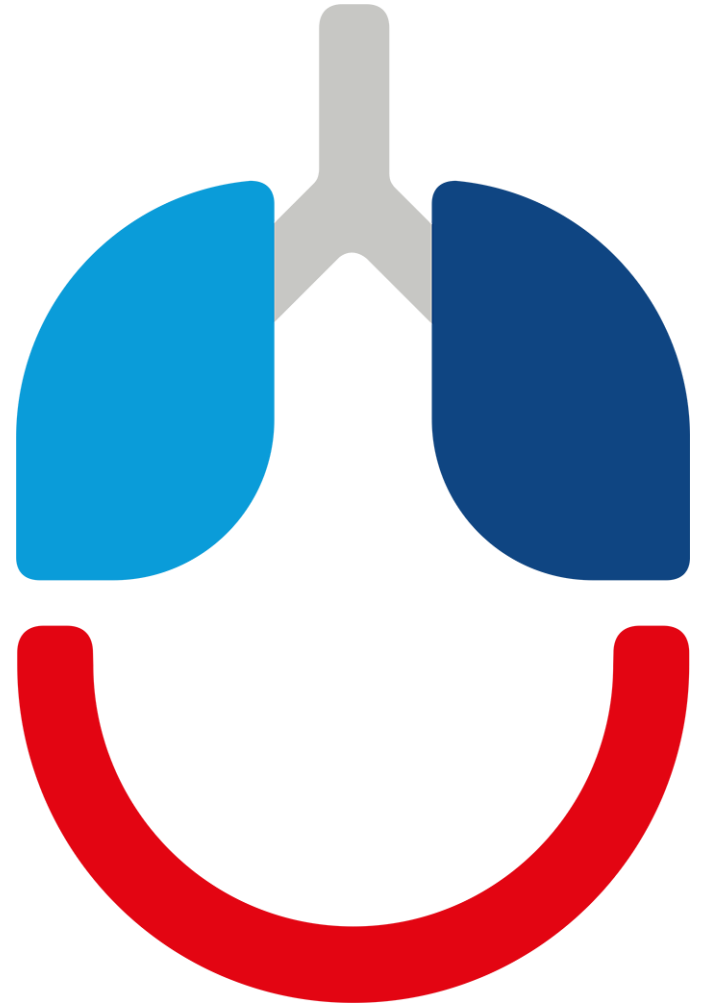


Taskforce for Lung Health

Pulmonary
rehabilitation
resources



Summary

We hope this suite of resources will be useful to help you make the case for investment in pulmonary rehabilitation (PR) services now and in future, to commissioners, senior management and to NHS England & Improvement, if you decide to apply for the initial waves of Long Term Plan funding.

Please feel free to use these resources however you wish, for example in [your application for funding to NHS England & Improvement](#), STP/ICS management or to commissioners.

Summary of contents:

- The evidence base for PR
- Current issues in PR
- Baseline data
- How will the funding be used to address challenges?
- How to ensure sustainability (your workforce development plans)
- How to address health inequalities (including improving awareness among patients, carers and health care professionals)
- NACAP and working towards PR Services Accreditation Scheme standards
- About the Taskforce for Lung Health, our ambitions for PR and support offer to health systems

Long Term Plan ambitions for PR

The Long Term Plan commits to expanding PR services over the next 10 years. Fair shares funding will be available to all STPs/ICSs to support wider roll out in 2022/23. There will be targeted funding for a number of sites in 2020/21 and 2021/22 to:

- expand services
- improve access
- test new models of care for breathlessness management

Expressions of interest for targeted funding have [opened](#) and new service guidance has been published.

Systems (STPs/ICSs) have been asked to set out how they will increase referrals to PR, particularly for the most socio-economically disadvantaged people. The Plan also commits to using a population-management approach in primary care to find eligible people who have not previously been referred and using the discharge bundle. NHS England & Improvement has also commissioned the Royal College of Physicians to expand the PR accreditation programme.

The evidence base for PR



Evidence base

How do we define PR?

Pulmonary rehabilitation is a treatment programme, tailored for each person. It includes a physical activity programme and information on looking after the body and lungs, advice on managing symptoms, including feeling short of breath, nutrition and psychological support.

“From a patient point of view pulmonary rehabilitation goes beyond just being a structured programme of exercises together with providing advice on the specific respiratory disease and how to manage it, it also provides a psychology boost, increases self confidence, which greatly contributes to a much improved quality of life” - John Conway, Patient Representative Taskforce for Lung Health

Watch [Agnes](#) speaking about her perspective of PR and why PR services are so important

Evidence base

What is the evidence?

The wealth of evidence on the unequivocal effectiveness of pulmonary rehabilitation has resulted in Cochrane taking the unusual step of ceasing further systematic reviews [comparing PR to usual care](#).¹

PR is 'a fundamental treatment for COPD rather than an optional extra.'²

It is one of the 'most effective and high value interventions for people with COPD.' PR is recognised in various guidelines and national frameworks including the NICE COPD and IPF guidelines, the British Thoracic Society guidelines (COPD, bronchiectasis, ILD) and the Quality and Outcomes Framework.³

A recent survey for the British Lung Foundation showed that 74% of people believe people with lung disease should have access to rehab services to help them stay health and active.⁴

Evidence base

What is the evidence on clinical outcomes? (Part 1 of 2)

PR has proven effectiveness in increasing exercise capacity, reducing breathlessness, reducing levels of anxiety and depression, and improving quality of life.

Overall, PR should be considered a treatment package which allows people to take care of themselves and ensure a good quality of life.

- The National COPD Audit Programme found that 90% of those who attended PR found it easier to walk around afterward. 70% performed better than the minimal clinically important difference for the 6-minute walk test, and the benefits of increased exercise tolerance can last around a year after completion.⁵
- The supported self-management aspect of PR is well evidenced as an intervention. It facilitates the building of skills, knowledge and confidence for sustainable behaviour change, enabling people to better manage their condition.
- PR reduces COPD exacerbations by 36.4%. This results in fewer hospital admissions, re-admissions and GP appointments.⁶

Evidence base

What is the evidence on clinical outcomes? (Part 2 of 2)

- Just one in four people need to take part in a PR course to prevent one re-admission to hospital.⁷
- Whilst the exercise and functional benefits are significant, PR is also a holistic treatment. It provides the opportunity for people with respiratory conditions to receive emotional support from peers, tackle isolation and reduce symptoms of anxiety and depression.⁸

Evidence base

What is the evidence on cost-effectiveness?

The associated health outcomes of improved self-management make PR one of the most cost-effective interventions for respiratory disease.

- For COPD, a course of PR costs £2,000-£8,000/QALY and is the third most cost-friendly intervention after flu vaccination and stop smoking support with pharmacotherapy.⁹
- Making pulmonary rehabilitation more widely available than it is currently would bring significant financial savings for the NHS and social care. If everyone in England eligible under current NICE COPD guidelines was referred to PR, over 26,600 hospital admissions and 100,000 bed days would be avoided.¹⁰
- Although smoking rates continue to fall, predictions suggest that COPD incidence will not decline in the short to medium term and may in fact increase.¹¹ It is important therefore that referral pathways are of a sufficient standard to manage expected pressures.

Tools to assess the financial benefits of increased PR uptake in your area

RightCare PR CCG [Baseline Assessment Modelling Tool](#) and CSP [Prime Tool](#)

Current issues in PR



Current issues in PR

Despite the strength of the evidence behind PR, services are inconsistently commissioned with significant gaps across the country and disinvestment in established services. The transformative effects of PR are not available to everyone who would benefit, resulting in inequality of access and increased pressure on the health service.

- Only 15% of people with COPD at MRC grade 3 and above are referred to PR¹²
- Whilst evidence shows people with milder lung disease benefit from PR, services often focus on those with more severe COPD.¹³ 28% of services do not accept people with less severe dyspnoea and just 15% of cases enrolled were assessed as MRC grade 2.¹⁴
- People with lung diseases other than COPD can find that PR is not available to them or the programme is not sufficiently tailored to their condition. A number of programmes do not accept non-COPD patients.¹⁵ This is despite evidence and guidelines which recommend PR for ILD, bronchiectasis, mesothelioma, lung cancer and asthma.¹⁶

Current issues in PR

- For those who are referred to a programme, 59% start their programme. Only 42% of those referred complete it¹⁷
- Waiting times to begin a programme show considerable variation and commonly exceed the recommended '90 days from receipt of referral to start of PR' for people with stable COPD - 37% of people are not enrolled within this time¹⁸
- Some people can find it difficult to access services due to transport issues or because their health means making the journey can be too difficult
- If someone can navigate these issues successfully and complete a programme, they may then find that onward referral for supported physical activity and support to sustain behaviour change is not provided¹⁹
- Socioeconomic factors and ethnicity can impact on a person's access to and adherence to PR²⁰

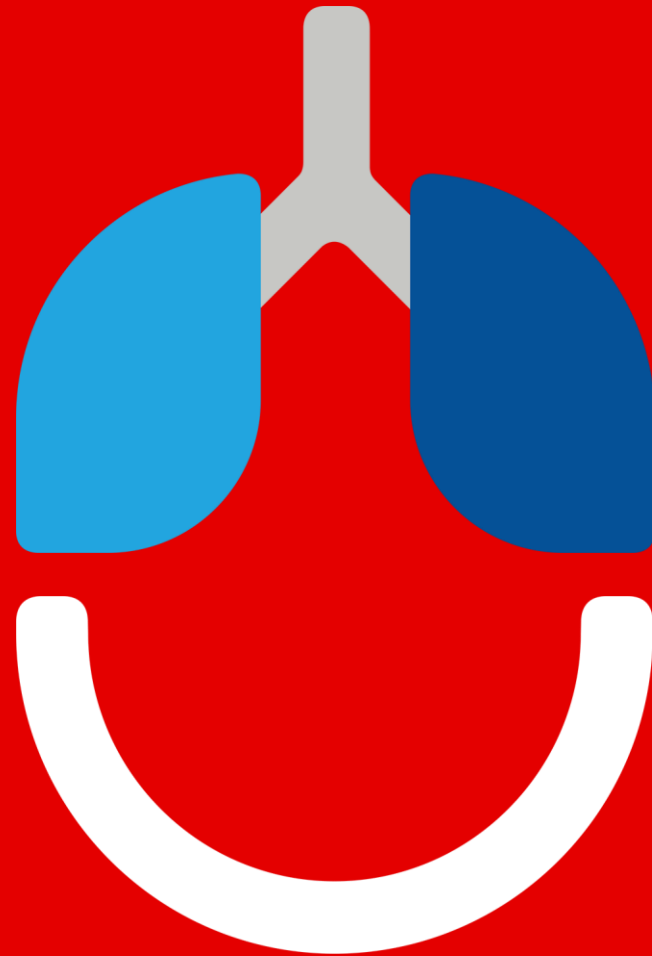
How to address these challenges?

The challenge of addressing these issues is large, but the benefits of widening access to PR to both people with lung disease and to health services is clear. The next few slides contain resources and tips to consider in your application for the NHS targeted funding, but can also be used for future purposes.

We hope that this suite of resources can not only empower you to meet the commitments of the Long Term Plan, but also help you deliver more ambitious plans in line with the Taskforce's ambitions.

For example, while the [new NHS service guidance](#) focuses on PR for people with COPD and an MRC score of three or more, it also recognises the benefit of PR for other respiratory conditions. Rather than limiting criteria as per the NHS service guidance, the Taskforce encourages you to ensure that every person with an MRC score of grade two and above who would benefit is referred to and has the opportunity to complete a programme. We are confident this will have significant benefits in empowering people to self-manage at an earlier stage and potentially slow disease progression.

Baseline data



Baseline data

This data should be available in your CCG RightCare Respiratory Intelligence Focus Pack. You may also find it useful to use:

- [CSP PRIME tool](#) or the RightCare PR CCG [Baseline Assessment Modelling Tool](#) to model cost benefits for investing in PR, through cost of delivery against reductions in exacerbations.
- [RightCare health inequalities data packs](#) for evidence on local health inequalities
- Respiratory Futures [health and population data collection](#)
- NHS [Respiratory Atlas of Variation](#)

How will the funding
be used to address
challenges?



How will the funding be used?

To help you consider how funding might be put to use in your local area, we have listed suggestions, resources and case studies known to the Taskforce that could help overcome or improve issues:

- [BLF PR toolkit for CCGs and commissioners](#)
- Increasing referrals: [Promotion](#) of the benefits of PR to healthcare professionals and patients, investing in upskilling primary care staff to confidently discuss exercise and PR ([Moving Medicine](#)), providing foreign language translations of promotional material and allowing [self-referrals](#).
- Increasing completion rates: Inviting [psychologists](#) to attend classes and holding introductory sessions before patients attend assessment, introducing [volunteer buddies](#), offering [alternative delivery methods](#) and dedicating time to [calling people](#) who miss classes.
- Reducing waiting times: Designing [patient information leaflets](#) to accompany referral, [raising the profile](#) of waiting times among PR staff and offering separate gym classes for 'fitter' cohorts to reduce main programme waiting times.

How will the funding be used?

To help you consider how funding might be put to use in your local area, we have listed suggestions, resources and case studies known to the Taskforce that could help overcome or improve issues:

- Expanding eligibility criteria: Update your service specification and ensure that [tailored information](#) is provided for each person. Develop [disease-specific education workshops](#). Consider additional support/staff requirements to support criteria expansion.
- Transport issues: Review the setting of your programmes, consider whether they should be based in secondary or community care and how accessible they are by public transport. Communicate clearly to people that transport can be arranged if needed. Consider the impact of uptake and completion rates by providing transport.²¹
- Onward referral post-PR: Developing links with [local leisure centres and community organisations](#), tailoring [exercise to patient preferences](#), searching for [exercise classes](#), signposting to BLF [exercise videos](#) and [Active Steps](#). Consider working with BLF [support groups](#) to develop a follow-on programme after PR, and consider [telephone follow-up](#) as well as face-to-face.²²

How will the funding be used?

You may be considering exploring alternative models of delivering PR to meet local needs. NHS England will be reviewing alternative models of PR over the next few years, including digital, home based, and combining resources with cardiac (or other relevant) services to develop a [breathlessness rehab](#) programme.

Several Taskforce members have expertise in these areas and can provide guidance.

Evidence case for alternative models:

- Interactive web-based PR may deliver positive outcomes for some people ^{24 25}
- Providing exercise videos leads to significant improvements in the ISWT, emotional and fatigue²⁶
- Joint cardiac and respiratory breathlessness rehab services are effective and are routinely commissioned in parts of the country²⁷

How to ensure
sustainability?



How to ensure sustainability?

Ensuring there is sufficient support and infrastructure in place to deliver an expansion of services, and continuity and sustainability once the pilot has ended, is vital. Your workforce development plan can help achieve this.

Systems should establish processes to systematically look across their different rehabilitation pathways to identify synergies between services. This could involve incorporating holistic rehabilitation services for people with co-morbidities, building on shared decision-making and individually-developed goals.

You may want to consider in your workforce development plan:

- The national PR organisational audit provides a snapshot of the typical skills mix of a PR service and should be integrated into service and workforce planning.
- PR rehabilitation teams should be supported by administration and clerical input, to avoid inefficiencies in staff work schedules.²⁸

How to ensure sustainability?

You may want to consider in your workforce development plan:

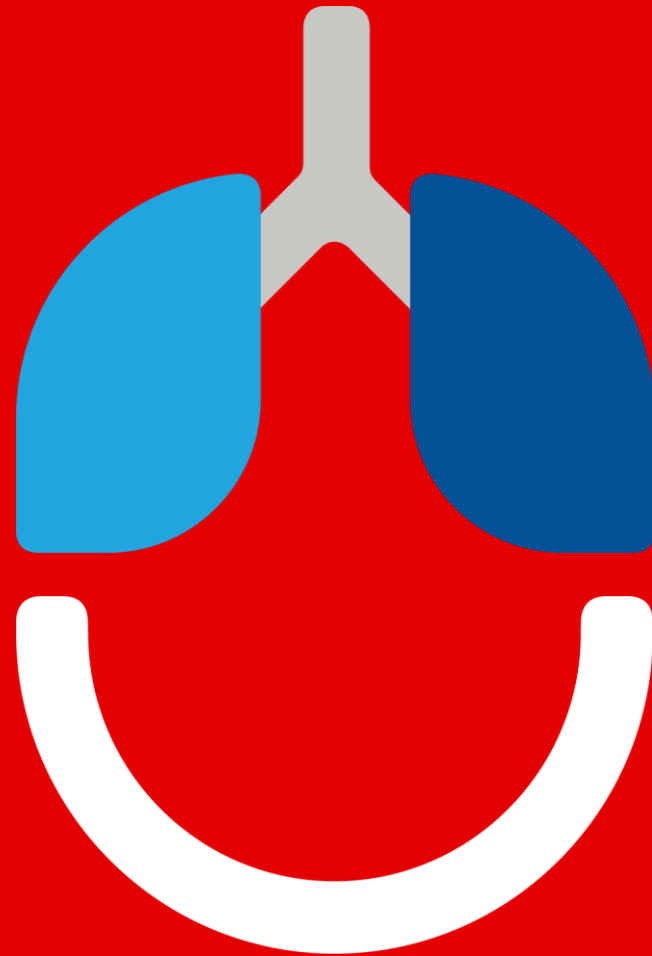
- Physiotherapists need to be integral to the PR team. Physiotherapists are uniquely qualified to individually prescribe and progress the training regimen, and to teach breathing techniques to enable exercise in those with altered lung pathology and/or respiratory mechanics. This is particularly important in the complex breathless population and those with co-morbidities requiring modified exercise. There is also an important leadership role to be played by physiotherapists and other AHPs to develop services and support integration.
- Because of the fragmented nature of provision, models of integration so far have not focused sufficiently on sharing teams and skills operationally across traditional services - and geographic boundaries - in a 'place-based' approach to rehabilitation. This is one of the areas that Integrated Care Systems could play a role in redressing.
- For changes to the profile of the workforce to happen there needs to be a major rebalancing of investment in the training and development of the existing workforce.

How to ensure sustainability?

You may want to consider in your workforce development plan:

- A greater proportion of non-medical clinical staff need to be working at an advanced practice level. This requires the development of capabilities to manage higher levels of complexity and risk.
- Clinical support worker staff are increasingly taking on greater degrees of responsibility for hands on care and exercise classes. This trend will need to continue to increase capacity to meet population need. This will require a growth in support worker numbers, and a larger proportion of these need to be higher-level support worker roles. It is also important that plans do not conflate the roles of non-regulated staff providing care and those providing rehabilitation.
- Depression and anxiety are common co-morbidities for respiratory conditions. Training for cognitive behavioural therapy (CBT) and other talking therapies should become a common element of the CPD offer available to respiratory teams.
- Short courses for staff are [available](#) through the BTS

How to address
health inequalities?



How to address health inequalities?

Systems should address inequalities of access to PR services among different population groups. Factors such as geography, race ethnicity, sexual orientation or socioeconomic status should be considered.²⁹

There are notable inequalities in access to respiratory treatments and services, and lung diseases such as COPD, asthma and lung cancer are associated with health inequalities. Someone from the most socially deprived 20% of the population is 2.5 times more likely to be diagnosed with COPD.³⁰

The health inequalities gap for people with lung disease is significant and growing. The Marmot Review 10 Years On report highlighted that avoidable mortality rates from respiratory diseases have risen in the most deprived areas since 2010.³¹

How to address health inequalities?

Increasing patient, carer and health care professional awareness of the benefits of PR is paramount to increasing referrals, particularly among socioeconomically deprived groups. Good-quality promotional material should be provided, regularly reviewed and updated.

During referral, health care professionals must be able to address and acknowledge barriers to people taking up offers. For health care professional material, this should meet the following criteria:

- Empower staff to discuss barriers and fears around exercise and breathlessness with people e.g. suggesting that carers attend PR
- Provide a quick reference point or crib sheet on the benefits of PR
- Emphasise that PR is an essential treatment, not an optional extra
- e.g. [BMJ Learning and Physical Activity and Management of Long Term Conditions](#), [Moving Medicine](#)

How to address health inequalities?

For patient-facing material, this should meet the following criteria:

- Refers to PR as a ‘treatment.’ Use of terminology such as ‘exercise programme’ can deter patients because they do not view PR as a prescribed treatment.^{32 33}
- Describes the functional and psychological benefits of PR from a patient perspective. Consider featuring a person throughout their PR journey and allowing them to explain PR, rather than a health care professional explaining PR.
- Addresses common fears and barriers to participation e.g. suggesting carers attend PR with them. In particular, people will understandably feel that exercise will harm them by making them more breathless.
- Provided in foreign language translations

Consideration of information for carers should also be given.

NACAP and working towards PR Services Accreditation Scheme standards



NACAP and PR Services Accreditation Scheme

Areas applying for NHS targeted funding must be compliant with the National Asthma and COPD Audit Programme ([NACAP](#)) as led by the Royal College of Physicians (RCP) and be accredited or signed up to being accredited by the RCP Pulmonary Rehabilitation Services Accreditation Scheme ([PRSAS](#)).

Accreditation is a supportive process and provides various benefits to services, commissioners and patients including:

- Independent recognition of a service's high quality and dedication to improvement and patient safety – people feel confident in their service
- Improves value for money and helps teams highlight good practice
- Raises the profile of the service
- To register, go to www.prsas.org/

The Taskforce for Lung Health



What is the Taskforce for Lung Health?

- The Taskforce is a national coalition of representatives from across the respiratory community, including:
 - 34 members representing patients, voluntary sector, primary and secondary care and professional associations
 - An Industries Forum with 19 pharmaceutical, diagnostics, devices and digital companies
- We came together to develop the first [national plan](#) to improve lung health in England, published in December 2018
- We fed into the development of the respiratory element of the Long Term Plan
- After the publication of the Long Term Plan implementation framework, we contacted all STPs and ICSs to offer support in developing local respiratory plans and considering how to meet the ambitions of the Long Term Plan.

34 Taskforce members



19 Industries Forum members

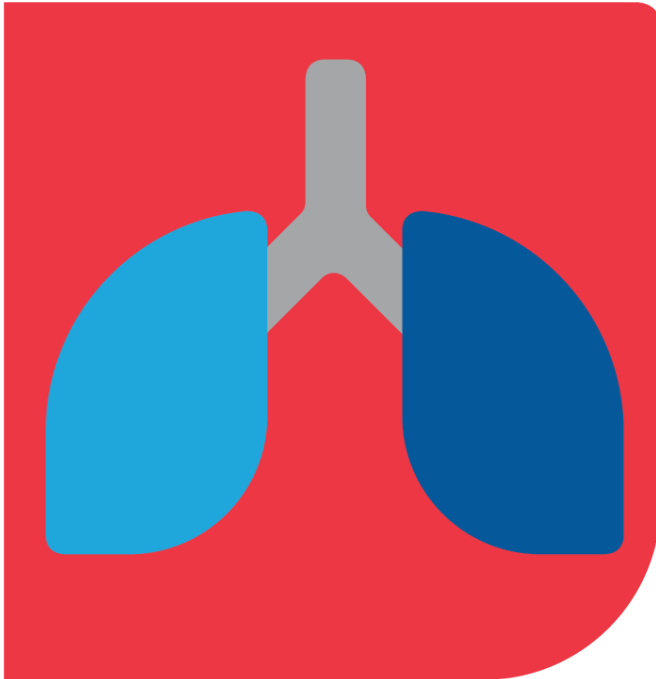


The Taskforce five year plan



A National Five Year Plan for Lung Health

A five year plan to create a society where everyone can live with healthy lungs for as long as possible and have the best chance of living well, or recovering, when lung disease develops.



December 2018

To develop the plan, we requested examples of policy or practice that would improve outcomes for patients within the next five years.*

The evidence was reviewed by an economics agency according to reach, impact, feasibility and value for money. Members then discussed and agreed [43 recommendations](#) covering:

- Keeping lungs healthy
- Identifying lung diseases early
- Better care for all
- Living with a lung condition
- The right care in the last year of life
- Workforce

Taskforce recommendations on PR

The Taskforce welcomes the ambitions of the Long Term Plan, although we would like to see more being done sooner. There are a broader range of patients who would benefit from PR Taskforce; those with lung diseases other than COPD and those with less advanced lung disease.

Taskforce recommends:

- Improving access to pulmonary rehabilitation so that every person with an MRC breathlessness score of grade 2 and above is identified, referred to and has the opportunity to complete, a programme
- Where appropriate, commissioning joint community rehabilitation services (for instance linking with cardiac rehabilitation) to support patients with co-morbidities while making best use of the workforce
- Continuing to increase physiotherapy training places to meet target of at least 600 additional physiotherapists over five years

Our support offer (1 of 2)

We hope that the Taskforce's offer of support can not only empower you to deliver on the work set out in the Long Term Plan, but also help you deliver more ambitious plans in line with the Taskforce plan. Through collaboration, we can go further and faster to best support people with lung disease.

The Taskforce can help you plan and implement bold and ambitious strategies on PR. As well as providing this resource pack, we can also:

- Provide advice and feedback on local implementation and workforce plans
- Signpost to tools which provide local data and demonstrate the economic impact of PR ([CSP Prime Tool](#), [PhysioWorks](#) for COPD for clinical staff)
- Access to [peer-reviewed case studies](#) of service design
- Contact the CSP's professional advice team to access advice and support about PR services and other aspects of physiotherapy practice ([CSP Professional Advice Team](#))

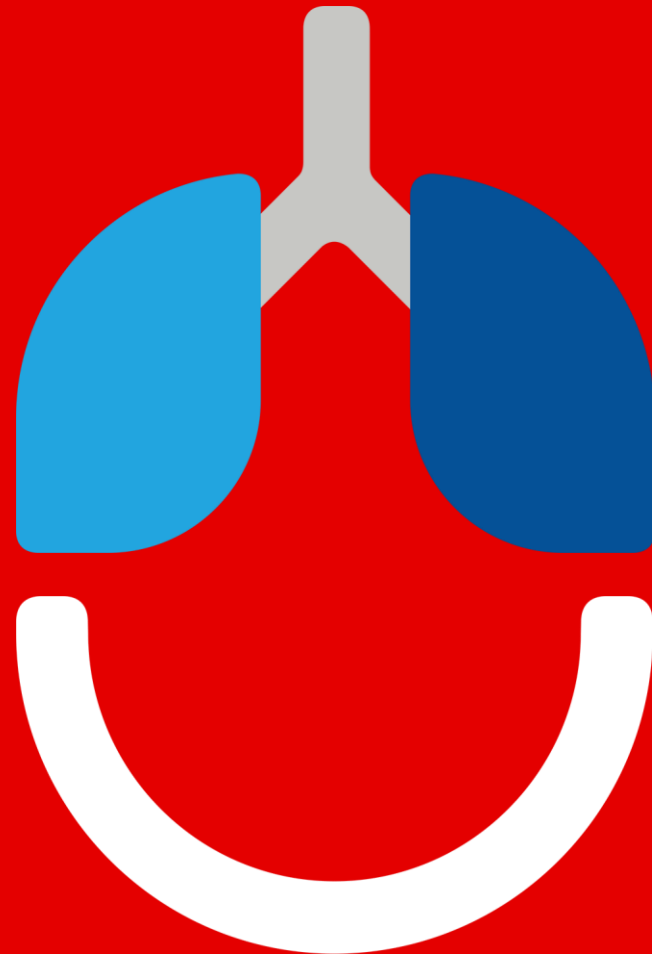
Our support offer (2 of 2)

The Taskforce can help you plan and implement bold and ambitious strategies on PR. As well as providing this resource pack, we can also:

- Help with patient engagement (BLF support groups, Taskforce patient reps)
- Give examples of excellent services already delivering in line with the Long Term Plan ([Innovations Database](#))
- Flag issues and concerns with NHS England & Improvement

Contact details

jeagelton@blf.org.uk
hinksr@csp.org.uk



References

1. McCarthy B, Casey D, Devane D, et al. Pulmonary rehabilitation for chronic obstructive pulmonary disease. *Cochrane Database Syst Rev*. 2015(2):CD003793.
2. British Thoracic Society. "BTS Guideline on Pulmonary Rehabilitation in Adults." *Thorax* 68, 2 (2013): 15.
3. Royal College of Physicians. Pulmonary rehabilitation: An exercise in improvement. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Clinical and organisational audits of pulmonary rehabilitation services in England and Wales 2017. London: RCP, 2018. 5.
4. npfSynergy. Charity Awareness Monitor for British Lung Foundation, Q4 2019 survey results. 2019.
5. Royal College of Physicians. Pulmonary rehabilitation: An exercise in improvement. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: Clinical and organisational audits of pulmonary rehabilitation services in England and Wales 2017. London: RCP, 2018. 5.
6. Chartered Society of Physiotherapy. Pulmonary Rehabilitation in COPD. <https://www.csp.org.uk/professional-clinical/professional-guidance/pulmonary-rehabilitation-copd>
7. British Thoracic Society. "BTS Guideline on Pulmonary Rehabilitation in Adults." *Thorax* 68, 2 (2013): 15.
8. Gordon CS, Waller JW, Cook RM et al. [Effect of pulmonary rehabilitation on symptoms of anxiety and depression in chronic obstructive pulmonary disease: a systematic review and meta-analysis](#). *CHEST*. 2019;156(1):80-91.
9. NHS London Respiratory Team. COPD 'Value' Pyramid - What we know so far.... Cost/QALY. 2012.
10. Chartered Society of Physiotherapy. Pulmonary Rehabilitation in COPD.
11. Amir Khakban et al. "The Projected Epidemic of COPD Hospitalizations over the Next 15 Years: A Population Based Perspective" *American Journal of Respiratory and Critical Care Medicine* 195, 3 (2016): 287–291
12. Royal College of Physicians. Pulmonary Rehabilitation: Steps to breathe better. 2016.
13. Man WD, Grant A, Hogg L, et al. "Pulmonary rehabilitation in patients with MRC Dyspnoea Scale 2." *Thorax* 2011;66:263.
14. Royal College of Physicians, Pulmonary Rehabilitation: Time to breathe better, 2016, and RCP, Steps to breathe better.
15. Ibid RCP, Time to breathe better.
16. Guidelines include: NICE Guidelines for IPF (2017), Quality Standard for IPF (2015), BTS Guideline for Bronchiectasis (2019). Evidence includes:
 - Singh S and Osadnik C R. "Pulmonary rehabilitation for obstructive lung disease." *Respirology* special issue Rehabilitation in Chronic Respiratory Diseases, Volume 24, Issue 9 Pages: 871-878 September 2019.
 - Granger et al. "Practical approach to establishing pulmonary rehabilitation for people with non-COPD diagnoses." *Respirology*, special issue Rehabilitation in Chronic Respiratory Diseases, Volume 24, Issue 9 Pages: 879-888 September 2019.
 - Laura Bygrave and Katie Chong. "Pulmonary rehabilitation for patients with Interstitial Lung Disease: A Retrospective Analysis over 3 years," Poster presented at ERS Conference 2019.
 - Dowman L, Hill CJ, Holland AE. "Pulmonary rehabilitation for interstitial lung disease." *Cochrane Database of Systematic Reviews* 2014, Issue 10. Art. No.: CD006322.
 - Patel, Suhani, et al. "Pulmonary rehabilitation in bronchiectasis: a propensity-matched study." *European Respiratory Journal* 53.1 (2019): 1801264.

References

- Dowman, Leona M., et al. "The evidence of benefits of exercise training in interstitial lung disease: a randomised controlled trial." *Thorax* 72.7 (2017): 610-619.
- Man, W. DC, et al. "Pulmonary rehabilitation in patients with MRC Dyspnoea Scale 2." *Thorax* 66.3 (2011): 263-263.
- 17. RCP, Steps to breathe better, 2016.
- 18. Royal College of Physicians. Pulmonary rehabilitation: An exercise in improvement. 2018.
- 19. Jenkins, Alex R et al. "Efficacy of supervised maintenance exercise following pulmonary rehabilitation on health care use: a systematic review and meta-analysis." *International journal of chronic obstructive pulmonary disease* vol. 13 257-273. 10 Jan. 2018 and Spencer, Lissa M and McKeough, Zoe J. "Maintaining the benefits following pulmonary rehabilitation: Achievable or not?" *Respirology special issue Rehabilitation in Chronic Respiratory Diseases* 24:9, 909-915, 2019.
- 20. Oates GE et al, "Social Determinants of Adherence to Pulmonary Rehabilitation for Chronic Obstructive Pulmonary Disease," *COPD* 2017; 14 (6): 610-617.
- 21. Roberts SE et al, "Evaluation of a post discharge pulmonary rehabilitation service," *Journal of ACPRC* 49: 2017: "Uptake (71%) and completion rates (53%) exceeded those of published completions rates of 40% (Hogg et al, 2012). This might be explained by the offer of fully subsidised taxi transport to PR sessions."
- 22. Brighton University and the Eastbourne British Lung Foundation support group have developed a programme for people who have completed PR, which ensures ongoing access to rehabilitation for patients and training opportunities for student physiotherapists.
- 23. Chaplin E et al, "Interactive web-based pulmonary rehabilitation programme: a randomised controlled feasibility trial." *BMJ Open* 2017; 7:e013682. doi:10.1136/bmjopen-2016-013682
- 24. Bourne S, DeVos R, North M, et al. "Online versus face-to-face pulmonary rehabilitation for patients with chronic obstructive pulmonary disease: randomised controlled trial." *BMJ Open* 2017;7:e014580
- 25. North Lincolnshire CCG is offering virtual PR (virtual VR headset, wearable sensor and mobile data hotspot) funded by NHSE. Pilot results suggested patient retention rates are increased through the initiative. <https://www.digitalhealth.net/2020/02/north-lincolnshire-lung-patients-first-in-uk-to-be-offered-virtual-rehab/>
- 26. Moore J et al. "Effect of a home exercise video programme in patients with chronic obstructive pulmonary disease." *J Rehabil Med* 2009 Feb;41(3):195-200
- 27. William D-C Man et al. "Building consensus for provision of breathlessness rehabilitation for patients with chronic obstructive pulmonary disease and chronic heart failure." *Chronic Respiratory Disease* 2016 Aug; 13(3): 229–239. And Evans RA et al. "Generic, symptom based, exercise rehabilitation; integrating patients with COPD and heart failure." *Respir Med* 2010; 104(10): 1473–1481.
- 28. Recommendations from CSP [PRIME tool](#)
- 29. Marmot M et al. Fair society, healthy lives: strategic review of health inequalities in England post 2010. 2010.
- 30. British Lung Foundation. Battle for Breath – the impact of lung disease in the UK. 2016.
- 31. Marmot M et al. Health equity in England: The Marmot Review 10 years on. London: Institute of Health Equity. 2020.
- 32. Respiratory Futures, "Barriers to pulmonary rehabilitation," November 2017: <https://www.respiratoryfutures.org.uk/features/barriers-to-pulmonary-rehabilitation/>
- 33. Oxley R et al. "The meaning of the name of 'pulmonary rehabilitation' and its influence on engagement with individuals with chronic lung disease." *Chron Respir Dis*. 2019 Jan-Dec; 16.