



# Engagement and data quality in physiologist-led home monitoring for people with COPD

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## Introduction

Remote monitoring can empower people with COPD to better understand their condition, and can identify changes in their health sooner, resulting in improved health outcomes. However, the engagement with and quality of health data collected in the home remains unclear due to the variability in remote monitoring methodologies. This interim analysis investigated the engagement with a COPD home monitoring programme supported by respiratory physiologists. Monitoring included weekly spirometry and daily SpO<sub>2</sub>, mMRC questionnaires and Fitbit step counts.

## Methods

Patients with known COPD identified by secondary care and specialist COPD community nurses were consecutively enrolled into the NuvoAir COPD service. Patients were provided with a NuvoAir Air Next spirometer, pulse oximeter, Fitbit activity tracker and the NuvoAir Home app. Patients were onboarded to the programme through video and phone calls with NuvoAir respiratory physiologists and were given coaching in how to perform independent weekly spirometry and how to record the other measures daily. The NuvoAir team reviewed data and shared reports with the clinical team through alerts and/or in brief bi-weekly online huddles.

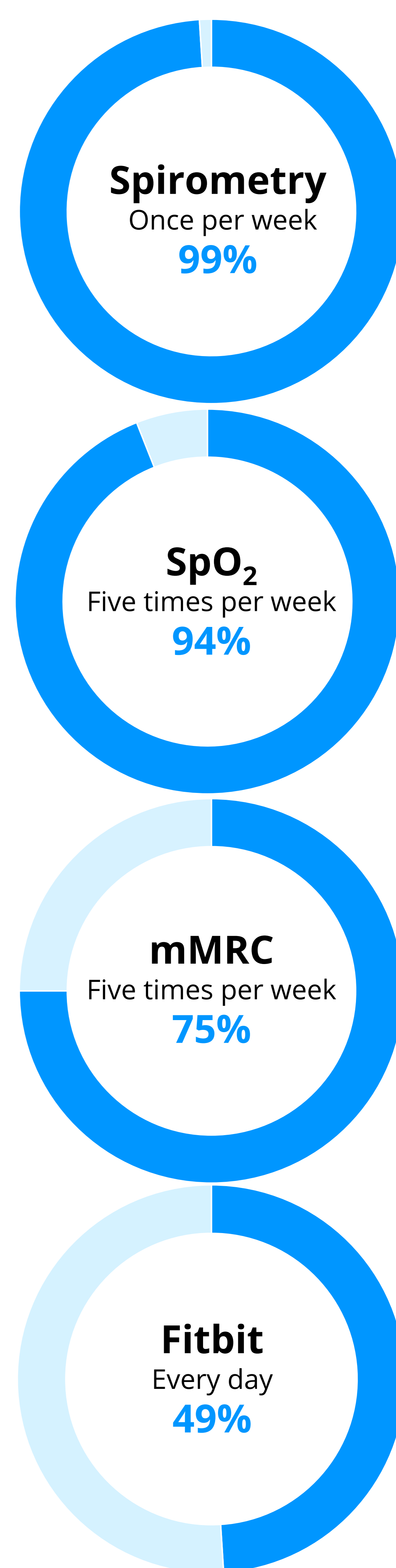


Figure 1: Schematic for each parameter measured showing the median adherence to the number of expected measures

Table: Baseline demographics of 45 onboarded patients

	Mean (SD)	Range
Age, years	68 (9)	41-84
FEV <sub>1</sub> , %pred	37 (13)	17-80
SpO <sub>2</sub> , %	92 (4)	85-99

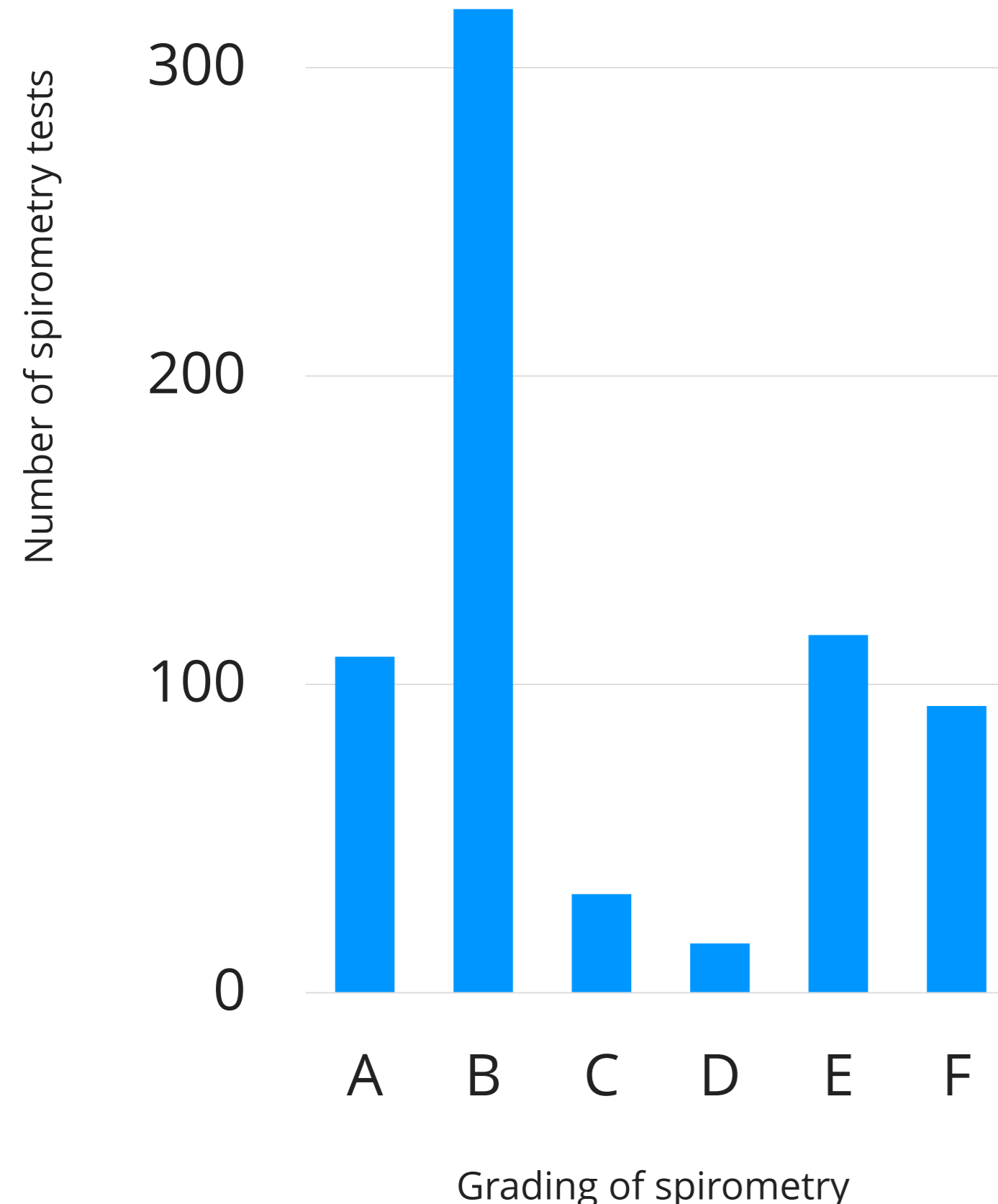


Figure 2: Bar chart showing ATS/ERS 2005 quality grading of 1554 recorded spirometry sessions.

## Results

During the first 6 months, 52 people with COPD were referred, 7 declined participation. Of 45 people onboarded the baseline demographics are in the table, 57% were female, 20% had mild-moderate, 47% severe and 33% very severe COPD, 96% participated for the entire 35 weeks analysed.

Over 35 weeks there were 3525 SpO<sub>2</sub>, 2837 mMRC measures recorded, 2857 days with Fitbit data and 689 spirometry sessions performed (Figure 1).

The median adherence (Figure 1) to daily monitoring was 94% for SpO<sub>2</sub>, 75% for mMRC (both Monday-Friday) and 49% for Fitbit (Monday-Sunday). There was a median of 99% adherence to weekly spirometry sessions. Per participant, a median of 71% of spirometry sessions were graded A-C indicating high quality data (ATS/ERS 2005 criteria, Figure 2). Those who achieved D-F grade spirometry were offered coaching sessions to improve their technique.

## Conclusions

With personalised physiologist coaching and support there was a high level of engagement with remote monitoring and repeated good quality spirometry was achieved by people with COPD. NuvoAir regularly shared data insights with hospital clinicians for treatment optimisation. Analysis of the clinical impact of these data insights on the outcomes of people with COPD are being evaluated.