



SHAREABLE PDF

High-flow nasal cannula for COVID-19 patients: risk of bio-aerosol dispersion

Judith Elshof ^{1,2}, Rutger H.J. Hebbink³, Marieke L. Duiverman ^{1,2} and Rob Hagmeijer³

Affiliations: ¹Dept of Pulmonary Diseases/Home Mechanical Ventilation, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands. ²Groningen Research Institute for Asthma and COPD (GRIAC), University of Groningen, Groningen, The Netherlands. ³Engineering Fluid Dynamics, University of Twente, Enschede, The Netherlands.

Correspondence: Judith Elshof, Dept of Pulmonary Diseases/Home Mechanical Ventilation, University of Groningen, University Medical Center Groningen, Hanzeplein 1, Groningen, The Netherlands. E-mail: j.elshof@umcg.nl



@ERSpublications

HFNC seems to increase droplet spread, so caution should be taken if it is applied for COVID-19, and adequate protective measures should be provided. Further research on viral spread and risks associated with HFNC therapy in COVID-19 patients is needed. <https://bit.ly/3gQjYrY>

Cite this article as: Elshof J, Hebbink RHJ, Duiverman ML, *et al.* High-flow nasal cannula for COVID-19 patients: risk of bio-aerosol dispersion. *Eur Respir J* 2020; 56: 2003004 [https://doi.org/10.1183/13993003.03004-2020].

This single-page version can be shared freely online.

To the Editor:

We read with interest the article by Li *et al.* [1] entitled “High-flow nasal cannula for COVID-19 patients: low risk of bio-aerosol dispersion”, recently published in the *European Respiratory Journal*. Although we do agree with the authors that high-flow nasal cannula (HFNC) might be an effective treatment for hypoxaemic coronavirus disease 2019 (COVID-19) patients, we believe that caution should be taken in considering HFNC in COVID-19 patients, as data about droplet dispersion and aerosol generation with HFNC are at least controversial [2]. The authors state that the scientific evidence of generation and dispersion of bio-aerosols *via* HFNC is similar to standard oxygen therapies. This statement is mainly based on the studies of Hui *et al.* [3] and Ip *et al.* [4], which showed that HFNC led to a smaller dispersion distance compared to non-rebreather and Venturi masks during exhaled smoke dispersion experiments. The assumption that the physical extent of exhaled air plumes is equal to the visible extent of exhaled smoke plumes is wrong: the visibility of smoke rapidly decreases when it mixes with clean air, but smoke particles do not disappear. In addition to that, the dispersion of small-sized smoke particles and aerosols is not identical to the dispersion of particles that have a broad range of sizes. These observations are important when studying the actual spread of viruses.