Royal College of Physicians | NACAP

National Asthma and Chronic Obstructive Pulmonary Disease Audit Programme (NACAP)

Pulmonary rehabilitation organisational audit 2019

Resource and organisation of pulmonary rehabilitation services in England, Scotland and Wales 2019.

Organisational audit: Data analysis and methodology report

Published December 2020

In association with:

asthma UK
British Lung Foundation
THE ASTHMA UK AND BRITISH LUNG FOUNDATION PARTNERSHIP

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National Asthma and Chronic Obstructive Pulmonary Disease (COPD) Audit Programme

NACAP is a programme of work that aims to improve the quality of care, services and clinical outcomes for patients with asthma and COPD in England, Scotland and Wales. Spanning the entire patient care pathway, NACAP includes strong collaboration with asthma and COPD patients, as well as healthcare professionals, and aspires to set out a vision for a service which puts patient needs first. To find out more about the NACAP visit: **www.rcplondon.ac.uk/nacap**.

Pulmonary rehabilitation: organisational audit of pulmonary rehabilitation services in England, Scotland and Wales 2019

This report was prepared by the following people, on behalf of the COPD advisory group (the full list of members can be found on the NACAP resources page here): **www.rcplondon.ac.uk/nacap-resources**.

Prof Sally Singh, pulmonary rehabilitation clinical lead, NACAP, Care Quality Improvement Department (CQID), RCP; and head of pulmonary/cardiac rehabilitation and consultant clinical scientist, University Hospitals of Leicester
Ms Susan Latchem, programme manager, NACAP, CQID, RCP
Ms Rachael Andrews, deputy programme manager, NACAP, CQID, RCP
Ms Neena Garnavos, project manager, Pulmonary Rehabilitation Services Accreditation Programme (PRSAS), RCP
Ms Natasha Long, programme coordinator, NACAP, CQID, RCP
Mr Philip Stone, research assistant in statistics/epidemiology, National Heart & Lung Institute, Imperial College London
Mr Alex Adamson, research assistant in medical statistics, National Heart & Lung Institute, Imperial College London
Professor Jennifer Quint, professor of respiratory epidemiology, National Heart & Lung Institute, Imperial College London; honorary respiratory consultant, Royal Brompton and Imperial NHS trusts
Professor C Michael Roberts, senior clinical lead, NACAP, CQID, RCP; managing director of academic science partnership, UCL partners, professor in medical education for clinical practice, Institute of Population Health Sciences, Queen Mary University London and deputy director of NIHR North Thames Applied Research Collaboration.

Citation for this document: Singh S, Latchem S, Andrews R, Garnavos N, Long N, Stone P, Adamson A, Quint J, Roberts CM. *National Asthma and Chronic Obstructive Pulmonary Disease Audit Programme (NACAP). Pulmonary rehabilitation organisational audit 2019. Organisational audit of pulmonary rehabilitation services in England, Scotland and Wales.* London: RCP, 2020.

ISBN: 978-1-86016-823-9
eISBN: 978-1-86016-824-6

Royal College of Physicians
Care Quality Improvement Department
11 St Andrews Place
Regent's Park
London NW1 4LE

Registered charity no 210508

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Contents

How to use this report

1. Scope and report structure

This data analysis and methodology report presents the results from an analysis of the data derived from the pulmonary rehabilitation (PR) organisational audit component of the National Asthma and COPD Audit Programme (NACAP). Data collection for the organisational audit took place between 1 July and 30 September 2019 across England, Scotland and Wales. The audit collected information on the resourcing and organisation of PR services relevant to the care of adult patients with COPD who are referred for PR.

These data are presented largely in tabular form with explanatory notes where appropriate. However, the key messages and recommendations, as well as an infographic to summarise key data, can be found in the short national audit report (via **www.rcplondon.ac.uk/nacap-PR-2019**). Details of the statistical and data collection methodologies used are provided in **Appendix A**.

Contributing to the overarching national QI objectives of NACAP, this report aims to empower stakeholders to use audit data to facilitate improvements in the quality of PR services.

The organisational audit dataset, as well as the resources supplied for both the organisational and clinical audit (such as FAQs and good practice repositories), can be found via our website: **www.rcplondon.ac.uk/nacap**.

These organisational audit results form part of the wider combined PR clinical and organisational audit 2019 report. This full combined report includes the following outputs all of which are available at **www.rcplondon.ac.uk/nacap-PR-2019**.

Workforce planning and case ascertainment data

Due to changes made to the data extraction, patient cohort and reporting specifications for the PR audit in February 2020, revised workforce planning and case ascertainment information (presented in sections 1 and 2 of this report) were requested from PR services in May–June 2020. This was to ensure that workforce planning and case ascertainment data presented in this report matched the new patient cohort for the clinical audit report (patients assessed between 1 June – 30 November 2019). Due to the COVID-19 pandemic, only 94 (65%) services who originally submitted a full organisational audit record (n=144) in September 2019 were able to resubmit this information. Therefore, data presented in sections 1 and 2 are based on this reduced sample, not on all PR services included in the analysis for sections 3–9.

2. Report coverage

A total of 132/196 (67.3%) eligible services in England, 4/18 (22.2%) eligible services in Scotland and 8/11 (72.7%) eligible services in Wales provided a full organisational audit record and were included in the final analysis for this report. A further 56 (24.8%) services provided partial information but were not included in the final analysis. *Only services who fully completed their organisational audit (with the exception of sections 1 and 2 due to the reasons stated above) have been included in the analysis for this report.* For a full list of participating, part-participating and non-participating services, please see **Appendix B** of this report. Caution should be taken when reviewing the data presented for Scotland throughout, as the data are not as representative a sample of the resourcing and organisation of services across Scotland compared with England and Wales. Please note that all tables include a count total/denominator (denoted as n=X) for each column.

This is the first national PR organisational audit report under the NACAP to report on resources and services (previous organisational audits on PR structure and resource were conducted and published under the **National COPD Audit Programme**). It is also the first PR organisational audit under the programme to incorporate data from services in Scotland, alongside data from services in England and Wales. The organisational dataset for PR services underwent considerable review and change in order to streamline the audit in 2018. As such, there is little comparative data available from the previous national PR organisational audits. If you would like to see the results from the last organisational audit of PR services please go to: **www.rcplondon.ac.uk/projects/outputs/pulmonary-rehabilitation-exercise-improvement-combined-clinical-and-organisational**.[1]

The low participation rate from Scotland has resulted in instances of highly skewed data for some metrics in section 1 (admissions – numbers and beds) of the report. In these instances, Scottish data are not reported separately, but are included in the 'All' data columns.

3. Service-level data

The data presented here are provided at national and devolved nation level. A service-level benchmarking table has not been included this report as the standards currently don't facilitate this for service organisation and resource. NACAP will use the findings from this report to frame what these could potentially be for the next PR organisational audit.

Alongside the publication of this report, PR services will also be provided with site-level reports, presenting their own service-level data against both the national and relevant devolved nation average. These reports are provided directly to the PR service responsible for participation in the NACAP PR audits via the NACAP web tool (**www.nacap.org.uk**).

The data collected for this organisational audit will be made publicly available at service level on the NACAP web pages (**www.rcplondon.ac.uk/nacap-PR-2019**) and **www.data.gov.uk**, in line with the UK government's transparency agenda.

4. Audience and links to relevant standards

This data analysis and methodology report is intended to be read by healthcare professionals, NHS managers, chief executives and board members, service commissioners and policy makers, as well as voluntary organisations. We strongly advise that PR services discuss these findings between themselves, as well as with their colleagues in primary and secondary care, their commissioners and other relevant healthcare teams. A separate report has been produced for patients and the public and is available at: **www.rcplondon.ac.uk/nacap-PR-2019**. Where a certain area of service provision has been highlighted as a patient priority (something of particular importance to patients) by the NACAP patient panel this is shown this is shown with the patient priority icon displayed below.

References to the appropriate British Thoracic Society (BTS) quality statements for pulmonary rehabilitation in adults (2014) (**Appendix C**) are inserted throughout the key findings.

Recommendations

For providers of pulmonary rehabilitation (PR) services

This report outlines three key national quality improvement (QI) priorities for providers of PR.

National QI priority O1: Offer PR to ***all*** patients with a COPD self-reported exercise limitation (Medical Research Council grade 3–5). **(*BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 1*).**[1]

National QI priority O2: Assess outcomes of treatment for ***all*** patients attending PR using as a minimum, measures of exercise capacity and health status. Ensure that measures are assessed in line with recommended guidance at the initial and discharge assessment.
(*BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 8*).[1]

National QI priority O3: Ensure ***all*** PR services have an agreed standard operating procedure (SOP). **(*BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 10*).**[1]

OA1 Involve lay people and patients/carers representatives in service planning and development.

For commissioners / health boards / sustainability and transformation partnerships / integrated care systems

OA2 Provide an adequate funding model for PR services to minimise service disruption and ensure service sustainability.

OA3 Have a local resource plan in place to facilitate and encourage your local PR services to participate in the NACAP PR audit.

OA4 Provide adequate clinical lead management time to coordinate and manage/develop services.

OA5 Work with your PR services to provide COPD patients who require it with transport to and from PR programmes in order to facilitate equity of access.

For providers of primary and secondary COPD care

OA6 Offer PR to all patients with patient-reported MRC grades 3–5.
***(BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 1).*[1]**

For people living with COPD and their families and carers

OA7 Ask for information on PR when you visit your GP / practice nurse and discuss whether a referral to your local PR service may be beneficial to you.
(*BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 1).*[1]

OA8 Consider being a patient representative as part of the PR service team, if you have experience of COPD and PR.

Section 1:
Referrals and assessments for all patients (including non-COPD)

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For note when reading this section

1 Due to changes to the PR audit made in February 2020, data for the questions presented in this section were collected in May–June 2020. Due to the COVID-19 pandemic, only 94 (65%) services who originally submitted a full organisational audit record (144) in September 2019 were able to resubmit this information. Therefore, data presented are based on this reduced sample, not on all PR services included in the analysis for sections 3–9.

2 Because the data in this section presents information on 'All patients', including non-COPD, it cannot be compared with the referral information presented in the 2019 clinical audit report.

Key findings

From the 94 services who provided updated information for this section:

- A high proportion (75.5%) of patients assessed for PR commence a course of rehabilitation.
- The majority of referrals to PR are from primary care (48.7%) or secondary care (31.7%).

Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

1.1 Referrals, assessments, starting PR and discharge assessments for all patients referred for PR (including non-COPD)

	2019			
All patients (including non-COPD)	**England (n=89)**	**Scotland (n=1)**	**Wales (n=4)**	**All (n=94)**
Referrals				
Median (IQR)	312 (183–452)	117 (117–117)	156 (155–223)	298.5 (163–432)
Number of referrals	31,106	117	756	31,979
Assessment				
Median (IQR)	150 (98–265)	90 (90–90)	108 (61–144.5)	147 (97–257)
Number of assessments**	16,793 (54.0%)	90 (76.9%)	411 (54.4%)	17,294 (54.1%)
Starting PR				
Median (IQR)	114 (65–193)	87 (87–87)	87 (54.5–90.5)	105 (65–189)
Number starting PR***	12, 681 (75.5%)	87 (96.7%)	290 (70.6%)	13,058 (75.5%)
Completing a discharge assessment				
Median (IQR)	70 (43–132)	53 (53–53)	69 (41.5–78.5)	69.5 (43–124)
Number completing a discharge assessment~	8,316 (65.6%)	53 (60.9%)	240 (82.8%)	8,609 (65.9%)

** between 1 June–30 November 2020*
*** percentage is of those referred*
**** percentage is of those having an initial assessment*
~ percentage is of those starting PR
Some cohort-based PR services had more assessments than referrals during this period due to the timing of their intakes. In addition, some patients assessed later in the time period may not have completed a discharged assessment during this period.

1.2 Referral source for all patients (including non-COPD)*

	2019			
Referral source for all patients (including non-COPD)	**England (n=89)**	**Scotland (n=1)**	**Wales (n=4)**	**All (n=94**
Primary care	15,349 (49.3%)	51 (43.6%)	183 (24.2%)	15,583 (48.7%)
Community care	3,307 (10.6%)	1 (0.8%)	0 (0.0%)	3,308 (10.3%)
Secondary care	9,519 (30.6%)	65 (55.6%)	560 (74.1%)	10,144 (31.7%)
Self-referral	338 (1.1%)	0 (0.0%)	0 (0.0%)	338 (1.1%)
Other	820 (2.6%)	0 (0.0%)	13 (1.7%)	833 (2.6%)

** between 1 June–30 November 2020*
Services could select more than one option therefore the total may not add up to 100%

Section 2: Audit participation

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Key findings

- 63.2% of PR services fully completed the PR organisational audit for 2019 and were included in the final analysis. A further 56 services submitted partial information.
- 78.4% of patients approached consented to participate in the pulmonary rehabilitation audit (10% of potential participants were not invited).*
- Case ascertainment for the PR audit was high in the 94/144 (65.0%) services who provided this information in May to June 2020. 90.8% of patients approached for consent were submitted to NACAP.*

*Please see the **Note for when reading this table** for context for the above results.

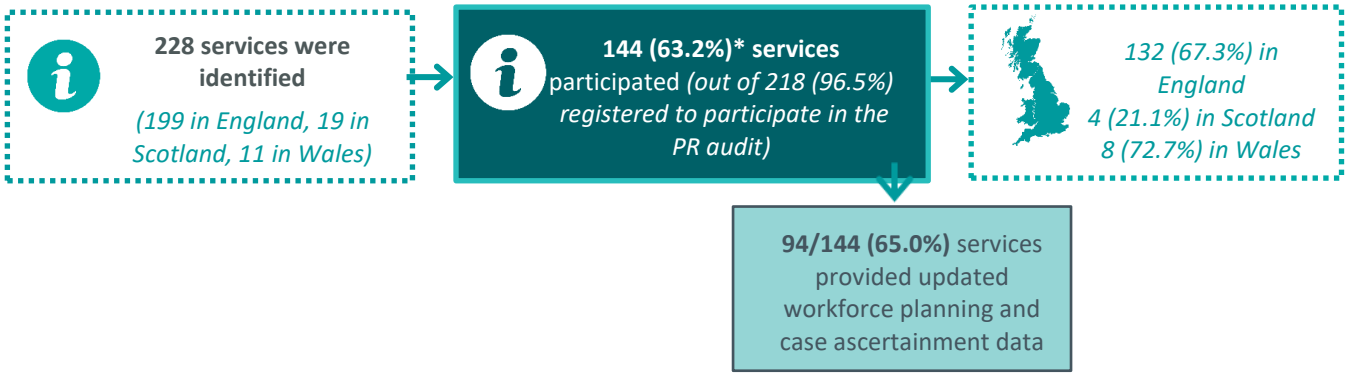
Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

2.1 Participation in the PR organisational audit

Audit participation	Total number of PR services identified	Number of PR services registered to participate in the audit	Number of PR services registered participating in the audit	Number of services identified but not registered
England	199	195 (98.0%)	132 (66.3%)	4 (2.0%)
Scotland	18	12 (68.4%)	4 (21.1%)	6 (31.6%)
Wales	11	11 (100.0%)	8 (72.7%)	0 (0.0%)
All	228	218 (95.6%)	144 (63.2%)*	10 (4.4%)

** A further 56 services submitted partial information bringing the total number of participating services to 200 (87.7%).*



** A further 56 services submitted partial information bringing the total number of participating services to 200 (87.7%).*

For note when reading this table

Please note that due to changes to the PR audit made in February 2020, data for the eligibility for the PR audit presented in this table (2.2) were collected in May–June 2020. Due to the COVID-19 pandemic only 94 (65%) services who originally submitted a full organisational audit record (144) in September 2019 were able to resubmit this information, one of which did not participate in the clinical audit for 2019. Therefore, data presented are based on this reduced sample, not on all PR services included in the analysis for sections 3–9.

2.2 Eligibility for PR audit data (COPD patients only)

	2019			
Patient eligibility	**England (n=89)**	**Scotland (n=1)**	**Wales (n=4)**	**All (n=94)**
Eligible for audit				
Patients eligible for the audit	9,919	61	194	10,174
Patients approached for consent*	8,904 (89.8%)	61 (100%)	189 (97.4%)	9,154 (90.0%)
Patients who consented to be included**	6,944 (78.0%)	59 (96.7%)	172 (91.0%)	7,175 (78.4%)
Patients included in the audit***	6,311 (90.9%)	34 (57.6%)	169 (98.3%)	6,514 (90.8%)

** % of eligible patients*

*** % of patients approached for consent*

**** % of patients who provided consent. This information has been obtained from the clinical audit for the same time period. Please note that one service who participated in the organisational audit and resubmitted their information for this section did not participate in the clinical audit for the same period. Therefore, the England and All data for 'Patients included in the audit' is based on information from 93 services.*

Section 3: Patient access

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Key standards

BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 1a]:[2] Referral for PR: a. People with COPD and self-reported exercise limitation (MRC dyspnoea 3–5) are offered PR.
BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 1b]:[2] Referral for PR: b. If accepted, people referred for PR are enrolled to commence within 3 months of receipt of referral.
BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 2]:[2] PR programmes accept and enrol patients with functional limitation due to other chronic respiratory diseases (for example bronchiectasis, interstitial lung disease (ILD) and asthma) or COPD MRC dyspnoea 2 if referred.
BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 3b]:[2] Referral for PR after hospitalisation for acute exacerbations of COPD: People admitted to hospital with acute exacerbation of COPD (AECOPD) are referred for pulmonary rehabilitation at discharge.

Key findings

- Not all services in England offered PR for Medical Research Council (MRC) grades 3–5. In particular, MRC grade 5 was not offered PR in 12.9% of services in England.
- All services offered PR to current smokers.
- Most services (78.5%) would offer a second course of PR to patients if they had completed a course over a year ago.

Navigation

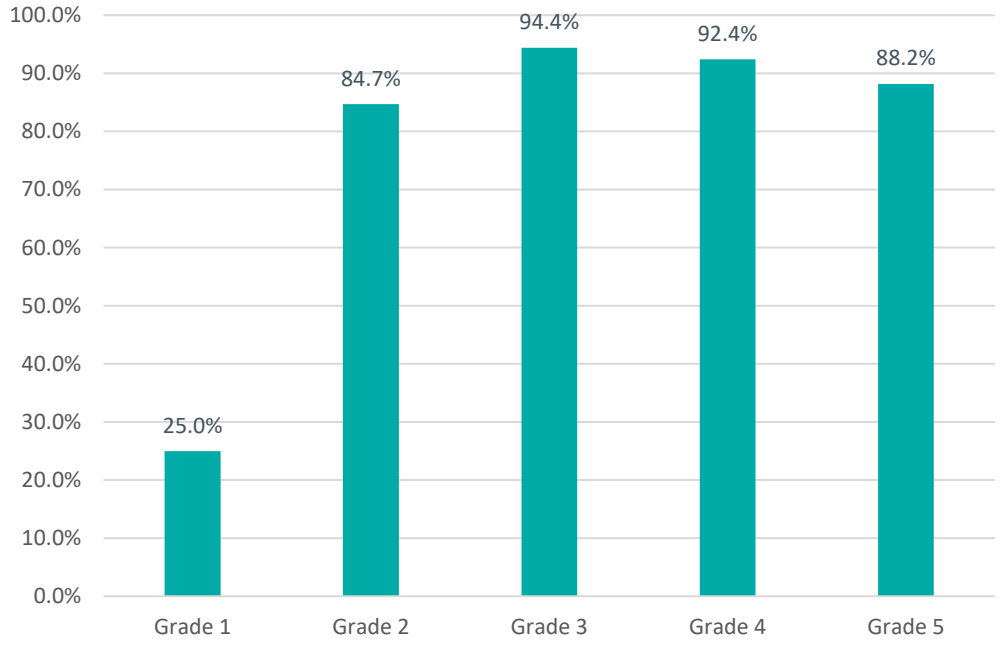
This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

3.1 To which self-reported MRC-graded COPD patients do you offer PR?

MRC score *	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Grade 1	35 (26.5%)	1 (25.0%)	0 (0.0%)	36 (25.0%)
Grade 2	113 (85.6%)	3 (75.0%)	6 (75.0%)	122 (84.7%)
Grade 3	124 (93.9%)	4 (100.0%)	8 (100.0%)	136 (94.4%)
Grade 4	121 (91.8%)	4 (100.0%)	8 (100.0%)	133 (92.4%)
Grade 5	115 (87.1%)	4 (100.0%)	8 (100.0%)	127 (88.5%)
Not recorded	5 (3.8%)	0 (0.0%)	0 (0.0%)	5 (3.5%)

** Grade 1 – not troubled by breathlessness or strenuous exercise*
Grade 2 – short of breath when hurrying or walking up a slight hill
Grade 3 – walks slower than contemporaries on level ground because of breathlessness or has to stop for breath
Grade 4 – stops to breathe after walking 100 metres (109 yards) or after a few minutes walking on level ground
Grade 5 – too breathless to leave the house or breathless when dressing or undressing

Fig 1.1. MRC scores for all patients



National QI priority O1: Offer PR to all patients with a COPD self-reported exercise limitation (Medical Research Council grade 3–5). (*BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 1a*).[1]

Rationale

The BTS quality standard for PR in adults (2014) 1a states that people with chronic obstructive pulmonary disease (COPD) with a self-reported exercise limitation MRC grade 3–5 are offered PR. This audit reported that 12.9% of services in England did not offer PR to patients with MRC grades 3–5.

Tips to achieve this priority

- Ensure that the service offers rehabilitation to all eligible patients by considering local referral pathways and working with primary, secondary and community care providers to optimise systems to support referral.
- Consider accessibility for people with COPD and a self-reported exercise limitation of MRC grade 5.
- Consider offering assistance with travel to PR centre for initial assessment.

3.2 Do you offer PR to COPD patients who are current smokers?*

	2019			
PR offered to current smokers	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	132 (100.0%)	4 (100.0%)	8 (100.0%)	144 (100.0%)

No services selected 'No' therefore this has been removed from the table.

3.3 Do you offer PR to COPD patients who have previously completed a PR programme?*

	2019			
PR for COPD patients who have previously attended	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes – within a year of completing PR	27 (20.5%)	1 (25.0%)	0 (0.0%)	28 (19.4%)
Yes – if completed over 1 year ago	102 (77.3%)	3 (75.0%)	8 (100.0%)	113 (78.5%)
Yes – if completed over 3 years ago	3 (2.3%)	0 (0.0%)	0 (0.0%)	3 (2.1%)

No services selected 'No' therefore this has been removed from the table.

3.4 Do you offer PR to patients discharged from hospital with a diagnosis of acute exacerbation of COPD (AECOPD)?

	2019			
PR offered to patients discharged with AECOPD diagnosis	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	124 (93.9%)	2 (50.0%)	8 (100.0%)	134 (93.1%)
No	8 (6.1%)	2 (50.0%)	0 (0.0%)	10 (6.9%)

3.5 Do you accept patients with long-term conditions other than COPD to your programme?

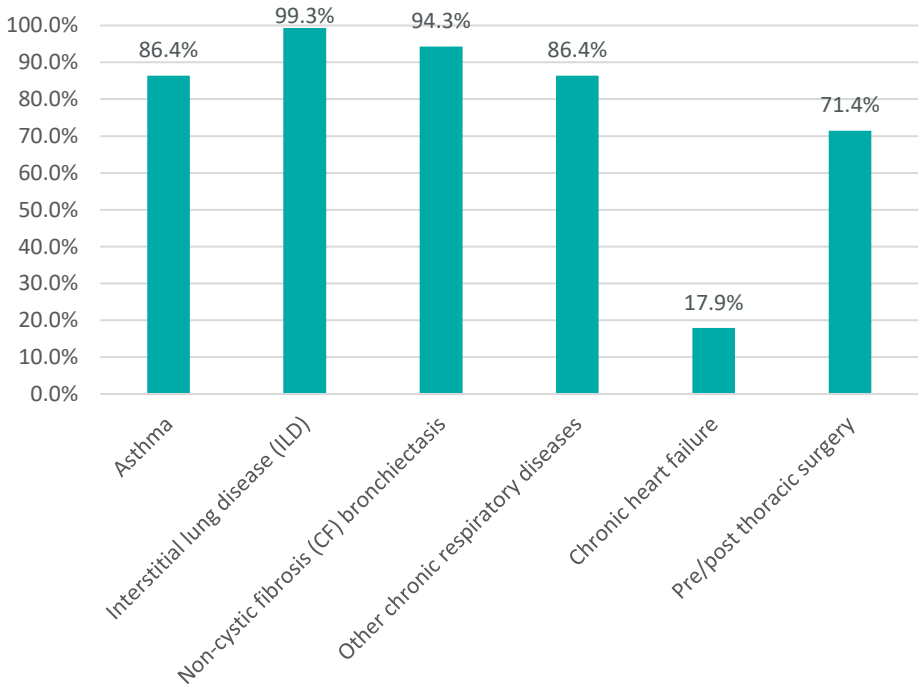
PR offered to patients with other long-term conditions	2019 England (n=132)	2019 Scotland (n=4)	2019 Wales (n=8)	2019 All (n=144)
Yes	128 (97.0%)	4 (100.0%)	8 (100.0%)	140 (97.2%)
No	4 (3.0%)	0 (0.0%)	0 (0.0%)	4 (2.8%)

3.5.1 Which long-term conditions are accepted?*

Long-term conditions accepted	2019 England (n=128)	2019 Scotland (n=4)	2019 Wales (n=8)	2019 All (n=140)
Asthma	110 (85.9%)	4 (100.0%)	7 (87.5%)	121 (86.4%)
Interstitial lung disease (ILD)	127 (99.2%)	4 (100.0%)	8 (100.0%)	139 (99.3%)
Non-cystic fibrosis (CF) bronchiectasis	120 (93.8%)	4 (100.0%)	8 (100.0%)	132 (94.3%)
Other chronic respiratory diseases	110 (85.9%)	4 (100.0%)	7 (87.5%)	121 (86.4%)
Chronic heart failure	22 (17.2%)	2 (50.0%)	1 (12.5%)	25 (17.9%)
Pre-/post-thoracic surgery	91 (71.1%)	3 (75.0%)	6 (75.0%)	100 (71.4%)

** Out of those services accepting patients other than those with COPD*

Fig 3.1. Long-term conditions accepted for all patients



3.5.2 Do the patients with other long-term conditions enrol on the same programme as those with COPD?*

Other long-term conditions	2019			
	England (n=128)	Scotland (n=4)	Wales (n=8)	All (n=140)
Yes – all patients undertake the same programme	125 (97.7%)	4 (100.0%)	7 (87.5%)	136 (97.1%)
No – at least one specialised programme offered	3 (2.3%)	0 (0.0%)	1 (12.5%)	4 (2.9%)

** Out of services accepting patients other than those with COPD*
No services selected 'No – all patients undertake a programme specific to the disease' therefore this has been removed from the table.

3.5.3 Is your service funded to provide PR to non-COPD patients?*

Funding for non-COPD patients	2019			
	England (n=128)	Scotland (n=4)	Wales (n=8)	All (n=140)
Yes – all other conditions funded	92 (71.9%)	2 (50.0%)	6 (75.0%)	100 (71.4%)
Yes – at least one condition funded	15 (11.7%)	0 (0.0%)	1 (12.5%)	16 (11.4%)
No	21 (16.4%)	2 (50.0%)	1 (12.5%)	24 (17.1%)

** Out of services accepting patients other than those with COPD*

Section 4:
Structure and content of programme: assessment information

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Key standards

BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 4]:[2] PR programmes are of at least 6 weeks duration and include a minimum of twice-weekly supervised sessions.
BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 8]:[2] People attending PR have the outcome of treatment assessed using as a minimum, measures of exercise capacity, dyspnoea and health status.

Key findings

- 34.0% of PR services offered a home-based programme.
  - Of these, 61.2% offered supervised PR sessions in the patient's home.
- The majority (65.3%) of PR services did not offer transport to support patients' access to the service.
- Nearly all (99.3%) PR services met the standard for centre-based PR programmes to be at least 6 weeks in duration.
- 86.7% of PR services were not adhering the technical standards for the conduct of the 6-minute walking test (6MWT), which is to use a 30-metre course.[3]

Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

4.1 At how many sites do you currently offer assessments / centre-based PR?

	2019			
Number of sites at which service is provided	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Median (IQR*)	3 (2–4)	3.5 (2.5–4.5)	2.5 (1.5–5.5)	3 (2–4)

**Interquartile range*

4.2 Do your assessments / centre-based PR programmes run differently at different sites?

	2019			
PR programmes run differently at different sites	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	35 (26.5%)	2 (50.0%)	2 (25.0%)	39 (27.1%)
No	77 (58.3%)	2 (50.0%)	5 (62.5%)	84 (58.3%)
Non applicable	20 (15.2%)	0 (0.0%)	1 (12.5%)	21 (14.6%)

4.3 Centre-based PR structure

4.3.1 What is the typical duration of your centre-based PR programme?

	2019			
Duration of centre-based PR programme	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
5 weeks	1 (0.8%)	0 (0.0%)	0 (0.0%)	1 (0.7%)
6 weeks	86 (65.2%)	3 (75.0%)	3 (37.5%)	92 (63.9%)
7 weeks	17 (12.9%)	0 (0.0%)	4 (50.0%)	21 (14.6%)
8 weeks	31 (23.5%)	1 (25.0%)	1 (12.5%)	33 (22.9%)
More than 8 weeks	6 (4.6%)	1 (25.0%)	0 (0.0%)	7 (4.9%)

No services selected 'Less than 4 weeks' or '4 weeks' therefore these have been removed from the table

4.3.2 How many supervised centre-based PR sessions per week are patients expected to attend?

	2019			
Number of PR sessions patients are expected to attend weekly	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
1	17 (12.9%)	1 (25.0%)	0 (0.0%)	18 (12.5%)
2	119 (90.2%)	3 (75.0%)	6 (75.0%)	128 (88.9%)
3	2 (1.5%)	0 (0.0%)	2 (25.0%)	4 (2.8%)
More than 3	2 (1.5%)	0 (0.0%)	1 (12.5%)	3 (2.1%)

Services could select multiple options therefore the total may be more than 100%

4.4 Home-based PR structure

4.4.1 Do you offer a home-based PR programme?

Home-based PR programme	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	46 (34.9%)	1 (25.0%)	2 (25.0%)	49 (34.0%)
No	86 (65.2%)	3 (75.0%)	6 (75.0%)	95 (66.0%)

4.4.2 Are patients offered initial and discharge assessments?*

Patients offered initial and discharge assessments	2019			
	England (n=46)	Scotland (n=4)	Wales (n=2)	All (n=49)
Yes	33 (71.7%)	4 (100.0%)	2 (100.0%)	36 (73.5%)
No	13 (28.3%)	0 (0.0%)	0 (0.0%)	13 (26.5%)

** Out of the services that offer home-based PR*

4.4.3 Are patients offered supervised PR sessions in their homes?*

Patients offered supervised PR in their homes	2019			
	England (n=46)	Scotland (n=1)	Wales (n=2)	All (n=49)
Yes	27 (58.7%)	1 (100.0%)	2 (100.0%)	30 (61.2%)
No	19 (41.3%)	0 (0.0%)	0 (0.0%)	19 (38.8%)

** Out of the services that offer home-based PR*

4.4.4 What is the typical duration of your home-based PR programme?*

Duration of home-based PR programmes	2019			
	England (n=27)	Scotland (n=1)	Wales (n=2)	All (n=30)
Less than 4 weeks	2 (7.4%)	0 (0.0%)	0 (0.0%)	2 (6.7%)
4 weeks	5 (18.5%)	0 (0.0%)	1 (50.0%)	6 (20.0%)
6 weeks	14 (51.9%)	0 (0.0%)	1 (50.0%)	15 (50.0%)
7 weeks	1 (3.7%)	0 (0.0%)	0 (0.0%)	1 (3.3%)
8 weeks	8 (29.6%)	1 (100.0%)	0 (0.0%)	9 (30.0%)
More than 8 weeks	2 (7.4%)	1 (100.0%)	0 (0.0%)	3 (10.0%)

** Out of those who offered supervised PR at home*
No services selected '5 weeks' therefore this has been removed from the table

4.4.5 How many supervised home-based PR sessions per week are patients offered?*

	2019			
Number of supervised home-based PR sessions offered weekly	England (n=27)	Scotland (n=1)	Wales (n=2)	All (n=30)
1	23 (85.2%)	1 (100.0%)	1 (50.0%)	25 (83.3%)
2	4 (14.8%)	0 (0.0%)	0 (0.0%)	4 (13.3%)
3	1 (3.7%)	0 (0.0%)	1 (50.0%)	2 (6.7%)
More than 3	1 (3.7%)	0 (0.0%)	1 (50.0%)	2 (6.7%)

** Out of services that offered supervised PR at home*

4.5 Do you send patients written information about your PR programme prior to their initial assessment?

	2019			
Written information about PR programme	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	126 (93.2%)	2 (50.0%)	8 (100.0%)	133 (92.4%)
No	9 (6.8%)	2 (50.0%)	0 (0.0%)	11 (7.6%)

4.6 Do you run / refer to additional services that people can attend while awaiting a PR course?

	2019			
Run/refer to additional services	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	47 (35.6%)	2 (50.0%)	3 (37.5%)	52 (36.1%)
No	85 (64.4%)	2 (50.0%)	5 (62.5%)	92 (63.9%)

4.7 Is any funding provided for transport to support patients to access the service?

	2019			
Funding for patient access transport	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	46 (34.8%)	1 (25.0%)	3 (37.5%)	50 (34.7%)
No	86 (65.2%)	3 (75.0%)	5 (62.5%)	94 (65.3%)

4.8 Measures of aerobic exercise

4.8.1 Which measures of aerobic exercise performance do you use at assessments or refer to as outcome measures?

Measures of aerobic exercise performance	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Endurance shuttle walk test (ESWT)	23 (17.4%)	0 (0.0%)	0 (0.0%)	23 (16.0%)
Incremental shuttle walk test (ISWT)	96 (72.7%)	4 (100.0%)	3 (37.5%)	105 (72.9%)
Sit-to-stand (5STS)	33 (25.0%)	1 (25.0%)	1 (12.5%)	35 (24.3%)
Six-minute walk test (6MWT)	82 (62.1%)	1 (25.0%)	7 (87.5%)	90 (62.5%)

4.8.2 If '6MWT', how many sites use a 30-metre course as per the technical standards?*

Adherence to technical standards**	2019			
	England (n=82)	Scotland (n=1)	Wales (n=7)	All (n=90)
Fully adhering	5 (6.1%)	0 (0.0%)	1 (14.3%)	6 (6.7%)
Partially adhering	4 (4.9%)	0 (0.0%)	2 (28.6%)	6 (6.7%)
Not adhering	73 (89.0%)	1 (100.0%)	4 (57.1%)	78 (86.7%)

** Out of services that use 6WMT to* measure aerobic exercise performance

*** Technical standards state that the 6MWT should be performed on a 30-metre course. Answer options for this question in 2019 were:*

- All sites use a 30 m course (fully adhering)
- At least 1 site uses a 30 m course (partially adhering)
- No sites use a 30 m course (not adhering)

National QI priority O2: Assess outcomes of treatment for all patients attending PR using as a minimum, measures of exercise capacity and health status. Ensure that measures are assessed in line with recommended guidance at the initial and discharge assessment.
(*BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 8*).[1]

Rationale

The BTS quality standard for PR in adults (2014) 8 states that people attending PR have the outcome of treatment assessed using as a minimum, measures of exercise capacity, dyspnoea and health status. Ensure that measures are assessed in line with recommended guidance at the initial and discharge assessment. This audit reported 86.7% of PR services were not adhering to technical standards for the conduct of the 6MWT, which is to use a 30-metre course.

Tips to achieve this priority

- Ensure there is adequate space to conduct a 6MWT (30-metre course).
- Use an alternative test (ISWT) if there is insufficient space to complete the 6MWT in line with recommended guidance.

4.9 Muscle strength

4.9.1 Is muscle strength measured at assessment?

	2019			
Muscle strength measured at assessment	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	55 (41.7%)	1 (25.0%)	4 (50.0%)	60 (41.7%)
No	77 (58.3%)	3 (75.0%)	4 (50.0%)	84 (58.3%)

4.9.2 If 'Yes', how is muscle strength measured?*

	2019			
Measures of muscle strength	England (n=55)	Scotland (n=1)	Wales (n=4)	All (n=60)
Dynamometer	10 (18.2%)	0 (0.0%)	0 (0.0%)	10 (16.7%)
Strain gauge	1 (1.8%)	0 (0.0%)	0 (0.0%)	1 (1.7%)
1 RM (repetition maximum)	22 (40.0%)	0 (0.0%)	1 (25.0%)	23 (38.3%)
10 RM	12 (21.8%)	0 (0.0%)	2 (50.0%)	14 (23.3%)
Stand to sit (5STS)	27 (49.1%)	1 (100.0%)	2 (50.0%)	30 (50.0%)

** Out of services that measured muscle strength at assessment*

4.10 Are any of the following measured at assessment?

	2019			
Other measures	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Activities of daily living scale	42 (31.8%)	2 (50.0%)	3 (37.5%)	47 (32.6%)
Hospital Anxiety & Depression scores	72 (54.6%)	2 (50.0%)	6 (75.0%)	80 (55.6%)
Knowledge gained during education	42 (31.8%)	1 (25.0%)	3 (37.5%)	46 (31.9%)
Other psychological status scores	79 (59.9%)	1 (25.0%)	5 (62.5%)	85 (59.0%)
Patient satisfaction	111 (84.1%)	3 (75.0%)	7 (87.5%)	121 (84.0%)
Patient experience	79 (59.9%)	2 (50.0%)	4 (50.0%)	85 (59.0%)
Physical activity	40 (30.3%)	1 (25.0%)	3 (37.5%)	44 (30.6%)
No	3 (2.3%)	1 (25.0%)	0 (0.0%)	4 (2.8%)

4.10.1 If 'physical activity' is measured, please select how this is done.*

	2019			
How physical activity is measured	England (n=40)	Scotland (n=1)	Wales (n=3)	All (n=44)
Device	2 (5.0%)	0 (0.0%)	0 (0.0%)	2 (4.6%)
Questionnaire	40 (100.0%)	1 (25.0%)	3 (100.0%)	44 (100.0%)

** Out of services that measured physical activity at assessment*

Section 5: Exercise

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Key standards

BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 5]: [2] Pulmonary rehabilitation programmes include supervised, individually tailored and prescribed progressive exercise training, including both aerobic and resistance training.

BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 8]:[2] People attending PR have the outcome of treatment assessed using as a minimum, measures of exercise capacity, dyspnoea and health status.

BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 9]: [2] PR programmes conduct an annual audit of individual outcomes and progress.

Key findings

- Nearly all (95.8%) PR services were individually prescribing aerobic training.
  - Of these, 85.4% reported using the Borg breathlessness or perceived exertion score for prescribing aerobic training.
- All PR services (100.0%) offered resistance training. Of these:
  - 93.7% individually prescribed resistance training
  - 77.8% of services reported using the Borg breathlessness or perceived exertion score for prescribing resistance training.

Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

5.1 Aerobic training

5.1.1 Is aerobic training offered during the PR programme?

Aerobic training offered	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	131 (99.2%)	4 (100.0%)	8 (100.0%)	143 (99.3%)
No	1 (0.8%)	0 (0.0%)	0 (0.0%)	1 (0.7%)

5.1.2 What type of aerobic training is undertaken during the PR programme?*

Type of aerobic training undertaken	2019			
	England (n=131)	Scotland (n=4)	Wales (n=8)	All (n=143)
Cycling	109 (83.2%)	4 (100.0%)	8 (100.0%)	121 (84.6%)
Walking	130 (99.2%)	4 (100.0%)	8 (100.0%)	142 (99.3%)
Other	57 (43.5%)	1 (25.0%)	5 (65.5%)	63 (44.1%)

** Out of services that offer aerobic training*
Service could select multiple options therefore totals may be more than 100%

5.1.3 Is aerobic training individually prescribed?*

Aerobic training individually prescribed	2019			
	England (n=131)	Scotland (n=4)	Wales (n=8)	All (n=143)
Yes	125 (95.4%)	4 (100.0%)	8 (100.0%)	137 (95.8%)
No	6 (4.6%)	0 (0.0%)	0 (0.0%)	6 (4.2%)

** Out of services that offer aerobic training*

5.1.4 How is aerobic training prescribed?*

How aerobic training is prescribed	2019			
	England (n=125)	Scotland (n=4)	Wales (n=8)	All (n=137)
Borg breathlessness or perceived exertion scores	107 (85.6%)	3 (75.0%)	7 (87.5%)	117 (85.4%)
Endurance shuttle walking test (ESWT)	24 (19.2%)	0 (0.0%)	1 (12.5%)	25 (18.3%)
Level from ISWT	52 (41.6%)	1 (25.0%)	2 (25.0%)	54 (39.4%)
From 6-minute walk test (6MWT)	36 (28.8%)	0 (0.0%)	1 (12.5%)	38 (27.7%)

** Out of services that individually prescribe aerobic training*
Services could select multiple options therefore the total can be more than 100%

5.1.5 What intensity of aerobic exercise prescription is used?

Intensity of aerobic exercise prescription	2019 England (n=78)	Scotland (n=1)	Wales (n=3*)	All (n=82)
<65%	4 (5.1%)	0 (0.0%)	0 (0.0%)	4 (4.9%)
65 – <75%	19 (24.4%)	1 (100.0%)	2 (66.7%)	22 (26.8%)
75 – 85%	43 (55.1%)	0 (0.0%)	0 (0.0%)	43 (52.4%)
>85%	8 (10.3%)	0 (0.0%)	0 (0.0%)	8 (9.8%)

** One service did not provide this information*

5.2 Resistance training

5.2.1 Is resistance training offered during the PR programme?

Resistance training offered	2019 England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	132 (100.0%)	4 (100.0%)	8 (100.0%)	144 (100.0%)

No services selected 'No' therefore this has been removed from the table

5.2.2 What resistance training equipment is provided during the PR programme?

Resistance training equipment provided	2019 England (n=133)	Scotland (n=4)	Wales (n=8)	All (n=144)
Free weights	129 (97.7%)	4 (100.0%)	8 (100.0%)	141 (97.9%)
Resistance bands	63 (47.7%)	1 (25.0%)	5 (62.5%)	69 (47.9%)
Weight machines	29 (22.0%)	1 (25.0%)	2 (25.0%)	32 (22.2%)
Other	10 (7.6%)	0 (0.0%)	1 (12.5%)	11 (7.6%)

5.2.3 Is resistance training individually prescribed?

Resistance training individually prescribed	2019 England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	125 (94.7%)	2 (50.0%)	8 (100.0%)	135 (93.7%)
No	7 (5.3%)	2 (50.0%)	0 (0.0%)	9 (6.3%)

5.2.4 How is resistance training prescribed?*

How resistance training is prescribed	2019 England (n=125)	Scotland (n=2)	Wales (n=8)	All (n=135)
Borg breathlessness or perceived exertion scores	99 (79.2%)	2 (100.0%)	4 (50.0%)	105 (77.8%)
Measurement of 1RM or strength	36 (28.8%)	0 (0.0%)	3 (37.5%)	39 (28.9%)
Other	14 (11.2%)	0 (0.0%)	2 (25.0%)	16 (11.9%)

** Out of services that prescribe resistance training*

5.3 Home exercise

5.3.1 Are patients advised to do unsupervised home exercise during their PR programme?

	2019			
Patients advised to do unsupervised home exercise	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	130 (98.5%)	4 (100.0%)	8 (100.0%)	142 (98.6%)
No	2 (1.5%)	0 (0.0%)	0 (0.0%)	2 (1.4%)

Section 6: Education

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Key standards

BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 6]: [2] Pulmonary rehabilitation programmes include a defined, structured education programme.
BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 7]: [2]
People completing pulmonary rehabilitation are provided with an individualised structured, written plan for ongoing exercise maintenance.
BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 10]: [2] Pulmonary rehabilitation programmes produce an agreed Standard Operating Procedure (SOP).

Key findings

- The median number of hours of education sessions scheduled during a centre-based PR programme was 12 (6–12) hours. This was lower in Scotland at 2.5 (1.5–4.5) hours.
- All PR services (100.0%) offered face-to-face education sessions.
- Physiotherapists and registered nurses made considerable contributions delivering face-to-face education sessions.
- Most PR services (82.6%) provided patients with a written plan for ongoing exercise maintenance.

Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

6.1 How many hours of education are scheduled during a centre-based PR programme?

Hours of education scheduled during centre-based PR	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Median (IQR*)	12 (6–12)	2.5 (1.5–4.5)	12 (9.5–12.5)	12 (6–12)

**Interquartile range*

6.2 How is education provided?

Method of education	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
CD given to patients	11 (8.3%)	1 (25.0%)	1 (12.5%)	13 (9.0%)
DVD given to patients	15 (11.4%)	1 (25.0%)	0 (0.0%)	16 (11.1%)
Face-to-face taught group sessions	132 (100.0%)	4 (100.0%)	8 (100.0%)	144 (100.0%)
Information on a dedicated website	31 (23.5%)	4 (100.0%)	0 (0.0%)	35 (24.3%)
Telecare or other remote delivery	2 (1.5%)	1 (25.0%)	1 (12.5%)	4 (2.8%)
Written handouts	123 (93.2%)	4 (100.0%)	6 (75.0%)	133 (92.4%)
Other	20 (15.2%)	0 (0.0%)	2 (25.0%)	22 (15.3%)

6.2.1 Who delivers face-to-face sessions?

Staff delivering education sessions	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Clinical psychologist	26 (19.7%)	0 (0.0%)	0 (0.0%)	26 (18.1%)
Dietitian	62 (47.0%)	0 (0.0%)	8 (100.0%)	70 (48.6%)
Exercise physiologist	3 (2.3%)	0 (0.0%)	0 (0.0%)	3 (2.1%)
Fitness instructor	32 (24.2%)	1 (25.0%)	5 (62.5%)	38 (26.4%)
Healthcare / therapy assistant	50 (37.9%)	0 (0.0%)	4 (50.0%)	54 (37.5%)
Health psychologist	26 (19.7%)	0 (0.0%)	0 (0.0%)	26 (18.1%)
Occupational therapist	60 (45.5%)	1 (25.0%)	8 (100.0%)	69 (47.9%)
Pharmacist	23 (17.4%)	1 (25.0%)	5 (62.5%)	29 (20.1%)
Physiotherapist	129 (97.7%)	4 (100.0%)	8 (100.0%)	141 (97.9%)
Registered nurse	112 (84.9%)	3 (75.0%)	7 (87.5%)	122 (84.7%)
Respiratory physician	21 (15.9%)	0 (0.0%)	7 (87.5%)	28 (19.4%)
Respiratory physiologist	1 (0.8%)	0 (0.0%)	0 (0.0%)	1 (0.7%)
Social worker	4 (3.0%)	0 (0.0%)	0 (0.0%)	4 (2.8%)
Technical instructor	28 (21.2%)	0 (0.0%)	4 (50.0%)	32 (22.2%)
Volunteer	36 (27.3%)	0 (0.0%)	1 (12.5%)	37 (25.7%)
Other	43 (32.6%)	1 (25.0%)	4 (50.0%)	48 (33.3%)

No services selected 'GP' therefore this has been removed from the table

6.2.2 What do face-to-face sessions cover?

Topics covered in education sessions	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Advance directives	34 (25.98)	1 (25.0%)	3 (37.5%)	38 (26.4%)
Anatomy, physiology, pathology – in health and in chronic respiratory disease	127 (96.2%)	4 (100.0%)	8 (100.0%)	139 (96.5%)
Anxiety management and relaxation	122 (92.4%)	3 (75.0%)	8 (100.0%)	133 (92.4%)
Benefits system and welfare rights	54 (40.9%)	3 (75.0%)	5 (62.5%)	62 (43.1%)
Chest clearance techniques	130 (98.5%)	4 (100.0%)	8 (100.0%)	142 (98.6%)
Confidence, self-efficacy and self-management	112 (84.9%)	3 (75.0%)	7 (87.5%)	122 (84.7%)
Dyspnoea/symptom management	131 (99.3%)	4 (100.0%)	8 (100.0%)	143 (99.3%)
Energy conservation/pacing	126 (95.5%)	3 (75.0%)	8 (100.0%)	137 (95.1%)
Exacerbation management (including coping with setbacks and relapses)	131 (99.3%)	4 (100.0%)	8 (100.0%)	143 (99.3%)
Goal setting and rewards	83 (63.0%)	3 (75.0%)	7 (87.5%)	93 (64.6%)
Identifying and changing beliefs about exercise and health related behaviours	94 (71.2%)	1 (25.0%)	7 (87.5%)	102 (70.8%)
Loving relationships/sexuality	23 (17.4%)	0 (0.0%)	2 (25.0%)	25 (17.4%)
Managing travel	59 (44.7%)	2 (50.0%)	3 (37.5%)	64 (44.4%)
Medication (including oxygen therapy)	130 (98.5%)	4 (100.0%)	8 (100.0%)	142 (98.6%)
Nutritional advice	126 (95.5%)	4 (100.0%)	8 (100.0%)	138 (95.8%)
Opportunities to exercise after pulmonary rehabilitation	128 (97.0%)	4 (100.0%)	8 (100.0%)	140 (97.2%)
Patient support groups	114 (86.4%)	3 (75.0%)	8 (100.0%)	125 (86.8%)
Relaxation	122 (92.4%)	3 (75.0%)	7 (87.5%)	132 (91.7%)
Smoking cessation	87 (65.9%)	3 (75.0%)	5 (62.5%)	95 (66.0%)
The benefits of physical exercise	128 (97.0%)	4 (100.0%)	8 (100.0%)	140 (97.2%)
Use of self-management plans	108 (81.8%)	3 (75.0%)	7 (87.5%)	118 (81.9%)
Other	28 (21.2%)	0 (0.0%)	1 (12.5%)	29 (20.1%)

6.3 Do you routinely provide patients with an individualised structured, written plan for ongoing exercise maintenance?

Patients provided with written plan for ongoing exercise maintenance	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	111 (84.1%)	2 (50.0%)	6 (75.0%)	119 (82.6%)
No	21 (15.9%)	2 (50.0%)	2 (25.0%)	25 (17.4%)

Section 7:
Programme provision

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Key findings

- 22.2% of PR programmes have at least some part of their service on a fixed-term contract.

Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

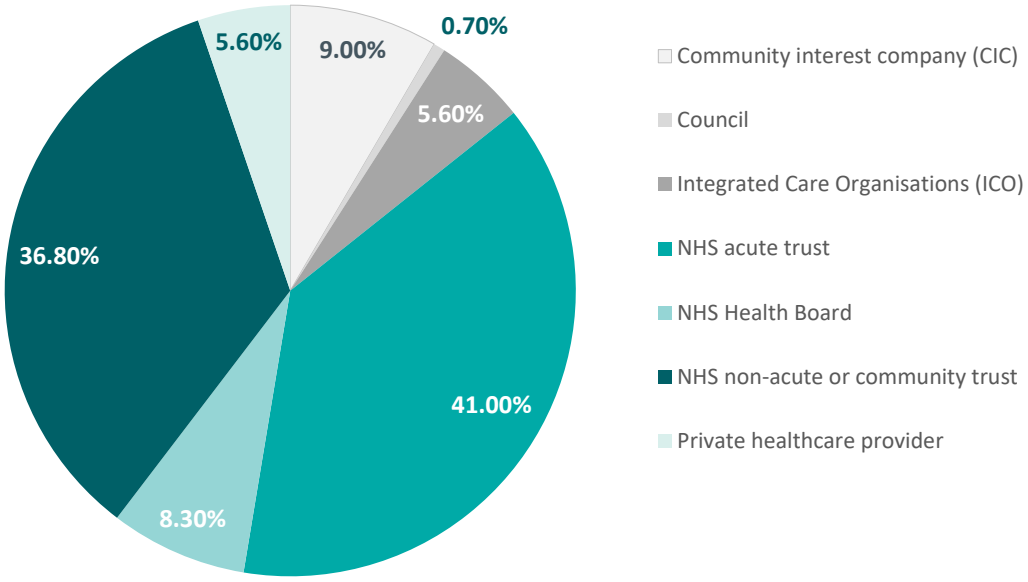
7.1 Organisational information

7.1.1 What type of organisation provides your service?

	2019			
Type of organisation*	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Community interest company (CIC)	13 (9.9%)	0 (0.0%)	0 (0.0%)	13 (9.0%)
Council	1 (0.8%)	0 (0.0%)	0 (0.0%)	1 (0.7%)
Integrated care organisations (ICO)	8 (6.1%)	0 (0.0%)	0 (0.0%)	8 (5.6%)
NHS acute trust	59 (44.7%)	0 (0.0%)	0 (0.0%)	59 (41.0%)
NHS health board	0 (0.0%)	4 (100.0%)	8 (100.0%)	12 (8.3%)
NHS non-acute or community trust	53 (40.2%)	0 (0.0%)	0 (0.0%)	53 (36.8%)
Private healthcare provider	8 (6.1%)	0 (0.0%)	0 (0.0%)	8 (5.6%)

No services selected 'Charity' or 'GP federation' therefore these have been removed from the table

Fig 7.1. Breakdown of providing organisation for all countries



7.2 What type of funding does your programme have?

Type of funding*	2019			
	England (n=135)	Scotland (n=4)	Wales (n=8)	All (n=144)
Fixed-term	31 (23.5%)	1 (25.0%)	0 (0.0%)	32 (22.2%)
Non-fixed term	101 (76.5%)	3 (75.0%)	8 (100.0%)	113 (78.5%)

** Services able to choose multiple options as some have both fixed-term and non-fixed term funding*

7.2.1 If 'fixed-term', how many years' future funding does the service have?*

Length of funding	2019			
	England (n=31)	Scotland (n=1)	Wales (n=0)	All (n=32)
Median (IQR**)	2 (1–5)	5 (5–5)	-	2 (1–5)

** Out of those services whose programme is funded on the fixed term basis*
***Interquartile range*

Section 8: Staffing

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Key findings

- Nearly all (93.8%) PR services had funding for a named clinical lead. Of these posts, 91.7% were filled.
- Around two-thirds (90/135, 62.5%) of PR services had a physiotherapist in the named clinical lead role.
- 31.9% of services collaborated with lay people and/or patient representatives.
- Over three-quarters (77.1%) of PR services did not have audit support provided.

Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

8.1 Clinical leadership

8.1.1 Is there funding for a named clinical lead for the service?

Funding for named clinical lead	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes – filled	125 (94.7%)	2 (50.0%)	5 (62.5%)	132 (91.7%)
Yes – unfilled	1 (0.8%)	0 (0.0%)	2 (25.0%)	3 (2.1%)
No	6 (4.6%)	2 (50.0%)	1 (12.5%)	9 (6.3%)

8.1.2 Number and type of filled clinical lead posts in PR services

	2019			
Filled clinical lead posts	**England (n=2)**	**Scotland (n=0)**	**Wales (n=3)**	**All (n=5)**
Doctor				
WTE (median IQR)	0.1 (0.02–0.2)	-	0.1 (0.05–0.1)	0.1 (0.05–0.1)
Pay band mode (range)	Band 9 = 2 (100.0%)	-	Band 9 = 3 (100.0%)	Band 9 = 5 (100.0%)
	England (n=1)	**Scotland (n= 0)**	**Wales (n=1)**	**All (n= 2)**
Exercise practitioner				
WTE (median IQR)	1.8 (1.8–1.8)	-	3.0 (3.0–3.0)	2.4 (1.8–3.0)
Pay band mode (range)	Band 4 = 1 (100.0%)	-	Band 4 = 1 (100.0%)	Band 4 = 2 (100.0%)
	England (n=21)	**Scotland (n= 0)**	**Wales (n=2)**	**All (n= 23)**
Qualified nurse				
WTE (median IQR)	0.8 (0.3–1.0)	-	1.5 (1.0–2.0)	0.8 (0.3–1.0)
Pay band mode (range)	Band 5 = 1 (4.8%) Band 6 = 3 (14.3%) Band 7 = 8 (38.1%) Band 8a = 6 (28.6%) Band 8b = 3 (14.3%)	-	 Band 6 = 1 (50.0%) Band 7 = 1 (50.0%)	Band 5 = 1 (4.4%) Band 6 = 4 (17.4%) Band 7 = 9 (39.1%) Band 8a = 6 (26.1%) Band 8b = 3 (13.0%)
	England (n=6)	**Scotland (n= 0)**	**Wales (n=2)**	**All (n= 8)**
Qualified occupational therapist				
WTE (median IQR)	0.3 (0.3–0.5)	-	2.3 (1.0–3.5)	0.4 (0.3–0.8)
Pay band mode (range)	Band 6 = 3 (50.0%) Band 7 = 3 (50.0%)	-	Band 6 = 1 (50.0%) Band 7 = 1 (50.0%)	Band 6 = 4 (50.0%) Band 7 = 4 (50.0%)
	England (n= 84)	**Scotland (n= 1)**	**Wales (n=5)**	**All (n= 90)**
Qualified physiotherapist				
WTE (median IQR)	0.8 (0.5–1.0)	0.1 (0.1–0.1)	0.8 (0.6–3.0)	0.8 (0.5–1.0)
Pay band mode (range)	Band 6 = 13 (15.5%) Band 7 = 58 (69.1%) Band 8a = 13 (15.5%)	Band 7 = 1 (100.0%)	Band 6 = 1 (20.0%) Band 7 = 2 (40.0%) Band 8a = 2 (40.0%)	Band 6 = 14 (15.6%) Band 7 = 61 (67.8%) Band 8a = 15 (16.7%)

IQR = interquartile range; WTE = whole-time equivalent

8.1.3 Does the clinical lead receive management time to coordinate and manage/develop the service?*

	2019			
Clinical lead management time	**England (n=125)**	**Scotland (n=2)**	**Wales (n=5)**	**All (n=132)**
Yes	81 (64.8%)	1 (50.0%)	5 (100.0%)	87 (65.9%)
No	44 (35.2%)	1 (50.0%)	0 (0.0%)	45 (34.1%)

** Out of services with clinical lead post filled.*

8.2 How many types of posts are funded for the service?

Types of posts funded	2019			
	England (n=63)	Scotland (n=1)	Wales (n=5)	All (n=69)
Admin and clerical				
WTE (median IQR)	0.7 (0.4–1.0)	0.05 (0.05–0.05)	0.7 (0.6–1.0)	0.7 (0.40–1.0)
Pay band mode (range)	Band 2 = 18 (28.6%) Band 3 = 31 (49.2%) Band 4 = 12 (19.1%) Band 5 = 1 (1.6%) Band 7 = 1 (1.6%)	Band 3 = 1 (100.0%)	Band 3 = 3 (60.0%) Band 4 = 2 (40.0%)	Band 2 = 18 (26.1%) Band 3 = 35 (50.7%) Band 4 = 14 (20.3%) Band 5 = 1 (1.5%) Band 7 = 1 (1.5%)
	England (n=8)	**Scotland (n=0)**	**Wales (n=6)**	**All (n=14)**
Dietitian/nutritionist				
WTE (median IQR)	0.05 (0.3–0.1)	-	0.3 (0.1–0.9)	0.1 (0.04–0.1)
Pay band mode (range)	Band 5 = 3 (37.5%) Band 6 = 4 (50.0%) Band 7 = 1 (12.5%)	-	Band 5 = 2 (33.3%) Band 6 = 3 (50.0%) Band 7 = 1 (16.7%)	Band 5 = 5 (35.7%) Band 6 = 7 (50.0%) Band 7 = 2 (14.3%)
	England (n=19)	**Scotland (n=0)**	**Wales (n=1)**	**All (n=20)**
Exercise practitioner				
WTE (median IQR)	1.0 (0.4–1.6)	-	0.4 (0.4–0.4)	1.0 (0.4–1.6)
Pay band mode (range)	Band 3 = 2 (10.5%) Band 4 = 11 (57.9%) Band 5 = 6 (31.6%)	-	Band 4 = 1 (100.0%)	Band 3 = 2 (10.0%) Band 4 = 12 (60.0%) Band 5 = 6 (30.0%)
	England (n=27)	**Scotland (n=0)**	**Wales (n=1)**	**All (n=28)**
Healthcare support worker				
WTE (median IQR)	0.8 (0.6–1.0)	-	0.2 (0.2–0.2)	0.8 (0.6–1.0)
Pay band mode (range)	Band 2 = 2 (7.4%) Band 3 = 15 (55.6%) Band 4 = 10 (37.0%)	-	Band 3 = 1 (100.0%)	Band 2 = 2 (7.1%) Band 3 = 16 (57.1%) Band 4 = 10 (35.7%)
	England (n=3)	**Scotland (n=0)**	**Wales (n=2)**	**All (n=5)**
Pharmacist				
WTE (median IQR)	0.1 (0.04–0.2)	-	0.1 (0.04–0.1)	0.1 (0.04–0.1)
Pay band mode (range)	Band 5 = 1 (33.3%) Band 6 = 1 (33.3%) Band 7 = 1 (33.3%)	-	Band 8a = 2 (100.0%)	Band 5 = 1 (20.0%) Band 6 = 1 (20.0%) Band 7 = 1 (20.0%) Band 8a = 2 (40.0%)
	England (n=5)	**Scotland (n=0)**	**Wales (n=0)**	**All (n=5)**
Psychologist				
WTE (Median IQR)	0.2 (0.2–0.3)	-	-	0.2 (0.2–0.3)
Pay band mode (range)	Band 6 = 1 (20.0%) Band 7 = 2 (40.0%) Band 8a = 2 (40.0%)	-	-	Band 6 = 1 (20,0%) Band 7 = 2 (40.0%) Band 8a = 2 (40.0%)

IQR = interquartile range; WTE = whole time equivalent

8.2 How many types of posts are funded for the service? (cont)

	England (n=64)	Scotland (n=2)	Wales (n=4)	All (n=70)
Qualified nurse				
WTE (median IQR)	0.6 (0.2–1.0)	0.3 (0.2–0.5)	0.2 (0.1–0.6)	0.5 (0.2–1.0)
Pay band mode (range)	Band 5 = 8 (12.5%) Band 6 = 41 (64.1%) Band 7 = 15 (23.4%)	Band 6 = 2 (100.0%)	Band 5 = 1 (25.0%) Band 6 = 3 (75.0%)	Band 5 = 9 (12.9%) Band 6 = 46 (65.7%) Band 7 = 15 (21.4%)
	England (n=127)	**Scotland (n=4)**	**Wales (n=5)**	**All (n=136)**
Qualified physiotherapist				
WTE (median IQR)	1.0 (0.5–1.3)	0.2 (0.2–0.6)	0.4 (0.3–0.6)	1.0 (0.5–1.2)
Pay band mode (range)	Band 1 = 1 (0.8%) Band 5= 15 (11.8%) Band 6 = 75 (59.1%) Band 7 = 34 (26.8%) Band 8a = 2 (1.6%)	Band 6 = 4 (100.0%)	Band 5 = 1 (20.0%) Band 6 = 2 (40.0%) Band 7 = 2 (40.0%)	Band 1 = 1 (0.7%) Band 5 = 16 (11.8%) Band 6 = 81 (59.6%) Band 7 = 36 (26.5%) Band 8a = 2 (1.5%)
	England (n=21)	**Scotland (n=1)**	**Wales (n=7)**	**All (n=29)**
Qualified occupational therapist				
WTE (median IQR)	0.4 (0.2–0.8)	0.1 (0.1–0.1)	0.4 (0.3–0.8)	0.4 (0.2–0.8)
Pay band mode (range)	Band 1 = 1 (4.8%) Band 5 = 1 (4.8%) Band 6 = 16 (76.2%) Band 7 = 3 (14.3%)	Band 6 = 1 (100.0%)	Band 5 = 2 (28.6%) Band 6 = 3 (42.9%) Band 7 = 2 (28.6%)	Band 1 = 1 (3.5%) Band 5 = 3 (10.3%) Band 6 = 20 (69.0%) Band 7 = 5 (17.2%)
	England (n=112)	**Scotland (n=3)**	**Wales (n=10)**	**All (n=125)**
Therapy assistant				
WTE (median IQR)	0.8 (0.5–1.0)	0.3 (0.2–0.5)	0.3 (0.2–0.1)	0.8 (0.5–1.0)
Pay band mode (range)	Band 1 = 1 (0.9%) Band 2 = 9 (8.0%) Band 3 = 58 (51.8%) Band 4 = 42 (37.5%) Band 5 = 2 (1.8%)	Band 3 = 3 (100.0%)	Band 2 = 1 (10.0%) Band 3 = 3 (30.0%) Band 4 = 4 (40.0%) Band 5 = 2 (20.0%)	Band 1 = 1 (0.8%) Band 2 = 10 (8.0%) Band 3 = 64 (51.2%) Band 4 = 46 (36.8%) Band 5 = 4 (3.2%)

IQR = interquartile range; WTE = whole time equivalent

8.3 What is the current WTE of staff vacancies at the service?

	2019			
WTE of staff vacancies	**England (n=132)**	**Scotland (n=4)**	**Wales (n=8)**	**All (n=144)**
WTE (median IQR)	0 (0–0.6)	0 (0–0)	0.13 (0–0.45)	0 (0.0–0.6)

IQR = interquartile range; WTE = whole time equivalent

8.4 What are the designations of the staff who contribute, but are non-funded, to the service?

Non-funded staff roles	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Admin and clerical	52 (39.4%)	2 (50.0%)	2 (25.0%)	56 (38.9%)
Community exercise instructor	18 (13.6%)	1 (25.0%)	1 (12.5%)	20 (13.9%)
Dietitian/nutritionist	47 (35.6%)	1 (25.0%)	4 (50.0%)	52 (36.1%)
Exercise practitioner	3 (2.3%)	0 (0.0%)	0 (0.0%)	3 (2.1%)
Healthcare support worker	7 (5.3%)	0 (0.0%)	0 (0.0%)	7 (4.9%)
Lay person / patient representative	44 (33.3%)	1 (25.0%)	1 (12.5%)	46 (31.9%)
Pharmacist	20 (15.2%)	1 (25.0%)	3 (37.5%)	24 (16.7%)
Physician	8 (6.1%)	0 (0.0%)	2 (25.0%)	10 (6.9%)
Psychologist	31 (23.5%)	0 (0.0%)	0 (0.0%)	31 (21.5%)
Qualified nurse	43 (32.6%)	1 (25.0%)	4 (50.0%)	48 (33.3%)
Qualified physiotherapist	17 (12.9%)	2 (50.0%)	2 (25.0%)	21 (14.6%)
Qualified occupational therapist	26 (19.7%)	1 (25.0%)	2 (25.0%)	29 (20.1%)
Social worker	3 (2.3%)	1 (25.0%)	0 (0.0%)	4 (2.8%)
Therapy assistant	11 (8.3%)	2 (50.0%)	2 (25.0%)	15 (10.4%)

8.5 Is there audit support provided?

Audit support	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	31 (23.5%)	1 (25.0%)	1 (12.5%)	33 (22.9%)
No	101 (76.5%)	3 (75.0%)	7 (87.5%)	111 (77.1%)

8.5.1 If supported, how many WTE of audit support are provided?*

WTE of audit staff	2019			
	England (n=31)	Scotland (n=1)	Wales (n=1)	All (n=33)
WTE (median IQR)	0.4 (0.05–1.0)	0.1 (0.1–0.1)	0.4 (0.4–0.4)	0.4 (0.05–1.0)

** Out of services with audit support provided*

IQR = interquartile range; WTE = whole-time equivalent

Section 9: Record keeping

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Key standards

BTS quality standards for pulmonary rehabilitation in adults (2014) [Standard 10]: [2] Pulmonary rehabilitation programmes produce an agreed standard operating procedure (SOP).

Key findings

- 16.0% of PR services did not have a SOP.

Navigation

This section contains the following tables and graphs. If you are viewing this report electronically, you can select the table that you wish to view by clicking on the hyperlink from the list below. Please note the subsection numeration in this section does not align to the question numbering in the dataset itself.

9.1 Standard operating procedure (SOP)

9.1.1 Do you have an SOP detailing local policies?

Standard operating procedure	2019			
	England (n=132)	Scotland (n=4)	Wales (n=8)	All (n=144)
Yes	113 (85.6%)	4 (100.0%)	4 (50.0%)	121 (84.0%)
No	19 (14.4%)	0 (0.0%)	4 (50.0%)	23 (16.0%)

9.1.2 What does the SOP cover?*

Items covered	2019			
	England (n=113)	Scotland (n=4)	Wales (n=4)	All (n=121)
Accessibility	89 (78.8%)	1 (25.0%)	3 (75.0%)	93 (76.9%)
Capacity	89 (78.8%)	2 (50.0%)	4 (100.0%)	95 (78.5%)
DNA management	93 (82.3%)	2 (50.0%)	4 (100.0%)	99 (81.8%)
Environment: facilities, kit and equipment	99 (87.6%)	3 (75.0%)	4 (100.0%)	106 (87.6%)
Maintaining dignity and respect	67 (59.3%)	1 (25.0%)	4 (100.0%)	72 (59.5%)
Managing waiting times	62 (54.9%)	2 (50.0%)	4 (100.0%)	68 (56.2%)
Measurement of exercise outcomes	95 (84.1%)	4 (100.0%)	3 (75.0%)	102 (84.3%)
Medication management	39 (34.5%)	2 (50.0%)	3 (75.0%)	44 (36.4%)
Minimum staffing levels	96 (85.0%)	2 (50.0%)	4 (100.0%)	102 (84.3%)
Patient and carer experience / satisfaction / feedback	76 (67.3%)	2 (50.0%)	4 (100.0%)	82 (67.8%)
Patients needing oxygen	87 (77.0%)	3 (75.0%)	4 (100.0%)	94 (77.7%)
Patient safety	96 (85.0%)	3 (75.0%)	4 (100.0%)	103 (85.1%)
Patient security	55 (48.7)	1 (25.0%)	4 (100.0%)	60 (49.6%)
Risk assessments	94 (83.2%)	3 (75.0%)	3 (75.0%)	100 (82.6%)
Staff training, development and well-being	68 (60.2%)	1 (25.0%)	3 (75.0%)	72 (59.5%)
Transition care	30 (26.6%)	2 (50.0%)	0 (0.0%)	32 (26.5%)
Use of IT equipment	53 (46.9%)	1 (25.0%)	3 (75.0%)	57 (47.1%)
Whistle blowing	41 (36.3%)	0 (0.0%)	0 (0.0%)	41 (33.9%)

** Out of services with a standard operating policy*
DNA = did not attend

National QI priority O3: Ensure all PR services have an agreed standard operating procedure (SOP).
(*BTS quality standards for pulmonary rehabilitation in adults (2014). Standard 10*).[1]

Rationale

The British Thoracic Society (BTS) quality standard for PR in adults (2014) 10 states that PR programmes produce an agreed SOP. This audit reported that 16.0% of services did not have an SOP.

Tips to achieve this priority

- Ensure that the services have an SOP that relates specifically to the rehabilitation service (this may include existing documents addressing broader issues by the host organisation).
- Collaborate with other rehabilitation services to share best practice.
- Use forums such as Respiratory Futures for example of best practice (**www.respiratoryfutures.org.uk**).

Appendix A: Methodology

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The methodology for the National COPD Audit Programme's pulmonary rehabilitation (PR) 2019 organisational audit built upon the learning from the 2017 audit[1] which took place under the National COPD Audit Programme.

The structure of the dataset is similar to that used in 2017, however, it has been considerably revised to ensure it audits against current and accepted standards and guidelines. This is the first organisational audit report since the launch of the National Asthma and COPD Audit Programme (NACAP) in March 2018. It presents the structure and resourcing of PR services from 1 July – 30 September 2019 who fully completed their organisational audit record. However, revised workforce planning and case ascertainment data (presented in sections 1 and 2 of this report) were collected in May – June 2020 following changes made to the PR audit in February 2020.

All PR services in England, Scotland and Wales that treated patients with COPD (n=228*) were eligible to participate in the organisational audit. A total of 144 services (63.2%) participated in this period of the audit. A full list of participating services, including those services that entered partial data or did not enter any data for the audit period are listed in **Appendix B**.
**At the time the organisational audit was undertaken.*

Recruitment

There was a single recruitment process for both the PR clinical and organisational audits, which began in 2018, using the following channels:

- partner and stakeholder channels (such as the British Thoracic Society's eBulletin, the British Lung Foundation's BreatheEasy networks, the Primary Care Respiratory Society UK's membership bulletin, and the Association of Respiratory Nurse Specialist's newsletter)
- Twitter and the audit's own newsletter
- communication with services that participated in the 2017 audit.

To identify new services, or services where the management had changed, a Freedom of Information request was sent to all CCGs, asking them for the names and contact details of the PR services used by their healthcare providers. Where identified, these services were sent an approaching email asking them to participate in the audits.

The reasons provided to participate were as follows:

- The status of the audit as part of NHS Quality Accounts, and as a National Clinical Audit, meaning all providers of NHS care in England and Wales were required to participate.
- To build on previous audit results and facilitate local improvement.

Services were asked to complete a registration form, nominating an 'audit lead' and adding any other team members that would form part of the audit team. It was made clear to prospective participants that the 'audit lead' role took ultimate responsibility of the data entered for the service.

Once a service had submitted their registration form, they were then sent a Caldicott Guardian letter and form to complete. Only after the Caldicott Guardian form was received by the audit team at the RCP was the service considered 'fully registered', and at that point, they were registered on the web tool.

A total of 228 PR services have been identified as currently eligible to participation in the NACAP PR audit, and we believe this to be a comprehensive picture of services in England, Scotland and Wales,

but we cannot rule out the possibility that PR services exist that were not identified, and therefore did not participate in the audit. A total of 218 (95.6%) services are registered to participate in the clinical audit, with 144 (63.2%*) submitting data for this report. Reasons for non-participation included:

- lack of local resource to complete the data collection and entry; and
- no eligible patients during the audit period (ie services ran cohort (rather than rolling) programmes, and all their assessments took place prior to the audit period starting).

**This is out of 228 services who were eligible to participate at the time of the organisational audit.*

Information governance and patient consent

For full details of the NACAP PR audits information governance and patient consent processes for the clinical audit please see the clinical audit report at: **www.rcplondon.ac.uk/nacap-PR-2019**.

As part of the organisational audit, services were asked to record:

- how many patients were eligible for the audit
- how many patients were approached for consent, and
- how many consented.

Please note, there is no impartial record of PR service throughput available from external data sources, so the only way to obtain this information is via self-reporting.

Audit question development and pilot

To ensure PR care and organisation was audited against accepted standards, audit questions were mapped to the BTS PR quality standards. A specific effort was made to ensure that each question could be mapped to a quality standard, and conversely that each quality standard was represented within the audit datasets.

The audit datasets were based on the 2017 equivalents. They were developed iteratively by the audit programme team and clinical lead, in consultation with the workstream group, in particular the representatives from the BTS.

The datasets and web tool were then tested (in a pilot) in November 2018. The pilot services were asked to contribute feedback on the web tool, the audit questions and help notes. These findings were discussed by the team and the workstream group, and the datasets were finalised.

The organisational dataset is available to download in full from our website: **www.rcplondon.ac.uk/nacap-pr-resources**.

Data entry

Services were required to enter data via the audit programme's bespoke web tool, created by Crown Informatics Ltd (available at **www.nacap.org.uk**).

Documentation to support participation in the audit was posted on the PR audit website and web tool, including audit instructions, data collection sheets, datasets with help notes, patient consent documentation, and copies of newsletters.

Regular email updates and newsletters were sent to participants throughout the data collection period, with reminders of timelines and any answers to frequently asked questions.

Towards the end of the organisational audit period, reminders were sent to PR services that had not answered all the questions in the dataset.

Data storage, security, and transfer

Data were collected on the audit's bespoke web tool. These data were stored and processed at a secure data centre, owned by Aimes Grid Services, located in Liverpool, UK. It operates to ISO 27001 certification (2015). The servers are owned and operated by Crown Informatics Ltd and are held in a secure locked rack, accessible to named individuals. All access is logged, managed and supervised.

This data centre provides N3 aggregation in collaboration with NHS Digital. Data is stored in secured databases (software by IBM) and encrypted on disc (AES256 standard) and additionally in the database where required. Backups are encrypted at AES256, held in dual copies, and stored securely.

Crown Informatics Ltd operate secure SSL at 256 bit, using SHA256 (SHA2) signatures and 4096 bit certificates. Crown Informatics Ltd's certificate is an 'OV' certified by a respected global certifier (Starfield/GoDaddy). In addition, 'Qualsys' using 'SSL Labs' have given the audit site an 'A' rating.

At the end of the data collection period, the data was extracted from the web tool by the central audit team, using an 'extract' provision developed by Crown Informatics Ltd. It was then transferred securely (using the RCP Mimecast system) to the team at Imperial College London for analysis. The extract function did not include patient identifiers.

Technical and email support

The audit programme team at the RCP provided a helpdesk every working day during office hours, available on both telephone and email, so that participants could come directly to the team with any questions they had.

Data cleaning and analysis methodology

The data were exported from the web tool in Excel format. These were converted into Stata for data management and analysis, and the dataset questions were incorporated as labels (so that cross-checking against the proforma was not required). In cases of missing or illogical data, clarifications were sought from participating services or were cleaned. Occasionally there were missing data, resulting in data cells being blank.

Data cleaning was conducted on multiple occasions:

- Non-ASCII characters were removed from strings.
- Follow-up question answers were replaced with missing data if the initial question response did not require further questioning.
- Semicolon separated list variables were separated out into individual variables.
- PR services with incomplete data were removed from the sample.

Appendix B: Participating and non-participating services

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Participating pulmonary rehabilitation services

Services that fully completed the organisational audit and were included in the final analysis

Trust / heath board / organisation	Service
England	
Airedale NHS Foundation Trust	Airedale, Wharfedale and Craven Pulmonary Rehabilitation Service
Atrium Health Ltd	Atrium Coventry and Warwickshire Pulmonary Rehabilitation Service
Barts Health NHS Trust	Tower Hamlets Pulmonary Rehabilitation Service
Bedford Hospital NHS Trust	Bedford Hospital Pulmonary Rehabilitation
Berkshire Healthcare NHS Foundation Trust	Berkshire West Cardiac and Respiratory Specialist Services
Birmingham Community Healthcare NHS Foundation Trust	BCHC Community Respiratory Service
Blackpool Teaching Hospitals NHS Foundation Trust	Pulmonary Rehabilitation Service Fylde and Wyre
BOC LTD	Blackpool Pulmonary Rehabilitation Service
BOC LTD	Bradford Pulmonary Rehabilitation Service
BOC LTD	Hounslow Community Respiratory Team
BOC LTD	West Norfolk BOC Pulmonary Rehabilitation Service
Bolton NHS Foundation Trust	Bolton Pulmonary Rehabilitation Programme
Bristol Community Health	Bristol Community Respiratory Service
Bromley Healthcare	Bromley Pulmonary Rehabilitation
Buckinghamshire Healthcare NHS Trust	Buckinghamshire Pulmonary Rehabilitation Services
Cambridgeshire Community Services NHS Trust	Luton Community Respiratory Service
Central and North West London NHS Foundation Trust	Camden COPD & Home Oxygen Service
Central and North West London NHS Foundation Trust	Milton Keynes Community Pulmonary Rehabilitation Service
Central London Community Healthcare NHS Trust	Barnet COPD Respiratory Service
Central London Community Healthcare NHS Trust	Merton Pulmonary Rehabilitation Service
Cheshire and Wirral Partnership NHS Foundation Trust	Cheshire and Wirral Partnership Respiratory Service
City Health Care Partnership CIC	East Riding Pulmonary Rehabilitation Programme
City Health Care Partnership CIC	Hull Pulmonary Rehabilitation Team
Cornwall Partnership NHS Foundation Trust	Integrated Community Respiratory Team East Cornwall (ICRTEC)
County Durham and Darlington NHS Foundation Trust	Darlington Pulmonary Rehabilitation
County Durham and Darlington NHS Foundation Trust	Durham Dales Easington and Sedgefield (DDES) Pulmonary Rehabilitation Programme
County Durham and Darlington NHS Foundation Trust	North Durham Pulmonary Rehabilitation

Trust / heath board / organisation	Service
Surrey Downs Health and Care Pulmonary Rehabilitation Service	North West Surrey Respiratory Care Team
Derbyshire Community Health Services NHS Foundation Trust	North Derbyshire Community Respiratory Service
Doncaster And Bassetlaw Teaching Hospitals NHS Foundation Trust	Doncaster Pulmonary Rehabilitation Services
Dorset County Hospital NHS Foundation Trust	Dorset Pulmonary Rehabilitation service
Dorset Healthcare University NHS Foundation Trust	Dorset Healthcare Pulmonary Rehabilitation Programme
East Cheshire NHS Trust	East Cheshire Pulmonary Rehabilitation Service
East Suffolk and North Essex NHS Foundation Trust	East Suffolk Pulmonary Rehabilitation Service
East Sussex Healthcare NHS Trust	Regional East Sussex Pulmonary Service (RESPS)
Epsom and St Helier University Hospitals NHS Trust	Surrey Downs Health and Care Pulmonary Rehabilitation Service
Essex Partnership University NHS Foundation Trust	EPUT Pulmonary Rehabilitation Programme
First Community Health and Care CIC	First Community Health and Care Surrey Community Respiratory Service
Frimley Health NHS Foundation Trust	AIR Service
Gloucestershire Care Services NHS Trust	Gloucestershire Respiratory Service
Guy's and St Thomas' NHS Foundation Trust	St Thomas' Hospital Pulmonary Rehabilitation programme
Harrogate and District NHS Foundation Trust	Harrogate Respiratory and Cardiac Physiotherapy
Hertfordshire Community NHS Trust	Hertfordshire Community Pulmonary Rehab Service
Hounslow and Richmond Community Healthcare NHS Trust	Richmond Respiratory Care Team
Imperial College Healthcare NHS Trust	Central and West London Pulmonary Rehabilitation Service
Imperial College Healthcare NHS Trust	Hammersmith & Fulham Cardio-Respiratory Service
Kent Community Health NHS Foundation Trust	Kent Community Health Pulmonary Rehabilitation Team
Kettering General Hospital NHS Foundation Trust	Rocket Team Kettering General Hospital
Lancashire Care NHS Foundation Trust	Blackburn with Darwen Pulmonary Rehabilitation Team
Lancashire Care NHS Foundation Trust	Central Lancashire Pulmonary Rehabilitation Service
Lewisham and Greenwich NHS Trust	Lewisham LEEP Pulmonary Rehabilitation Programme
Lincolnshire Community Health Services NHS Trust	Lincolnshire Community Health Services Pulmonary Rehabilitation Service
Livewell Southwest	Livewell SW Community Respiratory Service
Locala Community Partnerships CIC	Greater Huddersfield Pulmonary Rehabilitation Service
Luton and Dunstable University Hospital NHS Foundation Trust	Luton and Dunstable Hospital Pulmonary Rehabilitation Service
Maidstone and Tunbridge Wells NHS Trust	West Kent Pulmonary Rehabilitation Service
Manchester University NHS Foundation Trust	Manchester Community Respiratory Service
Manchester University NHS Foundation Trust	Manchester Royal Infirmary Pulmonary Rehabilitation Service
Medway Community Healthcare	Medway Community Respiratory Team
Mersey Care NHS Foundation Trust	Sefton Community Respiratory Service
Mid Cheshire Hospitals NHS Foundation Trust	Central Cheshire Integrated Care Partnership Pulmonary Rehabilitation Service
Mid Yorkshire Hospitals NHS Trust	Mid Yorkshire Therapy Services - Community Pulmonary Rehabilitation
Midlands Partnership NHS Foundation Trust	Midland Partnership South Respiratory Team

Trust / heath board / organisation	Service
Norfolk and Norwich University Hospitals NHS Foundation Trust	Norfolk and Norwich Pulmonary Rehabilitation Service
Norfolk Community Health and Care NHS Trust	Norfolk Community Pulmonary Rehabilitation Service
North Cumbria Integrated Care NHS Foundation Trust	Community COPD Team Carlisle
North Cumbria Integrated Care NHS Foundation Trust	North Cumbria Hospitals Pulmonary Rehabilitation Programme
North Cumbria Integrated Care NHS Foundation Trust	West Cumbria Community Respiratory Team
North East London NHS Foundation Trust	Havering Respiratory Team
North East London NHS Foundation Trust	Redbridge Respiratory Service
North East London NHS Foundation Trust	Respiratory Services - Barking and Dagenham
North East London NHS Foundation Trust	Waltham Forest Pulmonary Rehabilitation Service
North Somerset Community Partnership Community Interest Company	North Somerset Pulmonary Rehabilitation
North Tees and Hartlepool NHS Foundation Trust	North Tees and Hartlepool Pulmonary Rehabilitation Service
North West Anglia NHS Foundation Trust	Peterborough Pulmonary Rehabilitation Service
North West Boroughs Healthcare NHS Foundation Trust	St Helens Pulmonary Rehabilitation Service
Northumbria Healthcare NHS Foundation Trust	Northumbria Healthcare Pulmonary Rehabilitation Service
Nottingham Citycare Partnership	Nottingham Integrated Respiratory Service
Nottinghamshire Healthcare NHS Foundation Trust	Mansfield and Ashfield Respiratory Service
Nottinghamshire Healthcare NHS Foundation Trust	Nottingham North and East Adult Community Services
Nottinghamshire Healthcare NHS Foundation Trust	Rushcliffe Cardiorespiratory service
Oxleas NHS Foundation Trust	Greenwich Pulmonary Rehabilitation Team
Pennine Acute Hospitals NHS Trust	Acute Respiratory Assessment Service (ARAS) COPD support team – North Manchester
Pennine Acute Hospitals NHS Trust	Pennine Lung Service
Pennine Acute Hospitals NHS Trust	Pennine Pulmonary Rehabilitation – Fairfield Hospital
Pennine Care NHS Foundation Trust	Trafford Pulmonary Rehabilitation Service
Provide	Provide – Cambridgeshire Pulmonary Rehabilitation
Royal Berkshire NHS Foundation Trust	Royal Berkshire Hospital Pulmonary Rehabilitation Service
Royal Brompton & Harefield NHS Foundation Trust	Harefield Hospital Pulmonary Rehabilitation
Royal Devon and Exeter NHS Foundation Trust	Royal Devon and Exeter Pulmonary Rehabilitation/Physiotherapy Service
Royal Surrey County Hospital NHS Foundation Trust	Royal Surrey Pulmonary Rehabilitation Programme
Royal United Hospitals Bath NHS Foundation Trust	RUH Respiratory Outpatient Department
Salford Royal NHS Foundation Trust	Salford's Breathing Better Pulmonary Rehabilitation Programme
Salisbury NHS Foundation Trust	Salisbury Lung Exercise and Education Programme (LEEP)
Sandwell and West Birmingham Hospitals NHS Trust	Sandwell and West Birmingham Community Respiratory Service
Sheffield Teaching Hospitals NHS Foundation Trust	Sheffield Community Pulmonary Rehabilitation Service
Shropshire Community Health NHS Trust	Shropshire Pulmonary Rehabilitation

Trust / heath board / organisation	Service
Sirona Care & Health	South Gloucestershire Pulmonary Rehabilitation
South Tyneside and Sunderland NHS Foundation Trust	South Tyneside Pulmonary Rehabilitation Programme (Acute)
South Warwickshire NHS Foundation Trust	South Warwickshire Physiotherapy Services
South West Yorkshire Partnership NHS Foundation Trust	South West Yorkshire Cardiac and Pulmonary Rehabilitation Service
Southend University Hospital NHS Foundation Trust	South East Essex Pulmonary Rehabilitation Service
Southern Health NHS Foundation Trust	West Hampshire Community Integrated Respiratory Service
Southport and Ormskirk Hospital NHS Trust	West Lancashire Pulmonary Rehabilitation
St George's University Hospitals NHS Foundation Trust	Wandsworth Pulmonary Rehabilitation Service
Stockport NHS Foundation Trust	Stockport Pulmonary & Heart Failure Rehabilitation Service
Sussex Community NHS Foundation Trust	COPD Coastal Service
Sussex Community NHS Foundation Trust	Crawley Horsham and Mid Sussex COPD Adult Community Services
Sussex Community NHS Foundation Trust	Sussex Community Respiratory Service Brighton and Hove
Sussex Community NHS Foundation Trust	The High Weald Lewis and Haven Community Respiratory Service
Tameside and Glossop Integrated Care NHS Foundation Trust	Tameside and Glossop Pulmonary Rehabilitation
The Dudley Group NHS Foundation Trust	Dudley Pulmonary Rehabilitation Programme
The Newcastle Upon Tyne Hospitals NHS Foundation Trust	The Newcastle Hospitals Respiratory Services
The Rotherham NHS Foundation Trust	Rotherham Breathing Space
The Royal Marsden NHS Foundation Trust	Sutton Community Respiratory Service
Torbay and South Devon NHS Foundation Trust	Torbay and South Devon Pulmonary Rehabilitation Programme
University Hospital Southampton NHS Foundation Trust	University Hospital Southampton Pulmonary Rehabilitation Programme
University Hospitals Birmingham NHS Foundation Trust	Solihull Community Respiratory Team
University Hospitals of Derby and Burton NHS Foundation Trust	Derby and Burton ImpACT+
Virgin Care Ltd	Surrey Heath Respiratory Care Team
Virgin Care Ltd	Virgin Care Community Respiratory Service - Bath and North East Somerset
Warrington and Halton Hospitals NHS Foundation Trust	Halton Pulmonary Rehabilitation service
Warrington and Halton Hospitals NHS Foundation Trust	Warrington Pulmonary Rehabilitation Service
West Suffolk NHS Foundation Trust	West Suffolk Pulmonary Rehabilitation Service
Western Sussex Hospitals NHS Foundation Trust	St Richards Hospital Pulmonary Rehabilitation
Western Sussex Hospitals NHS Foundation Trust	Worthing & Southlands Pulmonary Rehabilitation Programme
Whittington Health NHS Trust	Whittington Health Pulmonary Rehabilitation
Wiltshire Health & Care	Wiltshire Community Respiratory Team
Wirral University Teaching Hospital NHS Foundation Trust	Wirral COPD, Pulmonary Rehabilitation & Oxygen Service
Worcestershire Acute Hospitals NHS Trust	Worcestershire COPD Team
Wye Valley NHS Trust	Herefordshire Pulmonary Rehabilitation Programme
Your Healthcare	Your Healthcare Pulmonary Rehabilitation Service

Trust / heath board / organisation	Service
Scotland	
NHS Forth Valley	Forth Valley Pulmonary Rehabilitation Service
NHS Grampian	Moray Health and Social Care Partnership pulmonary rehabilitation
NHS Lanarkshire	Lanarkshire Self-Management and Pulmonary Rehabilitation
NHS Tayside	Perth and Kinross Pulmonary Rehabilitation Service
Wales	
Aneurin Bevan University LHB	Newport Pulmonary Rehabilitation
Aneurin Bevan University LHB	Ysbyty Aneurin Bevan Pulmonary Rehabilitation
Betsi Cadwaladr University LHB	BCUHB -Centre Pulmonary Rehabilitation Service
Betsi Cadwaladr University LHB	BCUHB -East Pulmonary Rehabilitation Service
Cardiff & Vale University LHB	University Hospital Llandough Pulmonary Rehabilitation Service
Hywel Dda University LHB	Carmarthenshire Pulmonary Rehabilitation Programme
Powys Teaching LHB	Powys Pulmonary Rehabilitation Service
Swansea Bay Local Health Board	Swansea Bay University Health Board Pulmonary Rehabilitation Service

Partially participating pulmonary rehabilitation services

Services that provided some organisational audit data but were not included in the final analysis

Trust / health board / organisation	Service
England	
Anglian Community Enterprise Community Interest Company (ACE CIC)	ACE Pulmonary Rehabilitation Service
Barnet, Enfield and Haringey Mental Health NHS Trust	Enfield Respiratory Service
BOC LTD	East Staffordshire Pulmonary Rehabilitation Service
BOC LTD	Nottingham West Pulmonary Rehabilitation
BOC LTD	Somerset Pulmonary Rehabilitation Service
BOC LTD	South East Staffordshire Pulmonary Rehabilitation Service
BOC LTD	The North Lincolnshire Respiratory Service
Calderdale and Huddersfield NHS Foundation Trust	Calderdale Pulmonary Rehabilitation Service
Cambridgeshire and Peterborough NHS Foundation Trust	Huntingdon Pulmonary Rehabilitation
Care Plus Group	Hope Street Specialist Service
Central London Community Healthcare NHS Trust	Harrow COPD Respiratory Service
Central London Community Healthcare NHS Trust	West Hertfordshire Community Respiratory Service
Cornwall Partnership NHS Foundation Trust	Mid, West, North Cornwall Pulmonary Rehabilitation Programme
Croydon Health Services NHS Trust	Croydon Pulmonary Rehabilitation Programme
East Lancashire Hospitals NHS Trust	ELHT Pulmonary Rehabilitation Service
George Eliot Hospital NHS Trust	George Eliot Hospital Pulmonary Rehabilitation - Physiotherapy
Homerton University Hospital NHS Foundation Trust	Homerton Adult Cardiorespiratory Enhanced and Responsive service (ACERs)
Isle of Wight NHS Trust	St Mary's Hospital Pulmonary Rehabilitation Programme
King's College Hospital NHS Foundation Trust	King's College Hospital Pulmonary Rehabilitation Team

Trust / health board / organisation	Service
Leeds Community Healthcare NHS Trust	Leeds Community Healthcare, Community Respiratory Service
Leicestershire Partnership NHS Trust	Leicestershire Partnership Pulmonary Rehabilitation Team
Liverpool Heart and Chest Hospital NHS Foundation Trust	Knowsley Community Respiratory Service
Liverpool Heart and Chest Hospital NHS Foundation Trust	The Breathe Programme
Liverpool University Hospitals NHS Foundation Trust	Aintree Pulmonary Rehabilitation Programme
London North West University Healthcare NHS Trust	Brent Pulmonary Rehabilitation Service
Manchester University NHS Foundation Trust	Manchester Integrated Lung Service – Central site
Midlands Partnership NHS Foundation Trust	Midlands Partnership – North Staffordshire and Stoke on Trent Pulmonary Rehabilitation Team
North Bristol NHS Trust	North Bristol Lung Exercise and Education Programme (LEEP)
North Cumbria Integrated Care NHS Foundation Trust	Solway Community Respiratory Team
Northampton General Hospital NHS Trust	Restart Team – Northampton General Hospital
Northern Devon Healthcare NHS Trust	North Devon Pulmonary Rehabilitation Service
Oxford Health NHS Foundation Trust	Oxfordshire Pulmonary Rehabilitation Service
Provide	Provide – Mid-Essex Pulmonary Rehabilitation
Respiricare Limited	Swale Pulmonary Rehabilitation
Royal Brompton and Harefield NHS Foundation Trust	Royal Brompton Pulmonary Rehabilitation Service
Solent NHS Trust	Hampshire Pulmonary Rehabilitation Programme
Solent NHS Trust	Portsmouth Pulmonary Rehabilitation Programme
Solent NHS Trust	Southampton Integrated COPD Team
South Tyneside and Sunderland NHS Foundation Trust	Sunderland Community Pulmonary Rehabilitation Programme
The Great Western Hospital Trust	Swindon Healthy Lives Pulmonary Rehabilitation Programme
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	The Bournemouth Hospital's Pulmonary Rehabilitation Service
The Royal Wolverhampton NHS Trust	Wolverhampton Pulmonary Rehabilitation Service
University Hospitals Birmingham NHS Foundation Trust	University Hospitals Birmingham HGS Pulmonary Rehabilitation Programme
University Hospitals of Leicester NHS Trust	Glenfield and Leicester Hospitals Pulmonary Rehabilitation Programme
Walsall Healthcare NHS Trust	Walsall Pulmonary Rehabilitation Service
Wrightington, Wigan and Leigh NHS Foundation Trust	Wrightington Wigan and Leigh tier 2 Respiratory Services
York Teaching Hospital NHS Foundation Trust	York and Selby Pulmonary Rehabilitation
Scotland	
NHS Dumfries and Galloway	Dumfries and Galloway Pulmonary Rehabilitation Service
NHS Grampian	Aberdeen City Health and Social Care Partnership pulmonary rehabilitation
NHS Grampian	Aberdeenshire Health and Social Care Partnership pulmonary rehabilitation
NHS Greater Glasgow, Clyde	Greater Glasgow and Clyde Pulmonary Rehabilitation Service
NHS Highland	Lochaber Pulmonary Rehabilitation Service

Trust / health board / organisation	Service
NHS Lothian	Lothian Community Pulmonary Rehabilitation Service
Wales	
Betsi Cadwaladr University LHB	BCUHB – West Pulmonary Rehabilitation Service
Cwm Taf Morgannwg University Local Health Board	Cwm Taf UHB Pulmonary Rehabilitation Service
Hywel Dda University LHB	Pembrokeshire Pulmonary Rehabilitation Programme

Non-participating pulmonary rehabilitation services

Services that provided no organisational audit information

Trust/Health board/Organisation	Service
England	
BOC LTD	Newcastle Healthy Lungs Programme
BOC LTD	North East Hampshire and Farnham (NEH&F) Pulmonary Rehabilitation Service
Chelsea and Westminster Hospital NHS Foundation Trust	Chelsea and Westminster Hospital Pulmonary Rehabilitation
Cross Plain Health Centre	Sarum Community Based Pulmonary Rehabilitation Team
East London NHS Foundation Trust	East London Pulmonary Rehabilitation Service
Gateshead Health NHS Foundation Trust	Gateshead Acute Pulmonary Rehabilitation Service
James Paget University Hospitals NHS Foundation Trust	BEET: Breathing, Exercise, Education Training
London North West University Healthcare NHS Trust	Ealing Pulmonary Rehabilitation service
Mid Yorkshire Hospitals NHS Trust	North Kirklees Pulmonary Rehabilitation Programme
Milton Keynes University Hospital NHS Foundation Trust	Milton Keynes Hospital Pulmonary Rehabilitation Programme
North East London NHS Foundation Trust	Integrated Respiratory Service Basildon, Brentwood and Thurrock
Nottinghamshire Healthcare NHS Foundation Trust	Bassetlaw Pulmonary Rehabilitation Service
Nottinghamshire Healthcare NHS Foundation Trust	Newark and Sherwood Pulmonary Rehabilitation Service
Papworth Hospital NHS Foundation Trust	Papworth Hospital Pulmonary Rehabilitation Programme
Pennine Acute Hospitals NHS Trust	Enhanced Respiratory Service (ERS) – Rochdale Infirmary
Respiricare Limited	Bexley CCG Pulmonary Rehabilitation
South Tees Hospitals NHS Foundation Trust	South Tees Pulmonary Rehabilitation Service
University Hospitals of Morecambe Bay NHS Foundation Trust	Furness Pulmonary Rehabilitation Service
University Hospitals of Morecambe Bay NHS Foundation Trust	North Lancashire Pulmonary Rehabilitation
University Hospitals of Morecambe Bay NHS Foundation Trust	South Lakes Community Respiratory Service
Scotland	
NHS Ayrshire and Arran	Ayrshire and Arran Pulmonary Rehabilitation Service
NHS Borders	Borders Pulmonary Rehabilitation
NHS Fife	Integrated Care Team
NHS Highland	East Caithness Pulmonary Rehabilitation Service
NHS Highland	Raigmore Pulmonary Rehabilitation Service
NHS Tayside	Angus Pulmonary Rehabilitation Service
NHS Tayside	Dundee Pulmonary Rehabilitation Service
NHS Western Isles	Western Isles Pulmonary rehabilitation

Appendix C: BTS Quality Standards for Pulmonary Rehabilitation in Adults (2014)

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No.	Quality statement
1	Referral for pulmonary rehabilitation: a. People with COPD and self-reported exercise limitation (MRC dyspnoea 3–5) are offered pulmonary rehabilitation. b. If accepted, people referred for pulmonary rehabilitation are enrolled to commence within 3 months of receipt of referral.
2	Pulmonary rehabilitation programmes accept and enrol patients with functional limitation due to other chronic respiratory diseases (for example bronchiectasis, ILD and asthma) or COPD MRC dyspnoea 2 if referred.
3	Referral for pulmonary rehabilitation after hospitalisation for acute exacerbations of COPD: a. People admitted to hospital with acute exacerbation of COPD (AECOPD) are referred for pulmonary rehabilitation at discharge. b. People referred for pulmonary rehabilitation following admission with AECOPD are enrolled within 1 month of leaving hospital.
4	Pulmonary rehabilitation programmes are of at least 6 weeks duration and include a minimum of twice-weekly supervised sessions.
5	Pulmonary rehabilitation programmes include supervised, individually tailored and prescribed, progressive exercise training including both aerobic and resistance training.
6	Pulmonary rehabilitation programmes include a defined, structured education programme.
7	People completing pulmonary rehabilitation are provided with an individualised structured, written plan for ongoing exercise maintenance.
8	People attending pulmonary rehabilitation have the outcome of treatment assessed using as a minimum, measures of exercise capacity, dyspnoea and health status.
9	Pulmonary rehabilitation programmes conduct an annual audit of individual outcomes and progress.
10	Pulmonary rehabilitation programmes produce an agreed standard operating procedure.

References

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2. British Thoracic Society (BTS). Quality Standards for Pulmonary Rehabilitation in Adults 2014. London: BTS, 2014. www.brit-thoracic.org.uk/quality-improvement/quality-standards/pulmonary-rehabilitation/ [Accessed February 2020].

3. Holland EA, Spruit A, Troosters T *et al.* An official European Respiratory Society/American Thoracic Society technical standard: field walking tests in chronic respiratory disease. *Eur Resp J* 2014;44(6):1428–46.

National Asthma and COPD Audit Programme (NACAP)

Royal College of Physicians
11 St Andrews Place
Regent's Park
London NW1 4LE

Tel: +44 (0)20 3075 1526
Email: pulmrehab@rcplondon.ac.uk

www.rcplondon.ac.uk/nacap
@NACAPaudit
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