visit will be eligible.

**Inclusion criteria:**  
Healthy non-anaemic pregnant women receiving NHS maternity services, identified at booking or dating ultrasound scan

**Exclusion criteria:**  
Women with haemoglobinopathies, a current diagnosis of anaemia of any cause, severe gastrointestinal disease, or multiple pregnancy.

**Consent Procedure:** We will use multiple options including e-consent to minimise the burden on site staff and maximise participant recruitment.

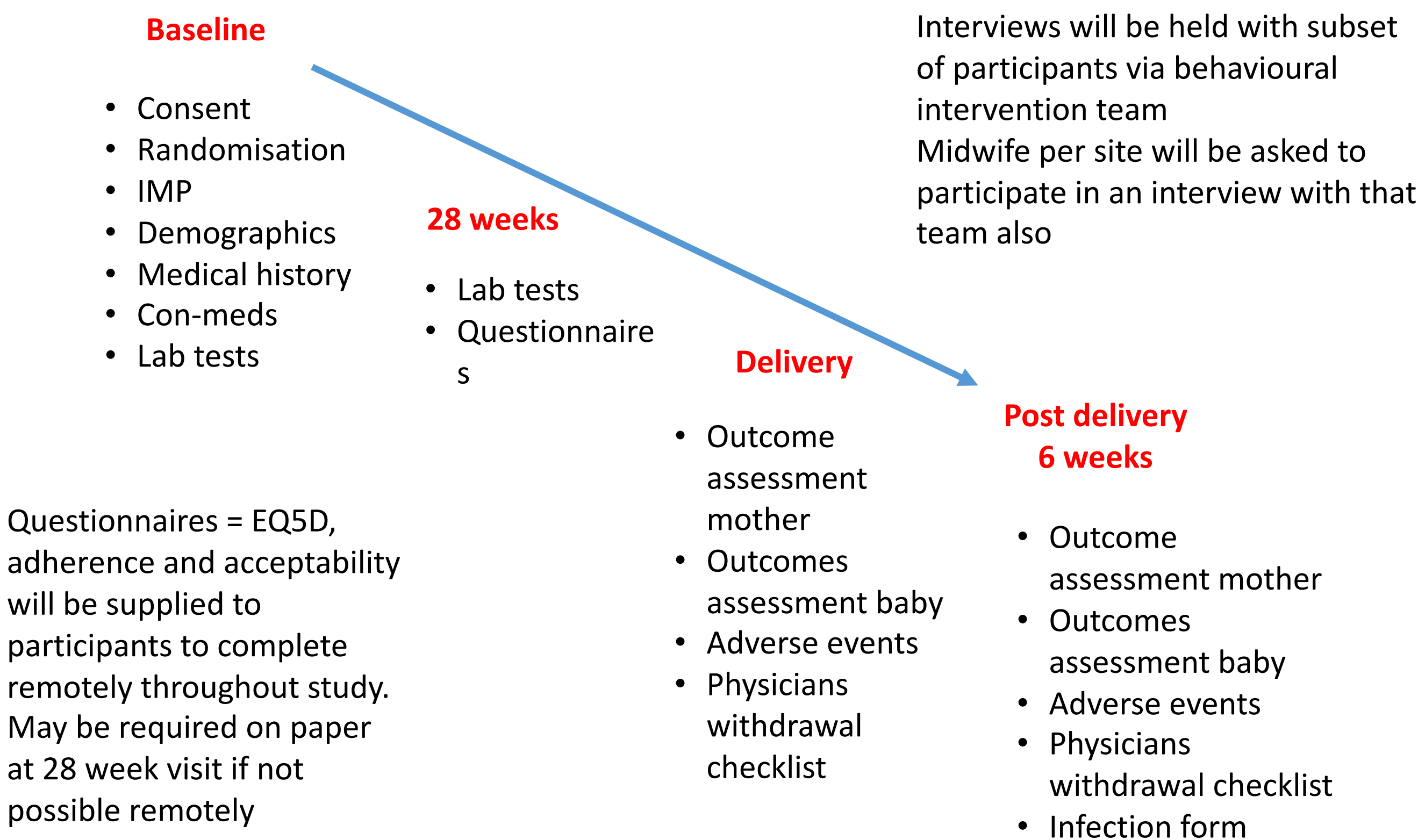
**Intervention:** Ferrous Sulphate 200mg tablets, dose regimen to be confirmed following analysis of our dose finding study

**Comparator:** Placebo matched to Ferrous Sulphate tablets

The outcome measures have been chosen to comprehensively answer the questions about the prevention of anaemia in pregnancy and relevant to PPI

- Clinical outcomes:
  - Primary - Preterm birth, small for gestational age, mortality
  - Secondary – inc; prevention of anaemia, haemorrhage, infection, mental health, maternal quality of life & infant development
- Health Economics:
  - Quality of life, Use of resources inpatient and outpatient
- Adherence:
  - Adherence questionnaire at 28 weeks
  - Fidelity survey – 28 weeks

#### Trial Pathway & Time points



### References

Rukoni et al. BMC Pregnancy and Childbirth (2019) 19:209  
DOI:10.1186/s12884-019-0679-9

BMC  
Pregnancy & Childbirth

#### RESEARCH ARTICLE

Open Access

Screening for iron deficiency and iron deficiency anaemia in pregnancy: a structured review and gap analysis against UK national screening criteria

Ruramayi Rukoni<sup>1</sup>, Marian Knight<sup>1†</sup>, Michael F. Murphy<sup>2†</sup>, David Roberts<sup>2†</sup> and Simon J. Stanworth<sup>2†</sup>

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#### ORIGINAL PAPER

Maternal iron deficiency anaemia in pregnancy: Lessons from a national audit

David Churchill<sup>✉</sup>, Hind Ali, Mahmoud Moussa, Clara Donohue, Sue Pavord, Susan E. Robinson, Katherine Cheshire, Paul Wilson, John Grant-Casey, Simon J. Stanworth

First published: 03 August 2022 | <https://doi.org/10.1111/bjh.18391> | Citations: 1

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Association between maternal haemoglobin and stillbirth: a cohort study among a multi-ethnic population in England

Manisha Nair<sup>✉</sup>, David Churchill, Susan Robinson, Cathy Nelson-Piercy, Simon J. Stanworth, Marian Knight

First published: 26 October 2017 | <https://doi.org/10.1111/bjh.14961> | Citations: 30

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#### Guideline | [Free Access](#)

UK guidelines on the management of iron deficiency in pregnancy

Sue Pavord, Jan Daru, Nita Prasannan, Susan Robinson, Simon Stanworth, Joanna Girling, on behalf of the BSH Committee<sup>✉</sup>

First published: 02 October 2019 | <https://doi.org/10.1111/bjh.16221> | Citations: 119

Prevalence of maternal anaemia and its predictors: a multi-centre study

Filipa Barroso<sup>✉</sup>, Shubha Allard<sup>✉</sup>, Brennan C. Kahan<sup>✉</sup>, ... Louise Choo<sup>✉</sup>, Khalid Khan<sup>✉</sup> & Simon Stanworth<sup>✉</sup>

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Obstetrics & Gynecology  
and Reproductive Biology

### PANDA Trial team

**Co-Chief Investigators:** Professor Simon Stanworth University of Oxford and NHS Blood and Transplant. Professor Marian Knight National Perinatal Epidemiology Unit (NPEU)

**Co-Investigators:**

Professor David Churchill Consultant Obstetrician, Professor Chris Gale Consultant Neonatologist, Professor Andrew Farmer Professor of General Practice, Professor Helen Spiby Professor of Midwifery.

Dr Fabiana Lorencatto Dr Elise Crayton The Development and Analysis of the Behavioural Intervention, Dr Stephanie Lax Ms Joanne Murray Service-user Co-Investigators

Dr Oliver Rivero-Arias Health Economics, Dr Noemi Roy Iron Supplementation. Expertise

### More information & expressions of interest

For more details and to express and interest in the trial visit the PANDA website: [PANDA@nhsbt.nhs.net](mailto:PANDA@nhsbt.nhs.net)