




## In reply: Nitrous oxide can help reduce length of stay in the postanesthesia care unit

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Received: 20 April 2022 / Revised: 20 April 2022 / Accepted: 24 April 2022 / Published online: 6 July 2022  
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**Keywords** general anesthesia · intraoperative antiemetics · intraoperative nitrous oxide · perioperative care · post anesthesia care unit length of stay

### To the Editor,

We appreciate Drs Mraovic, Timko, and Simurina's expertise and comments on our paper.<sup>1,2</sup> Our group reported that nitrous oxide (N<sub>2</sub>O) use had the beneficial effect of decreasing postanesthesia care unit (PACU) length of stay (LOS). We observed a dose-dependent effect that was already relevant when N<sub>2</sub>O was used only at the end of the case (resulting in a very low median N<sub>2</sub>O concentration).

Our data support Dr. Mraovic's assumption that N<sub>2</sub>O administration reduces PACU LOS. Our findings revealed that patients who received N<sub>2</sub>O had a shorter duration of

intraoperative hypotension; the increased hemodynamic stability was associated with a reduction of PACU LOS. Dr. Mraovic also emphasized the opioid-sparing effect of N<sub>2</sub>O,<sup>3</sup> which also may help reduce PACU LOS.<sup>4</sup> Our data indeed show that intraoperative opioid use was lower in patients who received higher doses of N<sub>2</sub>O.

Our data suggest that there are competing effects of N<sub>2</sub>O that affect PACU length of stay: increased hemodynamic stability and increased postoperative nausea and vomiting. We found that N<sub>2</sub>O increased the risk of postoperative nausea and vomiting (adjusted odds ratio, 1.24; 95% confidence interval, 1.14 to 1.34; *P* < 0.001) which was associated with an estimated increase in PACU LOS of more than one hour. Of note, these negative effects were not observed in patients who received intraoperative antiemetic prophylaxis, which supports a previous report.<sup>5</sup>

In summary, we found that N<sub>2</sub>O can help reduce LOS in the PACU. This effect is more relevant in patients who have undergone complex surgery, and those who are at a higher risk of intraoperative hemodynamic instability and often get higher opioid doses. Clinicians who use N<sub>2</sub>O should always coadminister antiemetic drugs.

**Disclosures** Matthias Eikermann has received unrestricted funds from philanthropic donors Jeffrey and Judy Buzen and grants from Merck & Co. outside of the submitted work. Karuna Wongtangman and Michael Blank declare no conflicts of interest.

**Funding statement** None.

**Editorial responsibility** This submission was handled by Dr. Philip M. Jones, Deputy Editor-in-Chief, *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*.

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