Reviewer's report

**Title:** Beyond Work Hours: The Patient Factors for Night-shift Physician Workload in a Two-year General Medicine Cohort

**Version:** 5  
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**Reviewer:** Christiane Degen

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This work investigates the impact of patient factors on on-call workload of residents during night-shifts. The manuscript is well-written and well-structured. My opinion is that the paper could add more to the field of research if more data where presented and analysed according to patient health status and workload produced after calls.

- Major Compulsory Revisions

**Introduction:**

1. It would be helpful to introduce the framework of Horner in more detail or show a picture before using it as a rational for the factors studied.

2. The topic of patient factors and night-shift physician workload is always connected to patient severity of illness. Therefore, I would expect a general discussion of patient severity in the introduction. Also I would expect that the authors draw connection to on-call workload and describe what they expect for patients with serious severity of illness according to on-call workload.

**Methods:**

3. The rational for using the nurse satisfaction score is not clear throughout the study. What can the authors concluded from this score and how is this score connected to questions on improving residents sleep during on-call duties. Furthermore, in the data collection section there is just mentioned that nurses’ satisfaction was measured. But it becomes not clear in this section what kind of satisfaction – personal satisfaction of nurse on the working day, satisfaction with the hole on-call process or just on-call physician’s responses.

4. Examination of workload was done by classification of call reasons, patient severity codes and resident’s responses. Important further data to examine workload where the length of patient visits/workload after calls and number of overlapping calls according to severity codes. Furthermore, it would be interesting to know if calls to unstable cases lead to more activation of the resident and cause afterwards problems with falling asleep again. Is there a measure of the self-rated sleep quality per night for each resident?

**Results:**
5. Paragraph – On-call physician’s responses and nurses’ satisfaction: It is not clear where the data of sentence three and four belongs to and what the message of these sentences/numbers is. Is there a difference or connection to sentence one and two of the same paragraph?

Discussion:

6. The authors write: “In the future, we may predict on-call workload by analysing the simple demographics of responsible patients”. The whole paper is about patient severity status at physician calls and the connection to on-call workload. Therefore, I found this sentence very misleading as on-call workload should be not only measure by demographics but by all means in consideration of patient severity of illness. I expect a very high correlation between patient severity of illness and patient actual status at physician calls.

7. In the discussion of other study findings it was highlighted that other studies revealed lower percentages of bedside visits. Another reason for more bedside visits in this study may be that ward admissions where from the emergency department. Patients from the emergency department may differ from patient at normal internal medicine wards.

8. The discussion about the DNR patients accounting for one third of the night calls neglects patient severity of illness. The authors found that unstable patients and DNR patients had similar reasons for calls. DNR patients decide to be a DNR patient because of their serious health status and bad health prospects also unstable patients become unstable patients because of their serious health status.

9. Last sentence of discussion: The study would benefit from descriptive statistics on previously admitted patients and new admitted patients according to call frequency.

- Minor Essential Revisions

1. Abstract: The information in the background paragraph could tell more about the study. Example: The reader don’t know what the authors mean with other contributing factors.

2. Is after-hours care are common used term in this research field? In a hospital there are normally no regularly after-hours.

3. In Table 3 anova and chi-square test was conducted. The results were not described in the paper.

4. The statement “we were convinced that the results were relevant” does not make any sense. The authors have to convince the reader with their study that the results are relevant.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.