



# Transforming access to respiratory diagnostics: addressing a critical healthcare gap in the Armagh and Dungannon area

Case studies

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## Overview

**Organisation:** Federation of family GP Practices Armagh and Dungannon

**Organisation type:** Not-for-profit community interest company

This case study outlines the implementation and impact of a mobile advanced respiratory diagnostics service, led by a respiratory physiologist within primary care. The service supports 22 GP practices across the rural Armagh and Dungannon region, serving a population of approximately 80,000 in the North of Ireland. The region ranks 208 out of 217 in the UK for respiratory-related admissions and mortality ([Asthma and Lung UK Respiratory index visualisations](#)).

Prior to the initiative, access to basic lung function testing was limited, inconsistent, and below standard. In May 2024, the mobile service assumed responsibility for diagnostic testing, introducing quality-assured spirometry, fractional exhaled nitric oxide (FeNO), and gas transfer (DLCO) testing. This significantly improved access and streamlined pathways for personalised, patient-centred care for individuals with suspected asthma or COPD. This case study highlights the positive outcomes achieved, including a substantial reduction in secondary care referrals, and shares key insights and lessons learnt throughout the process.

# Outcomes and learning

## Outcomes

Before the project, patients faced diagnostic delays of up to 90 weeks due to longstanding challenges in primary care, exacerbated by the COVID-19 pandemic. Contributing factors included a shortage of trained staff, outdated equipment, and a lack of standardised processes.

The mobile service was developed to address these issues by delivering advanced diagnostic tools directly into the community. Tests such as transfer factor and FeNO enable earlier and more accurate identification of respiratory conditions, facilitating high-quality referrals to secondary care only when necessary.

A FeNO cluster model was also introduced, deploying 8 machines across clusters of 3 to 4 practices, with 1 roaming device integrated into the mobile unit. These clusters were geographically designed to maximise access.

To date, over 400 people have been assessed in the mobile service, with current waiting times reduced to approximately 12 weeks. Only 8.8% required referral to secondary care; the remaining 91.2% received high-quality investigations and personalised care within primary care. Of these, 291 people received a definitive diagnosis during their first visit: 29% with asthma, 20% with COPD, and 51% with normal lung function on that occasion.

According to the [BTS, NICE and SIGN asthma guideline](#), FeNO testing is recommended as a key initial diagnostic tool. In our cohort, 57% of people could have been diagnosed using FeNO alone (50 ppb or more with a strong clinical history), while the remaining 43% required reversibility testing. This distinction highlights the efficiency and cost-effectiveness of FeNO testing, reducing appointment times from 60 minutes to just 10 minutes.

Over 1,300 FeNO tests have been conducted in the first year across the 22 practices, revolutionising asthma care in the region. Patients now benefit from measurable outcomes that can guide their therapy, enabling tailored inhaled corticosteroid treatment plans and the reduction of inappropriate prescriptions.

This project is the first to offer enhanced lung function testing in primary care using mobile equipment. Transfer factor testing provides objective data on gas exchange efficiency, detecting conditions such as emphysema and interstitial lung disease earlier than spirometry alone. A [study by Sylvester et al. \(2021\)](#) found that 37.8% of patients with normal spirometry had abnormal transfer factor results. Our findings mirror this, with 39% of people showing abnormal transfer factor despite normal spirometry. These people were identified and referred promptly for further investigation, enabling earlier diagnosis, preservation of lung function, and improved quality of life.

## Learning

While the reduction in waiting times is a significant achievement, a 12-week wait remains suboptimal. With funding for only 1 clinical staff member and limited administrative support (approximately 4 hours per week), appointment capacity is restricted to six 1-hour slots across 3 days weekly.

Efforts are underway to increase capacity. Ideally, each GP practice would have its own FeNO device, enabling point-of-care testing. However, due to funding constraints, the cluster model remains the most viable solution.

Delivering mobile diagnostics across 22 practices presents logistical challenges, requiring high levels of coordination and collaboration. We are exploring innovative solutions, including AI tools, to enhance communication, audit testing quality, and ensure compliance with national guidelines. These advancements aim to improve service efficiency and support the delivery of high-quality, patient-centred care.

The project is funded solely by the Armagh and Dungannon (A&D) Federation, with no central funding to date. The A&D Federation is a community interest company run by its GP members to support 22 practices in the Armagh and Dungannon area of Northern Ireland. The Federation aims to use any unspent funding on projects that will benefit its patient population.

This Federation acquired funding to run this project for 2 years from May 2024, applying for and receiving grants from industry and pharma colleagues through the 'donations and grants' scheme. This supported the implementation of FeNO and the purchase of consumables. The service continues to evolve, driven by data and patient outcomes. Despite funding limitations, the initiative has transformed respiratory diagnostics in the region, as evidenced by measurable improvements in access, accuracy, and care delivery.

# Supporting information

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