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Quantifying patient wake-up events on an otolaryngology inpatient floor

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BACKGROUND

- Sleep is vital for normal physiologic functioning including post-operative wound healing
- Poor sleep quality has been shown to impact post-operative pain, length of stay, insomnia, patients' emotional state, and quality of life^{1,2,3,4,5}
- Patients admitted to the hospital after head & neck surgery frequently report poor sleep quality and duration in part due to frequent overnight awakenings

PURPOSE

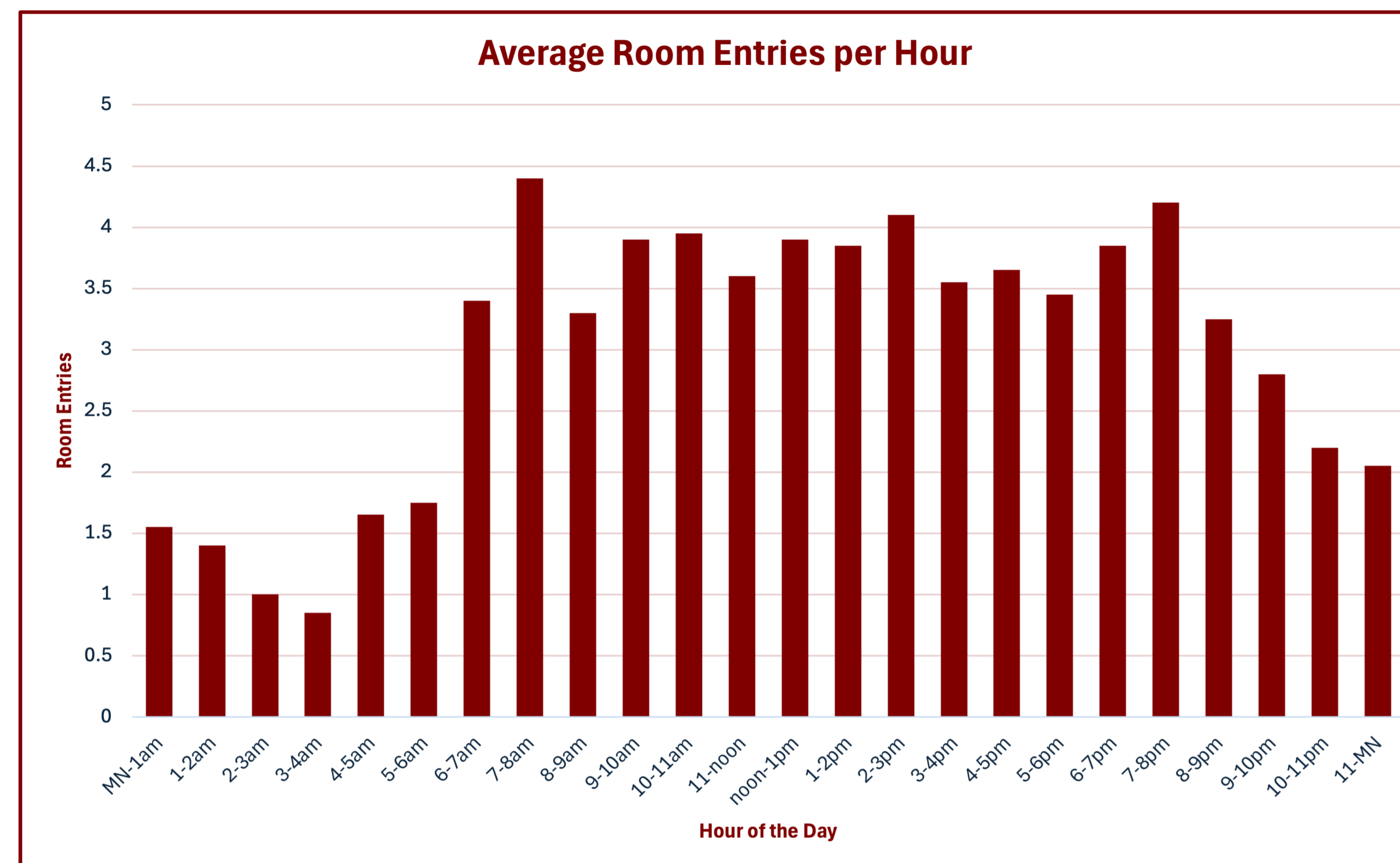
- Quantify the number of patient room entry events as a surrogate measure for patient awakenings in the post-operative setting

METHODS

- GOJO Purell Smartlink sensor data for single-occupancy inpatient rooms largely used for otolaryngology patients was retrieved for 2-week period spanning from Sept 18, 2023 – Oct 1, 2023
- Timestamps of when a sensor detected a patient entering a room ("In event") were extracted
- Rooms only included in analysis if there were at least 20 In events ($\geq 5^{\text{th}}$ percentile) per day to exclude rooms that were not occupied for most of the day

RESULTS

- Occupied rooms on the inpatient floor had a median number of In events of 67.5 per day (interquartile range 53.0 to 87.0) or 2.8 events per hour
- 64% of In events occurred during the hours of 7am – 7pm
- Between the hours of 10pm and 6am, the average number of In events was 12.3 or 1.54 events per hour
- The highest average rate of In events was between 7am – 8am (4.4 per hour)
- The lowest average rate of In events was between 3am – 4am (0.86 per hour)



DISCUSSION

- Post-operative head & neck surgery patients experience frequent awakenings in the hospital
- During the normal sleeping hours of 10pm – 6am, the average number of In events, many of which result in awakening of the patient, was 12.3 per night
- Frequent awakenings and fragmented sleep are associated with increased post-operative pain, length of stay, hypertension, hyperglycemia, and decreased patient satisfaction
- Efforts to reduce overnight vital checks or unnecessary medication administration could improve patients' sleep quality and improve these metrics
- Further studies are needed to directly assess impact of fragmented sleep in otolaryngology patients

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