



## Reply to: Cause or consequence?

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Shareable abstract (@ERSpublications) SABINA III shows associations between SABA prescriptions and poor asthma outcomes and does not imply causation. However, implying that high SABA use is simply a "consequence" of poor asthma control is also an oversimplification of a complex issue. https://bit.ly/3rXKSGm Cite this article as: Bateman ED, Price DB, Wang H-C, et al. Reply to: Cause or consequence?. Eur Respir J 2022; 59: 2200103 [DOI: 10.1183/13993003.00103-2022]. This single-page version can be shared freely online. Copyright ©The authors 2022. Reply to F.M. Volpe: This version is distributed under We thank F.M. Volpe for questioning whether the results of the SABINA III study showing associations the terms of the Creative between short-acting  $\beta_2$ -agonist (SABA) prescriptions and poor asthma outcomes should be regarded as Commons Attribution Non-"cause or consequence." We agree that causation cannot be assumed and stated this clearly as follows "this Commercial Licence 4.0. For commercial reproduction rights cross-sectional study does not permit an assessment of a causal link between SABA prescriptions and and permissions contact asthma outcomes and does not discount reverse causality; the results simply represent an association" [1]. permissions@ersnet.org But implying that high levels of SABA use is simply a "consequence" is also an oversimplification of a complex issue. First, besides the consistent results from epidemiological studies, there are many Received: 14 Jan 2022 Accepted: 19 Jan 2022 mechanistic studies of the negative effects of regular SABA use on biomarkers of airway inflammation, airway hyper-responsiveness, asthma symptom control and exacerbation risk, so causation is not ruled out [2, 3]. Further, while logical to consider that high use of an as-needed medication for symptoms must represent poor control, we would point out that a central purpose of our paper was to assess not inhaler use, but SABA prescriptions by clinicians and purchase over the counter. These are systemic issues concerning physician behaviour and access to SABAs that, in the face of excessive use and poor asthma control, permit or even encourage SABA use, which is contrary to asthma guideline recommendations [4]. The "long list" of recommendations for addressing this situation is therefore highly pertinent to the objectives of the paper and we agree that these may, and in fact are intended to, have "profound implications... for clinical practice and public health" [4–6].