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Better lung health for all

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# Face to face pulmonary rehabilitation: What does the future hold?

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# Learning Outcomes



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- Current guidance on face to face rehabilitation
- The developing landscape of Pulmonary Rehabilitation
- Essential components of Pulmonary Rehabilitation
- The future of Pulmonary Rehabilitation

# Key documents



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## The NHS Long Term Plan



#NHSLongTermPlan  
[www.longtermplan.nhs.uk](http://www.longtermplan.nhs.uk)

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

## Drawing breath

The state of the nation's asthma and COPD care and recommendations for improvement

Royal College of Physicians | NACAP



## AMERICAN THORACIC SOCIETY DOCUMENTS

### Defining Modern Pulmonary Rehabilitation An Official American Thoracic Society Workshop Report

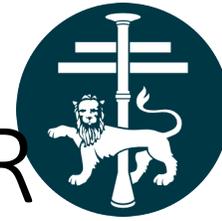
Anne E. Holland, Narelle S. Cox, Linzy Houchen-Wolloff, Carolyn L. Rochester, Chris Garvey, Richard ZuWallack, Linda Nici, Trina Limberg, Suzanne C. Lareau, Barbara P. Yawn, Mary Galwicki, Thierry Troosters, Michael Steiner, Richard Casaburi, Enrico Cini, Roger S. Goldstein, and Sally J. Singh; on behalf of the American Thoracic Society Assembly on Pulmonary Rehabilitation

THIS OFFICIAL WORKSHOP REPORT OF THE AMERICAN THORACIC SOCIETY WAS APPROVED FEBRUARY 2021

## Major Conditions Strategy: What you need to know

DHSC Media Team, 17 May 2023 - [Cancer](#), [Dementia](#), [Mental health](#), [Public Health](#)

# Essential components of PR



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## ESSENTIAL COMPONENTS OF PULMONARY REHABILITATION

1. An initial center-based assessment by a health care professional
2. An exercise test at the time of assessment
3. A field exercise test
4. Quality of life measure
5. Dyspnea assessment
6. Nutritional status evaluation
7. Occupational status evaluation

8. Endurance training
9. Resistance training

10. An exercise program that is individually prescribed
11. An exercise program that is individually progressed
12. Team includes a health care professional with experience in exercise prescription and progression

13. Health care professionals are trained to deliver the components of the model that is deployed

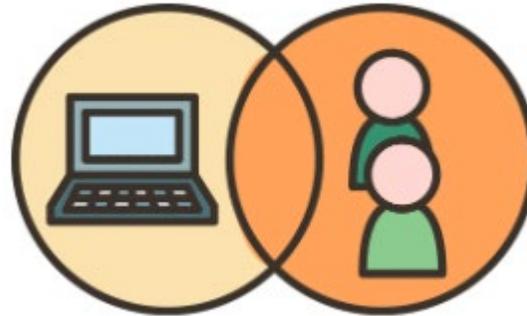
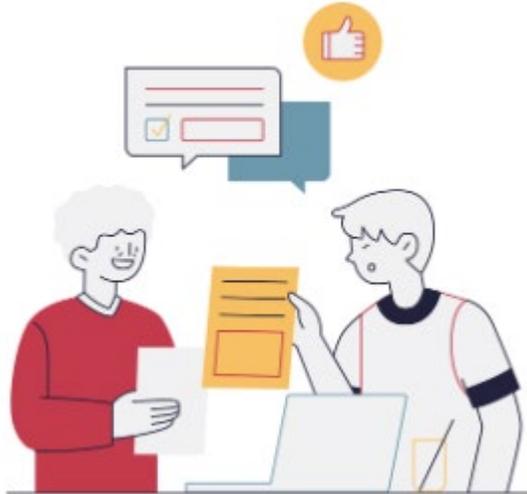
# BTS Clinical statement Assessments



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Access/Uptake  
/ Completion

Delivering  
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Health  
inequalities



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Other diseases

# Delivering the gold standard



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MRC grade

90.2%



PR provided to all people with Medical Research Council (MRC) grade 3–5\*

Comprehensive assessment

96.5%



Initial and discharge assessments conducted for home-based programmes

6-minute walk test (6MWT)

7.4%



6MWT conducted using a 30-metre course\*

Exercise plan

81.2%



Written exercise plan provided

Clinical leads

69.1%



Clinical leads have designated time for service management

Standard operating procedure (SOP)

86.5%



Service has an agreed SOP\*



5.6%

of people with COPD and Medical Research Council (MRC) grade 3–5 breathlessness were offered pulmonary rehabilitation in the past 3 years in primary care<sup>3</sup>  
**Wales only**

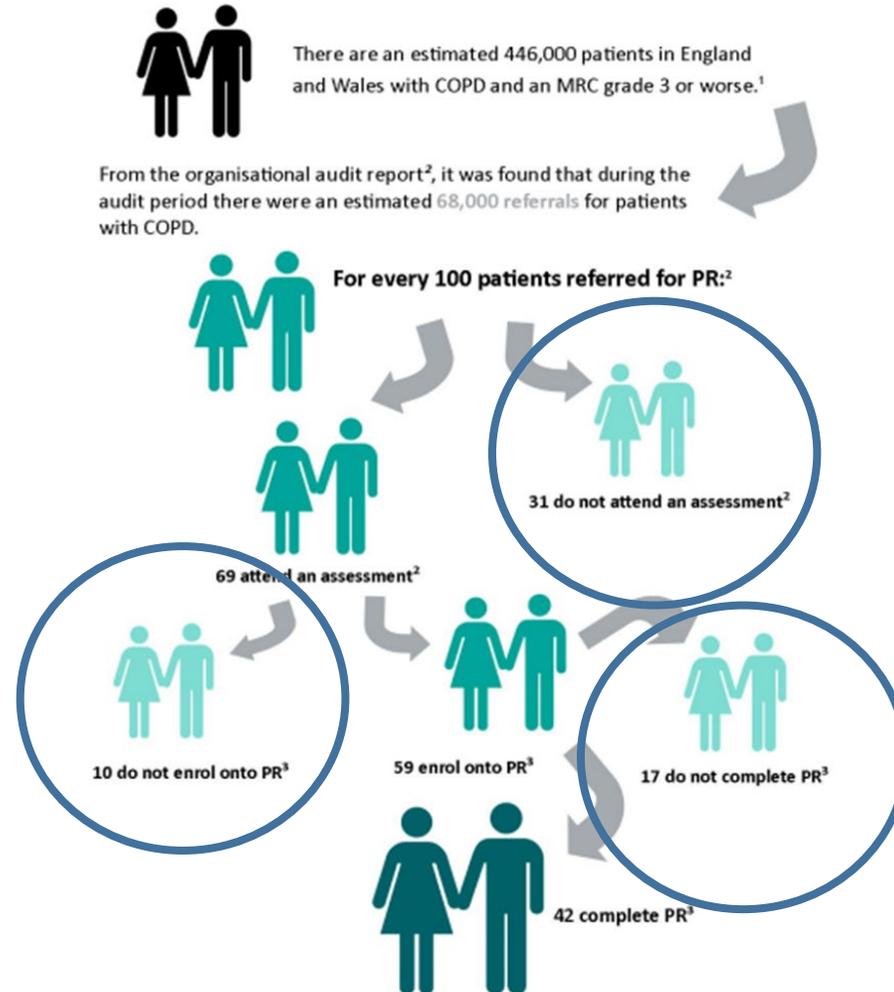
# Referral/Uptake/Completion



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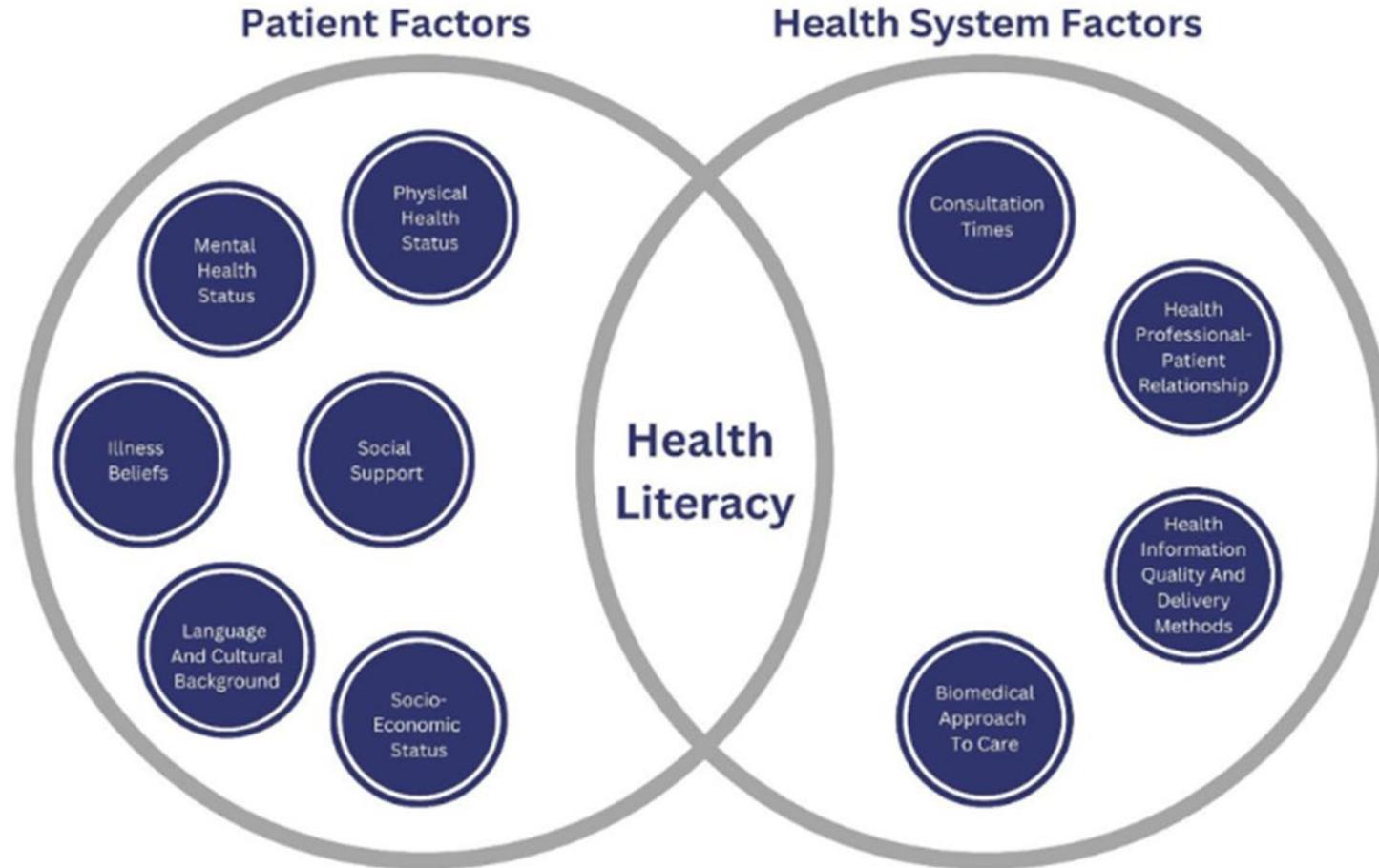




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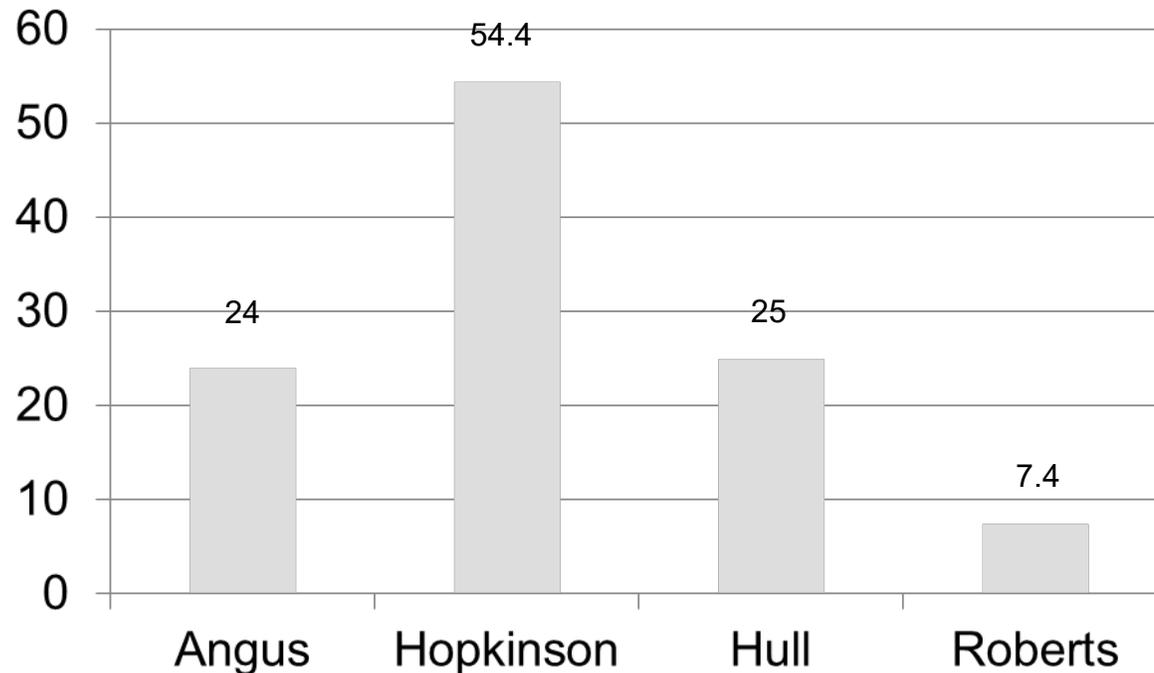
# Referral/Uptake/Completion



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**Table 1** Effect of referrer education on pulmonary rehabilitation referrals

| Action   | Effect on referrals                            |
|--|--|
| Delivering education to primary care referrers <sup>19-21</sup>  | 3%–5% increase                                 |
| Patient education as part of a 'patient held score card' with advice to discuss referral at their next COPD review <sup>22</sup>             | 6% increase                                    |
| Integrated approach to COPD care <sup>23</sup>   | 25% increase over 3 years                      |
| Delivering education to secondary care referrers <sup>41 42</sup>  | 6% increase<br>RR: 2.78 (95% CI 2.65 to 2.90)  |
| Delivering COPD discharge bundles by pulmonary rehabilitation practitioners versus non-pulmonary rehabilitation practitioners <sup>138</sup> | 60% vs 12%<br>OR: 14.46 (95% CI 5.28 to 39.57) |

COPD, chronic obstructive pulmonary disease; RR, risk ratio.

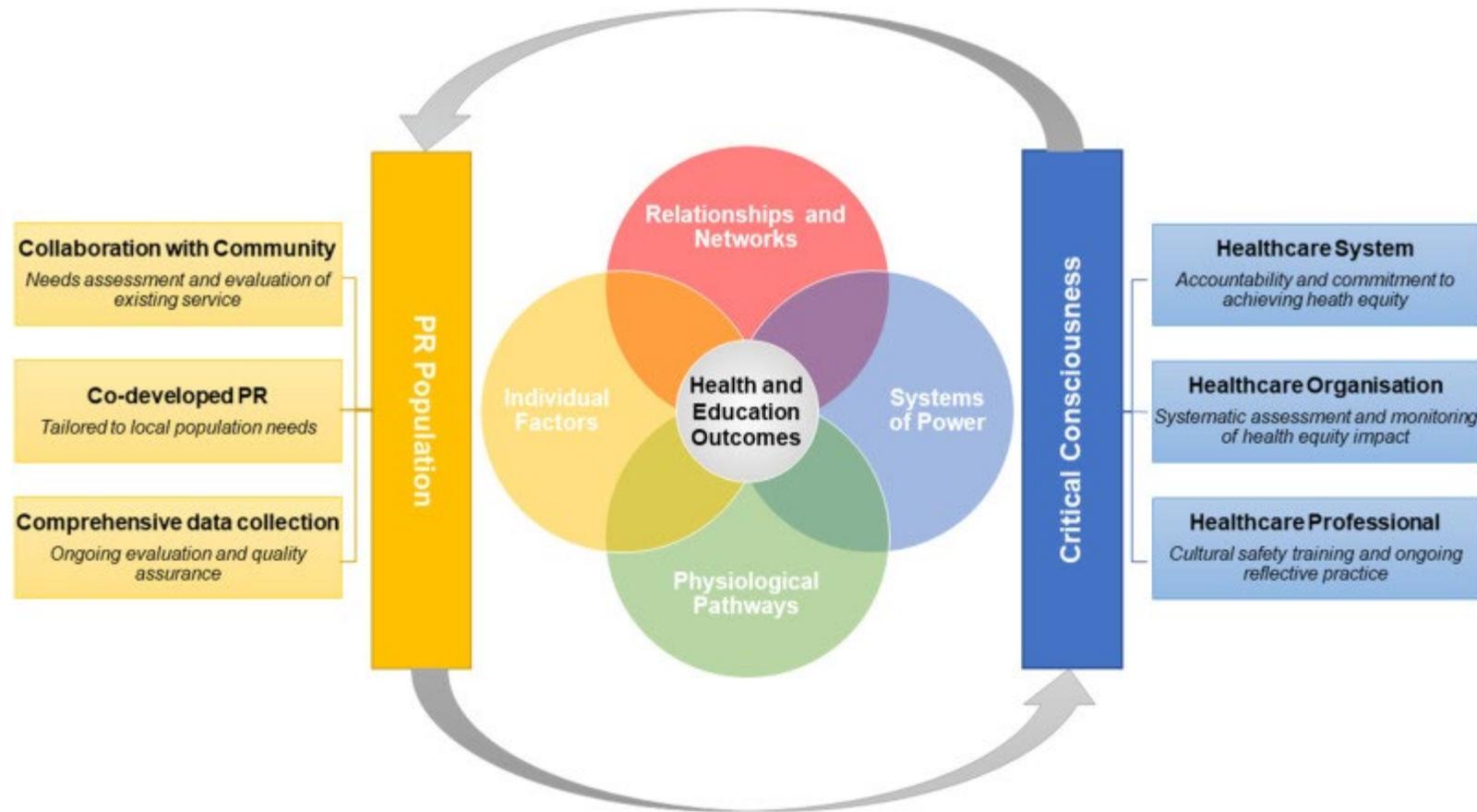
# Health inequalities



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# In other diseases

- Respiratory disease:
  - ✓ COPD
  - ✓ Asthma
  - ✓ ILD
  - ✓ Bronchiectasis



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# In other diseases



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## Surgery

- LVR
- *Lung transplantation*
- Lung cancer (pre-op)

### Maximal and functional exercise capacity

| Study   | WBVT group                                    | CON group                                    |
|---|---|--|
| <b>Six-minute walk test (6MWT): improvement from baseline</b> |   |  |
| Gloeckl 2015  | 85.3 metres (95% CI 65.4 to 101.7; P < 0.001) | 55.2 metres (95% CI 37.5 to 72.8; P < 0.001) |
| Gloeckl 2017  | 47.8 metres (95% CI 35.1 to 60.4; P < 0.001)  | 19.5 metres (95% CI 6.7 to 32.3; P < 0.01)   |
| <b>Peak work rate: improvement from baseline</b>              |   |  |
| Gloeckl 2015  | 16.8 watts, 95% CI 13.5 to 20.5; P < 0.001)   | 12.6 watts (95% CI 9 to 16.1; P < 0.001)     |
| Gloeckl 2017  | 14.5 watts (95% CI 11.5 to 17.5; P < 0.001)   | 10 watts (95% CI 7 to 13; P < 0.001)         |

Gutierrez-Arias 2021

# In other diseases



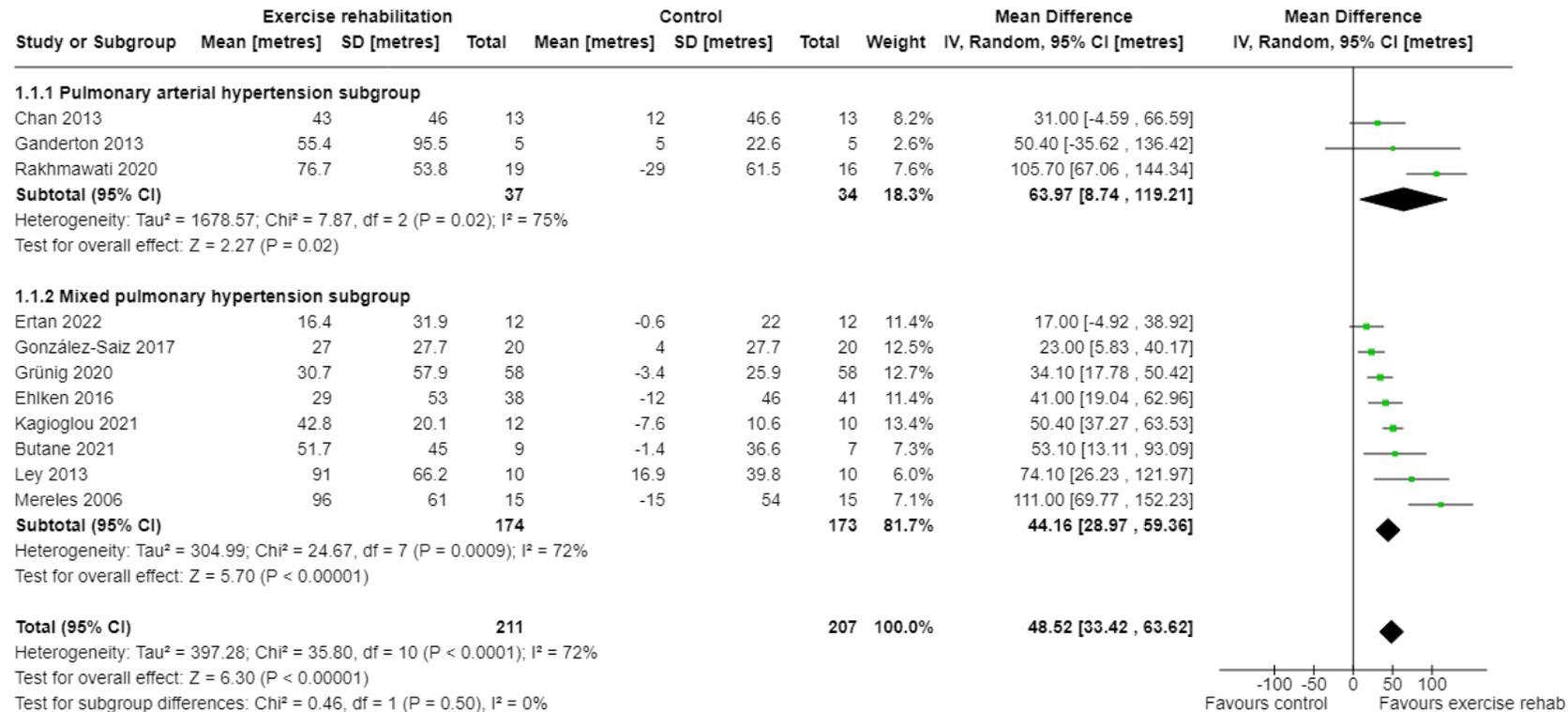
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## Cardiorespiratory

- Chronic heart failure
- Pulmonary Hypertension



Morris N., 2023

# In other diseases

## Respiratory infections

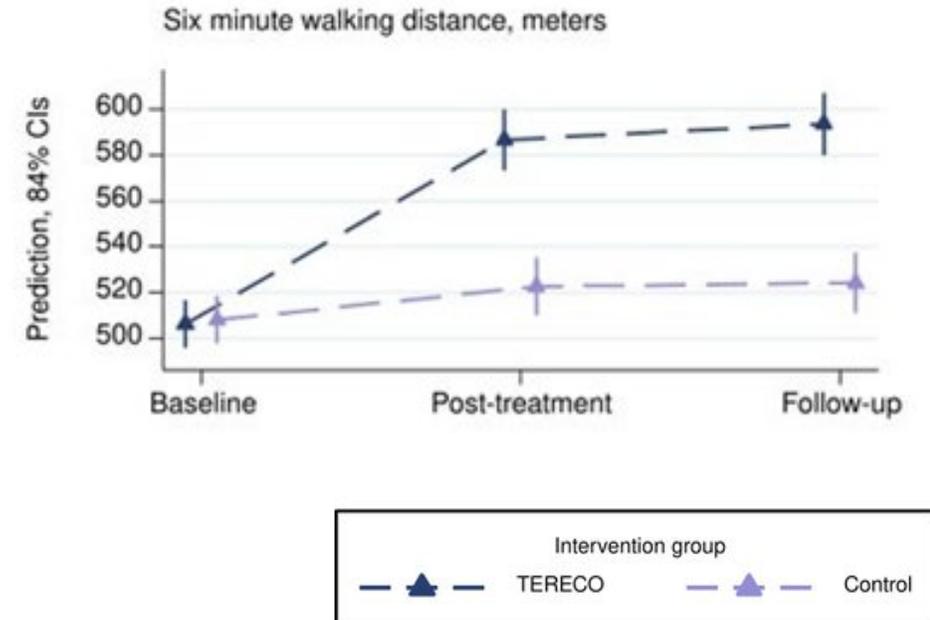
- Post-exacerbation
- COVID-19



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**Table 2** Extending the scope for pulmonary rehabilitation

| Condition                             | Adaptation  |
|---------------------------------------|---|
| Asthma                                | ▶ To minimise risk of adverse events, patients should be medically optimised prior to PR referral. <sup>75</sup>  |
| Bronchiectasis                        | ▶ Optimisation of airway clearance technique is recommended before and during PR. <sup>76</sup><br>▶ No data on risk of cross-infection of multiresistant organisms during PR, <sup>77</sup> but local infection control policies should be followed.   |
| Interstitial lung disease             | ▶ Compared with COPD, profound exercise-induced desaturation is more common in idiopathic pulmonary fibrosis (IPF) and some subtypes of interstitial lung disease. <sup>78</sup>  |
| Post-COVID-19                         | ▶ Caution with unexplained chest pain.<br>▶ Consider patients with functional limitation and ongoing symptoms for post-COVID-19 rehabilitation.<br>▶ Individuals with postintensive care syndrome have multisystemic symptoms and deficits, which may require individualisation of exercise and education components.<br>▶ Fatigue and postexertional symptom exacerbation should be closely monitored through symptom, exertion, activity scores and diaries.  |
| Lung cancer                           | ▶ Due to time sensitivity for curative surgery, conventional PR programmes would require adaptation to be suitable for prehabilitation.<br>▶ Optimal timing, setting, nature and duration of PR for postlung cancer surgery or advanced lung cancer remains unknown.<br>▶ Advanced lung cancer not a contraindication to PR but flexibility required for pragmatic reasons (eg, timing of chemotherapy session).  |
| Lung volume reduction                 | ▶ All individuals should have completed PR prior to their assessment for lung volume reduction procedures.<br>▶ PR practitioners may have a role in identifying potential candidates at the post-PR assessment.   |
| Lung transplantation                  | ▶ All individuals should have completed PR prior to their assessment for lung transplantation.  |
| Chronic heart failure                 | ▶ Programme adaptations/considerations might include <sup>107</sup> :<br>– Provision of disease-specific education.<br>– Workforce training to understand signs of decompensated heart failure.<br>– Inclusion of a heart failure nurse in the multi-disciplinary team.   |
| Pulmonary hypertension                | To be eligible for PR, people with pulmonary arterial hypertension (PAH) and chronic thromboembolic pulmonary hypertension (CTEPH) should have stable disease <sup>109,112</sup> :<br>▶ No change in drug therapy or dose in previous 2 months.<br>▶ No syncope or symptomatic arrhythmia in previous 2 months.<br>▶ International guidelines recommend that exercise is supervised by specialist exercise professionals. <sup>112</sup><br>▶ Remote supervision of exercise training is not recommended in people with PAH or CTEPH. |
| Perihospitalised exacerbation of COPD | ▶ PR should be outpatient, started after hospital admission and incorporate comprehensive exercise and education components.<br>▶ Reoffer PR to people who initially decline in the immediate posthospitalisation period.   |



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# References

- [Major conditions strategy](#)
- [NHS Long Term Plan](#)
- [Drawing Breath](#)



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