

# Early antibiotic use and intestinal disease (necrotising enterocolitis) in premature babies

<b>Submission date</b> 09/06/2022	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
<b>Registration date</b> 13/07/2022	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 07/12/2022	<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

Necrotising enterocolitis (NEC) is a key cause of death and disease in preterm infants. Early antibiotic use has been shown to impact on rates of NEC, with data suggesting that receipt in the first days after birth is protective, but long duration has adverse impact on NEC rates. We aim to use the large UK dataset of preterm births known as The National Neonatal Research Database (NNRD) to further delineate this relationship. The NNRD holds data on 'every' preterm neonate admitted in the United Kingdom in a link anonymised fashion, allowing exploration of the role of antibiotics in NEC development in a much bigger population than previously explored.

### Who can participate?

Premature babies born at <32 weeks gestation with data entered into The National Neonatal Research Database

### What does the study involve?

Analysis of data already collected in the National Neonatal Research Database exploring impact of antibiotics on NEC

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

There are no benefits or risks to individuals as this is a database analysis of existing data

### Where is the study run from?

Newcastle upon Tyne Hospitals NHS Foundation Trust (UK)

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

January 2020 to December 2023

### Who is funding the study?

1. Investigator initiated and funded
2. Novo Nordisk Fonden

Who is the main contact?  
Dr Janet Berrington  
janet.berrington1@nhs.net

## Contact information

### Type(s)

Principal investigator

### Contact name

Dr Janet Berrington

### ORCID ID

<https://orcid.org/0000-0002-6185-2843>

### Contact details

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Integrated Research Application System (IRAS)

312574

### Protocol serial number

IRAS 312574

## Study information

### Scientific Title

Early antibiotic use and incidence of necrotising enterocolitis in very preterm infants: A UK based observational study using routinely recorded data

### Study objectives

Early antibiotic timing and duration impacts incidence of necrotising enterocolitis (NEC) in preterm infants

### Ethics approval required

Old ethics approval format

## **Ethics approval(s)**

Approval pending, Ref: 22/NE/0113

## **Study design**

Analysis of data already collected in the National Neonatal Research Database exploring impact of antibiotics on NEC

## **Primary study design**

Observational

## **Study type(s)**

Prevention

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

Preterm infant

## **Interventions**

We will access and extract details about infants with gestation <32 completed weeks, and the primary outcome measure of developing necrotising enterocolitis. We will also extract data on antibiotic exposure in the first 2 days to compare NEC incidence in those on antibiotics in the first 2 days with those without. We will collect additional data to allow for the effects of confounding factors as determined by the directed acyclic graph of other essential factors to consider in this analysis, including the availability of these items within the National Neonatal Research Database (NNRD), which holds this data routinely. There is no patient intervention, all data already exists.

## **Intervention Type**

Drug

## **Phase**

Not Applicable

## **Primary outcome(s)**

Incidence of severe necrotising enterocolitis resulting in death or surgery developed before discharge from neonatal care as measured by the 'Battersby' definition and collected from the National Neonatal Research Database (NNRD)

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

All are measured before discharge from the neonatal unit and collected from the NNRD between 01/07/2022 and 31/12/2022:

1. Late onset sepsis (bloodstream or CSF confirmed pure growth in culture (NNAP definition) after the first 3 days and/or treatment with 5 days of antibiotics and a concurrent diagnosis of infection after the first 3 days)
2. Total antibiotic use (number of days with any treatment of antibiotics during admission)
3. Length of stay (postnatal age at discharge or death)
4. Time to reach full feeding (first day of 3 consecutive days where parenteral nutrition or intravenous fluid are not recorded)
5. Growth (change in standard deviation score (SDS) between birth and 36 weeks and discharge)
6. Total pre-discharge mortality

7. Further, we will analyse effects on some relevant adverse outcomes:

7.1 Total pre-discharge mortality

7.2. Death prior to day 7, day 14, day 28

7.3 Bronchopulmonary dysplasia (BPD; respiratory support given at 36 weeks)

7.4. Retinopathy of prematurity (ROP; in receipt of treatment, according to NNRD standard operating procedure)

7.5. Brain injury (intraventricular hemorrhage grade 3 or above or periventricular leukomalacia diagnoses recorded)

7.6. Need for surgical procedures

**Completion date**

31/12/2023

## Eligibility

**Key inclusion criteria**

1. Preterm infant born at <32 weeks gestation
2. Data entered into the The National Neonatal Research Database

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Neonate

**Sex**

All

**Key exclusion criteria**

Death before 3 days

**Date of first enrolment**

01/07/2022

**Date of final enrolment**

31/12/2023

## Locations

**Countries of recruitment**

United Kingdom

England

Scotland

Wales

**Study participating centre**  
**Royal Victoria Infirmary**  
Neonatal Unit  
(Ward 35)  
Richardson Road  
Newcastle  
United Kingdom  
NE1 4LP

## Sponsor information

**Organisation**  
Newcastle upon Tyne Hospitals NHS Foundation Trust

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

## Funder(s)

**Funder type**  
Other

**Funder Name**  
Investigator initiated and funded

**Funder Name**  
Novo Nordisk Fonden (postdoctoral fellowship to René Shen, BRIDGE Translational Excellence Programme, grant no. NNF18SA0034956)

**Alternative Name(s)**  
Novo Nordisk Foundation, Novo Nordic Foundation, NNF

**Funding Body Type**  
Private sector organisation

**Funding Body Subtype**  
Trusts, charities, foundations (both public and private)

**Location**  
Denmark

# 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 Dr Janet Berrington [janet.berrington1@nhs.net](mailto:janet.berrington1@nhs.net)

## IPD sharing plan summary

Available on request

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Protocol article</a>		15/11/2022	23/11/2022	Yes	No
<a href="#">HRA research summary</a>			28/06/2023	No	No