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### Stability of the frequent exacerbator – a Danish nationwide register-based study

Mette Mørch Klemmensen Reilev(1), J Lykkegaard(1), A Halling(2), J Vestbo(3,4), J Søndergaard(1), A Pottegård(5)

(1) *The Research Unit of General Practice, Department of Public Health, University of Southern Denmark, Odense, Denmark*

(2) *Department of Clinical Science Malmö, Center For Primary Care Research, Lund University, Sweden*

(3) *Department of Respiratory Medicine, Odense University Hospital, Odense, Denmark*

(4) *Centre For Respiratory Medicine and Allergy, Manchester Academic Health Science Centre, University Hospital South Manchester NHS Foundation Trust, Manchester, UK*

(5) *Clinical Pharmacology, Department of Public Health, University of Southern Denmark, Odense, Denmark*

*Corresponding author: PhD Fellow Mette Mørch Klemmensen Reilev, Department of Public Health, University of Southern Denmark, The Research Unit of General Practice, Odense C, Denmark. E-mail: mreilev@health.sdu.dk*

**Background and Aim:** The existence of a stable frequent exacerbator phenotype constitutes the basis of most treatment guidelines in chronic obstructive pulmonary disease (COPD). We aim to investigate the stability of the frequent exacerbator within a 10-year follow-up period in a population-based study.

**Methods:** We conducted a nationwide register-based epidemiological study with a 10-year follow-up period of patients with COPD and at least one medically treated exacerbation in 2003. Exacerbations were defined as short-term treatment with oral corticosteroids or hospitalization due to COPD. First, we categorized the population as frequent, infrequent and non-exacerbators each subsequent year during the 10-years of follow-up and quantified the flow between categories. Second, we calculated the proportion of frequent and severe exacerbators in 2003 that remained in this category throughout a 3- and 5-year follow-up period.

**Results:** We identified 19,752 COPD patients with exacerbations in 2003. Thirty percent were frequent exacerbators and 50% were severe in the index year. Overall, a large proportion of exacerbators in 2003 were non-exacerbators in the following years (60% in 2004 increasing to 68% in 2012). Approximately half of those categorized as frequent exacerbators in one year were either infrequent- or non-exacerbators in the subsequent year. This pattern was stable throughout follow-up. A minority of frequent exacerbators in 2003 stayed in this category throughout a 3- and 5-year follow-up period (11% and 6%, respectively), and a substantial proportion (43%) did not have further years as frequent exacerbators. Among those hospitalized due to COPD in 2003, 47% and 42% did not experience an exacerbation requiring hospitalization throughout the 3- and 5-years of follow-up, respectively.

**Conclusions:** The concept of a stable frequent exacerbator phenotype appears inapplicable in the general population. This finding challenges current management of COPD patients in general practice.