

# Asthma Diagnosis and Monitoring QIP



[www.smartrespiratory.com](http://www.smartrespiratory.com)

## Monitor Asthma Status Between Consultations

Used in the  


## QIP 1 - Diagnose or Re-Assess Asthma Referrals with Smart Asthma Home Diagnostic Kit

### Problem

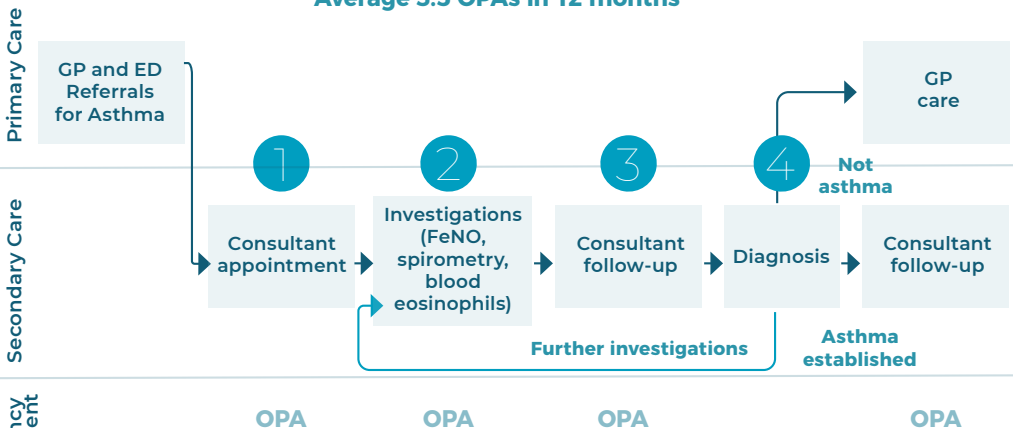
- Asthma is difficult to diagnose - as a consequence, one-third of asthma patients are misdiagnosed and 60% of CYP on asthma treatment do not have a diagnosis
- Asthma diagnosis hinges on “variable airway obstruction” and requires multiple observations
- Diagnosis is not conclusive if patients are Spirometry and FeNO tested when their asthma is inactive. BTS recommend targeting asthma during periods when asthma is “active”
- Symptoms often necessitate trial treatment which further obfuscates tests
- NICE NG80 Asthma Diagnostic Guideline states - “If diagnostic uncertainty remains after spirometry and FeNO, monitor peak flow variability for 2 to 4 weeks”

### Solution

- Smart sensors and electronic diary capture PEF diurnal variability
- Show Bronchodilator Reversibility in patients on Salbutamol
- Record symptoms to assure periods of active asthma are captured
- In the absence of asthma symptoms, inhaled corticosteroids are withheld for 24 hours to show PEF variability
- 1 month monitoring and a home diagnostic kit the patient can keep using afterwards
- Confirms or refutes diagnosis of suspected asthma, prior to consultation

## Typical Secondary Care Asthma Pathway

**Average 3.5 OPAs in 12 months**



**Average cost: £857**

# QIP 2 - Reduce Outpatient Appointments with Smart Asthma Home Monitoring Kit

## Problem

- 102,000 asthma hospital episodes p.a. cost the NHS £91m p.a.
- 35% of asthma hospital episodes are readmissions, costing £32m p.a.
- 121,000 ED visits p.a. for asthma, of which 1 in 6 need hospital care again within 2 weeks
- Proactively monitoring asthma reduces hospital utilisation by 57%
- NHS prescribes 500,000 peak flow meters p.a. at cost of £2.6m
- Clinicians only see snapshots of the patient's asthma, during attack or at consultation
- Few patients present usable charts to their clinician, and the charts only show peak flow
- Lack of clinical data leads to increased readmissions, in particular post-ED

## Solution

- Patients monitored before and after specialist consultation, for 90 days
- Leads to improved adherence to peak flow monitoring
- Improved adherence to preventer inhalers leads to lower use of reliever inhalers
- Reduce exacerbations by early detection of loss of asthma control
- Monitor post-ED patients after discharge to reduce re-admissions
- Severe asthmatics are monitored to ascertain whether they should be given biologics
- After 3-month Remote Patient Monitoring programme, patient keeps devices
- Patient switches to Self-Monitoring programme
- Integrate with hospital EHR records
- Used in situ and service evaluations across several NHS ICSSs, Trusts and PCNs

## QIP Steps

- SOP and Outcomes and Measurables Agreement signed by Smart Respiratory and Trust/ICS
- Trust/ICS recruits a minimum of 25 patients
- Patient consents to participating in the QIP, Smart Respiratory contacting them, and receives a Smart Asthma Home Diagnosis Kit, which they can keep after the QIP is completed
- Smart Respiratory helps the patient set up, monitors patient activity and gives the patient a courtesy call if they are not recording regularly
- 72 hours before the appointment, Smart Respiratory emails the home monitoring PDF report to secondary care admin, which can be updated on the day of the appointment by synchronising the link to the dashboard
- Secondary care admin saves the home monitoring report PDF in the patient's HCR
- Upon completing the QIP, the objective is to show improved outcomes that can be shared with the ICS, with a view to scaling up

### Secondary Care Episodes

- 102,000 Inpatients Episodes
- 120,000 ED Attendances
- 180,000 Outpatient Episodes

### 90 day Monitoring

### High-risk Primary Care

- 600,000 on 2+ Prednisolone p.a.
- 900,000 on 6+ SABA p.a.

### 12 month Self-monitoring

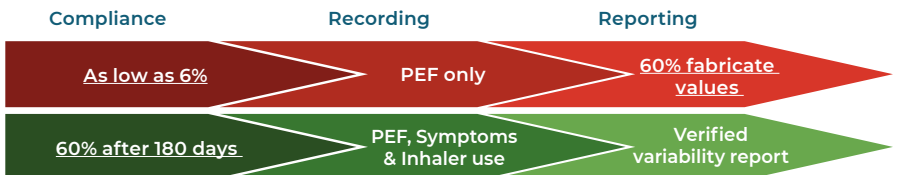
### Low-risk Primary Care

- 8m asthma diagnoses

### Free Self-management



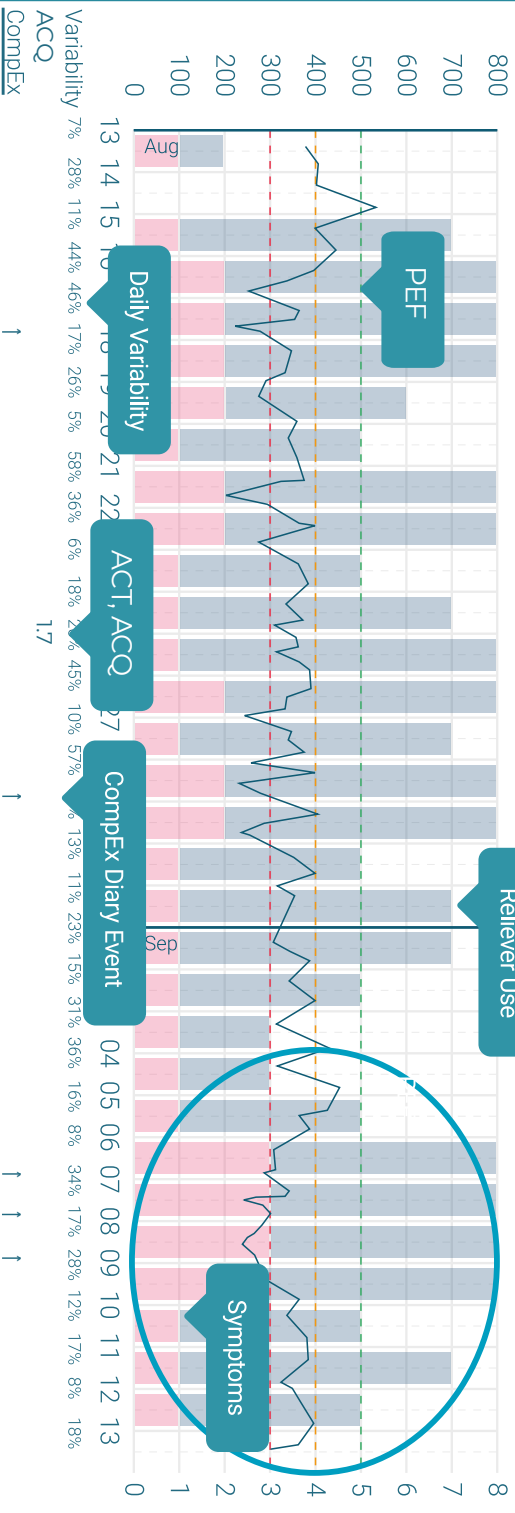
## Home Asthma Monitoring



# 30 Day Monitoring

2022.08.13. - 2022.09.13., Current PB: 500

L/min



- Personal Best
- 80% of Personal Best
- 60% of Personal Best
- Symptoms
- Puffs
- Deleted PEF

Rate/Day



- PEF, Symptoms and SABA use
- PEF variability
- ACT, ACQ and AQLQ scores
- SABA overuse
- PEF Prediction
- Complex diary events leading to exacerbations and re-admissions

## Digital recording precludes fabrication

### Certifications

CE mark, MHRA, ISO 23747,  
 ISO 13485, ORCHA, DPIA, antony@smartrespiratory.com  
 DSPIT, ICO, GDPR, NICE MIB www.smartrespiratory.com