

# Sleep after intensive care study

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<b>Registration date</b> 11/09/2025	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 12/11/2025	<b>Condition category</b> Mental and Behavioural Disorders	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Some people who have been in intensive care (ICU) experience unusual sleep problems after they go home. These can include panic on waking, strange dreams, or broken sleep. This study explores whether these symptoms could be linked to memories formed while patients were sedated and on a ventilator. The researchers aim to understand how these experiences affect sleep and will explore how sleep patterns differ between patients who were sedated and those who were not.

### Who can participate?

Adults aged 18 years or over who spent at least 72 hours in ICU and are now well enough to leave critical care. Participants must be English-speaking and able to give informed consent. Some will have received sedation and ventilation during their ICU stay, and some will not. Those that were sedated and ventilated must have been so for at least 24 hours and must have been extubated in the ICU. Patients in the non-sedated group must not have received continuous sedation or mechanical ventilation for any part of their admission.

### What does the study involve?

Participants will complete three short questionnaires at home, 2 weeks after discharge. These ask about sleep quality, ICU memories, and trauma symptoms. A small number of participants (8–10) with high sleep disturbance scores will be invited to take part in a one-off interview to explore their ICU experiences and sleep symptoms in more detail.

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

There is no direct benefit, but the study may help improve future support for ICU survivors and some participants may find it helpful to reflect on their experiences. There is a risk of emotional distress when discussing ICU memories. Support will be available throughout the study, and participation is entirely voluntary.

### Where is the study run from?

The study is run from County Durham and Darlington NHS Foundation Trust, with recruitment taking place at both Durham and Darlington Hospitals (UK)

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

August 2025 to February 2026

Who is funding the study?

The study is funded by the NIHR via the Sheffield Hallam University Internship program (UK)

Who is the main contact?

Sally Horsley, sally.horsley@nhs.net

## Contact information

### Type(s)

Public, Scientific, Principal investigator

### Contact name

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Integrated Research Application System (IRAS)

357332

### ClinicalTrials.gov (NCT)

Nil known

### Protocol serial number

Nil known

## Study information

### Scientific Title

Sedation, memory and sleep disturbances after intensive care: a mixed-methods study

### Study objectives

1. To explore the nature and prevalence of sleep symptoms in ICU survivors following discharge, including poor sleep quality, nightmares, and unusual sleep-related experiences.
2. To investigate whether these sleep symptoms are associated with memories of sedation and mechanical ventilation, including both explicit and implicit memory re-experiencing.

3. To compare sleep symptom profiles between ventilated and non-ventilated ICU patients, identifying any differences in memory-related sleep disturbances.
4. To qualitatively examine patient narratives about their ICU experiences and sleep symptoms, using semi-structured interviews to identify themes related to memory and recovery.
5. To inform future clinical support and rehabilitation strategies by identifying specific memory-linked sleep symptoms that may benefit from targeted psychological or therapeutic interventions.

#### Rationale:

This study is being conducted to explore whether sleep symptoms experienced by ICU survivors are linked to memories of sedation and mechanical ventilation, including implicit and explicit memory re-experiencing. The rationale is based on clinical observations that some patients report persistent sleep issues that improve when these symptoms are understood as memory-related rather than general sleep disturbance.

#### **Ethics approval required**

Ethics approval required

#### **Ethics approval(s)**

notYetSubmitted

#### **Study design**

Single-centre mixed-methods observational cross-sectional study

#### **Primary study design**

Observational

#### **Study type(s)**

Other, Quality of life, Treatment

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

Post-intensive care syndrome (PICS), sleep disturbance, trauma symptoms, memory re-experiencing

#### **Interventions**

Current methodology as of 12/11/2025:

ICU patients will be invited to complete three questionnaires 4 weeks after discharge home. Questionnaires will ask about their ICU memories (ITQ - International Trauma Questionnaire), current sleep experiences (PSQI - Pittsburgh Sleep Quality Index) and symptoms of trauma/emotional distress (ICUMT ICU-Memory Types). 10-12 of the participants with high sleep scores will be invited for an hour-long semi-structured interview. Questionnaires and interviews will include both sedated/ventilated and non-sedated/ventilated patient groups. Questionnaire results will be analysed using descriptive statistics and Pearson's correlation; the sedated/non-sedated sub-groups will be compared using t-tests or non-parametric equivalents. Interviews will undergo reflexive thematic analysis to identify patterns in how patients describe their sleep experiences and ICU memories.

Previous methodology:

ICU patients will be invited to complete three questionnaires 2 weeks after discharge home. Questionnaires will ask about their ICU memories (ITQ - International Trauma Questionnaire), current sleep experiences (PSQI - Pittsburgh Sleep Quality Index) and symptoms of trauma

/emotional distress (ICUMT ICU-Memory Types). 8-10 of the participants with high sleep scores will be invited for an hour-long semi-structured interview and interviews will include both sedated/ventilated and non-sedated/ventilated patient groups. Questionnaire results will be analysed using descriptive statistics and Pearson's correlation; the sedated/no-sedated sub-groups will be compared using t-tests or non-parametric equivalents. Interviews will undergo reflexive thematic analysis to identify patterns in how patients describe their sleep experiences and ICU memories.

## **Intervention Type**

Other

## **Primary outcome(s)**

Current primary outcome measure as of 12/11/2025:

Sleep experience/symptoms identified using the Pittsburgh Sleep Quality Index (PSQI), at least 4 weeks post-ICU discharge, completed once

Previous primary outcome measure:

Sleep experience/symptoms identified using the Pittsburgh Sleep Quality Index (PSQI), at least 2 weeks post-ICU discharge, completed once

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

1. Trauma/distress symptoms identified using the International Trauma Questionnaire (ITQ) at least 2 weeks post-ICU discharge, completed once
2. ICU memories identified using the ICU- Memory Tool (ICUMT) at least 2 weeks post-ICU discharge, completed once

## **Completion date**

01/02/2026

# **Eligibility**

## **Key inclusion criteria**

1. Aged 18 years or older
2. English-speaking (to ensure language accuracy of data collection)
3. Admitted to ICU for a minimum of 72 hours (to ensure sufficient exposure to the ICU environment relevant to the study aims)
4. No longer requiring critical care (downgraded to ward-level care)
5. Expected to be discharged home within the next 7 days
6. Able to provide informed consent
7. Score negative on a CAM-ICU assessment
8. Score 15/15 on a GCS assessment

For ventilated participants:

9. Must have received continuous sedation for  $\geq 24$  hours during ICU admission
10. Sedation depth must be confirmed by a RASS score of -3 or deeper (as documented in clinical records)
11. Must have been extubated within the ICU setting

For non-sedated participants:

12. Must not have received sedation or ventilation at any point during their hospital admission.

A subset of participants may be invited to take part in a one-off interview. Selection will be based on sleep symptom profiles, although matching across sedation groups may be limited due to timing and sample availability.

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Lower age limit**

18 years

**Upper age limit**

100 years

**Sex**

All

**Total final enrolment**

0

**Key exclusion criteria**

1. Documented diagnosis of severe cognitive impairment that would affect their ability to participate meaningfully (assessed via clinical records and/or clinician judgement)
2. Currently receiving end-of-life care
3. Non-English speaking
4. Transferring to another hospital

**Date of first enrolment**

01/01/2026

**Date of final enrolment**

01/02/2026

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre**

County Durham and Darlington NHS Foundation Trust

Darlington Memorial Hospital

Hollyhurst Road

Darlington  
England  
DL3 6HX

## Sponsor information

### Organisation

County Durham and Darlington NHS Foundation Trust

### ROR

<https://ror.org/03vamsh08>

## Funder(s)

### Funder type

University/education

### Funder Name

Sheffield Hallam University

### Alternative Name(s)

### Funding Body Type

Private sector organisation

### Funding Body Subtype

Universities (academic only)

### Location

United Kingdom

## Results and Publications

### Individual participant data (IPD) sharing plan

The questionnaire datasets generated during the current study will be stored in a publicly available repository (e.g. Zenodo or Figshare). Anonymised excerpts from interview transcripts will be published with the results and may be made available upon request from Sally Horsley ([sally.horsley@nhs.net](mailto:sally.horsley@nhs.net)).

### IPD sharing plan summary

Stored in publicly available repository