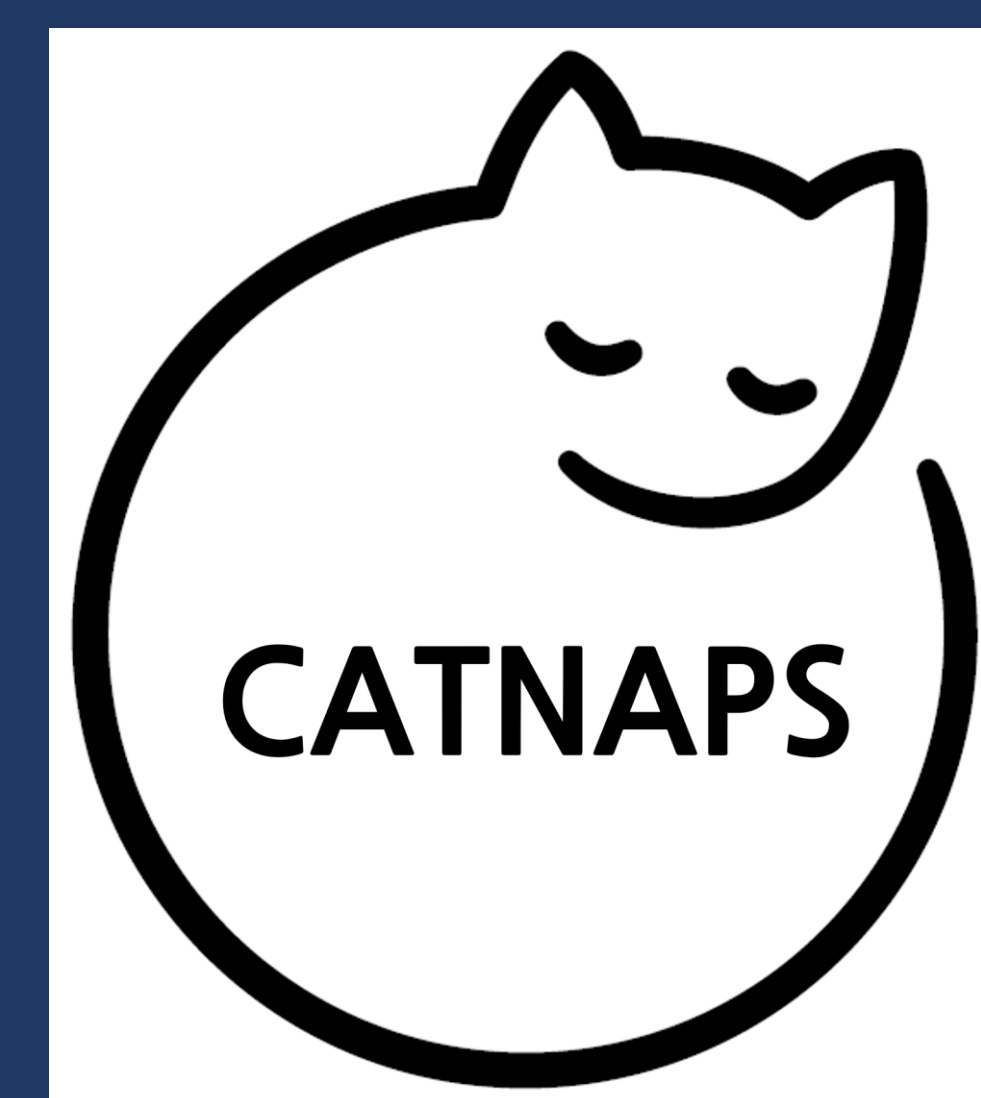


Co-producing an Ambulance Trust National fatigue risk management system for improved staff And Patient Safety (CATNAPS): co-design and key informant interview findings



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Background and Aim: Fatigue is a known operational, staff and patient safety risk for emergency services. A fatigue risk management system (FRMS), as is used in other safety-critical industries like aviation and rail, can help manage these risks but are rare in the NHS. A multidisciplinary team that includes experts by experience from patient and staff perspectives aims to develop and usability test a FRMS for the UK NHS ambulance sector.

Methods: The study is running from 2021-2024 with the first two work packages completed: 1) a FRMS co-designed from a systematic assessment of evidence-based strategies to reduce fatigue and promote good sleep, then explored via an online survey and workshops with staff across operations, safety and governance, human resources, and staff wellbeing; 2) semi-structured interviews with senior leaders (e.g. Director level) exploring current approaches to fatigue management and policy and political challenges for change.

Development of a Fatigue Risk Management System (FRMS)

- Quality-appraised review identified 20 candidate strategies, covering **fatigue reduction** and **fatigue proofing**.
- Staff from 10 NHS Ambulance Trusts completed an online survey and attended four workshops exploring facilitators and barriers to implementation, including ways of working, staff buy-in, and training and resource requirements.
- Strategies that require further consideration include biomathematical models, chronotype-matched rostering, methods for dynamic fatigue risk assessment, and napping on shift.

1. Fatigue Reduction: prevent

1.1 Design of working hours

Biomathematical models for shift-scheduling
Chronotype-matched rostering
Shift schedule design and review

1.2 Education and training

Education on sleep health, sleep habits, shift work

1.3 Health and wellbeing

Sleep conditions identification and treatment
Other health conditions identification and treatment
Sleep banking

1.4 Senior management and management support

Fatigue policies and frameworks



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2. Fatigue Proofing: minimise consequences

2.1 Dynamic fatigue risk assessment

Automated and wearable fatigue monitoring
Environmental fatigue detection technology
Self-reported fatigue monitoring

2.2 Mitigation measures on shift

Napping on shift
Caffeine drinks or supplements
Other nutritional interventions
Light interventions on shift
Task-related changes
Personnel intervention/changes
Behavioural actions on shift
Journey management (to/from work)

2.3 Accident investigation and near miss reporting

Accident investigation and near miss reporting

Senior Leader Interviews (n=16)

- Staff from 10 Trusts contributed, with input from Operations, People & Culture, Health & Safety, Wellbeing, and executive teams.
- Emergent themes included perception of risk, balancing operational versus staff outcomes, and organisational norms in reporting fatigue as a contributor to incidents.
- Trusts varied from high engagement with keenness to engage with novel solutions, to feeling stuck in firefighting mode.

RISK: “Fatigue has certainly in all likelihood contributed to injury, and even fatalities in the ambulance service.”

MATURITY: “Senior leadership is very engaged and sleep and fatigue is going to be a big part of our self-care package” versus “We’re at quite an early stage with many people still thinking the traditional twelve-hour shift, is the only way of doing things.”

PRACTICAL REALITIES: “What would happen if someone does seem fatigued? You couldn't just send them home.”

SUSTAINABILITY: “Initiatives eventually fizzle out when they impact operational metrics.”

Next Steps

- Organisational case studies across four Trusts will involve: interviews with frontline staff and patients; observational ethnography with crews and Emergency Operations Centre staff; and implementation guidance developed and tested.
- Current operational demands have reinforced the salience of fatigue management. Trusts are keen to expand/consider both established (e.g. evidence-based rotas) and innovative (e.g. dynamic fatigue measurement) strategies, but need credible evidence of operational feasibility and return-on-investment.