



Inhaled corticosteroids for outpatients with COVID-19: a meta-analysis

Todd C. Lee^{1,2,3}, Émilie Bortolussi-Courval³, Sara Belga⁴, Nick Daneman⁵, Adrienne K. Chan⁵, Ryan Hanula³, Nicole Ezer^{6,8} and Emily G. McDonald^{2,3,7,8}

¹Division of Infectious Diseases, Dept of Medicine, McGill University Health Centre, Montréal, QC, Canada. ²Clinical Practice Assessment Unit, Dept of Medicine, McGill University Health Centre, Montréal, QC, Canada. ³Division of Experimental Medicine, Dept of Medicine, McGill University, Montréal, QC, Canada. ⁴Division of Infectious Diseases, Dept of Medicine, University of British Columbia, Vancouver, BC, Canada. ⁵Division of Infectious Diseases, Dept of Medicine, Sunnybrook Health Sciences Centre, Toronto, ON, Canada. ⁶Division of Respiriology, Dept of Medicine, McGill University Health Centre, Montréal, QC, Canada. ⁷Division of General Internal Medicine, Dept of Medicine, McGill University Health Centre, Montréal, QC, Canada. ⁸For the purposes of authorship, these authors share equal credit.

Corresponding author: Todd C. Lee (todd.lee@mcgill.ca)



Shareable abstract (@ERSpublications)

The role of inhaled corticosteroids for outpatient COVID-19 is evolving. Meta-analysis of reported clinical trials estimated probability of any effect for symptom resolution by day 14 at 100% and hospitalisation at 89.3%, respectively. <https://bit.ly/3B2sDUi>

Cite this article as: Lee TC, Bortolussi-Courval É, Belga S, et al. Inhaled corticosteroids for outpatients with COVID-19: a meta-analysis. *Eur Respir J* 2022; 59: 2102921 [DOI: 10.1183/13993003.02921-2021].

This single-page version can be shared freely online.

Copyright ©The authors 2022.

This version is distributed under the terms of the Creative Commons Attribution Non-Commercial Licence 4.0. For commercial reproduction rights and permissions contact permissions@ersnet.org

Received: 15 Nov 2021
Accepted: 1 Feb 2022

To the Editor:

Inhaled corticosteroids have received substantial interest as treatments for non-hospitalised patients presenting with symptomatic SARS-CoV-2 infections, following two open label randomised controlled trials (RCTs). STOIC (Steroids in COVID-19, n=146) [1] reported budesonide was effective at improving time to recovery and reducing the composite outcome of urgent care, emergency room visits and hospitalisation. PRINCIPLE (Platform Randomized Trial of Treatments in the Community for Epidemic and Pandemic Illnesses, n=1719 concurrent) [2] replicated the findings for time to recovery and detected a reduction in hospitalisation, primarily in those older than 65 years. However, previous work has demonstrated that, with respect to respiratory symptoms, inhaled medications can have important placebo effects [3]. By contrast, both the recent CONTAIN trial (Inhaled Ciclesonide for the Treatment of COVID-19 in Non-hospitalized Adults, n=203) [4] and an industry-sponsored ciclesonide trial (Covis Pharma, n=400) [5] were placebo-controlled and failed to demonstrate a benefit in time to recovery, with conflicting findings on hospitalisations. We conducted a meta-analysis to inform clinical practice by contextualising the totality of the data.

