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From the authors:

We would like to thank D. Liu and S. Menjoge. Their letter has raised some statistical issues regarding the Poisson model with overdispersion correction and analysis of time-to-first event.

For the Poisson model with overdispersion correction, they state that this model ''can also be viewed as equivalent to each individual having their own rate of exacerbations and the rate varying across the population following a gamma distribution'' and provide two references for this statement. Unfortunately neither reference actually supports this view. In the first, McCullagh and Nelder [1] specifically state that a mixture of a Poisson rate for each individual with a gamma distribution across the population ''leads to the negative binomial distribution''. In the second, Liu and Dey [2] briefly mention using a Poisson model with overdispersion correction as a simple approach but again do not place the quoted interpretation on this model. In fact, most of the paper is devoted to the negative binomial model and states ''we confirm that negative binomial regression usually accounts for microlevel heterogeneity (overdispersion) satisfactorily'' [2].

D. Liu and S. Menjoge further state that in order to decide between the Poisson model with overdispersion correction and the negative binomial model ''one should compare model fitting to select a better model''. This advice is contrary to the need in clinical trials to pre-specify the statistical analysis ahead of unblinding the data. In another cited paper, ver Hoef and Boveng [3] discuss difficulties in determining the best model based on the model fit and advise that ''a good understanding of the theoretical differences between them can form the basis for an *a priori* decision based on scientific purposes''.

For the time-to-first event analysis, D. Liu and S. Menjoge state that this assumes a ''constant hazard ratio between treatments over time but that is a much weaker assumption than the assumptions for Poisson and negative binomial models''. Our study [4] clearly states that the time-to-first event approach is a simpler analysis than that involving the negative binomial model and we acknowledge the extra assumptions needed by the more sophisticated model. However, use of time-to-first event analysis requires that data collected on exacerbations beyond the first exacerbation be explored. The analysis of time-to-first exacerbation leads to a hazard ratio for the risk of experiencing an exacerbation in any given time interval. This is not as easy to interpret clinically as the reduction in exacerbation rates from the negative binomial model.

Therefore, we maintain our view that, currently, negative binomial regression is the method of choice for analysing exacerbation rates. In contrast to the overdispersed Poisson model, this model does not assume one single rate and then introduce an arbitrary correction for overdispersion. As we have stated, it can be useful to supplement the primary analysis with secondary sensitivity analysis using time-to-first event methods.

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STATEMENT OF INTEREST

Statements of interest for all authors of this manuscript can be found at www.erj.ersjournals.com/misc/statements.shtml

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Is air travel safe for those with lung disease?

To the Editors:

We are grateful to Marchand [1] for his interest in our report, ''Is air travel safe for those with lung disease?'' [2], and we would like to make the following response to the interesting questions he posed [1].

A total of 464 patients had resting sea-level arterial oxygen saturation measured by pulse oximetry (S_{p,O_2}) of 92–95%. Out of these, 132 (28%) underwent hypoxic challenge testing (HCT). Current British Thoracic Society (BTS) guidelines on air travel and lung disease [3] do not recommend HCT in all of these patients, but only in those with an additional risk factor,