FUNDED BY
NIHR | National Institute for Health and Care Research

IMPERIAL

NHS
Chelsea and Westminster Hospital
NHS Foundation Trust

The Determinants of Nursing Staff Escalating Care Out-of-Hours

A Mixed Methods Systematic Review

Virtudazo, M. Ede, J. Smith, D. Pattison, N
August 2025

FUNDED BY
NIHR | National Institute for Health and Care Research

NHS
Chelsea and Westminster Hospital
NHS Foundation Trust

Introduction

Patient outcomes are **worse out-of-hours**:

30-day mortality rate

Weekend cases = higher odds of death

Out-of-hours ICU discharges associated with higher in-hospital deaths and unplanned ICU admissions

Mohammed et al., 2012, Han et al., 2018, Vollam et al., 2018

Why?

FUNDED BY NIHR | National Institute for Health and Care Research

IMPERIAL

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Background

Nursing staff are crucial in identifying and addressing clinical deterioration, supported by **tools** and **systems**

Jones et al., 2011

Studies report **inconsistencies** in how staff identify and escalate clinical deterioration

Ede et al., 2020, Smith et al., 2021, Dresser et al., 2023

Reviews have explored the **determinants** that influence recognition and response to clinical deterioration

Massey et al., 2017, Treacy and Stayt, 2019

However, none focused on out-of-hours care

FUNDED BY NIHR | National Institute for Health and Care Research

IMPERIAL

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Aim

To identify the **determinants** that influence nursing staff recognising and escalating care **out-of-hours** in **inpatient ward** settings.

Methods

01 Search Strategy

Four electronic databases: Embase, Medline, PsycINFO and CINAHL

Keywords:

1. Nursing Staff
2. Clinical deterioration
3. Out-of-hours (outside the standard working window of 08:00 to 18:00)

Up to May 2025

02 Quality Assessment

Qualitative Studies:
Critical Appraisal Skills Programme Qualitative Checklist
(CASP, 2018)

Quantitative Studies:
Newcastle-Ottawa Scale
(Wells et al., 2014)

Mixed Methods Studies:
Mixed Methods Appraisal Tool
(Hong et al., 2018)

03 Synthesis

Joanna Briggs Institute (JBI) Mixed Methods Systematic Review Convergent Integrated approach
(Stern et al., 2020)

↓

Numerical findings were 'qualitised'

↓

Thematic synthesis

Virtudazo, M. Ede, J. Smith, D. Pattison, N

FUNDED BY NIHR | National Institute for Health and Care Research

IMPERIAL

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Key Findings

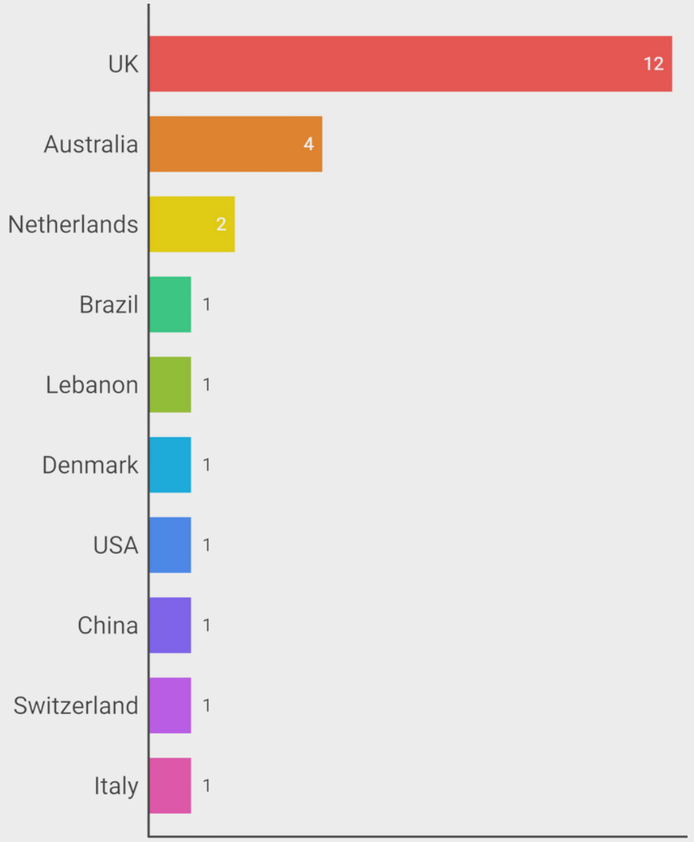
3085 articles (literature search)
264 articles (hand-searching)

↓

288 papers for full-text review

↓

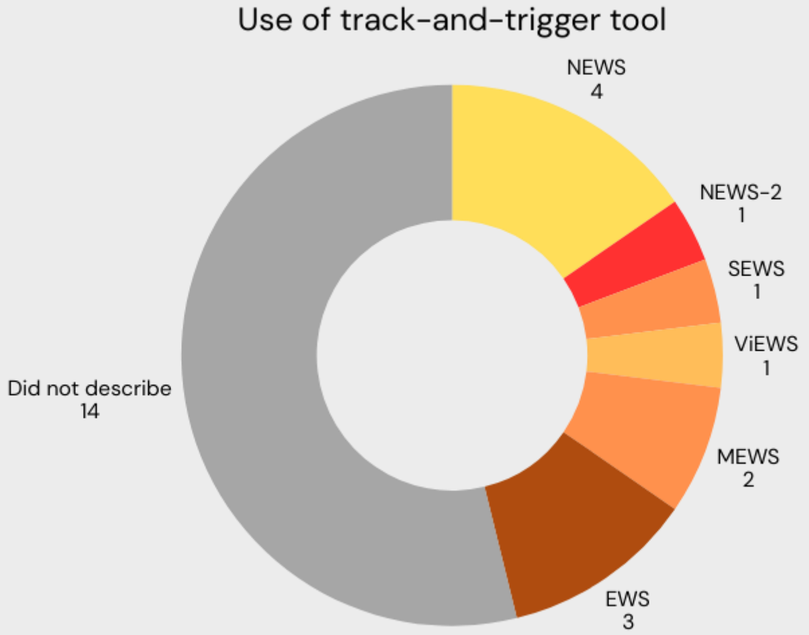
26 articles were included:
18 quantitative studies
7 qualitative studies
1 mixed methods study



Number of Studies by Country

There was **no uniform definition** of 'out-of-hours'

17 studies = night-time hours only
9 studies = included weekends and/or holidays



FUNDED BY NIHR | National Institute for Health and Care Research

IMPERIAL

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Key Findings

No single study exclusively examined determinants influencing nursing staff recognising or escalating clinical deterioration out-of-hours.

5 themes
22 subthemes

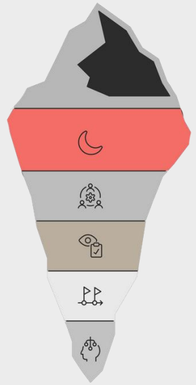
Virtudazo, M. Ede, J. Smith, D. Pattison, N

FUNDED BY NIHR | National Institute for Health and Care Research

IMPERIAL

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Unique challenges of the ‘hospital at night’

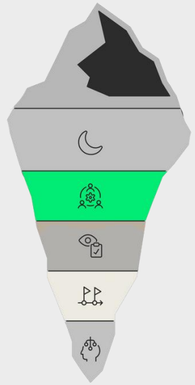


Nature of night-time work	Physiological effects of the night	Diurnal workflow variation
Restricted clinical environment Patient sleep VS monitoring	Patients with dementia: confusion and agitation Physiological effects on staff performance	Day shifts: frequent interruptions Night shifts: fewer disruptions, allowing uninterrupted care Balancing administrative tasks VS preparation for the ‘next day’

FUNDED BY NIHR | National Institute for Health and Care Research

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Team dynamics



Staffing and workforce

Nursing staffing and skillmix
- Lower nurse: patient ratio
- High proportion of junior / inexperienced staff
- Redeployment and temporary workforce

Higher staffing levels = more MET activations
Lower staffing levels = delayed escalation

Reduced medical coverage
- only a quarter of reviews were conducted
- most reviews conducted by junior staff

Healthcare Team Interactions

Unclear role expectations and implied hierarchical structures between RNs and HCAs

Sense of disconnection between nursing vs medical teams

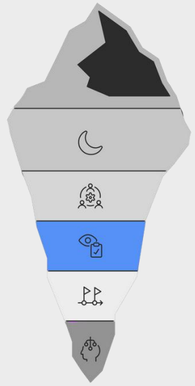
Communication barriers (e.g. use of telephones)

Culture around monitoring and escalation

FUNDED BY NIHR | National Institute for Health and Care Research

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Organisational Oversight



The organisation's awareness of out-of-hours care

Nurses report feeling overwhelmed, however faced difficulties communicating concerns to senior management

Compliance monitoring often led to covert behaviour

Auditing practices enhanced executive engagement

Reduced managerial personnel = nursing staff balancing administrative duties (e.g. bed management)

Nurses perception: reduced presence of managers = fewer interruptions to care

Lower patient turnover = improved nursing responses

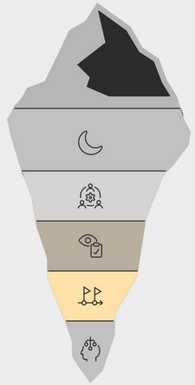
Admissions during handover = increased risk of missed or delayed observations

Bed pressures

FUNDED BY NIHR | National Institute for Health and Care Research

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Clinical nursing workflow out-of-hours



Handover	Monitoring, Assessment and Escalation	Resources aiding workflow
Conducted away from patients, increased the risk of miscommunication or omission of critical details	More frequent documentation lapses, with longer delays between checks	Automated observations as a facilitator
Disconnect between handover actual patient conditions	Respiratory rate as often missing	Alarm fatigue = reduced response rate
Implicit bias over historical data	Challenges in assessing sleeping patients	Inconsistent documentation of reviews
Unclear monitoring frequencies	Structured rounds with predetermined times improved consistency	Unclear treatment escalation plans
	Inconsistency in adherence to EWS protocols	

Virtudazo, M. Ede, J. Smith, D. Pattison, N

FUNDED BY NIHR | National Institute for Health and Care Research

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Individual determinants of behaviour

Knowledge and Skills of EWS and Clinical Decision-Making

Errors in EWS calculation = missed deterioration triggers

Experienced nurses relying on clinical judgment rather than EWS

Long-stay patients or those with DNACPR orders = less frequent checks

Perceived hierarchical weighting of clinical cues, with rising oxygen support prompted medical review more consistently

Contextual Factors Influencing Behaviour

Competing demands prioritised over monitoring (e.g. medications, hygiene, weighing)

Time constraints and perceived workload

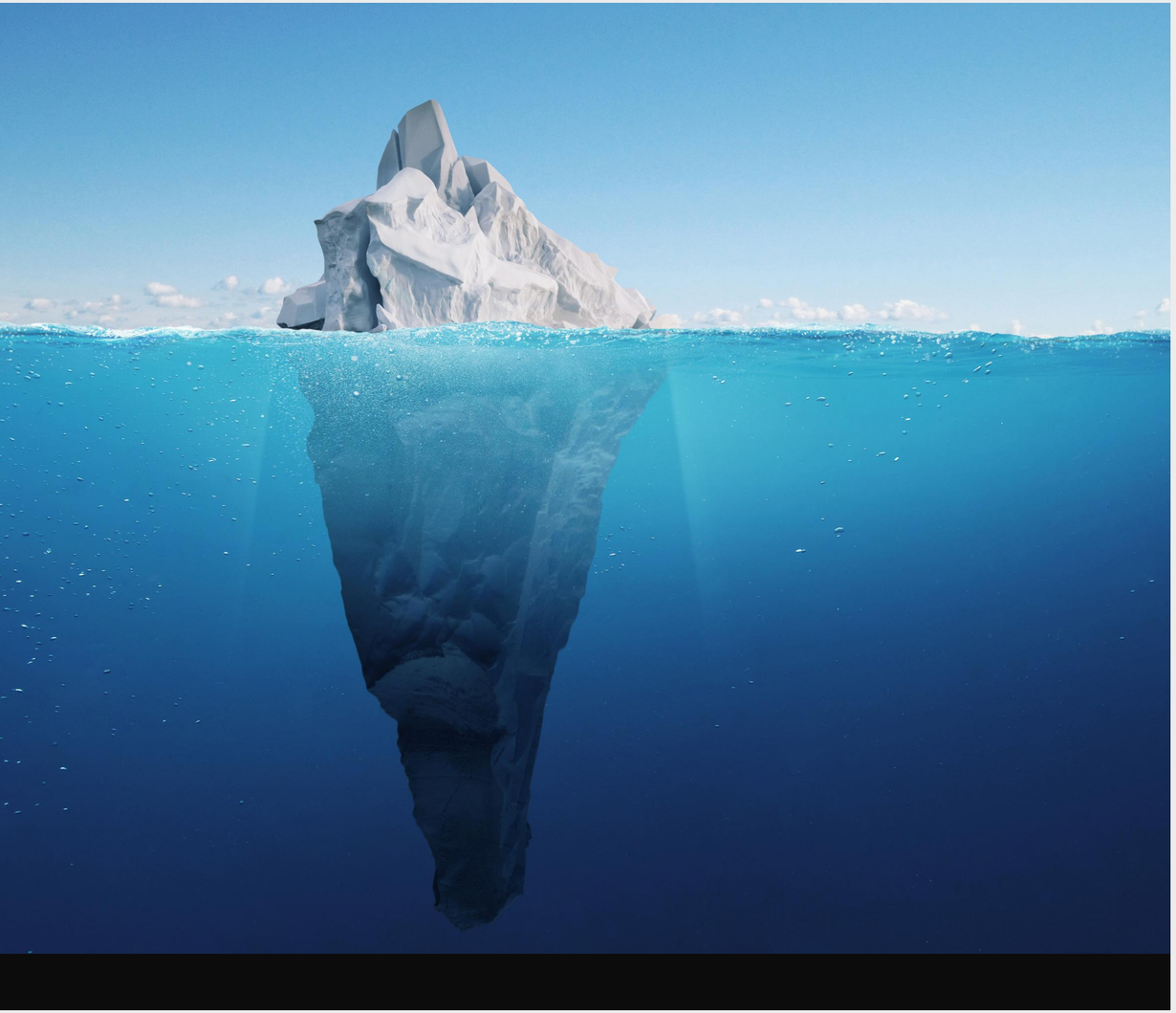
High acuity fatigue = desensitisation and reduced vigilance

FUNDED BY NIHR | National Institute for Health and Care Research

IMPERIAL

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Virtudazo, M. Ede, J. Smith, D. Pattison, N



Discussion

This is the first comprehensive mixed-methods review to examine the determinants influencing nursing staff' recognition and response to clinical deterioration during out-of-hours.

Drawing from diverse perspectives across 26 studies, several key determinants were identified at different system levels. The findings underscore the complexity of out-of-hours care, revealing challenges that extend beyond the nursing staff's control and necessitate systemic reform.

FUNDED BY NIHR | National Institute for Health and Care Research

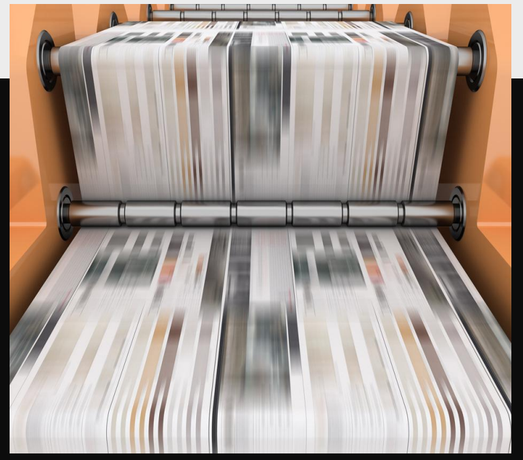
IMPERIAL

NHS Chelsea and Westminster Hospital NHS Foundation Trust

Next steps..

Qualitative Study

Interview study guided by the COM-B theory.



Dissemination

Efforts to disseminate findings and knowledge through conferences, webinars, and publications.

Doctoral Work

Continue to explore ways to improve out-of-hours care and management of clinical deterioration.

Thank you.

Let’s collaborate..


Misha Denise Virtudazo


misha.virtudazo@nhs.net


@mdvirtudazo