

Budesonide dosing *for* outpatient COVID *per* the Oxford RCT

(+ASA, nutraceuticals, etc. at provider's discretion)

THE UNIVERSITY OF OXFORD on February 8, 2021 released its “Steroids in COVID-19” (STOIC) randomized controlled trial of inhaled budesonide powder (Pulmicort) for treatment of early outpatient COVID.[1]

Beginning an average 3 days after symptom onset, inhaled budesonide, 400 mcg/puff, 2 puffs bid was taken for a median duration of 7 (4 to 10.5) days. **Urgent care visits & hospital admissions were 90% lower** compared to usual care (P = 0.004).

The trial was designed around a hoped-for 50% reduction in risk. However, because the actual result was a 90% reduction, the trial achieved statistical significance sooner than expected. On December 9, the study team requested an independent statistical monitoring committee review, on the basis of which the trial was concluded early. One of the reasons given was “ethical consideration of the primary outcome.”

“We stopped early because, how could we ethically randomise participants to the non-budesonide arm knowing they had a 10-fold chance of needing hospitalisation? This, in addition to knowing that people recover faster in the budesonide arm, have lower fevers, report less congestive symptoms, etc.”
—Dan V. Nicolau Jr., MD PhD

- **Inhaled budesonide powder (Pulmicort)**

180 mcg/puff, 3 puffs tid = 1,620 mcg/day

One Pulmicort 180 mcg/puff Flexhaler provides 120 puffs, sufficient for 13.3 days.
or

400 mcg/puff, 2 puffs bid = 1,600 mcg/day

One Pulmicort 400 mcg/puff Turbohaler provides 50 puffs, sufficient for 12.5 days.

The systemic effect looks equivalent to ~51 mg oral hydrocortisone, consistent with what would be needed to properly regulate the immune response in the absence of a robust endogenous adrenal cortisol stress response. Dosage in this optimal range will likely be key: Just enough to replicate a more optimal adrenal cortisol response and put a light hand brake on the inflammatory response but not so much it over-suppresses immune function.

- **ASA** 325 mg/day (to help counter COVID's pro-thrombotic effect)
- **Etc.** at provider's discretion

Potentially helpful nutraceuticals:

- **Vitamin D3** 10,000 IU/day. After recovery, reduce to 5,000 IU/day and maintain long-term.
- **Zinc** 50 mg/day elemental
- **Quercetin** 500 mg bid (zinc ionophore; to enhance Zn antiviral effect)
- **Vitamin C** 3,000 mg/day
- **Melatonin** 1 - 3 mg at bedtime (antiviral; may be added PRN, as it can cause daytime drowsiness)

1. Ramakrishnan S, Nicolau DV, Langford B, Mahdi M, Jeffers H, Mwasuku C, et al., Univ. of Oxford, **Inhaled budesonide in the treatment of early COVID-19 illness: a randomised controlled trial.** MedRxiv preprint. 2021 Jan 8. <https://www.medrxiv.org/content/10.1101/2021.02.04.21251134v1> [Full Text PDF]