

# Improving inpatient sleep on an acute medical ward

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## Background

It was noted that patients on the acute medical wards had complained about noise levels at night and a general lack of sleep. Several studies have shown that poor sleep contributes to poor health. [1-6]



We therefore decided to implement this study on our acute medical ward (ward D57).

Our aims are to:

- 1) Establish a baseline of how well patients sleep
- 2) Improve sleep in the forms of several endpoints. **Main end point is proportion of patients meeting their sleep target (as set out by the National Sleep Foundation). [7]** Secondary endpoints were average duration and quality of sleep.

## Method

### Audit Design

3 cycle prospective audit

### Audit Standard

According to the **National Sleep Foundation guidelines patients aged between 26-64 years old should NOT sleep less than 6 hours (or more than 10 hours), while patients aged 65 years old or above should NOT sleep less than 5 hours (or more than 9 hours).** [7]

### Secondary endpoints

Sleep duration and quality were assessed through verbal questionnaires. Patient were asked how long they slept in hours and how well they slept out of 10 (10 being the best sleep)

### Exclusion Criteria

Patients who are acutely unwell (EWS>3), frequency of observations > 4 hourly, red skin bundles, in pain, on sleep medications, in side rooms, deaf, confused or refused consent to take part.

### Interventions

- 1) Actively offering ear plugs through :  
-Ear plug ward rounds at 10PM by a designated F1  
-Offering ear plugs at point of admission by nurses
- 2) Having a senior nurse police noise level at night



Manufacturer's product code	PREP1
Brand	Carell
Supplier	GAMA HEALTHCARE LTD

## Method (continued)

### Baseline audit (n=41)

- 48.8% (20 out of 41) of patients met their sleeping requirements.
- Mean sleep duration 4.33±1.8 hours per night,
- Mean self reported quality of sleep of 3.83±2.8 out of 10.
- 80.5% of patients admit that noise level negatively affected their sleep.
- When asked, 65.9% admitted they would like to try ear plugs.



### Intervention

- Discussed findings with junior doctors, junior sisters and ward manager
- Decided on two interventions:  
1) Ear plugs to be ACTIVELY offered on ear plug ward rounds around 10PM by FY1  
2) Band 6 nurses/nurses in charge are to police noise level at night



### Pilot re-audit (1st re-audit, n=11)

- Trialed a pilot re-audit over 4 days, to assess **feasibility and limitations** of interventions
- 54.5% (6 out of 11) of patient met their recommended sleep duration.
- Mean sleep duration of 4.9±1.9 hours per night
- Mean sleep quality of 4.6±2.0 out of 10.
- All staff nurses (n=9) knew about the interventions and the location of the ear plugs. All senior nurses (n=2) knew they were supposed to enforce noise level at night.



### Adjustment to intervention

- Identified that our interventions were effective and logistically feasible.
- Identified that some patients were not using ear plugs appropriately. Also noted that the bed times of some patients were earlier than the ear plug ward round. Adjustments were made to the interventions:  
1) Offer education about proper usage of ear plugs  
2) Offering ear plugs to patients at point of admission to the ward by nursing staff in addition to the ear plug wards



### Second re-audit, n=31

- Revealed statistically significant improvement in:  
1) Proportion of patients meeting their recommended sleep duration of 80.6% (80.6% vs. 48.8%, p=0.006)  
2) Mean sleep duration of 5.45 hours (5.45 vs. 4.33 hours, p=0.021)  
3) Mean self reported quality of sleep of 5.94 (5.94 vs. 3.83 out of 10, p=0.004)
- Number of patient complaining of noise decreased (51.6% vs. 80.5%, p>0.05)

## Results

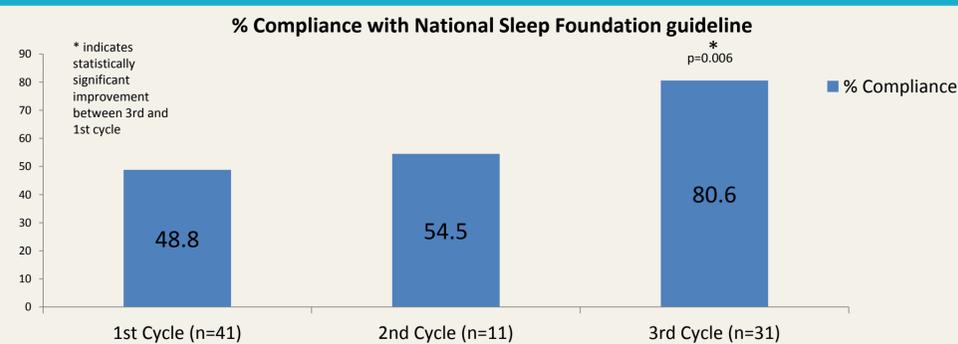


Figure 2. Compliance with sleep duration recommendations of the National Sleep Foundation guidelines. Chi square test.

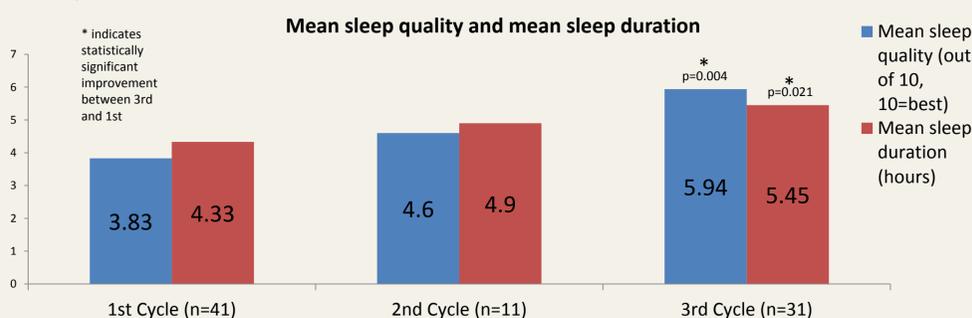


Figure 3. Mean sleep duration and self reported sleep quality during the audit. Student T-test.

## Discussion

From our study, we were able to improve sleep target compliance, patient sleep duration and self perceived sleep quality on acute medical ward D57. The interventions were well planned, practical and collaborative with a multidisciplinary approach to improvement of sleeping quality and implementation was efficient.

We felt that our study benefited from several inherent **advantages**. Ear plugs were cheap at 20.22 pence per ear plug (£10.11 for 50 pairs) and were already included in the ward budget. Supply chains and distributors were already established. The interventions and data collection were easy to implement.

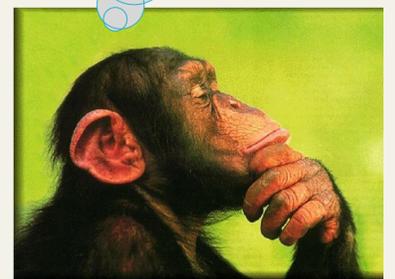
Overall, the project went well and we met our primary aim of improving inpatient sleep.



## Future considerations

• Currently, there are no local guidelines on inpatient sleep. We have drafted a provisional guideline and are trying to get it ratified.

• Some patients felt that the lighting affected their sleep. Perhaps an re-audit with eye masks and ear plugs could be trialed.



## Ethics/Approval

This project was approved by the Audit Office at Queens Medical Centre. This project was deemed to be exempt from ethical approval

## Acknowledgement

We would like to thank all of the nursing staff involved on D57 in Queens Medical Centre, Nottingham.

## References

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