

Optimising Biologic Therapy Decision-Making in Severe Asthma: A Service Evaluation of Digital Therapeutic Platform-Assisted FeNO Suppression Testing and Adherence Support



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1 Introduction

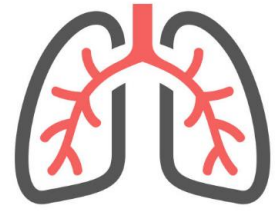
- **Severe asthma:** Affects 200,000 people in the UK. Symptoms are hard to control, even with inhaled steroids.
- **The Medication Problem:** Non-adherent use of inhaled steroids leads to poor asthma control and health risks. Doctors need to know if patients are taking their medicine before prescribing expensive new treatments
- **A New Approach:** We use a simple breath test (FeNOSuppT) to check if patients are using their inhalers.
- **Digital Support for Better Asthma Care:** Smart inhalers and digital platforms can help patients take their medicine regularly and Doctors can see how often patients use their inhalers, helping them make better decisions

2 Study Aim

1. Test if a digital platform can help doctors use the breath test (FeNOSuppT) to make better treatment decisions



2. Use the digital platform to support patients in taking their medicine regularly and improve their asthma control



3 How was this study done?

Participants



• Patients with poorly controlled asthma despite high-dose treatment from UK severe asthma centres

Procedure



Initial clinic visit: blood tests, breath tests (FeNO), lung function, asthma control questionnaire, Patients grouped by FeNO levels: (<45ppb) or (≥45ppb): **Digital support** → Patients given a smart inhaler sensor (Propeller DTP) and app installed → **Follow-up visits**

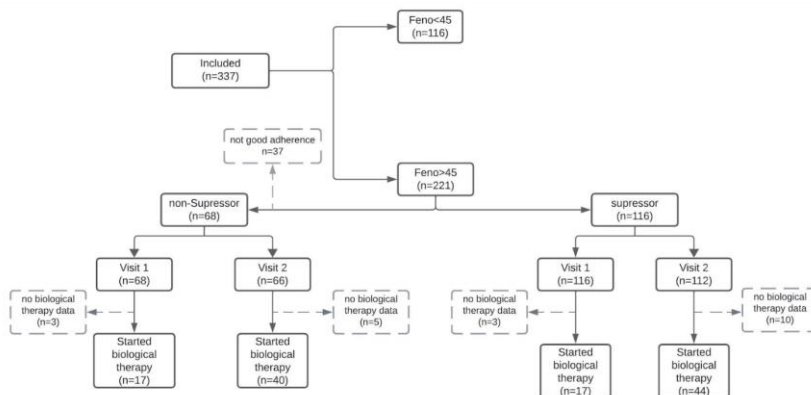
Analysis



• Descriptive statistics, FeNO suppression test: ≥42% reduction in FeNO considered positive → Comparisons made between FeNO "suppressors" and "non-suppressors"

4 Results and outcomes

Flowchart demonstrating patient inclusion/exclusion criteria



- **FeNO High Patients:** Those resistant to FeNO suppression, especially those on maintenance OCS, were most likely to progress to biologics
- A negative suppression test has strong predictive power in this group, supporting decisions to advance therapy
- Positive suppression tests after digital monitoring suggest further optimisation of current medication strategies before escalating treatment

5 Conclusions

- Digital monitoring in combination with biomarker assessment can help Doctors in their clinical decisions, specifically in relation to the escalation to biologic therapies, and may aid in the prediction of long-term outcomes in patients

6 References

Heaney, Liam G., et al. "Remotely monitored therapy and nitric oxide suppression identifies nonadherence in severe asthma." *American journal of respiratory and critical care medicine* 199.4 (2019): 454-464.