The NObreath® is a handheld, fully portable, battery powered monitor, that measures the amount of nitric oxide (NO) exhaled on a person’s breath, commonly known as fractional exhaled nitric oxide (FeNO). FeNO is used as a biomarker for eosinophilic airway inflammation which aids in the detection and management of many respiratory conditions, notably asthma which, according to Asthma UK, currently affects over 5 million children and adults in the UK\(^1\). Bedfont’s challenge was to get health care professionals to adopt FeNO testing into general practice. The opportunity was to develop the NObreath® to cater for all end user needs, and to make it easier for doctors to diagnose and monitor different respiratory diseases, making this a far reaching product.

The Client
The Respiratory Unit, at the University Hospital Llandough, Wales, completes 300 tests over 5 months using the NObreath® FeNO breath monitor. FeNO testing has become a valuable tool during respiratory clinics to aid consultants in the diagnosis and differentiation of different respiratory diseases, as well as, the monitoring and managing of the patient’s treatment plan.

Lois Penhaligan, specialist respiratory physiologist, at the Lung Function Laboratory in Llandough, explains why they invested in a FeNO monitor, “The test was being requested by our respiratory consultants during routine clinics with adult patients. This can be used with patients who have respiratory symptoms, particularly with an unexplained cough and we are looking for the possible cause. The FeNO breath test is used for an assessment of airway inflammation, for the assessment of the effectiveness of a treatment, for example, a bronchodilator and for the management of a disease, for example asthma.”
Bedfont's Response

The response from Bedfont® is to provide a monitor that balances high quality technology and intelligent design with ease of use and accessibility.

Lois Penhaligan, on the decision to use a NObreath® FeNO monitor, “We were looking for a monitor that was lightweight, portable, had a quick analyser to do multiple tests during a very busy respiratory clinic. We chose this particular competitor due to the price of the product which was quoted for the monitor as a whole, in comparison to our previous monitor which had different expenses for different parts of the monitor which also had different expiry dates. We also liked that the monitor did not have an expiry date and the after sales cost was simply to buy more mouthpieces when we ran out. We liked that the monitor was given to us to loan for a period before purchasing.”

Results

The Llandough respiratory clinic has found using the NObreath® FeNO testing has improved their clinical service.

Lois Penhaligan, respiratory physiologist, University Hospital Llandough, comments on the NObreath®, “It’s a very quick and simple way of measuring airway inflammation. It’s very easy for the patient to use and it is very rare that a patient cannot comply with the technique to produce an accurate result.”

Dr Paul Thomas and his final comments on the NObreath®, “It is very quick at analysing the breath sample. It has an incentive for the patient to look at during the exhalation in the form of the ball bearing, which helps the patient to gauge the strength of their blow. It is very lightweight and portable meaning it can be moved into different testing rooms with ease. The only downside I feel is that sometimes the mouthpieces are very stiff to get on and will slide off before the patient has put their mouth around or during the test which causes a leak. The ease of pushing on the mouthpiece varies between mouthpieces.”

There does need to be a tight seal between the mouthpiece and the NObreath® flow, to achieve this, it can be easier to connect the mouthpiece and the flow together before inserting them into the front of the NObreath®.

Conclusion

Overall the aim for the NObreath® and FeNO testing in the future is to help respiratory health care professionals, in primary and secondary care, support their day-to-day decisions on patient’s diagnosis and treatment for relative respiratory diseases.

Future plans for the Respiratory Unit at the University Hospital Llandough, as stated by Paul Thomas are, “continue to use the NObreath® as an important departmental equipment tool to helping the process to ascertain both the diagnosis and severity of individual patient’s condition as instructed clinically for our patients by our lead consultant physicians.”

All the case study work undertaken by Lois Penhalighan was endorsed and agreed by the head of department, Paul Thomas, senior chief respiratory physiologist at the Lung Function Laboratory at University of Llandough Hospital.

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