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Title: Cost savings using fractional exhaled nitric oxide (FeNO) testing in asthma management by specialists

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Body: INTRODUCTION Routine clinical assessments including spirometry and asthma control tests (ACT) or questionnaires (ACQ) do not provide information about underlying airway inflammation in asthma. Whether measuring airway inflammation with a biomarker such as FeNO leads to more cost effective asthma management decisions remains unclear. OBJECTIVES To determine whether the use of FeNO in the specialist management of asthma results in more effective/cost effective treatment decisions. METHODS Fifty subjects ages 7-60 with established asthma participated in this single center, observational study. After performing spirometry and standard asthma assessments, health care practitioners (HCPs) clinically estimated airway inflammation and made treatment decisions. FeNO was then measured and any management changes based on knowing FeNO were made. RESULTS HCP assessments of airway inflammation were incorrect in 25 of 50 patients. Importantly, treatment decisions were substantially altered in 40% of subjects following FeNO determination. Medication reductions were made in 8 (16%) subjects with the average per month reduction estimated to be \$221.38/subject. In 4 other patients, FeNO and clinical measures indicated changes could have been made. Finally, HCPs added/increased medications in 9 suboptimally managed patients to prevent worsening asthma, likely resulting in significant long term cost savings. CONCLUSION These results demonstrate that FeNO testing resulted in more effective/cost effective treatment decisions by asthma specialists with potential for substantial cost savings. Longitudinal studies will help further quantify the health economic benefit of FeNO testing for managing asthma.