

# Comparison of Fugitively Emitted Aerosol During Use of the Aerogen® Ultra Versus a Jet Nebuliser

McGrath JA, O'Sullivan A, Bennett G, et al. Investigation of the quantity of exhaled aerosols released into the environment during nebulisation. *Pharmaceutics*. 2019;11(2):75.

## Background



Secondary exposure to fugitive aerosol emissions in a respiratory therapy setting is not well understood

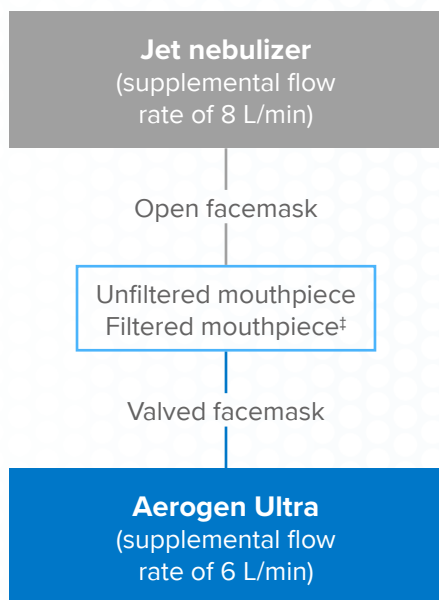
## Objective



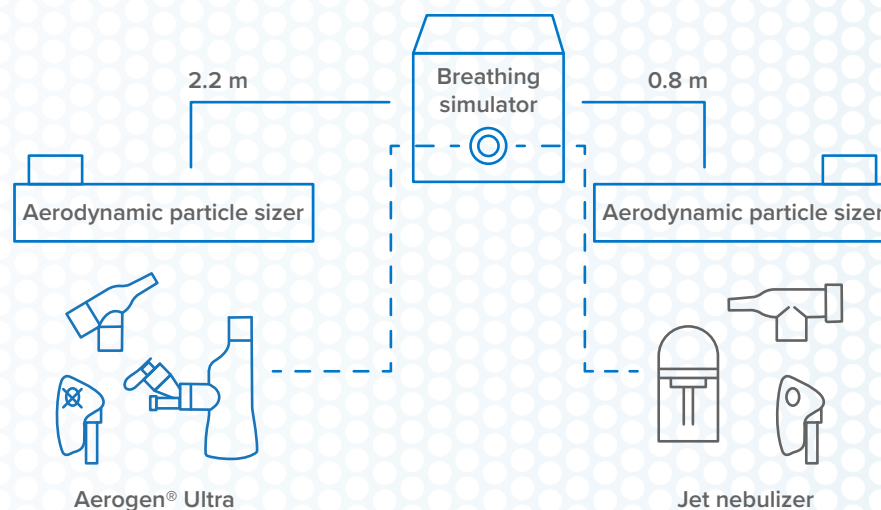
The aim of this study was to evaluate secondary exposure to fugitive aerosols emitted during the administration of albuterol via the Aerogen Ultra and a jet nebuliser under simulated real-use conditions

## Materials and Methods

### Design: Bench study



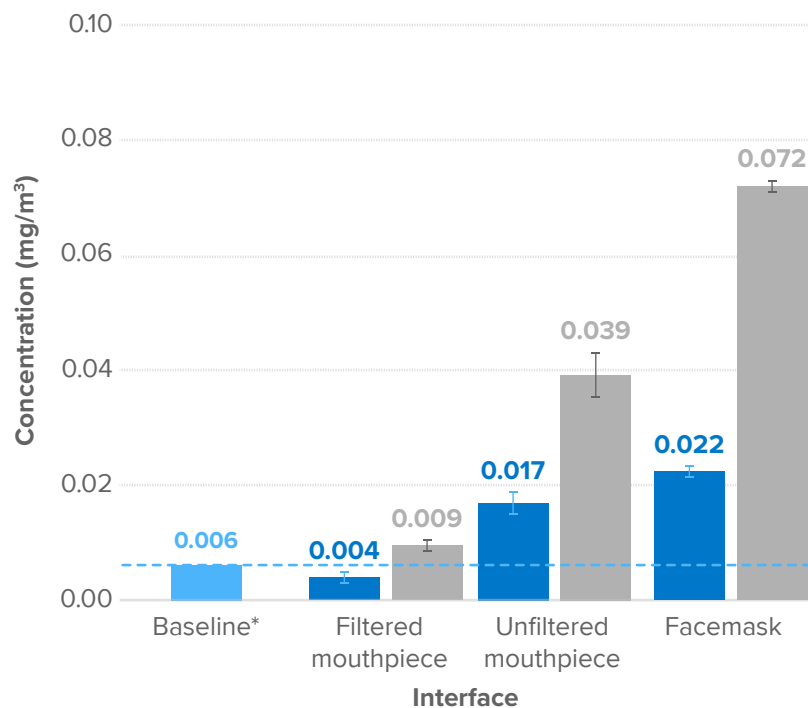
- The reservoir of each device was filled with albuterol 2.5 mL, which was administered during simulated adult breathing\*
- Each device was assessed in multiple test runs employing different interface and mouthpiece scenarios
- Fugitive emissions were measured in real time using an aerodynamic particle sizer (recorded at 20-second intervals over 25 minutes)
- Inhaled dose and residual mass<sup>‡</sup> were analyzed using ultraviolet spectrophotometry
- The 0.8 m distance represented one arms length away from the patient model. The 2.2 m represented the distance bed to bed in an acute care setting.



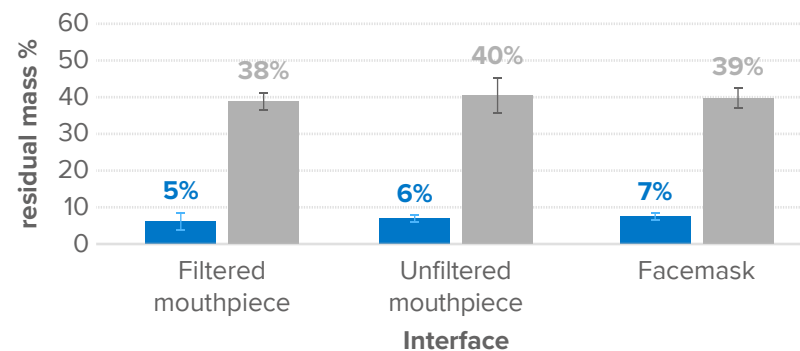
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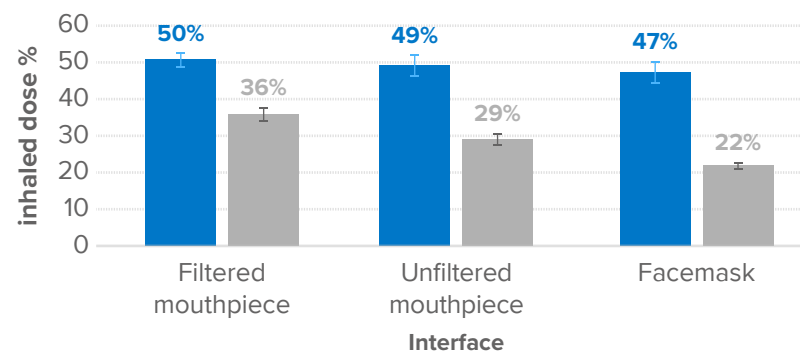
Mean 30-minute averaged aerosol concentration



Residual mass



Inhaled dose



■ Aerogen Ultra    ■ Jet nebulizer



The Aerogen Ultra with filtered mouthpiece was the only device to demonstrate no increase in exhaled aerosol emissions versus baseline

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\*Mean 5-minute ambient aerosol concentration prior to nebulisation.