

Response to the Letter of Dr Dexter

Citation for published version (APA):

Debats, C. E. J. M., Dellaert, N. P., Pouwels, S., & Stepaniak, P. S. (2022). Response to the Letter of Dr Dexter. *Journal of PeriAnesthesia Nursing*, 37(3), 297. <https://doi.org/10.1016/j.jopan.2021.11.003>

Document license:

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DOI:

[10.1016/j.jopan.2021.11.003](https://doi.org/10.1016/j.jopan.2021.11.003)

Document status and date:

Published: 01/06/2022

Document Version:

Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
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Response to the Letter of Dr Dexter



Dear Editor:

WE WANT TO THANK DR DEXTER for his interest in our article,¹ and for taking the time to impose some critical questions. We appreciate the feedback.

In his letter, Dr Dexter, argues a lack of generalizability of the obtained results from case re-sequencing to level Phase 1 post anesthesia care unit (PACU) workload, due to (assumed) near equal workloads in the operating rooms (ORs), to other health care institutions. Moreover, the letter argues a potential benefit overestimate in practice due to the absence of model constraints on the availability of professional staff (eg, surgeons).

With respect to the concern of lack of generalizability, our proposed MILP model determines the sequence and starting time for a selection of OR cases on their admission date, as well as a corresponding PACU nurse roster, with the objective to level the variability in inflow of patients to the PACU by minimizing postoperative labor costs. The proposed MILP takes a predetermined operating theatre (OT) case list for the given planning window for each OR as input, and is allowed to make changes to the permutation sequence. The displayed results were obtained from simulating the functioning of the surgical suite and the PACU under the situations of a re-sequenced (To-Be) and an “original” OT case list (As-Is).

As mentioned in the letter by Dexter, it is indeed true that the potential benefit of OR case re-sequencing is dependent on the quality of the “original” OT case list, as predetermined by the operating room coordinator. For example, having an OT case list where all ORs have near equal workloads, would in theory benefit greater from our proposed planning methodology, then an OT case list with varying OR working hours, due to a natural heterogeneity in the arrival times to the PACU. Moreover, the potential benefits of case re-sequencing might also be highly dependent on the number of operating rooms in scope. As a suggestion for further research, it would therefore be interesting to investigate how various factors, including the standard deviation among ORs in workload, or the number of ORs within scope, could affect the potential benefits from case sequencing to level PACU workload.

With respect to the concern of a potential benefit overestimate, it is true that the proposed MILP model does not take any constraints into account regarding the availability of professional staff and

heterogeneity of room equipment. As mentioned in the limitations section of our study, in order to increase the applicability of the model in practice, the availability of surgeons and medical equipment should be included as constraints. “A limited availability of medical specialists may, however, constrain the quality of the provided scheduling solutions” and detriment the potential benefits from our proposed MILP model.

We have strived to make the proposed model applicable to numerous healthcare institutions by introducing uniform patient groups and the derivation of practically applicable scheduling guidelines. However, although there is a large body of evidence that prospectively sequencing OR cases levels the workload at the PACU, it is dependent on the quality of the “original” OT case list as a starting position, how impactful this resequencing will be.

Reference

1. Debats CEJM, Dellaert NP, Pouwels S, Stepaniak PS. Balancing workload in the PACU by using an integrated OR planning methodology. *J Perianesth Nurs*. 2021;36:279–290.

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