

# Trainee-led evaluation of the need for intershift recovery among emergency department doctors in the United Kingdom: the TIRED-UK study

|                                        |                                                   |                                                                                                   |
|----------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Submission date</b><br>09/09/2019   | <b>Recruitment status</b><br>No longer recruiting | <input type="checkbox"/> Prospectively registered<br><input checked="" type="checkbox"/> Protocol |
| <b>Registration date</b><br>07/11/2019 | <b>Overall study status</b><br>Completed          | <input type="checkbox"/> Statistical analysis plan<br><input checked="" type="checkbox"/> Results |
| <b>Last Edited</b><br>05/11/2020       | <b>Condition category</b><br>Other                | <input type="checkbox"/> Individual participant data                                              |

## Plain English summary of protocol

### Background and study aims

Emergency departments (ED) provide patient care 24 hours a day all year round. This requires staff to work long consecutive shifts that can result in fatigue. It is recognised that fatigue negatively impacts productivity, exacerbates the risk of human error, and could be associated with occupational burnout. From a patient perspective staff with excess fatigue could lead to reduced experience of care and increased patient safety concerns. Fatigue may be measured by a variety of approaches including psychometric testing, assessment of reaction speeds, and personal diaries. However, these methods are impractical for providing rapid assessment within a working population and have limited validity. With rates of burnout as high as 60% in ED doctors there is a need for effective measurements of fatigue in order to produce evidence-based solutions.

The 'need for recovery' (NFR) scale is a validated questionnaire originally developed in the Netherlands, to assess how work demands affect inter-shift recovery. It features eleven items requiring a 'yes' or 'no' response, takes only a few minutes to complete, and shows high acceptability amongst surveyed populations. An online survey using the NFR has been trialled by this research group in a single centre ED and was shown to be an acceptable means of measuring staff fatigue.

This study is a survey aiming to answer the question 'What is the baseline need for recovery (NFR) score among ED doctors in the UK and which factors influence NFR?'. It will achieve this by conducting a national study to characterise the baseline NFR score in ED doctors across the UK and determine whether there are any associations and differences between NFR scores and demographic, occupational, personal wellbeing, rota characteristics, or geographical region variables. The survey will be open for the period of one month and will take participants approximately 15 minutes to complete.

Who can participate?

Doctors with full or provisional registration with the General Medical Council who have been employed in their main role as an ED doctor for the preceding month at the time of completion of the survey.

What does the study involve?

Participants will complete an online questionnaire

What are the possible benefits and risks of participating?

This study has the potential to aid patient safety by providing individuals and employers with an indication of who is most at risk of increased NFR score, whether disparities exist between different staff groups, departments, and localities, and whether increased need for recovery is a predictor of future occupational burnout.

Where is the study run from?

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

June 2018 to October 2019

Who is funding the study?

Royal College of Emergency Medicine

Who is the main contact?

Dr Laura Cottey,  
laura.cottey@nhs.net

## Contact information

**Type(s)**

Scientific

**Contact name**

Dr Laura Cottey

**ORCID ID**

<https://orcid.org/0000-0002-4045-9444>

**Contact details**

Emergency Department  
University Hospitals Plymouth NHS Trust  
Derriford Road  
Plymouth  
United Kingdom  
PL6 8DH  
+44 (0)7470277184  
laura.cottey@nhs.net

## Additional identifiers

Protocol serial number

## Study information

### Scientific Title

Trainee-led evaluation of the need for Intershift Recovery among Emergency Department doctors in the United Kingdom

### Acronym

TIRED-UK

### Study objectives

What is the baseline need for recovery (NFR) score among Emergency Department (ED) doctors in the UK and which factors influence NFR?

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

Not required. Research limited to involvement of staff as participants (no involvement of patients/service users as participants)

### Primary study design

Observational

### Study design

Observational; Design type: Cross-sectional

### Study type(s)

Other

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

Fatigue and recovery in doctors

### Interventions

This study is being conducted as part of the Trainee Emergency Research Network collaborative (TERN), an initiative by the Royal College of Emergency Medicine to widen access to research by ED doctors and specifically trainees.

The methodology for the survey has been designed with regard to the Checklist for Reporting Results of Internet Esurveys (CHERRIES).

The design is a cross-sectional online survey with additional ED demographic data collected by a local TERN representative. Each participant will complete the survey once. This design has been chosen for ease of access by participants and has been amended following PPI consultation where proposed questions were reviewed.

The 57-item cross sectional survey has been previously trialled during a feasibility study and was found to be acceptable to participants and to have good face validity. The survey will seek to gather information on demographic characteristics (6 items), operational/rota characteristics (25

items), NFR questionnaire (11 items), perceptions relating to burnout (2 items) and one free text item to seek participant's views on suggestions on recovery.

The survey has been designed to minimise respondent fatigue and can be completed in 10-15 minutes using a smart phone app, computer or laptop.

In addition to the individual doctor surveys, a nominated TERN representative will collect anonymous site-specific data from EDs which is collected locally and nationally. This methodology has been chosen as previous surveys have found when participants are asked questions which requires them to calculate shift lengths and maximum number of shifts based over a certain period this reduces responses. This data is the same for each group of doctors on a specific rota and therefore can be collected from the roster without burdening participants. The information collected will also include broader information on the characteristics of the ED, staffing, rota pattern, leave allocation, teaching & training, consultant/ senior supervision, case-mix, specialist designation (e.g. Major Trauma Centre, Hyper- acute Stroke centre, etc.) which can then be associated with individuals' responses.

### **Intervention Type**

Other

### **Primary outcome(s)**

Baseline Need for Recovery (NFR) score amongst ED doctors in the UK assessed by NFR questionnaire.

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

Assessed by 57-item survey:

1. Demographic characteristics
2. Occupational characteristics
3. Well-being characteristics

### **Completion date**

10/10/2019

## **Eligibility**

### **Key inclusion criteria**

1. Doctors with full or provisional registration with the General Medical Council who have been employed in their main role as an ED doctor for the preceding month at the time of completion of the survey

This includes; ED consultants, ED specialist training doctors, ED associate specialist and staff grades doctors, acute common care stem trainees, GP trainees, Foundation Year one and two doctors, clinical fellows and trust grade doctors.

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

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

**Sex**

All

**Total final enrolment**

4247

**Key exclusion criteria**

1. Doctors whose main place of employment is outside of the ED. This includes speciality doctors employed in specialties other than Emergency Medicine. This will be identified in the demographic questions asked in the survey
2. EDs designated as Type 2, 3, or 4 by NHS England

**Date of first enrolment**

03/06/2019

**Date of final enrolment**

15/07/2019

## **Locations**

**Countries of recruitment**

United Kingdom

England

Northern Ireland

Scotland

Wales

**Study participating centre**

**NHS Greater Glasgow and Clyde**

J B Russell House

Gartnavel Royal Hospital

1055 Great Western Road

Glasgow

United Kingdom

G12 0XH

**Study participating centre**

**University Hospitals Coventry and Warwickshire NHS Trust**

Clifford Bridge Road

Coventry  
United Kingdom  
CV2 2DX

**Study participating centre**  
**Frimley Health NHS Foundation Trust**  
Portsmouth Road  
Camberley  
United Kingdom  
GU16 7UJ

**Study participating centre**  
**Cambridge University Hospitals NHS Foundation Trust**  
Addenbrookes Hospital  
Hills Road  
Cambridge  
United Kingdom  
CB2 0QQ

**Study participating centre**  
**Croydon Health Services NHS Trust**  
London Road  
Thornton Heath  
United Kingdom  
CR7 7YE

**Study participating centre**  
**University Hospitals Of Derby And Burton NHS Foundation Trust**  
Royal Derby Hospital  
Uttoxeter Road  
Derby  
United Kingdom  
DE22 3NE

**Study participating centre**  
**East Kent Hospitals University NHS Foundation Trust**  
Kent & Canterbury Hospital  
Ethelbert Road  
Canterbury  
United Kingdom  
CT1 3NG

**Study participating centre**  
**Medway NHS Foundation Trust**  
Windmill Road  
Gillingham  
United Kingdom  
ME7 5NY

**Study participating centre**  
**Northumbria Healthcare NHS Foundation Trust**  
Rake lane  
North Shields  
United Kingdom  
NE29 8NH

**Study participating centre**  
**Royal Liverpool Hospital**  
Prescot Street  
Liverpool  
United Kingdom  
L7 8XP

**Study participating centre**  
**Aintree University Hospital NHS Foundation Trust**  
Fazakerley Hospital  
Lower Lane  
Liverpool  
United Kingdom  
L7 9AL

**Study participating centre**  
**Great Western Hospital**  
Marlborough Road  
Swindon  
United Kingdom  
SN3 6BB

**Study participating centre**

**Royal Devon and Exeter NHS Foundation Trust**  
Barrack Road  
Exeter  
United Kingdom  
EX2 5DW

**Study participating centre**  
**St Helens And Knowsley Hospital Services NHS Trust**  
Whiston Hospital  
Warrington Road  
Precot  
United Kingdom  
L35 5DR

**Study participating centre**  
**Northwick Park Hospital**  
Watford Road  
Harrow  
United Kingdom  
HA1 3UJ

**Study participating centre**  
**Gloucester Royal Hospital**  
Gloucestershire Hospitals NHS Foundation Trust  
Great Western Road  
Gloucester  
United Kingdom  
GL1 3NN

**Study participating centre**  
**University Hospital Southampton NHS Foundation Trust**  
Southampton  
United Kingdom  
SO16 6YD

**Study participating centre**  
**Southport And Ormskirk Hospital NHS Trust**  
Southport  
United Kingdom  
PR8 6PN

**Study participating centre**  
**Imperial College Healthcare NHS Trust**  
London  
United Kingdom  
W2 1NY

**Study participating centre**  
**NHS Blackburn With Darwen CCG**  
Blackburn  
United Kingdom  
BB1 2FD

**Study participating centre**  
**NHS Fife**  
Cupar  
United Kingdom  
KY15 5UP

**Study participating centre**  
**Lewisham And Greenwich NHS Trust**  
London  
United Kingdom  
SE13 6LH

**Study participating centre**  
**University Hospitals Plymouth NHS Trust**  
Plymouth  
United Kingdom  
PL6 8DH

**Study participating centre**  
**Torbay And South Devon NHS Foundation Trust**  
Torquay  
United Kingdom  
TQ2 7AA

**Study participating centre**

**University Hospitals of Leicester NHS Trust**  
Leicester  
United Kingdom  
LE1 5WW

**Study participating centre**  
**Manchester University NHS Foundation Trust**  
Manchester  
United Kingdom  
M13 9WL

**Study participating centre**  
**Mid Cheshire Hospitals NHS Foundation Trust**  
Crewe  
United Kingdom  
CW1 4QJ

**Study participating centre**  
**Southern Health & Social Care Trust**  
Craigavon Area Hospital  
68 Lurgan Road  
Portadown  
United Kingdom  
BT63 5QQ

**Study participating centre**  
**University Hospitals Birmingham NHS Foundation Trust**  
Birmingham  
United Kingdom  
B15 2TH

**Study participating centre**  
**Cardiff & Vale University LHB**  
Cardiff  
United Kingdom  
CF14 4XW

**Study participating centre**

**South Eastern Health & Social Care**

Dundonald  
United Kingdom  
BT16 1RH

**Study participating centre**

**Taunton And Somerset NHS Foundation Trust**

Taunton  
United Kingdom  
TA1 5DA

**Study participating centre**

**South Tees Hospitals NHS Foundation Trust**

Middlesbrough  
United Kingdom  
TS4 3BW

**Study participating centre**

**University Hospitals Bristol Nhs Foundation Trust**

Bristol  
United Kingdom  
BS1 3NU

**Study participating centre**

**NHS Lothian**

Edinburgh  
United Kingdom  
EH1 3EG

**Study participating centre**

**The Newcastle Upon Tyne Hospitals Nhs Foundation Trust**

Newcastle  
United Kingdom  
NE7 7DN

**Study participating centre**

**Belfast Health & Social Care Trust**

Belfast  
United Kingdom  
BT9 7AB

**Study participating centre**

**Pennine Acute Hospitals NHS Trust**

Manchester  
United Kingdom  
M8 5RB

**Study participating centre**

**Guy's And St Thomas' Nhs Foundation Trust**

London  
United Kingdom  
SE1 9RT

**Study participating centre**

**Portsmouth Hospitals Nhs Trust**

Portsmouth  
United Kingdom  
PO6 3LY

**Study participating centre**

**Chelsea And Westminster Hospital Nhs Foundation Trust**

London  
United Kingdom  
SW10 9NH

**Study participating centre**

**St George's University Hospitals Nhs Foundation Trust**

London  
United Kingdom  
SW17 0QT

**Study participating centre**

**James Paget University Hospitals Nhs Foundation Trust**  
Great Yarmouth  
United Kingdom  
NR31 6LA

**Study participating centre**  
**East Suffolk And North Essex Nhs Foundation Trust**  
Colchester  
United Kingdom  
CO4 5JL

**Study participating centre**  
**West Hertfordshire Hospitals Nhs Trust**  
Watford  
United Kingdom  
WD18 0HB

**Study participating centre**  
**West Suffolk Nhs Foundation Trust**  
Bury St. Edmunds  
United Kingdom  
IP33 2QZ

**Study participating centre**  
**NHS Grampian**  
Aberdeen  
United Kingdom  
AB15 6RE

**Study participating centre**  
**Homerton University Hospital Nhs Foundation Trust**  
London  
United Kingdom  
E9 6SR

**Study participating centre**

**Airedale Nhs Foundation Trust**

Keighley  
United Kingdom  
BD20 6TD

**Study participating centre**

**Barts Health Nhs Trust**

London  
United Kingdom  
E1 1BB

**Study participating centre**

**North Middlesex University Hospital Nhs Trust**

London  
United Kingdom  
N18 1QX

**Study participating centre**

**Royal Berkshire Nhs Foundation Trust**

Reading  
United Kingdom  
RG1 5AN

**Study participating centre**

**Lancashire Teaching Hospitals Nhs Foundation Trust**

Preston  
United Kingdom  
PR2 9HT

**Study participating centre**

**Bedford Hospital Nhs Trust**

Bedford  
United Kingdom  
MK42 9DJ

**Study participating centre**

**Maidstone And Tunbridge Wells Nhs Trust**

Maidstone  
United Kingdom  
ME16 9QQ

**Study participating centre**

**East And North Hertfordshire Nhs Trust**

Stevenage  
United Kingdom  
SG1 4AB

**Study participating centre**

**Lewisham And Greenwich Nhs Trust**

London  
United Kingdom  
SE13 6LH

**Study participating centre**

**NHS Lanarkshire**

Hamilton  
United Kingdom  
ML3 0TA

**Study participating centre**

**Leeds Teaching Hospitals Nhs Trust**

Leeds  
United Kingdom  
LS9 7TF

**Study participating centre**

**York Teaching Hospital Nhs Foundation Trust**

York  
United Kingdom  
YO31 8HE

**Study participating centre**

**Betsi Cadwaladr University LHB**

Bangor  
United Kingdom  
LL57 2PW

**Study participating centre**

**Hull And East Yorkshire Hospitals Nhs Trust**

Hull  
United Kingdom  
HU3 2JZ

**Study participating centre**

**University College London Hospitals Nhs Foundation Trust**

London  
United Kingdom  
NW1 2PG

**Study participating centre**

**Harrogate And District Nhs Foundation Trust**

Harrogate  
United Kingdom  
HG2 7SX

**Study participating centre**

**Salford Royal Nhs Foundation Trust**

Salford  
United Kingdom  
M6 8HD

**Study participating centre**

**Sheffield Teaching Hospitals Nhs Foundation Trust**

Sheffield  
United Kingdom  
S5 9AU

**Study participating centre**

**Surrey And Sussex Healthcare Nhs Trust**  
Redhill  
United Kingdom  
RH1 5RH

**Study participating centre**  
**Western Sussex Hospitals Nhs Foundation Trust**  
Worthing  
United Kingdom  
BN11 2DH

**Study participating centre**  
**Aneurin Bevan University LHB**  
Newport  
United Kingdom  
NP18 3XQ

**Study participating centre**  
**Hampshire Hospitals Nhs Foundation Trust**  
Basingstoke  
United Kingdom  
RG24 9NA

**Study participating centre**  
**University Hospitals Of North Midlands Nhs Trust**  
Stoke-on-Trent  
United Kingdom  
ST4 6QG

**Study participating centre**  
**Doncaster And Bassetlaw Teaching Hospitals Nhs Foundation Trust**  
Doncaster  
United Kingdom  
DN2 5LT

**Study participating centre**

**NHS Ayrshire and Arran**

Ayr  
United Kingdom  
KA7 1QJ

**Study participating centre**

**Warrington and Halton Hospitals Nhs Foundation Trust**

Warrington  
United Kingdom  
WA5 1QG

**Study participating centre**

**Epsom and St Helier University Hospitals Nhs Trust**

Carshalton  
United Kingdom  
SM5 1AA

**Study participating centre**

**Bolton Nhs Foundation Trust**

Bolton  
United Kingdom  
BL4 0JR

**Study participating centre**

**Bradford Teaching Hospitals Nhs Foundation Trust**

Bradford  
United Kingdom  
BD9 6RJ

**Study participating centre**

**Brighton And Sussex University Hospitals Nhs Trust**

Brighton  
United Kingdom  
BN2 5BE

**Study participating centre**

**Oxford University Hospitals Nhs Foundation Trust**  
Oxford  
United Kingdom  
OX3 9DU

**Study participating centre**  
**Milton Keynes University Hospital Nhs Foundation Trust**  
Milton Keynes  
United Kingdom  
MK6 5LD

**Study participating centre**  
**Royal Cornwall Hospitals Nhs Trust**  
Truro  
United Kingdom  
TR1 3LJ

**Study participating centre**  
**Shrewsbury and Telford Hospital Nhs Trust**  
Shrewsbury  
United Kingdom  
SY3 8XQ

**Study participating centre**  
**Royal Surrey County Hospital Nhs Foundation Trust**  
Guildford  
United Kingdom  
GU2 7XX

**Study participating centre**  
**Royal United Hospitals Bath Nhs Foundation Trust**  
Bath  
United Kingdom  
BA1 3NG

**Study participating centre**

**Sheffield Children's Nhs Foundation Trust**  
Sheffield  
United Kingdom  
S10 2TH

**Study participating centre**  
**Mid Cheshire Hospitals Nhs Foundation Trust**  
Crewe  
United Kingdom  
CW1 4QJ

**Study participating centre**  
**Yeovil District Hospital Nhs Foundation Trust**  
Yeovil  
United Kingdom  
BA21 4AT

**Study participating centre**  
**NHS Forth Valley**  
Stirling  
United Kingdom  
FK8 1DX

## **Sponsor information**

**Organisation**  
University Hospitals Plymouth NHS Trust

**ROR**  
<https://ror.org/05x3jck08>

## **Funder(s)**

**Funder type**  
Research organisation

**Funder Name**  
Royal College of Emergency Medicine; Grant Codes: GR222017

# Results and Publications

## Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request from Dr Tom Roberts, TERN@rcem.ac.uk.

Anonymised data to both individual and site will be available for one year after the study. This will be available to principal investigators. Others may request the data and such requests will be dealt with on a case by case basis.

## 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       | 02/11/2020   | 05/11/2020 | Yes            | No              |
| <a href="#">Protocol file</a>   |               | 20/02/2019   | 07/11/2019 | No             | No              |
| <a href="#">Study website</a>   | Study website | 11/11/2025   | 11/11/2025 | No             | Yes             |