Royal College of Physicians | National Respiratory Audit Programme (NRAP)

NRAP Good Practice Repository – Pulmonary Rehabilitation

PRSAS Accredited

Pulmonary and COVID Rehabilitation Services
Glenfield Hospital
University Hospitals of Leicester NHS Trust

AECOPD waiting time:

Post exacerbation early access to pulmonary rehabilitation

University Hospitals of Leicester achieved:

2025* 20.67% enrolled to pulmonary rehabilitation programme within 30 days of discharge

***% of patients submitted to the audit Apr - Sept 2025.**

Outline of improvement project

- The British Thoracic Society quality standard for adults in Pulmonary Rehabilitation recommends that patients hospitalised with an exacerbation of COPD, to be enrolled in class within 30 days of hospital discharge.

- The objective of this project was to recreate a pathway to pulmonary rehabilitation (PR) specific to this patient population, and to facilitate access to enrolment within the 30-day quality standard. We used the health improvement tools at our disposal to help us to explore and better understand the different steps needed to achieve our aim.

- This project is a longer-term undertaking. The assessment process involves multiple steps, each of which have the potential to introduce delay into the pathway. We felt that it would be best to start with the steps and factors that are within our team's gift to make rapid changes to. We would then be able to evaluate any remaining delay points and collaborate with referrer teams/stakeholders feeding into the post exacerbation (PE) pathway to consider further improvements.

- Due to the surge in referrals for PR following the pandemic lockdowns, and loss of rehabilitation spaces, we were faced with a waiting list that rapidly increased to approximately 11 months. In view of the demand on our newly restricted resources we did not operate separate pathways for PE and stable patient referrals. We were not categorising patients by referral source, and consequently were unable to estimate the demand for PE referrals.

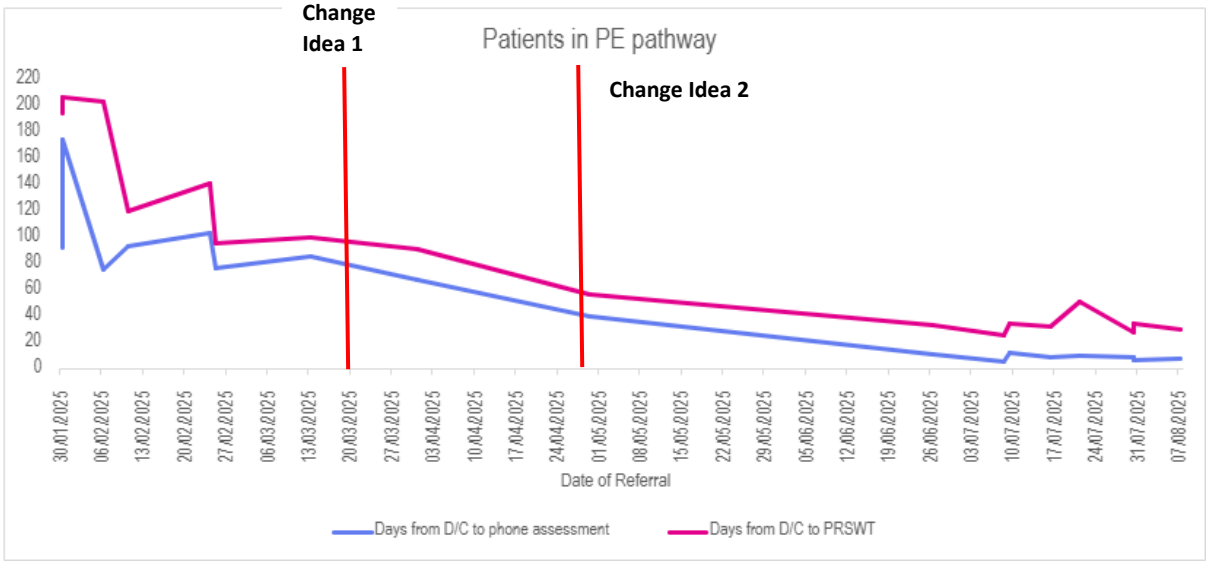
What has been achieved during this improvement project?

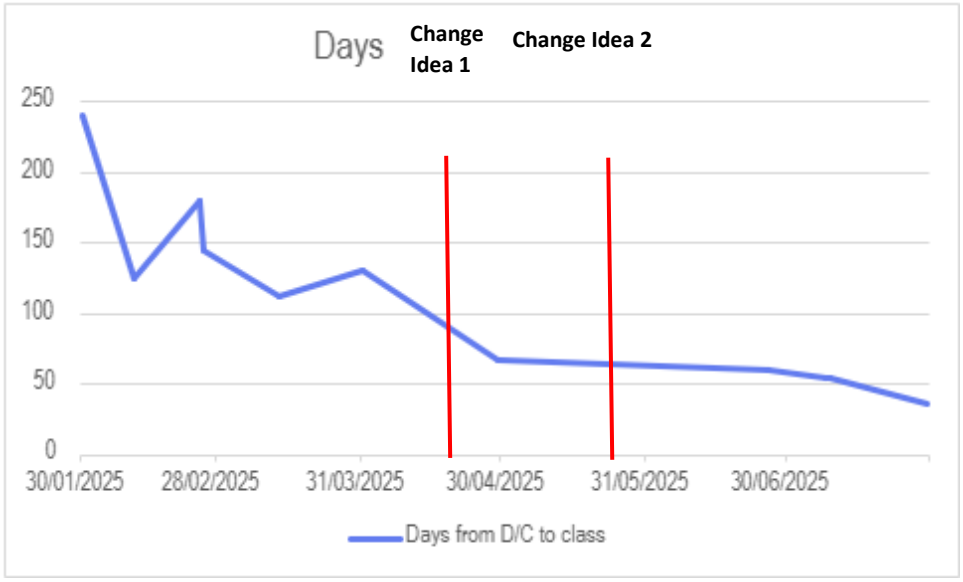
1. We have streamlined the administration process of receiving PE referrals, meaning there is no delay in registering them and co-ordinating their first contact following discharge

2. We have been able to measure the average number of PE referrals received and thus created the clinical capacity required to make initial contact with the patients

3. We have been able to progressively reduce the time to first contact over the period of the project

4. Our data identifies the potential for further delays at the next step of the pathway (shuttle appointment). A further PDSA cycle is aimed at optimising the process to reduce the waiting time to the shuttle (PRSWT) appointment





20.67% of patients enrolled into PR within 30 days of referral in 2025. No data was available in 2024 due to the lack of PE pathway. However, average waiting times to starting PR Sep23-Aug 24 (the start of this project), was 93days, suggesting few if any patients enrolled into PR within 30 days of referral.

How did you achieve this improvement?

We have started this quality improvement project focusing on the changes we were able to implement from within our team.

- We started by populating a driver diagram to identify the current obstacles to achieving the PE rehabilitation standard.

- The first change idea was directed at analysing our local referral data to be confident that post exacerbation patients, their source of referral and their waiting time were clearly identified. The initial action from this was to move referrals to the front of the waiting list. This cycle allowed us to be confident that our records accurately establish the demand for PE pulmonary rehabilitation (PDSA 1).
- The second change idea was to create capacity for the referrals within our usual clinical capacity for initial contact assessments (PDSA 2).
- The third change idea was to create capacity for the face-to-face part of the assessment within our usual clinical capacity. This change idea has just been started and there is no data to show yet whether this has had an effect.

How are you going to ensure your intervention is going to lead to sustainable improvement in future?

- This project has been led by two members of the pulmonary rehabilitation team. To maintain the improvements, the various tasks will need to be embedded into the usual processes. For example, accepting and registering referrals need to be embedded into the processes of the admin staff.
- The project team will need to disseminate the new process points of the PR rehabilitation pathway to the whole clinical team so that all staff manage them appropriately to achieve the standard.
- The project team will need to monitor the overall performance for the rest of the year to see if there are large variations in demand, for example over Autumn/Winter. There is potential that a large increase in demand will outstrip possible capacity or affect waiting times for stable referrals.

Did you face any challenges or difficulties when implementing your project? If so, how did you overcome them?

- The system used to refer patients for PE rehabilitation has limited functionality, which cannot be changed. Inappropriate referrals can be rejected; however, the referrer is not notified. Because of this the service has taken the decision to accept all referrals and then forward them to the appropriate service or return to referrer by post/email with the reason for rejection. This results in an amount of time/resources to redirect referrals.
- No additional resources are/were available to reintroduce PE pulmonary rehabilitation. Changes in process were required to create capacity for the change ideas. The project team were very aware of the limited options to implement changes that would not have unintended consequences on the rest of the clinical workload and KPIs. To shield the rest of the clinical team from rapid changes to usual processes, the project team implemented and evaluated them, rather than changes being disseminated across the whole clinical team as they were implemented.

What advice would you give to other respiratory services hoping to replicate your service improvement idea?

You need to be confident of the information you are basing decisions on. It is worth spending some time in the initial stages checking that your information/data is accurate

The NRAP run charts are a great resource to be able to see changes. However, in the rehabilitation context, unless data is being inputted contemporaneously, there will be a significant time lag (approximately 3 months, in our case) for the charts to show change. In this case, it is important to keep information locally so you can make timely decisions about the effects of your change ideas.

Have you generated any supporting resources you would like to share with others?

We have not generated any novel resources.

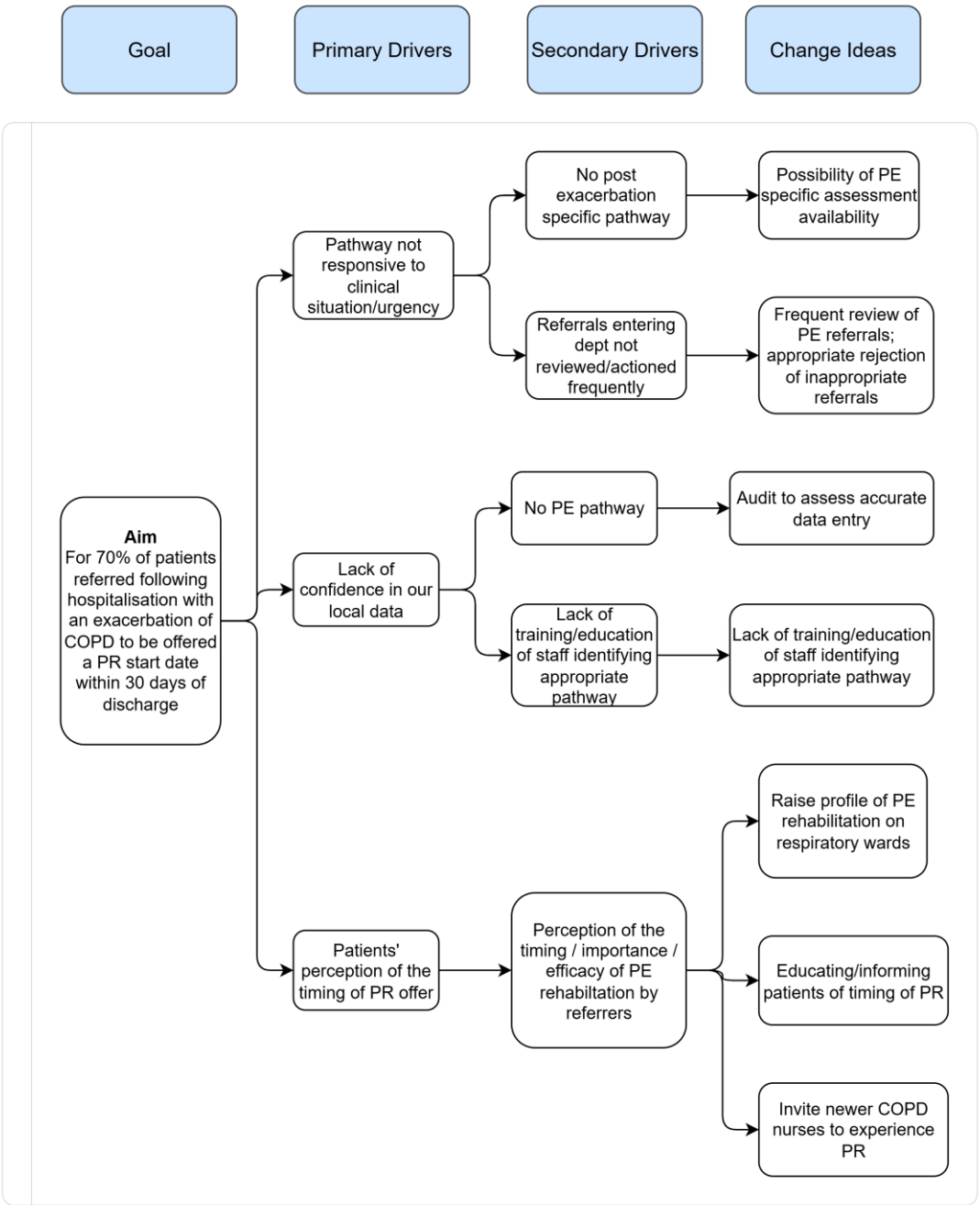
It is important that services NRAP promotes within the good practice repository are aware of quality standards in their area of practice. Which quality standards are relevant to your QIP, and how did your project fit within the quality standards in general?

We have based our quality improvement project on

PR quality standard 3: Referral for pulmonary rehabilitation after hospitalisation for acute exacerbations of COPD:

- *a. People admitted to hospital with acute exacerbations of COPD (AECOPD) are referred for pulmonary rehabilitation at discharge.*
- b. *People referred for pulmonary rehabilitation following admission with AECOPD are enrolled within one month of leaving hospital*

Healthcare improvement driver diagram:


Goal
Primary Drivers
Secondary Drivers
Change Ideas
Aim
For 70% of patients referred following hospitalisation with an exacerbation of COPD to be offered a PR start date within 30 days of discharge
Pathway not responsive to clinical situation/urgency
No post exacerbation specific pathway
Possibility of PE specific assessment availability
Referrals entering dept not reviewed/actioned frequently
Frequent review of PE referrals; appropriate rejection of inappropriate referrals
Lack of confidence in our local data
No PE pathway
Audit to assess accurate data entry
Lack of training/education of staff identifying appropriate pathway
Lack of training/education of staff identifying appropriate pathway
Patients' perception of the timing of PR offer
Perception of the timing / importance / efficacy of PE rehabiltation by referrers
Raise profile of PE rehabilitation on respiratory wards
Educating/informing patients of timing of PR
Invite newer COPD nurses to experience PR

PDSA Cycle 1

<table>
<tr><th colspan="4">Aim/Hypothesis</th></tr>
<tr><th>Describe your test of change</th><th colspan="3">Person responsible</th></tr>
<tr><td rowspan="2">What do you want to learn from this cycle?

What questions do you intend to answer?

• Want to be confident that post exacerbation (PE) patients are correctly identified in the PR department database
• We also require accurate identification of referral source on patient rehabilitation notes
• Accurate reporting of waiting time (wrt NRAP), to enrolment</td><td colspan="3">Isabelle / Sarah</td></tr>
<tr><td colspan="3">When will the test take place?

From 27/01/25 – review March 2025

Where will the test take place?

Office on ICE system</td></tr>
<tr><th colspan="4">Plan</th></tr>
<tr><th>List the tasks needed to set up this test of change</th><th>Person responsible</th><th>When to be done?</th><th>Where?</th></tr>
<tr><td>• Checking inpatient referral system (ICE) for new PE referrals
• Establish the demand for PE rehabilitation (proportion of all PR referrals that are for PE patients)</td><td>IS / SW

SW</td><td>Daily

Completed 14/03/25</td><td>Office

Routine PR data collection
  </td></tr>
<tr><th colspan="2">Predict what will happen when the test is carried out (what do you expect to learn?)</th><th colspan="2">How will you know whether the change is an improvement? (What will you measure and how?)</th></tr>
<tr><td colspan="2">• Numbers identified will be added to current telephone clinics / or will need to overbook telephone clinics to manage the timely actioning of referrals
• PE patients will be slotted into vacant assessment (PRSWT) slots then enrolled to class, thereby</td><td colspan="2">See a reduction in days to enrolment in NRAP run charts (more likely local data collection due to time lag on run charts)</td></tr>
</table>

bypassing the usual wait time to assessment	No concomitant rise in wait times for non-PE patients to be enrolled to PR

Do

Describe what actually happened when you ran the test. Note any unexpected events or problems.

Record any adjustments to the stated plan/analyse the data.

39 referrals in 7 weeks – 5.5 per week

Of those:

4 were forwarded to county PR service

3 already had an appointment from a prior referral

Leaving:

32 referrals in 7 weeks = 4.5 per week

[In order to be able to offer enrolment to PR classes within 30days of discharge we would need to create capacity to contact 5 patients per week, assuming all patients would take up the offer.

There is little wait for shuttle appointments- Class capacity means that most cohorts have a wait 1-6 weeks--> do we need to/are we able to create specific PE slots?]

Study

Describe the measured results and how they compared to the predictions and what you learned from the cycle; what have you not learned?

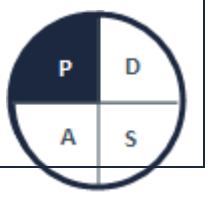
Did your change lead to improvement? Why? Why not?

- There was no baseline measure to compare these results to. This cycle was establishing the base level.
- *All* inpatients can be referred via ICE for PR regardless of where they would attend i.e. UHL or LPT service, or had an inpatient stay, and time is spent accepting, recording, and then forwarding the LPT referrals to the appropriate service

- Post exacerbation referrals form 20-30% of the total referrals to the service [It is unknown at this point whether there is seasonal variation in referral rates], based on monthly average from 2024 and first two months of 2025

Act *Describe modifications for the next cycle based on what you learned. What are your next questions? What is your updated hypothesis?*
• Look to reject any ICE referral for patients outside our catchment – investigate how the ICE system handles this • Allocate 5 telephone assessment clinic slots of the current capacity – assess how these impacts on stable wait times, or not • Evaluate the uptake to PR from post exacerbation patients (quantity and quality) and how this compares to stable patients

PDSA Cycle 2

Aim/Hypothesis			
Describe your test of change	**Person responsible**		
What do you want to learn from this cycle? *What questions do you intend to answer?* • Feasibility of running a PE triage clinic • What impact does it have on the rest of the workload/patients/staff/...	**Isabelle / Sarah** **When will the test take place?** **May 2025** **Where will the test take place?** **Office**		
Plan List the tasks needed to set up this test of change	**Person responsible**	**When to be done?**	**Where?**
• Access the referrals from ICE every day. Create a folder for the PE patients, registering them on the admin system • Contact patients during the "clinic"/test time slot checking they have been discharged for 5 or more days. • Record the outcome.	IS / SW SW	Start 22nd April to collect data Start 29th April for trial clinic	Office Routine PR data collection 

Predict what will happen when the test is carried out (what do you expect to learn?)		How will you know whether the change is an improvement? (What will you measure and how?)	
• Contact patients. We are expecting a lot of them will be too frail to agree any exercise timely.		• Data in the spreadsheet will show patients referred, contacted, their response to invitation to PR and waiting time at each step prior to class start. Comparison with previous data will show change made.	

Do

Describe what actually happened when you ran the test. Note any unexpected events or problems.

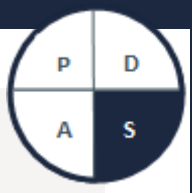
Record any adjustments to the stated plan/analyse the data.

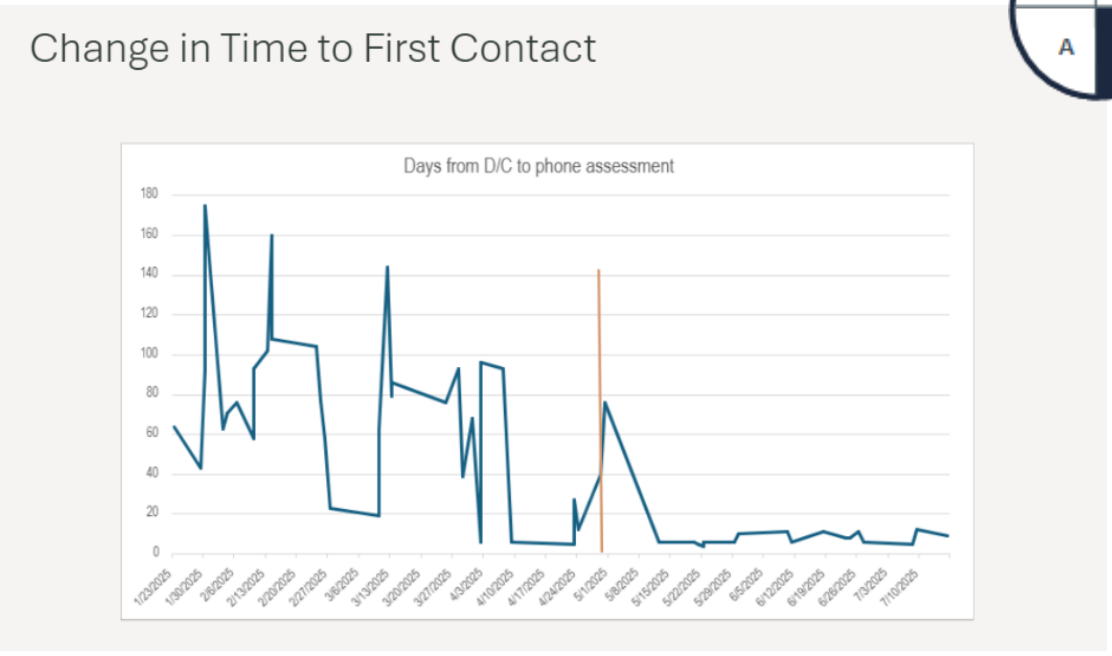
- Documentation and filtering of ICE referrals.
- Creation of a post exacerbation patient first contact clinic and contacted suitable referred patients and document the outcomes.

Study

Describe the measured results and how they compared to the predictions and what you learned from the cycle; what have you not learned?

Did your change lead to improvement? Why? Why not?





- Creation of the post exacerbation pathway has made an improvement in the first step of the process, waiting time from discharge from hospital to telephone assessment.

Act

Describe modifications for the next cycle based on what you learned. What are your next questions? What is your updated hypothesis?

- Next, creating a post exacerbation specific shuttle slot should help shortening the time from discharge from hospital to pre shuttle walking test contributing towards the overall aim of starting patients within 30 days post discharge from hospital.