It's not all about asthma!
The prevalence of alternative diagnosis in patients with confirmed or suspected asthma

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Introduction

Asthma can be over or under diagnosed in patients reporting respiratory symptoms [1]. Alternative diagnoses such as inducible laryngeal obstruction (ILO) or breathing pattern disorder (BPD) mimic asthma symptoms and can be challenging to identify [2].

The aim was to review the **prevalence of alternative diagnoses in patients with confirmed or suspected asthma** who completed the NuvoAir home assessment.

Methods

Outcome and engagement data was collected and analysed from patients referred to the 12 week NuvoAir home assessment service from December 2021 to November 2023. Patients were onboarded virtually by respiratory physiologists who coached them to perform quality assured spirometry four times weekly and when symptomatic. Symptom history was recorded and Nijmegen and/or VCD questionnaires completed if BPD or ILO were suspected. Post assessment a report was generated with results, interpretations and recommendations. NHS clinicians facilitated onward referral and outcomes were gathered. An experience questionnaire was sent to patients.

Results

Of 75 patients referred, 21 individuals (28%, age 43.7 (±11.7) years; 4 Male, 17 Female) had a concurrent diagnosis suspected at referral. Average **engagement to 4 times weekly spirometry was 84% with 73% of sessions graded A-C** (ATS/ERS 2005).

Two subgroups emerged; group 1 asthma uncertain with no previous evidence of obstruction (n=7) and group 2 uncontrolled asthma with uncertain cause (n=14). In group 1 asthma was disproven for all. In group 2, asthma was disproven in one individual, asthma was solely responsible for symptoms in two and 11 individuals received an additional diagnosis (Figure). Across both groups, **24% of patients were diagnosed with ILO and 52% diagnosed with BPD.**

When surveyed, 75% of patients thought the NuvoAir assessment was useful in detecting drops or improvements in their lung function, understanding patterns of their health and providing them with reassurance.

Figure. Alternative diagnostic outcomes
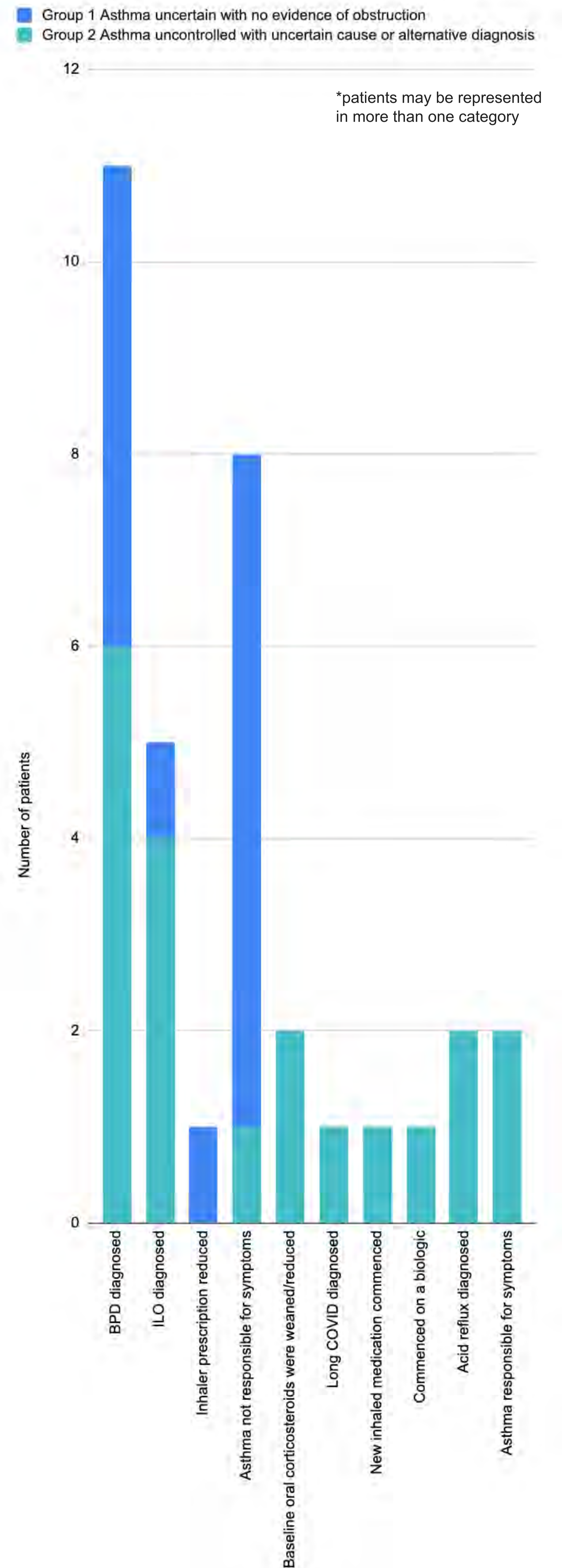
Conclusions

In this cohort of patients with uncontrolled or unconfirmed asthma, a physiologist-led home assessment utilising serial home spirometry measures, validated questionnaires and detailed history taking has **enabled an accurate diagnosis of asthma and facilitated the timely identification of BPD and ILO.**

References:
[1] Aaron, S. D., Boulet, L. P., Reddel, H. K., & Gershon, A. S. (2018). Underdiagnosis and overdiagnosis of asthma. *American journal of respiratory and critical care medicine*, *198*(8), 1012-1020.
[2] Williams, Z., Hull, J. H., Ge, Y., Ming, J., Roberts, C., Rhamie, S., & Patel, P. H. (2023). Feasibility and value of a domiciliary spirometry programme in the assessment of severe asthma: a real-world evaluation. *ERJ Open Research*, *9*(6).

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