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Reply to Templeton, Thomas; Hodges, Ashley; Templeton, Leah; Goenaga-Diaz, Eduardo, regarding their comment ‘Shakespeare, perioperative respiratory adverse events, COLDS, and the room air oxygen saturation: “All's well that ends well”

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Reply to Templeton, Thomas; Hodges, Ashley; Templeton, Leah; Goenaga-Diaz, Eduardo, regarding their comment 'Shakespeare, Perioperative Respiratory Adverse Events, COLDS, and the Room Air Oxygen Saturation: "All's Well That Ends Well"

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"Though this be madness, yet there is method in't." (Hamlet, Act 2, Scene 2)

Dear Sir or Madam:

We thank you for the opportunity to respond to the issues raised in Dr. Templeton's letter[1] and to clarify aspects of the COLDS score in relation to these concerns. We also thank Dr. Templeton and his colleagues for their interest in our paper[2] and for taking the time to articulate their concerns.

In their letter, Dr. Templeton expressed concerns that the actual clinical significance of perioperative respiratory adverse events (PRAE) is unclear since the majority of the time "things will most likely turn out positively." If this were completely true, we would not cancel cases for an upper respiratory tract infection (URI). We know from the Pediatric Perioperative Cardiac Arrest (POCA) registry[3], the second most frequent cause of intraoperative cardiac arrest is due to respiratory complications. The observation that there are few to no arrests secondary to respiratory complications related to URIs is because the risk pool has already been reduced by preemptive cancellation of high risk cases. As mentioned in our manuscript, while all the outcomes measures are soft indicators, they are harbingers of potential worse outcomes which can still devolve into undesirable situations, if not immediately addressed. We agree that outcome measures such as unanticipated admission and cardiorespiratory arrest would be most clinically helpful, however these events are so rare that it precludes meaningful interpretation.

Dr. Templeton mentions in his letter that he is unsure how clinical risk prediction models would help inform the clinical decision on whether to proceed or not. We are currently validating a modified version of the COLDS score which will allow the calculation of a predicted likelihood of having any PRAE and the expected number of events. Knowledge of the likelihood of a PRAE may increase awareness and indicate when further preparation is needed. It can be used as a tool in resident education to identify patients at increased risk and initiate additional measures such as preoperative administration of bronchodilators. The COLDS score may also be useful to help families understand the magnitude of the risks of proceeding with a cold. Currently, we tell families that the risk is increased with an URI, but we are unable to quantify the likelihood of that risk, whereas the COLDS score incorporates known risk factors and connects them to an actual incidence of PRAE.

We mentioned that a cutoff score of 19 could be useful for the following reason: If the patient was found to have a high score on preoperative assessment the night before surgery, the case could be prospectively canceled, decreasing financial burden to the patient's families and improving OR efficiency from not having an operating room lay fallow while awaiting re-setup for the next case or wasted instruments that were opened for the case, but unused.

We appreciate the idea of utilizing a simple SpO2 'cut off' tool (as the authors of the letter suggest) and agree that it cannot be used as the sole criteria. On the surface it seems a reasonable tool, however, this test only takes into consideration one parameter out of many risk factors. Given the nuances of medical device equipment variations and occasional difficulties obtaining an accurate measurement on an uncooperative child, one should be cautious relying on this method. We encourage the authors of this letter to conduct the validation studies.

The original creators of the COLDS score[4] and the authors of the manuscript purposely do not declare a hard cutoff on whether a patient should be canceled because of URI or not. This decision rests solely on the clinician taking care of the patient, since there are a multitude of clinical, social and environmental factors that would influence this decision. No score can replace human judgement in weighing the risk and benefits to the patient. The best we can do is to quantify this risk to help the provider make a better decision.

Disclosures:

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2) This letter was self-funded.
3) No conflicts of interest are reported by any of the authors.

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