**Overnight Vitals: The fight worth fighting?**

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Sleep is a significant component of health that is often overlooked in hospitalized patients. While the American Academy of Pediatrics (AAP) and the American Academy of Sleep Medicine recommend 9-12 hours of sleep for ages 6 to 12 years old and 8-10 hours of sleep for ages 13-18 years old, hospitalized patients rarely get this amount of sleep. Sleep quality is often worsened by sleep interruption from human and environmental disturbances. In fact, the most disruptive intervention on quality of sleep has been found to be the act of obtaining vital signs. Lack of sleep has been shown to lead to numerous adverse effects, including (but not limited to) impaired healing, increased stress hormone levels, and altered immune function.

The frequency at which vital signs are obtained is not based on evidence and usually occurs at intervals regardless of the level of severity of illness.1 Most hospitals have a policy of taking inpatient vital signs every 4 to 6 hours and Childrens’ Hospitals utilize Pediatric Emergency Warning Signs (PEWS) to help stratify a patient’s risk of clinical deterioration. However empirical evidence on which specific PEWS scoring system is most effective or useful.2 As such clinicians working in inpatient pediatric units should recognize that PEWS can only support, not replace, clinical judgement.

My curiosity surrounding this topic led to my PICO question: With regards to patient safety and satisfaction, is it acceptable to skip (or at least, decrease) overnight vital signs in admitted pediatric patients? An extensive review of the literature was performed utilizing PubMed, Embase, GoogleScholar, and Web of Science. Key words searched include: Vital signs, monitoring, night/overnight/nighttime, frequency, pediatric. It was revealed that when it comes to this subject, there is a paucity of existing literature.

Lee *et al*. (2019) 3 was a quality improvement abstract published in advance of its presentation at the AAP national conference. Their aim was to minimize nighttime interruptions in a low risk subset of patients without compromising patient safety. Following five clearly designated “PDSA” cycles, their group was able to achieve improved provider and nursing compliance in decreasing overnight interruptions for vital signs and blood draws. No eligible patients required a higher level of care or rapid response team activation. The main limitation of this study was due to it being quality improvement and as such, is not subject to the same level of validity criteria or criticism as a randomized control trial (or publication with peer review).

Yoder *et al*. (2013) 4 was a single-arm prospective study that assessed whether Modified Early Warning Signs (MEWS) could identify low-risk adult patients who might forgo overnight vital sign monitoring. Their conclusions demonstrated that 45% of patients awakened for vital sign checks overnight had a MEWS score < 1 and that patients with MEWS < 1 had less than a 1% chance of an adverse event. While the study ultimately validated the MEWS scoring system, it was limited by the fact that it was a single-arm prospective study performed at a single institution, there was no common on length of admission, and no qualitative evaluation of patient satisfaction or improved sleep quality.

Stiver *et al*. (2017) 5 was a prospective, randomized, non-blinded cohort study that investigated perception of quality of sleep and overall satisfaction in adult patients that were hospitalized for minor cardiac procedures, with an intervention group where overnight vital signs were not obtained and a standard of care group where overnight vital signs were obtained every four hours. No patient safety adverse events were recorded for patients of either group however, given the small sample size and inherent difficulty detecting a statistical difference between qualitatively different scores, data was presented with significance level p < .10. There was no difference found in the overall satisfaction of hospital stay response between the intervention and standard groups (p = 0.999), except blood draws were more disruptive to the standard group (p = 0.006). Additionally, there was a trend toward less disruptive sleep between home and hospital for the intervention group (p = 0.096). This study was limited due to a small sample size at a single institution and the fact that it was not blinded. Additionally, since this cohort of patients only stayed one night in the hospital it was likely difficult to detect a significant difference in quality of sleep between the study groups.

Ultimately, current data does not present enough support for changing our current practice when it comes to obtaining routine overnight vital signs in admitted pediatric patients. However, there are some experimental ideas that could be interesting to explore. Further study is needed to determine stratification of high-risk and low-risk pediatric patients.

**References:**

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