

AUTHORS' REPLY

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We thank you for your interest in and criticisms of our review article.

Indeed, recent improvements in nebulizer treatment have led to the development of vibrating membrane nebulizers (also known as vibrating mesh nebulizers), which generate aerosol particles that are more suitable for lung deposition, as demonstrated in *in vitro* studies. Therefore, vibrating membrane nebulizers are more efficient than jet nebulizers and can deliver higher doses of aerosolized drugs to the distal airways.⁽¹⁾ However, given that there have been few clinical studies evaluating the use of this new technology in patients on mechanical ventilation, questions remain regarding the use of vibrating membrane nebulizers in clinical practice, including questions regarding the

optimal dose of medication for use with vibrating membrane nebulizers. Other factors limiting the use of vibrating membrane nebulizers include their high cost and the difficulty in cleaning them.⁽²⁾ In addition, vibrating membrane nebulizers are not widely used in Brazil. Given that the primary objective of our review article was to aid in daily clinical practice, we addressed issues related to inhalers that are available in most ICUs in Brazil.

Humidification is indeed associated with increased particle impaction in the ventilator circuit and can reduce aerosol deposition in the distal airways by as much as 40%.⁽²⁾ However, the recommendation to remove the heat and moisture exchanger (shown in Figure 1 in our study) during nebulization is controversial, given that heating and humidification are aimed at preventing hypothermia, endotracheal tube obstruction, atelectasis, bronchospasm, and respiratory infection.⁽²⁾

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