Digital breathlessness pathway with Queen Victoria Hospital NHS Foundation Trust

Challenge

In 2019, the breathlessness pathway was identified by NHS England as a national priority for clinical re-design.

Similarly, the NHS long term plan highlighted the need to consolidate diagnostic services into hub and spoke network models, and better connectivity between diagnostic services and the digitisation of workflows.

In 2021, Queen Victoria Hospital NHS Foundation Trust (QVH) became an early participant in the Sussex Community Diagnostic Centre (CDC) programme, enabling it to play a key role in shaping the clinical approach to the breathlessness pathway for the region (based on NICE guidance and clinical best practice).

QVH partnered with Feedback Medical to initiate a pilot exploring Bleepa®'s capabilities to optimise the breathlessness pathway.

Bleepa® connects to healthcare IT systems bringing together results from the full spectrum of diagnostic tests (such as MRI, CT, X-ray, angiogram, ultrasound, spirometry, blood results) enabling case discussion, second opinion services, e-referral management, and virtual multidisciplinary team working.

Bleepa®'s ability to capture and align patient investigations with specific clinical pathways allows clinicians across both primary and secondary care settings to review, discuss, and manage patient cases more effectively.

Breathlessness and high healthcare use

Breathlessness is associated with high healthcare use, accounting for 5% of presentations to emergency departments[1] [2], approximately 4% of GP consultations[3] and reported by patients in 12% of medical admissions[4].

People present with breathlessness in primary care and the causes can be numerous. Due to this complexity it can result in a delayed/inaccurate diagnosis, people not getting the treatment/care they need, and unnecessary hospital admission.

As there is rarely a single cause of breathlessness, multiple investigations are likely to be required, and a holistic approach needed. Early and accurate diagnosis is critical to ensure the best outcome for the patient.

Solution

The purpose of the pilot was to demonstrate the effectiveness of the redesign of the pathway. The project's scope was clearly defined, which helped avoid any changes or unnecessary additions.

Goals for the pilot were:

- Enhancing GP access to diagnostic data and management plans.
- Providing better co-ordinated care.
- Reducing the need for in-person specialist appointments by enabling earlier, data-driven clinical decisions.
- Reducing patient visits to hospitals through virtual collaboration.
- Getting people the right information at the right time rather than it sitting in silos.

"The vision from the beginning was to redesign the model of care so that once referred, patients went straight to diagnostics, thereby reducing the need for a first outpatient appointment and reducing the risks of bouncing patients back to GPs for further referrals to different specialties.

"With Bleepa® as the technology enabler, this has optimised and automated multiple steps on the pathway with greater visibility of where the patient is on their care journey to multiple people across the clinical teams."

Dr Matthew Lees, Deputy Chief Medical Officer / Clinical Lead for Pathways and Physiological Studies, Queen Victoria Hospital

1 Hutchinson A, Pickering A, Williams P et al. Breathlessness and presentation to the emergency department: a survey and clinical record review. BMC PulmMed 2017;17(1):53.
2 Laribi S, KeijzersG, van Meer O, et al. Epidemiology of patients presenting with dyspnea to emergency departments in Europe and the Asia-Pacific region. European Journal of Emergency Medicine2019;26(5):345-9.
3 Frese T, Sobeck C, Herrmann K et al. Dyspnea the reason for encounter in general practice. J Clin Med Res 2011;3(5):239-46.
4 Stevens JP, Dechen T, SchwartzsteinR et al. Prevalence of Dyspnea Among Hospitalised Patients at the Time of Admission. Journal of pain and symptom management 2018;56(1):15-22.e2.

By streamlining the sharing of diagnostic information and enabling timely collaborative decision-making, Bleepa® helped to ensure more rapid diagnosis and improved access and coordination of care, along with improved primary and secondary care consultation and collaboration.

As a result of the pilot, QVH offered patients convenient access to a range of diagnostic services closer to home, avoiding the need for multiple, or in some cases, unnecessary, visits to acute hospital settings.

Both financially and clinically, the project benefited from clearly identifying necessary resources:

- **Professional** – involving a cardiologist in the pathway as breathlessness may be respiratory or cardiology related or both.
- **Infrastructure** - establishing new physiological testing clinics for spirometry and FeNO to full lung function testing.
- **Coordination** – creating a pathway coordinator role, which helped to triage referrals, schedule tests in one go and prevent unexpected costs.

"As part of the QVH Breathlessness Pathway steering group, we provided the GP's perspective to the team from the beginning. Our feedback was key to shaping the end-to-end process which is now streamlined, straightforward and well executed.

"Regular communication with all levels of staff - from GPs to teams across QVH - meant everyone had a voice and felt part of the process, which encouraged commitment and ownership.

"The pathway coordinator schedules the tests for patients on one day, meaning less trips to hospital and less time to reach a diagnosis. We receive a clear and concise summary of the outcome at the end of the patient episode, informing decisions for ongoing care. The pathway process is more efficient without any additional workload."

Dr Minesh Patel, GP Partner, Moatfield Surgery

Implementation

The design and rollout of the breathlessness pathway was centred on meeting the needs of both patients and healthcare staff alike.

From the very beginning, the aim was to create a system that was practical, efficient, and helpful for everyone involved. A steering group, including key members from QVH and Feedback Medical, as well as GP partners from a local practice, was set up to oversee the project and keep it on track. Weekly check-ins made sure progress stayed on course, while reviews at six and twelve months helped keep improvements coming.

Throughout the project, communication with those involved was key. GPs were kept informed with regular updates, especially about urgent findings, so they could act quickly when needed.

Training was tailored to the needs of different staff, and the system was tested by users to ensure it worked well before full training began.

Locally within Sussex, the approach has been to strategically roll out the pilot gradually – one GP practice at a time so that challenges and learnings can be reflected on, evaluated and relevant changes made where necessary before implementing to the next GP practice.

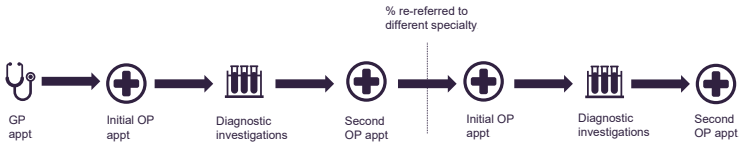
At present – 11 practices have engaged within the process and onboarded Bleepa® and a further 11 are scheduled.

Ultimately the long-term collective vision will see the use of Bleepa® expanded across all GP practices in the region and move beyond the breathlessness pathway.

Benefits

For patients, the benefits were clear - the project streamlined care by ensuring that all diagnostic information was gathered and shared quickly in Bleepa®, leading to faster treatment decisions and more coordinated care.

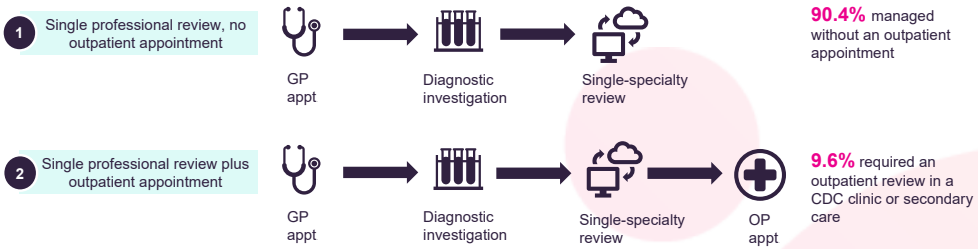
Referral pathway before the pilot



This shows the current standard referral pathway from primary care for patients that require diagnostic testing and a specialist opinion, i.e. those who cannot be managed in primary care or through basic advice and guidance services.

Each stage in the pathway represents a potentially unnecessary step which could be prevented through the use of Bleepa and a straight-to-diagnostic approach.

Simplified pathway with Bleepa ®



Outpatient diversion logic model enables diagnostic enhanced advice & guidance. The new pathway uses rules-based referral straight-to-diagnostic testing and a remote review by a specialist/multiple specialists to form a management plan for the patient based on the results.

A significant proportion of patients had all their initial investigations completed on the same day, which minimised delays and reduced the number of repeat appointments. Additionally, the proportion of patients who could be managed back in primary care, versus those needing referral to secondary care, reflected the success in managing cases efficiently at a local level.

Key measurable improvements include:

- 63% reduction in patient wait times from referral to treatment for the breathlessness pathway compared to the 18-week national target (46 days compared to 126 days) – reducing the number of patients waiting for over six weeks.
- 45% reduction in referral to diagnostic test wait times.
- 90% reduction in outpatient appointment requirements
- 3 x no. of diversions to traditional advice and guidance
- 377k minutes of consultant time could be saved per pathway for an integrated care board (ICB)
- £315k-£787k could be saved per pathway for an ICB

Outcome (closed cases)

Rejected	24.35%
Back to GP	66.05%
Referral to CDC clinic or secondary care	9.60%
Cases requiring no outpatient appt	90.40%

Benefits (per 100 respiratory referrals)

	Sample size/ actuals	Vol. new appts saved	Total appts saved**	Cost savings (Cons time***)
Respiratory	100	90	248	£4,230
Without Bleepa*	100	30	82	£1,396
Ass. net benefit Bleepa	100	60	166	£2,834
(if these benefits were achieved more widely)				
Sussex ICS – Respiratory	10,496*	60%	18,893	£314,880
Nationally – Respiratory	609,960*	60%	988,135	£16,926,390

Leveraging digital infrastructure through Bleepa®, this approach has achieved remarkable efficiency gains, releasing £4,230 per 100 respiratory referrals without requiring extra staff or CDC expansion. If these benefits were achieved more widely it could save Sussex ICS £314,880 or even £16.9 million nationally with one pathway.

Patient feedback was collected throughout and has been positive. This quote highlights the impact: "10/10 communication and referral process".

"The redesigned pathway has really helped to improve communication and collaboration between clinicians. Bleepa® has enabled us to review the results rapidly and have multi-disciplinary discussions virtually to expedite decision making. It is easy to refer patients onto the pathway and to discuss and respond to the GPs with our recommendations."

Mark Jackson, Consultant in Sleep and Respiratory Medicine, Queen Victoria Hospital

Conclusion

By partnering with Feedback Medical and implementing Bleepa®'s secure messaging system, the project with QVH enhanced GP access to diagnostic data and improved care coordination. This holistic approach facilitated earlier, data-driven clinical decisions, resulting in a 63% reduction in patient wait times from referral to treatment, alongside a 90% decrease in outpatient appointments.

The integration of a diverse range of diagnostic tests enabled effective management of patients across primary and secondary care, ultimately leading to significant savings in consultant time and costs, and subsequently optimising the healthcare delivery model.

Throughout the process, the work carried out at QVH has been, and continues to be, showcased in multiple arenas through ICS and national webinars. The national diagnostic team became aware of the programme, which was very much supported by their leadership team through Prof Mike Richards.

The QVH breathlessness pathway was made a national exemplar, and the team has worked across NHS England with others aiming to emulate the programme.

The whole project has been included as a case study in the report by the All-Party Parliamentary Group for Diagnostics 2024 report on CDCs.

This approach provides a pioneering blueprint of the symptom-based pathway and the ultimate enabler to clinical re-design as it has demonstrated the ability to cut wait times and improve patient care.

"We are pleased with the success of the pilot programme, which has led to keen interest in us sharing the best practice with others to adopt similar symptom-based pathways. We have presented to leaders in NHS England and clinical teams in trusts and ICBs to share our key learnings and the core factors for success.

"We are looking forward to the next stage of rolling out additional pathways, ie non-site specific symptoms, and increasing adoption across Sussex ICB to maximise the clinical and efficiency improvements for our patients."

Dr Ian Francis, Clinical SRO for Diagnostics and CDC programme for Sussex ICS