CORRESPONDENCE

In reply: Bland–Altman analysis for bias in estimates of scheduled *versus* actual times of operating room entry

Richard N. Merchant, MD, FRCPC

Received: 30 March 2020 / Accepted: 1 April 2020 / Published online: 7 April 2020
© Canadian Anesthesiologists' Society 2020

Dr. Dexter quite correctly pointed out the additional confounder (time of day) in my report of operating room (OR) slated *vs* actual entry time.^{1,2} His point is absolutely correct that earlier cases are less likely to be earlier than slated.

I have analyzed the Fraser Health Authority (FHA) data further as Dr. Dexter suggested as shown in the eTable (available as Electronic Supplementary Material) and the Figure. The Figure, showing FHA data, only analyzes those patients entering the OR before their slated time. Here, number of early cases is largest in the middle of the day, and a very small proportion of those at the start of the day started early. As expected, by the afternoon, the numbers of cases falls. Nevertheless, only in the last hours of the day, after 15:30, is the absolute percentage of cases entering the OR early relatively high, which accounts for only a small absolute number of cases. The Royal Columbian Hospital (RCH) shows a broadly similar pattern.

In the analysis suggested by Dr. Dexter, a Bland–Altman like analysis of all FHA cases (estimated bias 0.24 hr with limits of agreement -1.46 to 1.94 hr) visually confirms the increasing variability in case delays later in the day (not shown), as does Spearman's Rank correlations

(rho = 0.361 for all FHA hospitals, or rho = 0.433 for RCH).

I believe this further analysis of my data supports the original contention: the vast majority of electively scheduled cases present to the OR at a time suitable to a fasting advice window of two or three hours. It is possible that further sub-analysis, for example by surgical specialty or individual surgeon, could allow one to dice the information in a finer fashion. Nevertheless, for practical purposes, advice given in a preadmission clinic (PAC) by nursing or anesthesia staff would likely find such finesse difficult to manage. Further, in our system in Canada, often the operative time proposed at a PAC visit changes by the time the final schedule is published, and the final advice is prescribed by a separate office. Accordingly, I believe practitioners will be comfortable offering a blanket statement to the patient to drink until two or three hours preoperatively and to abstain from oral fluid subsequently until their operation.

I emphasize, as I noted previously, this data applies only to our institutions, and for greater comfort, a practitioner would have to know their own institution's reliability with respect to slating times.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s12630-020-01656-x>) contains supplementary material, which is available to authorized users.

R. N. Merchant, MD, FRCPC (✉) ·
Royal Columbian Hospital, New Westminster, BC, Canada
e-mail: richard.merchant@ubc.ca

Figure Box and whisker plots of case delay, grouped in 30-min intervals from the scheduled start time. Includes all 37,261 cases that entered the operating room before their scheduled time. The box shows the interquartile range with the median indicated by a horizontal line and whiskers extending from the 2.5th to the 97.5th

percentile and additional individual outliers shown as dots. The number of cases in each group is shown above. For reference, a case entry time of 90 min before the scheduled time is shown by the horizontal dashed line

Acknowledgement I would like to thank Dr. Matthias Görges of UBC's Department of Anesthesiology, Pharmacology and Therapeutics for the sophisticated statistical analysis.

Conflicts of interest None.

Funding statement None.

Editorial responsibility This submission was handled by Dr. Philip M. Jones, Associate Editor, *Canadian Journal of Anesthesia*.

References

1. Dexter F. Bland–Altman analysis for bias in estimates of scheduled versus actual times of operating room entry. *Can J Anesth* 2020. DOI: <https://doi.org/10.1007/s12630-020-01655-y>.
2. Merchant RN. Slated versus actual operating room entry time in a British Columbia health authority. *Can J Anesth* 2020. DOI: <https://doi.org/10.1007/s12630-020-01604-9>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.