

## FeNO PTF Device Implementation Pack for Participating Sites

Thank you for hosting a FeNO device, and for being part of the development of services to improve access to respiratory diagnostics for patients across south London.

This pack will support providers in South East London who have received a FeNO device through the Pathway Transformation Fund (PTF) project. Please read thoroughly to understand the asks of your practice, where to go for helpful resources (many hyperlinks included, for you to refer back to) and to understand how we at the HIN can support you to successfully deliver and evaluate this project.

**The PTF-funded FeNO devices are owned by the 2 South London ICSs. Your site has been selected as a host-site, and provided with a batch of mouthpieces, because you are well-placed to provide a service that benefits patients in your area. The ICS may decide in the future, based on learnings from this project, to redistribute some devices. However, it is most likely the devices will remain for the long-term in the allocated sites, assuming they are being regularly used.**

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## Background

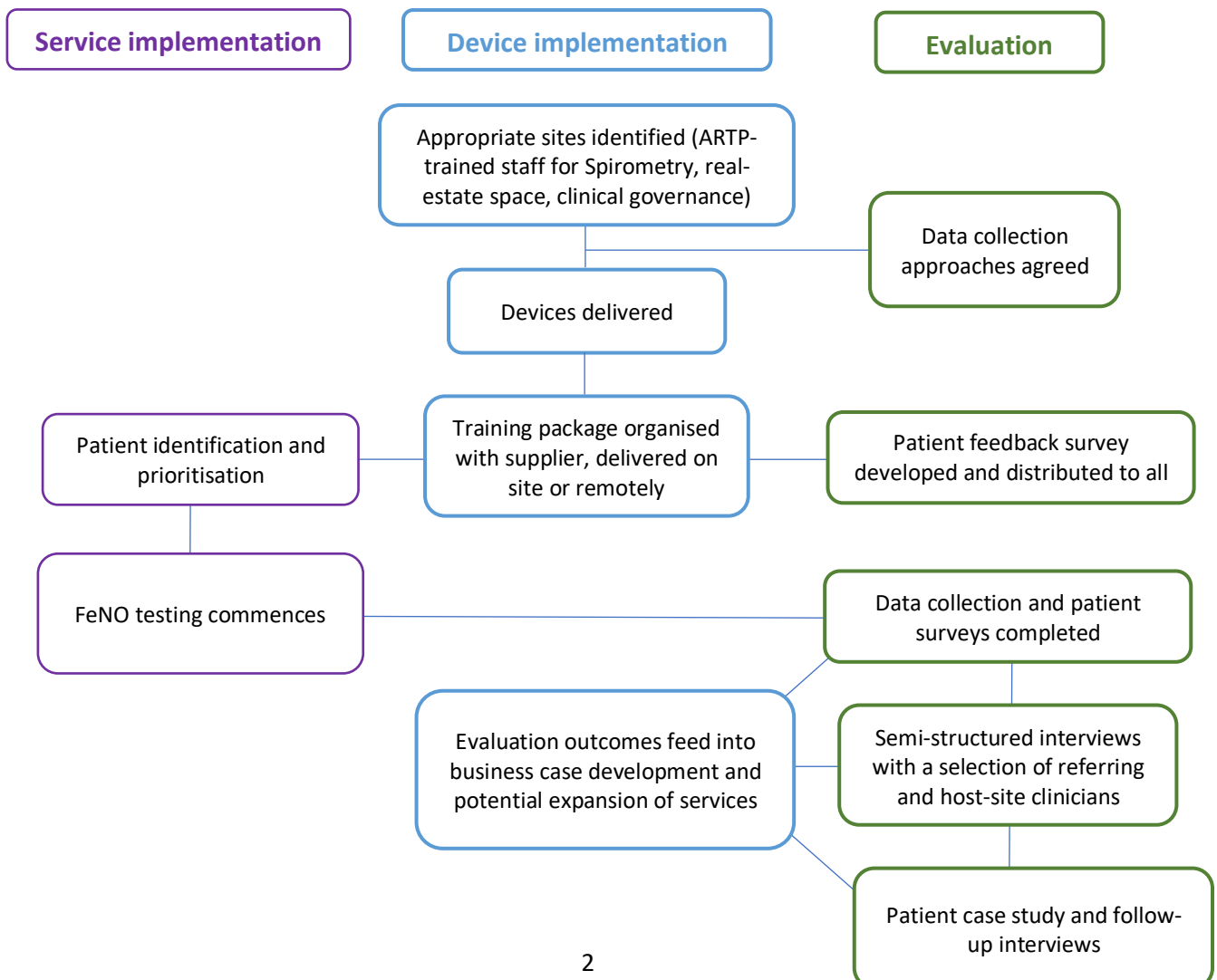
### FeNO testing

A Fractional exhaled Nitric Oxide (FeNO) test is a way of measuring the amount of nitric oxide in an exhaled breath. This test can help with the diagnosis of asthma by showing the level of inflammation in the lungs and its severity. FeNO testing is recommended by NICE to help accurately diagnose and manage asthma, resulting in fewer exacerbations and more effective drugs regimens. The Health Innovation Network (HIN), the Academic Health Science Network (AHSN) for south London, is working to support the implementation of FeNO devices across south London. A range of resources have been developed to support this national programme; further detail of these resources ([accessible here](#)) are included below.

### Community diagnostic spokes

For diagnostic purposes, FeNO testing should form part of an assured diagnostic service. The London Respiratory Clinical Network have produced a service specification for the ‘gold standard’ Quality Assured Respiratory Diagnostic Spoke Service (RDSS), and this is the model that should be aspired to across the Capital by sites using FeNO. **The service specification will be included alongside this FeNO implementation pack - please get in touch with the project team below if you have not received this.** In the long term it is expected that these spokes will work alongside the Community Diagnostic Centres (CDCs) which are being developed nationally – [background here](#).

### FeNO Project Flow Chart:



## FeNO Devices and Suppliers

The devices mainly used in South East London are Circassia NIOX device.

Circassia - NIOX VERO: Resource Page: [www.niox.com/en-gb/professional-resources/user-manuals/](http://www.niox.com/en-gb/professional-resources/user-manuals/)

A second device, the Bedfont NObreath, is also part of the Accelerated Access Collaborative Rapid Uptake Product (RUP) Programme and supported by the AHSN Network. A device comparison is available [here](#).

## Educational resources and sharing best practice

- The national [FeNO Learning Collaborative](#) brings together health professionals from across the country who are using FeNO in their practice, who are about to implement or who plan to do so in the future. These are informative webinars to share learnings, barriers and hear from Asthma experts. We encourage all host sites to join these sessions.
- There are [two free online learning modules](#) for FeNO developed by Health Education England:
  - **Module one** improves understanding of FeNO, how the test is performed and appropriate language to use when talking about FeNO with patients.
  - **Module two** focuses on the interpretation of FeNO, providing an enhanced description of what FeNO is and how it can be used in the diagnosis of asthma.
- Circassia and Bedfont, both suppliers of the FeNO devices, will provide **in-house or remote training for staff** at your clinical practice. You will be connected with the supplier via email.
- [Case Studies](#) are available here, showing examples of other primary care providers have deployed FeNO as a diagnostic tool.
- [Educational Video](#): Hear a Respiratory Nurse Specialist talk through the benefits of FeNO in diagnosis and management of asthma.

## When to undertake a FeNO test:

- New presentation with high immediate probability of asthma (BTS-SIGN 2019)
- New high probability of asthma
- Complex asthma patients e.g., those not improving with treatment, possible poor compliance to medication and ongoing symptoms
- Non-compliant patients where FeNO can be used as an educational tool
- Patients are suspected of having symptomatic asthma
- Those identified as most likely to require a referral for severe asthma biologicals assessment

## FeNO Levels are: [\(BTS, 2019\)](#)

- increased in patients with allergic rhinitis exposed to allergen, even without any respiratory symptoms
- increased by rhinovirus infection in healthy individuals, but this effect is inconsistent in people with asthma
- increased in men, tall individuals and by consumption of dietary nitrates
- lower in children
- reduced in cigarette smokers
- reduced by patients recently treated with inhaled or oral corticosteroids.

## Patient prioritisation and identification

The following are priority patient cohorts who may most urgently benefit from access to FeNO testing. This is a guide to support local prioritisation decisions.

Accompanying data searches have been developed by Ardens and can be downloaded from the Ardens portal folder; 1.6 Ardens Miscellaneous Review Searches/FeNO (AHSN).

Priority	Patient cohort
1	Multiple exacerbations in 12 months
2	12+ SABA prescriptions
3	3+ SABA prescriptions and no ICS
4	6+ SABA
5	Asthma control test (ACT) score <15
6	Recent asthma diagnosis
7	Suspected asthma

## Interpreting a FeNO test result

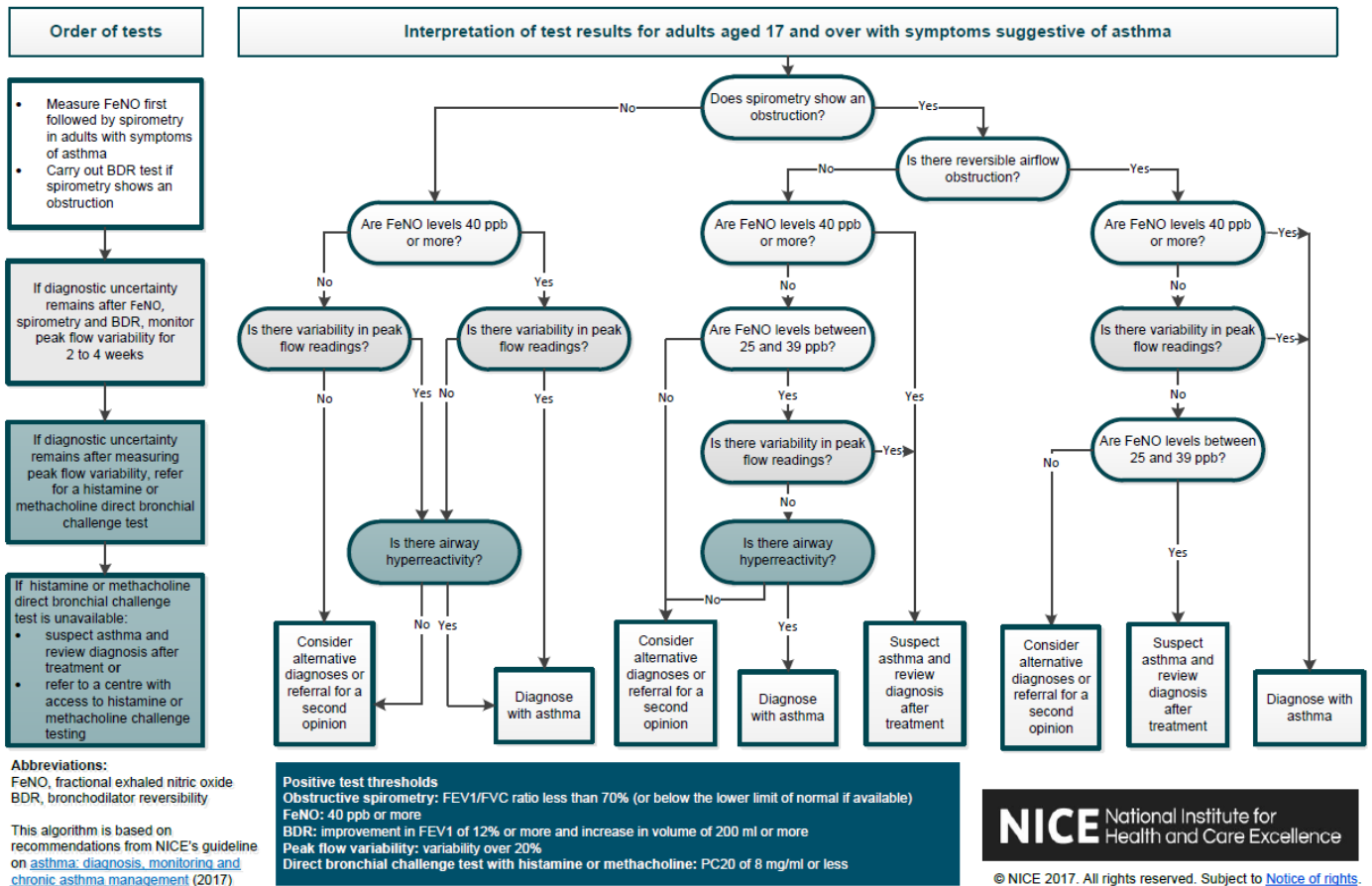
Interpreting FeNO should be undertaken by clinicians who are trained and competent in diagnosing asthma as well as have appropriate understanding of the value of FeNO in making a diagnosis. A positive FeNO increases the probability of asthma but a negative test does not exclude a diagnosis of asthma. **Regard a FeNO level of  $\geq 40$ ppb as a positive test.** \*

FeNO levels in the diagnosis of asthma in adults: [\(BTS 2019\)](#)

FeNO (ppb)	Low	Intermediate	High
Adults	<25	25 - 39	$\geq 40^*$

The algorithm below (NICE Asthma: diagnosis, monitoring and chronic asthma management (2017)) can be used to guide the interpretation of test results from spirometry, FeNO and a completed peak flow diary. An alternative algorithm for children and young people between the age of 5 to 16 can be found [here](#).

**Algorithm C Objective tests for asthma in adults aged 17 and over**



## Implementation Resources

A range of implementation resources have been compiled by Wessex AHSN and are [hosted here](#). Some of these resources are presented in more detail below. **Also attached alongside this implementation pack will be example referral, return and discharge forms - please get in touch with the project team above if you have not received these.**

### Patient Communications Resources

- **Accelerated Access Collaborative patient leaflet** – Download and access this [here](#). Alternatively, access the leaflet [translated to 7 different languages](#).
- **Circassia patient leaflet** – Download and access this pdf leaflet [here](#).
- [This leaflet](#), created by a **local trust** is an example of what could be developed by your team.
- **Appointment Text Message** – System One and EMIS Users can access an accuRx text template to send to patients prior to their appointment. This also includes a link to a patient leaflet and video. Access template [here](#).
- **FeNO test for Asthma Video for Patients** can be played from the Wessex AHSN webpage [here](#).



**Fractional exhaled nitric oxide (FeNO)**  
 Your asthma inflammation test explained

**WHAT IS IT?**  
 Fractional exhaled nitric oxide (FeNO) is a test used to diagnose asthma by measuring your breath. The test is simple and easy to do and, alongside other diagnostic tests, can tell you and your asthma team what type of asthma you have.

**WHY IS IT IMPORTANT?**  
 FeNO is useful to help you build a better understanding of your asthma. By knowing what kind of asthma you have, you can...

## Data Collection resources

For host sites with EMIS/System One access

1. The [Ardens FeNO template](#) makes it easy to record your FeNO tests, procedures and results. This free template is only available for EMIS Web and TTP System One Users databases. A summary is below, but please see the guidance [linked here](#) for full details. It is also recommended to complete the Asthma review template located on Ardens.

**How to download the Ardens templates?** – Download the PDF guidance [here](#).

**TTP:** the FeNO test template can be accessed easily by either searching for it in the bottom left of SystemOne or by pressing F12 and adding it to your favourites. See [further guidance here](#).

**EMIS:** For **Resource Publisher practices:** the FeNO template will already be available on your system, by using 'Run template' and searching for FeNO.

For **Template Manager practices:** the template will be installed with the next system update, but if you wish to access the current version (v15.4) more quickly, you can do so by downloading [here](#).

For host sites without EMIS/System One access

Community providers without primary care system access will need to use a separate (manual) data collection template. You can download the templates from our webpage [here](#).

## Evaluation

### Clinician and Patient Experience

The HIN will be supporting Southwest and Southeast London ICSs to evaluate this project. The evaluation will demonstrate the impact of FeNO testing to support clinical assessment of asthma, alongside improved levels of diagnosis and care.

This will include gathering qualitative clinician testimonials and patient stories from host and referring sites as well as an analysis of quantitative data through the EMIS/Local templates at host sites.

The ask of you is to capture quantitative data collection alongside FeNO testing, through the templates described above, and to implement the patient feedback survey.

### What quantitative data will the HIN collect from my site?

We will be working with the relevant personnel (i.e., IT Provider, Business/Practice Manager) to ensure effective data collection processes are in place at your site.

**Data for this project will be captured between July 2022 and November 2022. All providers will need to submit their data collection templates, or export from your system (TPP or EMIS) to the HIN at the end of November 2022. More guidance around data submission will be provided.**

Evaluation Metric	Quantitative Data source/method of collection	Responsibility for collection
Reason for use of FeNO test (diagnostic/monitoring)	Data collection template	Host site
No. FeNO tests	Data collection template	Host site
Patient Demographics (ethnicity and socio-economic group via postcode)	Data collection template	Host site
No. pts referred but not given FeNO test	Data collection template	Host site
Change in asthma register / no. diagnosed with asthma	Practice data at Referring Practice	Referring Practice

### What qualitative data will the HIN collect from my staff and patients, and how?

As FeNO testing progresses, we will be speaking to clinicians and patients involved through a small number of short 15 – 20-minute virtual semi-structured interviews.

- For providers and referring sites, these will take place in November 2022.
- For patients these will take place from January 2022, capturing ongoing impact on patient care and experience.

### Patient Testimonials / Case Studies

Access our [HIN webpage](#) for all materials to support the evaluation. This page will remain updated with any new data collection material related to the project.

To understand the impact on patients/service users of FeNO testing for asthma diagnosis and management, we have produced **patient surveys** to be completed during initial and follow up FeNO appointment(s). For a more in-depth insight into the patient experience, we will be arranging follow-up phone call interviews as described above to explore understanding of their condition, self-management and experience of asthma before/after a FeNO test.

**If you would be interested in sharing your clinical experience and feedback or would like to recommend a patient to share their experience, please contact a member of the Project Team at the HIN.**

Examples of national case studies can be found here: <https://wessexahsn.org.uk/projects/421/case-studies> .

### Key Contacts:

If you have any questions or require any support, please contact a member of the Project Team at the **Health Innovation Network**:

Dominic Norton - Senior Project Manager – [dominic.norton@nhs.net](mailto:dominic.norton@nhs.net)

Pearl Brathwaite - Project Manager – [pearl.brathwaite@nhs.net](mailto:pearl.brathwaite@nhs.net)

### Reference/Additional Resource:

BTS (2019): British guideline on the management of asthma: A national clinical guidance (2019)  
<https://www.brit-thoracic.org.uk/quality-improvement/guidelines/asthma/>

NICE (2017) asthma, diagnosis, monitoring and chronic disease management:  
<https://www.nice.org.uk/guidance/ng80/resources/algorithm-b-objective-tests-for-asthma-in-children-and-young-people-aged-5-to-16-pdf-4656176750>