

# Mouthpiece ventilation: Individualized patient care is the key to success

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## Keywords

Mouthpiece, ventilation, patient care, key to success, tidal volume

Dear Editor,

We appreciate Fiorentino and Esquinas' well-advised comments on our article entitled "Accuracy of Tidal Volume Delivered by Home Mechanical Ventilation during Mouthpiece Ventilation: A Bench Evaluation."<sup>1</sup>

The application of the mouthpiece as a noninvasive interface to deliver mechanical ventilation was already described in the 1950s, being subsequently almost completely superseded by nasal and nasobuccal interfaces both in the hospital and home setting, with several hundreds of commercially available models nowadays.<sup>2</sup> Mouthpiece ventilation (MPV) is however regaining popularity in recent years, under the influence of the positive experience reported by a few expert centers, showing benefits in terms of cough, speech, dyspnoea, and patient quality of life.<sup>3,4</sup>

Meanwhile, home mechanical ventilators have also undergone a major technical evolution, and the volumetric ventilators initially used for MPV have been replaced by turbine-driven barometric portable ventilators. The latter have replaced volumetric ventilation by volume-targeted pressure ventilation, adapting the delivered work pressure to the measured tidal volume of the previous respiratory cycles. These new ventilators showed however remarkable technical criticisms in setting up MPV.<sup>5</sup> Consequently, almost all the ventilator's producers have integrated into their life-support home ventilators a mouthpiece-dedicated ventilation modality, allowing customising of alarms, triggers, and backup respiratory rate to deal with the particularities of MPV. Despite these improvements, the intermittent disconnection of the patient and the presence of continuous leaks may still represent a challenge for turbine-driven home ventilators, as well as for their battery life, which may represent an additional major factor for ventilator-dependent patients.<sup>6</sup>

In our study, we evaluated currently available ventilators for MPV in different settings and showed large differences in their capacity to deal with the rapidly changing respiratory load features that characterize MPV.<sup>1</sup> Fiorentino and Esquinas excellently point out that despite the considerable technical differences between the ventilators, none of the machines can be considered as the best choice in all situations, since advantages and limitations of each ventilator depend on patient's needs and on the planned ventilatory mode.

In conclusion, we share the opinion of Fiorentino and Esquinas, suggesting that individualized patient care is needed to successfully apply MPV, choosing the best combination of machine and ventilator setting for each specific patient, and we hope that the results of our study may help caregivers to perform an informed choice in their daily clinical practice and manufacturers to improve and optimize the ventilator performances for MPV.

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