# Publication

# 10 year-follow up of cluster-based asthma phenotypes in adults : a pooled analysis of three cohorts

**Author(s)** Boudier, Anne; Curjuric, Ivan; Basagana, Xavier; Hazgui, Hana; Anto, Josep M.; Bousquet, Jean; Bridevaux, Pierre O.; Dupuis-Lozeron, Elise; Garcia-Aymerich, Judith; Heinrich, Joachim; Janson, Christer; Kuenzli, Nino; Leynaert, Benedicte; de Marco, Roberto; Rochat, Thierry; Schindler, Christian; Varraso, Raphaelle; Pin, Isabelle; Probst-Hensch, Nicole; Sunyer, Jordi; Kauffmann, Francine; Siroux, Valerie

**Author(s) at UniBasel** Schindler, Christian  ; Probst Hensch, Nicole  ;

Rationale: The temporal stability of adult asthma phenotypes identified using clustering methods has never been addressed. Longitudinal cluster-based methods may provide novel insights in the study of the natural history of asthma. Objectives: To compare the stability of cluster-based asthma phenotype structures a decade apart in adults and to address the individuals' phenotypic transition across these asthma phenotypes. Methods: The latent transition analysis was applied on longitudinal data (twice, 10 yr apart) from 3,320 adults with asthma who took part in the European Community Respiratory Health Survey, the Swiss Cohort Study on Air Pollution and Lung and Heart Diseases in Adults, or the Epidemiological Study on Genetics and Environment of Asthma. Nine variables covering personal and phenotypic characteristics measured twice, 10 years apart, were simultaneously considered. Measurements and Main Results: Latent transition analysis identifies seven asthma phenotypes (prevalence range, 8.4-20.8%), mainly characterized by the level of asthma symptoms (low, moderate, high), the allergic status, and pulmonary function. Phenotypes observed 10 years apart showed strong similarities. The probability of membership in the same asthma phenotype at both times varied across phenotypes from 54 to 88%. Different transition patterns were observed across phenotypes. Transitions toward increased asthma symptoms were more frequently observed among nonallergic phenotypes as compared with allergic phenotypes. Results showed a strong stability of the allergic status over time. Conclusions: Adult asthma phenotypes identified by a clustering approach, 10 years apart, were highly consistent. This study is the first to model the probabilities of transitioning over time between comprehensive asthma phenotypes.

**Document type (ISI)** Article

10 year-follow up of cluster-based asthma phenotypes in adults : a pooled analysis of three cohorts