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**Title:** Evaluation of treatment with fixed dose combinations in asthma patients in primary care in Sweden by using mannitol challenge test

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**Body:** Background: The mannitol challenge test is an indirect bronchial challenge test suitable for use in a primary-care setting. The test is most often used to diagnose asthma. In this pilot study the test was used to evaluate the effectiveness of ongoing treatment with ICS/LABA combination therapy in patients with asthma. Objectives: To explore the prevalence of optimal treated asthma patients in primary care in Sweden. The hypothesis was that not all patients are optimal treated. Methods: Male and female subjects, age 18-65 years with asthma, who were treated with a fixed dose combination (budesonide/formoterol or fluticasone/salmeterol) were included in the study. The subjects performed a mannitol challenge test (direct fall) followed by an inhalation of a  $β_2$ -agonist. A new spirometry (reversibility test) was performed 15 minutes later. The main explorative end-point was positive or negative response of mannitol challenge test and/or a reversibility of ≥15%. Results: The preliminary result of this pilot study (100 subjects) shows that an unexpected, surprisingly high proportion of the asthma patients had a positive response, either as a direct fall of FEV<sub>1</sub> ≥15% in the mannitol challenge test and/or a reversibility of ≥15%. Conclusion: The result of this study indicates that a large proportion of asthma patients in primary care, who are currently treated with fixed dose combination therapy, may not be optimally treated. Further research is needed to support these findings and to understand the reasons.