Case Study: Melatonin and Sleep Outcomes in Paediatric High Dependency and Intensive Care Units

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## Introduction

This case study follows the 5-step process for accessing and using evidence in response to a request from the Joint Formulary Group (JFG) in the Bristol, North Somerset, and South Gloucestershire Integrated Care System (BNSSG ICS). A search was conducted to find evidence on melatonin and sleep outcomes in children on a Paediatric Intensive Care Unit (PICU) or Paediatric High Dependency Unit (PHDU) when sleep hygiene measures have failed.

## Identify

Using PICO, the scope of the evidence search was defined as:

**Population**: Children in HDU and PICU

**Intervention**: Melatonin

**Comparison**: Other treatment options

**Outcomes**: Sleep- Patient safety, clinical effectiveness (in sleep management), strength of the evidence, cost-effectiveness or resource impact, place in therapy relative to available treatments, national guidance and priorities, local health priorities, equity of access, any other considerations

## Access

A Clinical Effectiveness Programme Officer was asked to conduct the search and report findings.

The following search question was addressed:

The search strategy involved searching the following databases and websites:

* *Cochrane Database of Systematic Reviews*
* *PubMed*
* *Google Scholar*
* *Trip Medical Database*

The following search strategy was used:

(paediat\* OR pediat\* OR child\*) AND ("high dependency unit" OR HDU OR PHDU OR "intensive care" OR PICU) AND (melatonin) AND (sleep)

Additional articles were identified through recommendations and ‘snowballing,’ i.e., following up on reference lists of the documents returned using the search strategy outlined above.

## Appraisal

There is a notable lack of evidence on the use of melatonin in paediatric ICU and HDU environments. In total, 10 articles were identified. Only 1 article discussed the melatonin use specified by the search aim, and that was a single-centre observational study with limited utility in terms of efficacy and patient safety.

## Apply

Findings were reported in an evidence review. None of the articles identified provides evidence about patient safety in the use of melatonin in PICU and HDU. However, there is evidence to suggest that melatonin may have a good safety profile in paediatric populations more broadly.

## Share and Manage

The findings of the review were consolidated into an evidence review. This report was shared with the JFG to inform decision making around using melatonin for sleep outcomes in PHDU and PICU. With permission from the JFG, the report was shared on Health Innovation West of England’s Evidence Repository on the Future NHS platform, to promote a culture of shared learning.