Sustaining a Reduction in Fresh Gas Flow Rates

To the Editor:

There are many good reasons to encourage reduced fresh gas flows during the administration of volatile anesthetic agents. The recent publication by Nair et al.\(^1\) outlines these issues and addresses the twin problems of producing and maintaining a change in fresh gas flows across a large group of providers. Their article then goes on to describe an elegant and robust approach to achieve these objectives.

In the introduction to their article, Nair et al. state that “…providers reverted to original behavior over time,” and cite a number of references to support this. In one of our publications on this topic,\(^2\) we found that flow rates continued to decrease over a 5-yr period in the absence of any specific intervention. We have unpublished data showing this trend has continued. We attribute this reduction to a locally developed predictive display system,\(^3,4\) which allows the user to easily see the consequence of any combination of fresh gas flow rate and vaporizer setting, along with an indicator of the vapor cost thus simplifying and incentivizing flow reduction.

Although we agree that most studies show that flow rates return to normal, our observations suggest that decision support tools that guide drug administration can be used to enable and support practice in addition to those tools that provide reminders based on monitoring practice.


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References


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In Reply:

We sincerely appreciate the comments by Drs. Kennedy and French related to our study\(^1\) aimed at reducing fresh gas flow (FGF) by using a decision support system. We believe that continuous feedback of information is necessary to maintain desired provider behavior and care patterns. This is supported by our finding that when we turned off the FGF reminders, the providers reverted to use the original, preintervention FGF settings within a few months. We read with interest the inhaled anesthetic delivery guidance system developed by Drs. Kennedy and French and its application in precisely controlling the delivery of vapors.\(^2,3\) We believe that their guidance system performed a function similar to our decision support system with respect to continuous, near real-time, feedback of FGF to anesthesia providers. Considering this similarity, it was interesting to note that the reduction in mean FGF achieved by Dr. Kennedy et al. was in close agreement with what was observed in our study.\(^1,4\) Although continuous feedback was provided by both studies, the mechanisms used were different. Dr. Kennedy et al. developed a specialized software program to interface with the anesthesia machine and implement a predictive model of end-tidal vapor concentration. However, we used an Anesthesia Information Management System–based decision support module called Smart Anesthesia Manager. Smart Anesthesia Manager has the advantage that it can provide decision support not only for FGF but also for a variety of other clinical care items to improve quality of care and patent safety.\(^5\)

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References


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