

# Preterm milk Fortification in Neonates

<b>Submission date</b> 23/04/2021	<b>Recruitment status</b> No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 01/10/2021	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 20/02/2024	<b>Condition category</b> Neonatal Diseases	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Preterm and small babies often struggle to grow on breast milk (maternal or donor) alone, and commercially available cows milk-based fortifiers are currently added to breast milk to help growth. A human-based powdered fortifier is now commercially available.

### Who can participate?

Infants born at less than 32 weeks gestation who have never received a cows milk-based diet (formula or fortifier) and have established full milk feeds

### What does the study involve?

Participants will be allocated to one of two groups, with an equal chance of being in either group (like tossing a coin). Infants in each group will receive one of two nutritionally equivalent fortifiers as a supplement to breast milk for babies born before 32 weeks gestation or weighing less than 1500 g at birth. One fortified supplement will be a standard cows milk-based product and the other a human-based product.

Infants will receive the fortified supplement from the start of the infants being fully fed on breast milk (when they have no intravenous feeds and are tolerating 150 ml/kg/day of milk) until 36 weeks gestation, or when a fortifier is no longer required, whichever is earlier. Mothers in both groups will be fully supported to provide their own breast milk, and any shortfall will be made up with standard human donor milk. No other changes to infant or mother care will take place. This study will compare gut inflammation through measures of stool samples (and blood /urine where available) and other outcomes until discharge from the neonatal unit.

### What are the possible benefits and risks of participating?

The study group is preterm infants where growth and gut health are challenging. The study aims to promote optimal growth and minimise gut problems by comparing human milk based fortification to cows milk based fortification. The measures of growth are weight and the measures of gut problems are laboratory measures undertaken on stool. Preterm infants are fortified with cows milk based products currently, the human product is the new intervention and the hope is that because it does not contain non-human protein it will be better tolerated by the infants.

Where is the study run from?

Newcastle upon Tyne Hospitals NHS Foundation Trust (UK) and will be run in neonatal units in 3 UK hospitals

When is the study starting and how long is it expected to run for?

From January 2021 to April 2023

Who is funding the study?

NeoKare Nutrition Ltd (UK)

Who is the main contact?

Dr Janet Berrington

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## Contact information

### Type(s)

Scientific

### Contact name

Dr Janet Berrington

### ORCID ID

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### Contact details

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Integrated Research Application System (IRAS)

293189

### ClinicalTrials.gov (NCT)

Nil known

### Protocol serial number

IRAS 293189, CPMS 50596

## Study information

**Scientific Title**

Breastmilk fortification in preterm infants: a randomised controlled trial of two nutritionally equivalent fortifiers

**Acronym**

PUFFIN

**Study objectives**

Human milk based fortifier for preterm infants will result in less gut inflammation than the standard cow milk based fortifier currently in use in the UK as measured by stool calprotectin

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Approved 21/10/2021, Yorkshire & The Humber - Sheffield Research Ethics Committee (NHS Blood and Transplant Blood Donor Centre, Holland Drive, Newcastle upon Tyne, Tyne and Wear, NE2 4NQ, UK; +44 (0)207 104 8388; sheffield.rec@hra.nhs.uk), ref: 21/YH/0224

**Study design**

Multi centre non-blinded randomized controlled study

**Primary study design**

Interventional

**Study type(s)**

Prevention

**Health condition(s) or problem(s) studied**

Preterm gut inflammation and other outcomes of prematurity (growth, length of hospital stay)

**Interventions**

Babies born at <32 weeks gestation or <1500 g birthweight will be randomised using Sealed envelope (a commercial randomisation company) to one of two groups to receive:

1. Standard cows milk-based fortified supplement to breast milk
2. Human-based product fortified supplement to breast milk

The intervention will run from when the infants are being fully fed on breast milk (when they have no intravenous feeds and are tolerating 150 ml/kg/day of milk) until 36 weeks gestation, or when a fortifier is no longer required, whichever is earlier. Mothers in both groups will be fully supported to provide their own breast milk, and any shortfall will be made up with standard human donor milk. No other changes to infant or mother care will take place. This study will compare gut inflammation through measures of stool samples (and blood/urine where available) and other outcomes until discharge from the neonatal unit.

**Intervention Type**

Supplement

**Primary outcome(s)**

Faecal calprotectin measured from stool samples collected at baseline and 1 and 3 weeks after the intervention (until 36 weeks gestation, or when a fortifier is no longer required, whichever is earlier)

### **Key secondary outcome(s)**

1. Faecal sIgA, cytokine panel, and bacterial taxa (by 16srRNA) measured from stool samples collected at baseline and 1 and 3 weeks after intervention
2. Infant health measured using records of growth, morbidities associated with preterm birth, length of hospital stay, and biochemical results between baseline until discharge from the neonatal unit

### **Completion date**

28/04/2023

## **Eligibility**

### **Key inclusion criteria**

1. Born at <32 weeks gestation
2. Never received cow milk-based diet (formula or fortifier) and having established full milk feeds

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Neonate

### **Sex**

All

### **Key exclusion criteria**

1. Previous necrotising enterocolitis or gut surgery or malformation
2. Previous receipt of cow milk based diet (formula or fortifier)

### **Date of first enrolment**

01/03/2022

### **Date of final enrolment**

28/02/2023

## **Locations**

### **Countries of recruitment**

United Kingdom

England

**Study participating centre****Newcastle upon Tyne Hospitals NHS Foundation Trust**

Neonatal Unit (Ward 35)

Royal Victoria Infirmary

Richardson Road

Newcastle

United Kingdom

NE1 4LP

**Study participating centre****James Cook University Hospital**

Marton Road

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TS4 3BW

**Study participating centre****University Hospital Southampton NHS Foundation Trust**

University Hospital

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SO16 5YA

## Sponsor information

**Organisation**

Newcastle upon Tyne Hospitals NHS Foundation Trust

**ROR**

<https://ror.org/05p40t847>

## Funder(s)

**Funder type**

Industry

**Funder Name**

NeoKare Nutrition Ltd

# Results and Publications

## **Individual participant data (IPD) sharing plan**

The data sharing plans for the current study are unknown and will be made available at a later date

## **IPD sharing plan summary**

Data sharing statement to be made available at a later date