

# EPIFEVER: elucidating molecular mechanisms underlying epidural-related maternal fever

<b>Submission date</b> 24/11/2014	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 28/01/2015	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 03/07/2020	<b>Condition category</b> Pregnancy and Childbirth	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

About a third of women in labour receive pain relief via an epidural. When an epidural is performed by an anaesthetic doctor, the anaesthetist places a small plastic tube into a space in the back through which local anaesthetic is infused. A quarter of women who have an epidural in labour develop a high temperature or fever, known as epidural-related maternal fever, but doctors currently do not understand why the fever occurs. Fever during labour can be a real problem. The high temperature results in a more stressful labour for mother and baby. Midwives and obstetricians looking after mothers in labour with a high temperature are concerned that the fever might be due to infection, and these mothers commonly receive antibiotics. It is clear that many women who have an epidural-related maternal fever do not have infection and so the antibiotic treatment is unnecessary. Finally a fever in labour can sometimes lead to women having a Caesarean section or instrumental deliveries because of concerns about the baby. The aim of this study is to find the cause of epidural-related maternal fever. If we can find the cause, we hope to then be able to develop a way to prevent it from happening, and also avoid the use of unnecessary antibiotics.

### Who can participate?

We are approaching pregnant women who may receive an epidural for pain relief in labour or for delivery, and non-pregnant women having an epidural for surgery.

### What does the study involve?

It is well known that local anaesthetics not only reduce pain, but may also cause immune cells to release substances into the mother's bloodstream. We believe that these substances may be the cause of the fever. We will investigate whether the local anaesthetic causes fever by testing its effects on immune cells collected in blood samples. We would like to collect blood from two groups of women in labour: those receiving an epidural for pain relief and those who do not receive an epidural. We will also collect blood samples from non-pregnant women having surgery who also receive an epidural, so we can find out how epidurals may affect immune cells in women who are not pregnant.

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

The information we get from this study may help us to better treat future patients undergoing

epidurals for pain relief and anaesthesia and to prevent epidural-related maternal fever. Every procedure described is a routine part of your care, so there are no additional risks of taking part. We will try as far as possible to collect the blood samples from your existing drip access, which does not carry any risk. If this not possible and we need to collect a blood sample from a vein in your arm.

Where is the study run from?

University College London Hospitals NHS Trust (UK)

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

October 2014 to March 2016

Who is funding the study?

Obstetrics Anaesthetists' Association (OAA)

Who is the main contact?

Dr Gareth Ackland

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## Contact information

### Type(s)

Scientific

### Contact name

Dr Gareth Ackland

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## Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

Protocol v1.2

# Study information

## Scientific Title

EPIFEVER: elucidating molecular mechanisms underlying EPIdural-related maternal FEVER - an observational single-centre study

## Acronym

EPIFEVER

## Study objectives

Inflammatory mechanisms associated with the development of fever following epidural analgesia started in established labour.

## Ethics approval required

Old ethics approval format

## Ethics approval(s)

NRES Committee South Central - Oxford A Bristol Research Ethics Committee Centre, 18/08 /2014, REC ref: 14/SC/1160

## Study design

Observational single-centre study

## Primary study design

Observational

## Secondary study design

Cohort study

## Study setting(s)

Hospital

## Study type(s)

Other

## Participant information sheet

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

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

Epidural-related maternal fever (ERMF)

## Interventions

Local anaesthetics not only reduce pain but may also damage immune cells, resulting in substances being released into the mother's bloodstream and causing fever. We will investigate whether the local anaesthetic causes fever through the release of fever-inducing substances by undertaking tests on immune cells obtained from two groups of women: those receiving an epidural for pain relief and those who do not use epidural analgesia. We will also use samples from surgical patients who also receive epidural analgesia. We will insert an IV drip into women /patients which is used routinely as part of their hospital stay, thereby minimizing unnecessary

discomfort. While inserting the IV drip a tablespoon of blood will be taken for laboratory tests. 4 hours later another tablespoon of blood will be taken. We will then compare function of immune cells before and after epidural local anaesthetic has been administered. If local anaesthetic is found to affect immune function and be a cause of fever, these results will enable us to identify the cause of fever in individual women in labour and help avoid unnecessary clinical interventions and antibiotic administration in the future.

**Intervention Type**

Other

**Primary outcome measure**

Development of maternal fever; temperature measured pre and 4 hours after onset of epidural analgesia.

**Secondary outcome measures**

Laboratory-based assays of immune function pre- and 4 hours post-epidural (or otherwise)

**Overall study start date**

01/10/2014

**Completion date**

31/03/2016

**Eligibility****Key inclusion criteria**

>37 weeks gestation, established labour ( $\geq 2$  cm dilated with contractions) and all babies delivered from these women will have outcomes follow up

For female surgical patients >18 years old, all those who have agreed to receive epidural analgesia decided in conjunction with their attending anaesthetist will be eligible

**Participant type(s)**

Patient

**Age group**

Adult

**Lower age limit**

18 Years

**Sex**

Female

**Target number of participants**

144

**Total final enrolment**

53

## **Key exclusion criteria**

Obstetric patients:

1. No pre-eclampsia or hypertensive disorder
2. No pre-existing immune dysfunction
3. No known infection
4. Not currently on antibiotics
5. Not received NSAID

Female surgical patients:

1. No known infection
2. Not currently on antibiotics
3. Not received NSAID
4. Not pregnant

## **Date of first enrolment**

01/10/2014

## **Date of final enrolment**

31/03/2016

# **Locations**

## **Countries of recruitment**

England

United Kingdom

## **Study participating centre**

**UCLH NHS Trust**

235 Euston Road

London

United Kingdom

NW1 2BU

# **Sponsor information**

## **Organisation**

UCLH NHS Trust

## **Sponsor details**

Joint Research Office

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149 Tottenham Court Road

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United Kingdom

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+44 (0)20 3447 9995  
JRO.Communications@uclh.nhs.uk

**Sponsor type**

Hospital/treatment centre

**Website**

[www.ucl.ac.uk/jro](http://www.ucl.ac.uk/jro)

**ROR**

<https://ror.org/042fqyp44>

## Funder(s)

**Funder type**

Charity

**Funder Name**

Obstetrics Anaesthetists' Association (OAA)

## Results and Publications

**Publication and dissemination plan**

To be confirmed at a later date

**Intention to publish date**

30/06/2016

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

Available on request

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	01/01/2019	03/07/2020	Yes	No
<a href="#">HRA research summary</a>			26/07/2023	No	No