



NRAP Good Practice Repository – Pulmonary Rehabilitation

ROCKET Pulmonary Rehabilitation Team
Kettering General Hospital
Kettering General Hospital NHS Foundation Trust



KPI 2:

People enrolled onto a PR programme who have two walk tests (for incremental shuttle walk test [ISWT] or six-minute walk test [6MWT]) recorded at initial assessment

And

Completion of Muscle strength testing to individually prescribe strength training to meet BTS standards

In August 2025* *Kettering General Hospital achieved:*

KPI 2 - 0% to 88%

Completion of muscle strength testing - 0% to 85%



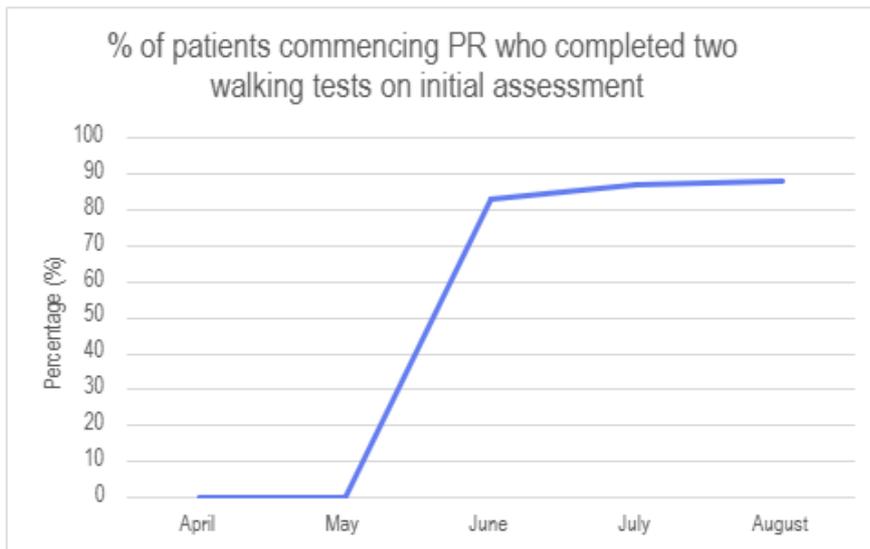
Outline of improvement project

Project aim: To incorporate muscle strength testing and a practice incremental shuttle walking test into an assessment structure for patients enrolled onto the Pulmonary Rehabilitation Course from 0% to 50% by the end of June 2025.

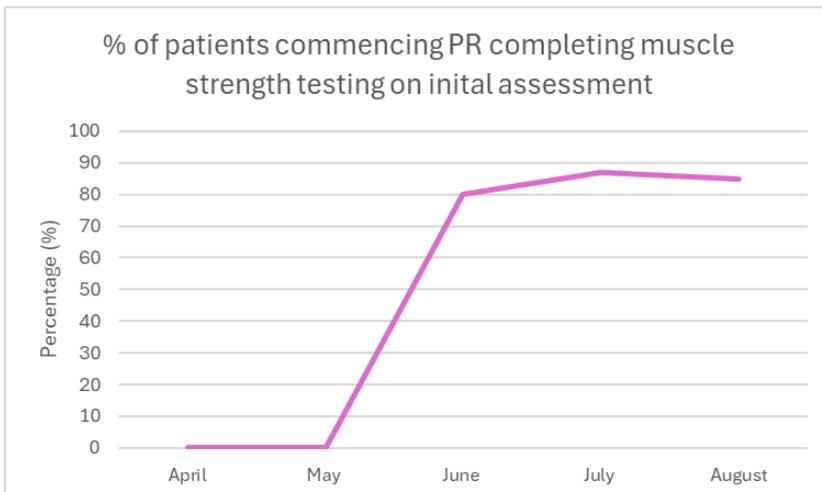
In hindsight the aim of this project to reach 50% completion of tests was under ambitious.

What has been achieved during this improvement project?

We have successfully incorporated muscle strength testing and two ISWT into our PR course assessment structure:



The completion of two ISWT tests on initial assessment for patients who commence PR has increased from 0% (April 2025) to 88% (August 2025).



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In August 2025, 85% of patients who commenced PR completed muscle strength testing on initial assessment compared to 0% in May 2025.

How did you achieve this improvement?

We completed this service improvement project as part of NRAP's healthcare improvement programme. Every member of the team had a role in the project. Three members of the team attended NRAP's HI workshops and completed the online training modules.

During the planning phase of the initial PDSA cycle, a driver diagram (**Appendix A**) was created to visually organise change ideas and identify those most relevant to the project's objectives. A process map (**Appendix B**) documented the current face-to-face assessment procedure, followed by a proposed process map outlining the intended format of future assessment sessions and indicating required changes. The main modification concerned the duration and scheduling of sessions. Stakeholders, including the appointment team, participated in updating clinic times and session lengths within administrative systems. Additional tasks were completed, such as drafting a standard operating procedure and a documentation proforma for muscle strength testing.

A critical component of our planning phase involved securing stakeholder engagement and obtaining funding from our ICB for strength testing equipment, which included an Active force 2 dynamometer and ankle weights. This objective was achieved by participating in monthly system respiratory group meetings, where we effectively demonstrated the necessity of the equipment and successfully engaged key stakeholders.

We successfully conducted our initial trial assessment session in May 2025. Afterward, we reviewed the outcomes and evaluated both the session's process and overall flow. This allowed us to determine necessary actions and identify changes for the upcoming PDSA cycle. Valuable feedback was obtained from key stakeholders—our patients—which will further inform and guide these adjustments.

In June 2025, the new assessment structure was implemented for all patients. The initial goal was to complete two walking tests and muscle strength testing with 50% of patients. Data from June indicated that over 80% of patients beginning PR completed two practice ISWTs and muscle strength testing. This trend continued through July and August.

As a result of implementing this project, KPI 2—completion of two walking tests during the initial assessment—is consistently met. The requirement from PRSAS to complete muscle strength testing in order to provide individualised exercise programs for patients is also fulfilled.

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

We are now focusing on increasing the number of staff competent to complete muscle strength testing assessments, to ensure testing can be run regularly despite any staff absences. All members have participated in a one-hour in-service training session, and some are currently completing the requirements for competency sign-off.

Our progress is also maintained in monthly team meetings are held to address questions, assist staff with ongoing implementation of changes, and monitor NRAP audit data and outcomes.

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

During this project, the pulmonary rehabilitation service was relocated to a smaller temporary site for approximately three to four months. As a result, there was insufficient space to conduct group assessment sessions, leading to a delay in their implementation. During this period, the team concentrated on other objectives outlined in the driver diagram, such as developing the SOP and documentation proforma, to utilise time efficiently and prepare for resumption of assessment sessions once a suitable location became available. Throughout the relocation, clear communication and task delegation were necessary to maintain progress.

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

- Involve the whole team – they will be the people helping implement the change, therefore need to be involved from the start.
- Be brave and set ambitious but realistic SMART aims – We underestimated our final outcomes, therefore in hindsight should have been more ambitious when setting our aim.

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

We kindly were shared some resources around muscle strength testing from Southern Health NHS trust who used a similar device. We were therefore able to share resources which saved valuable time.

Resources:

- Process Map – Appendix B



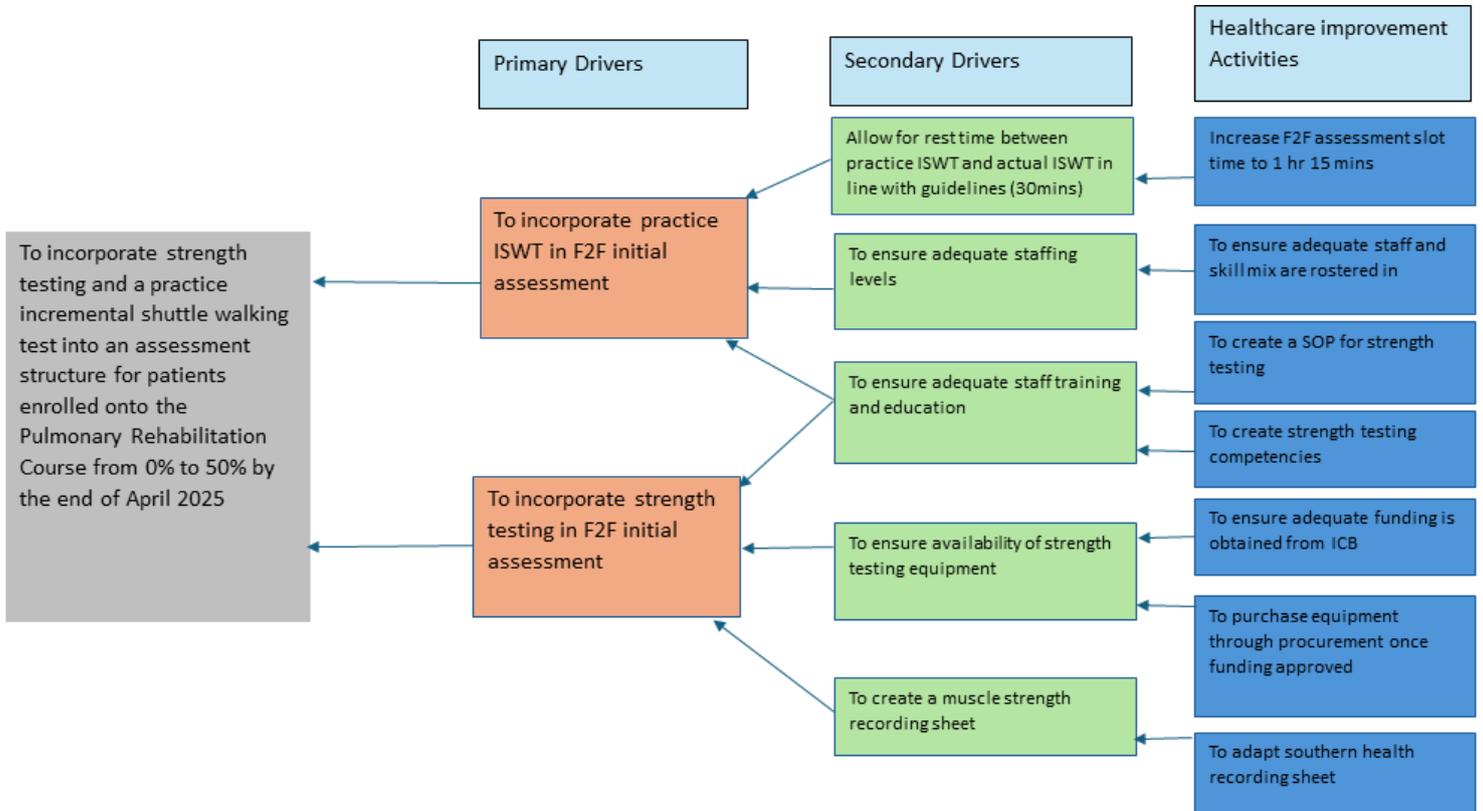
It is important that services NRAP promotes within the good practice repository are aware of quality standards in their area of practice. Which quality standards are relevant to your QIP, and how did your project fit within the quality standards in general?

(for example, British Thoracic Society and NICE guidance)

The BTS Clinical Statement (2023) recommends ascertaining peak muscle strength testing for quadriceps. Due to the large learning effect, it is recommended to complete two ISWT tests and the best of the two scores is recorded. Therefore, our project was designed with these two standards in mind.



Appendix A – Driver Diagram:





Appendix B – Process Map:

Process Map A - Current process

1. Incremental Shuttle Walk Test Booked
2. 2 patients attend same time for a 15-minute appointment
3. Patients enter the gym for their appointment
4. Introduction, explanation of task and its purpose
5. Vital observations taken, oxygen levels, heart rate and BORG scale
6. Play incremental shuttle walk test on CD
7. Commence Incremental shuttle walk test and observe patient
8. Physio/patient ends incremental shuttle walk test
9. Vital observations retaken
10. Reason for ending of incremental shuttle walk test documented
11. Introduce Pulmonary Rehabilitation Course and confirm start date
12. Patients leave the gym
13. Complete administration processes

Current Appointment total time: 15mins

Appointment times: 9am to 11:45am – in 15 minute intervals (2 patients per appointment session)

Process Map B – The proposed change

1. ISWT appointment booked – in booking letter advise patient to attend 15mins prior to appointment to allow for rest time
2. 4 patients attend assessment session
3. Patients enter gym
4. Patient A and B complete steps in following order: 1,2,3,4
5. Patients C and D complete steps in following order: 4,1,2,3
6. Patients leave the gym

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7. Admin processes are completed

Numbered steps/stations:

Step 1: Practice ISWT (Estimated time 15mins)

Step 2: 30min rest

Time to also complete

- Complete CAT and CRQ
- Patient Goal setting

Step 3: Actual ISWT (Estimated time 15mins)

Step 4: Strength testing (Estimated time 15mins)

- Patient Exercise diary started and exercise prescription for session 1
- Introduction of main PR session and start date confirmed

Appointment total time: 1hr 15mins

Proposed appointment times:

- 08:45 – 10:00 - **4 patients**
- 10:00 – 11:15 - **4 patients**
- 11:15 – 12:30 - **4 patients**

Total assessment of **12 patients**

Notes:

The ISWT practice is completed using steps 4-10 in Process Map A.

During the actual ISWT step 6 (of process map A) is not required as the patient has already heard the instructions.