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From the authors:

We thank M.L. Duiverman, F.M. Struik and P.J. Wijkstra for the relevant comments and agree that development of new therapeutic options in severe-stable chronic obstructive pulmonary disease is required.

We concur that the results are based mainly on nonrandomised controlled trials that exhibited considerable heterogeneity. Furthermore, factors such as achieving effective ventilation, determining inspiratory pressures and selecting patients who benefit most are only some of the areas identified that need further study. Clearly there are knowledge gaps. Most studies reviewed limited the ability to draw conclusions, with further research needed in order to confirm positive findings related to noninvasive ventilation in severe-stable chronic obstructive pulmonary disease patients. This and other techniques require testing in carefully designed and conducted trials, for which there were few.

Our rationale for conducting this review was to assess what is known and not known. Based on the existing evidence, noninvasive ventilation may have an adjunctive role in the management of chronic respiratory failure due to chronic obstructive pulmonary disease.

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STATEMENT OF INTEREST
None declared.

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Is air travel safe for those with lung disease?

To the Editors:

I read with interest the article of COKER *et al.* [1] regarding the safety of commercial air travel for patients with lung disease. This is an area of concern since both the prevalence of chronic obstructive pulmonary disease and the number of people flying for leisure purposes are increasing. The available guidelines are based on very limited scientific evidence. Owing to the lack of data and potential adverse consequences of hypoxaemia induced by air travel, the recommendations proposed by scientific societies and panel guidelines are purposefully cautious.

The prospective evaluation of a large cohort such as the one described by COKER *et al.* [1] is of great value for increasing knowledge in this field, and potentially for the refinement of recommendations for patients planning air travel. If patients included in the study of COKER *et al.* [1] were indeed managed according to guidelines, it can be concluded that these guidelines are appropriate for predicting safe air travel. It could be argued, however, that current guidelines are too restrictive or cautious. The guidelines all recommend avoidance of hypoxaemia below an arterial oxygen tension (P_{a,O_2}) of 6.7 kPa (50 mmHg) [2–4] or 7.3 kPa (55 mmHg) [2, 5].

Bearing this in mind, it would be of great value to the scientific community to obtain the following additional information, which is probably already available to COKER *et al.* [1]. 1) How many patients with an arterial oxygen saturation measured by pulse oximetry (S_{p,O_2}) of 92–95% underwent hypoxic challenge testing (HCT)? 2) Did all patients with a P_{a,O_2} of 6.7 kPa (50 mmHg) during HCT fly with oxygen? 3) How many patients with an S_{p,O_2} of $<$92% at ground level flew without oxygen?

HCT is useful for predicting the level of hypoxaemia that patients will experience during a flight. However, it is not clear which patients should undergo HCT, *i.e.* which patients are at risk of an in-flight P_{a,O_2} of $<$6.7 kPa ($<$50 mmHg). COKER *et al.* [1] reported that 19 of the 82 patients who underwent hypoxic challenge testing despite a ground-level S_{p,O_2} of $\geqslant$96% did indeed experience severe hypoxaemia during the test. It would be interesting to characterise these patients. How do they compare to those of the same ground-level S_{p,O_2} but without

severe hypoxaemia under hypoxic conditions? Limited data from the literature suggest that patients with very severe obstructive lung disease (forced expiratory volume in one second of <1 L [6] and/or hypercapnia [7, 8]) are at risk of severe in-flight hypoxaemia despite a good ground-level S_{P,O_2}.

Accordingly, it would also be interesting to have answers to the following questions concerning Global Initiative for Chronic Obstructive Lung Disease stage IV chronic obstructive pulmonary disease patients. 1) How many patients with a ground-level arterial oxygen saturation measured by pulse oximetry of >95% underwent hypoxic challenge testing? 2) How many patients flew without oxygen and without pre-flight hypoxic challenge testing?

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STATEMENT OF INTEREST

None declared.

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Prevention of ventilator-associated pneumonia: possible role of antimicrobials administered *via* the respiratory tract

To the Editors:

We read with interest the comprehensive and useful review of LORENTE *et al.* [1] regarding the evidence concerning measures for prevention of ventilator-associated pneumonia (VAP). The authors did not comment on the prophylactic use of antimicrobial agents administered *via* the respiratory tract as a potential preventive strategy for VAP. Relevant guidelines of the Canadian Critical Care Trials Group and the Canadian Critical Care Society [2] recommend against the prophylactic use of oral or intratracheal antibiotics for this purpose. However, a recently published meta-analysis of randomised controlled trials (RCTs) revealed that prophylactic administration of antimicrobials (aerosolised or endotracheally instilled) *via* the respiratory tract, as opposed to control treatment, was associated with a reduced incidence of pneumonia (odds ratio (OR) 0.49; 95% confidence interval (CI) 0.32–0.76) in intensive care unit patients [3]. In contrast, no difference was detected with regard to mortality between the groups compared (OR 0.86; 95% CI 0.55–1.32); the emergence of resistance associated with the implementation of this strategy was not examined due to insufficiency of the relevant available data [3].

After the publication of the aforementioned meta-analysis [3], one additional RCT on this topic has been published [4]. By comparing a prophylactic course of aerosolised ceftazidime with placebo in intubated trauma patients, the authors of the RCT reported that the number of patients with VAP was 26 (49%) out of 53 and 26 (50%) out of 52 in the prophylaxis and placebo groups, respectively [4]. We recalculated the pooled OR by adding this new information, in an attempt to update the previous meta-analysis [3]. Again, a significant difference was revealed regarding the incidence of pneumonia in favour of the prophylactic as opposed to the nonprophylactic group (OR 0.47; 95% CI 0.24–0.91).

The potential usefulness of antimicrobials administered *via* the respiratory tract for the prevention of ventilator-associated