

# Abstract Presentations

## 2. Cathy Gillen, Ireland

# Home based Virtual Pulmonary Rehabilitation Programme for COPD Patients

Our Lady of Lourdes Hospital Drogheda, Ireland

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# Pulmonary Rehabilitation

- Key management strategy in the treatment of Chronic Respiratory Disease (BTS 2014)
- Reduces hospital admission rates (Griffiths et al 2013)
- Conventional PRP consists of exercise and education with twice weekly classes at a centre for a minimum of 6 weeks (BTS Guidelines 2013)
- Frequent travel to a centre based programme is often reported as a barrier to attendance (Keating et. al 2011)
- Advances in technology have allowed therapeutic interventions to be delivered straight to the patient's home. (Cox et. al 2018)
- Remote delivery of PR improves equity of access and prevents service interruption during Covid

- mPower
- Uptake and Adherence
- Transport / Parking / Respiratory Regime
- eHealth
- Carbon Footprint
- Self-efficacy
- Covid19



# Alternative PR Models

- Safe
- Feasible
- Comparable Clinical Improvements
- Patient Acceptability

**Safety, feasibility, and effectiveness of virtual pulmonary rehabilitation in the real world**

Liam Kouz,<sup>1</sup> Michelle Dunning,<sup>1</sup> Carol-Anne Davies,<sup>1</sup> Rebekah Mills-Barnes,<sup>1</sup> Tristan Wyn Sion,<sup>1</sup> Kerrie Phlips,<sup>1</sup> Vicky Stevenson,<sup>1</sup> Claire Hurin,<sup>1</sup> and Keir Lewis<sup>1,2</sup>

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**Abstract**

**Purpose**

To assess the feasibility, safety, and effectiveness of a Virtual Pulmonary Rehabilitation (VIPAR) program in a real-world setting.

**Patients and method**

Twenty-one patients w conferencing with a la

**BMJ Open** Interactive web-based pulmonary rehabilitation programme: a randomised controlled feasibility trial

Emma Chaplin,<sup>1</sup> Stacey Hewitt,<sup>1</sup> Lindsay Apps,<sup>1</sup> John Bankart,<sup>2</sup> Ruth Pullock-Jacob,<sup>3</sup> Sally Byrnes,<sup>4</sup> Mike Morgan,<sup>4</sup> Johanna Williams,<sup>5</sup> Sally Singh<sup>1,4</sup>

**Objective:** The aim of this study was to determine if an interactive web-based pulmonary rehabilitation (PR) programme is a feasible alternative to conventional PR.

**Design:** Randomised controlled feasibility trial.

**Setting:** Participants with a diagnosis of chronic obstructive pulmonary disease were recruited from PR assessments, primary care and community rehabilitation programmes. Patients randomised to conventional rehabilitation joined the programme according to the standard care at their referred site on the first available date.

**Participants:** 100 patients were recruited to the study and randomised to a conventional rehabilitation (conventional PR) or an interactive web-based pulmonary rehabilitation (iPR) programme. The study was conducted in 10 UK sites between August 2016 and November 2018.

**Intervention:** Patients randomised to the web-based programme worked through the website, completing and recording their progress as well as making educational material. Conventional PR consisted of nine weekly 1-hour sessions (on hour for exercise training and an hour for education).

**Outcome measures:** Recruitment rates, eligibility, patient adherence and dropout and completion rates for both programmes were collected. Standard outcomes for PR assessment including measures of exercise capacity and quality of life questionnaires were also recorded.

**Results:** A statistically significant improvement in 12-week mean distance walked each week in the intention-to-treat with net (NNT) mean change 106 (95% CI 55.6 to 156.4) was observed. Mean 12-week net change in 6-minute walk test (MWT) was 12.1 m (95% CI 5.1 to 19.1). Mean change in 12-week mean change in 6-minute walk test (MWT) was 12.1 m (95% CI 5.1 to 19.1). Mean change in 12-week mean change in 6-minute walk test (MWT) was 12.1 m (95% CI 5.1 to 19.1).

**Comparison of a structured home-based rehabilitation programme with conventional supervised pulmonary rehabilitation: a randomised non-inferiority trial**

Elizabeth J Horton,<sup>1</sup> Katy E Mitchell,<sup>2</sup> Vicki Johnson-Warrington,<sup>2</sup> Lindsay D Apps,<sup>2</sup> Louise Sewell,<sup>3</sup> Mike Morgan,<sup>3</sup> Rod S Taylor,<sup>4</sup> Sally J Singh<sup>2,4</sup>

**Background:** Standardised home-based pulmonary rehabilitation (PR) programmes offer an alternative model to centre-based supervised PR for which uptake is currently poor. We determined if a structured home-based supervised PR programme was non-inferior to supervised centre-based PR for participants with COPD.

**Methods:** A total of 287 participants with COPD who were referred to PR (187 male, mean (SD) age 68 (8.86) years, FEV<sub>1</sub> predicted 48.34 (17.52) were recruited. They were randomised to either centre-based PR or a structured unsupervised home-based PR programme including a hospital visit with a healthcare professional trained in motivational interviewing, a self-management manual and two telephone calls. Fifty-eight (20%) withdrew from the centre-based group and 51 (18%) from the home group. The primary outcome was diagnosis obtained in the chronic respiratory disease questionnaire (Chronic Respiratory Questionnaire Self-Report, CRQ-SR) at 7 weeks. Measures were taken to ensure a modified intention-to-treat (ITT) complete case analysis, comparing groups according to original random allocation and with complete data at follow-up. The non-inferiority margin was 1.5%.

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**What is the key question?**

- Can a structured home-based unsupervised pulmonary rehabilitation (PR) programme of activity, coping and education for COPD be considered non-inferior to centre-based PR?

**What is the bottom line?**

- The home-based programme achieved improvements in symptoms and exercise endurance capacity to a similar level to conventional supervised PR. However, non-inferiority remains inconclusive.

**Why read?**

- This study demonstrates that a structured home-based PR programme can provide some health improvements and may provide an alternative for those unable to attend centre-based PR.

and format of rehabilitation have been extensive modes of delivery to have an 'equivalent' to an equivalent

**Internet-enabled pulmonary rehabilitation and diabetes education in group settings at home: a preliminary study of patient acceptability**

Jelena M Burrows,<sup>1</sup> Lara K Vogrin,<sup>2</sup> Gem Robinson,<sup>3</sup> Elm Johnson,<sup>4</sup> Marilee Joannas-Roberts,<sup>5</sup> Astor Bratkov,<sup>6</sup> Tovee Hagan,<sup>7</sup> Martin Bratkov,<sup>8</sup> Jane Kowaluk,<sup>9</sup> and Judith Haganman<sup>10</sup>

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**Abstract**

**Background**

The prevalence of major chronic illnesses, such as chronic obstructive pulmonary disease (COPD) and diabetes, is increasing. Pulmonary rehabilitation and diabetes self-management education are important in the management of COPD and diabetes respectively. However, not everyone can participate in the programmes offered at a hospital or other central locations, for reasons such as travel and transport. Internet-enabled home-based programmes have the potential to overcome these barriers. This study aims to assess patient acceptability of the delivery form and components of Internet-enabled programmes based on home groups for comprehensive pulmonary rehabilitation and for diabetes self-management education. We have developed Internet-enabled home programmes for comprehensive pulmonary rehabilitation and for diabetes self-management education that include group education, group exercising (COPD only), individual consultations, educational videos and a digital health diary. Our prototype technology platform

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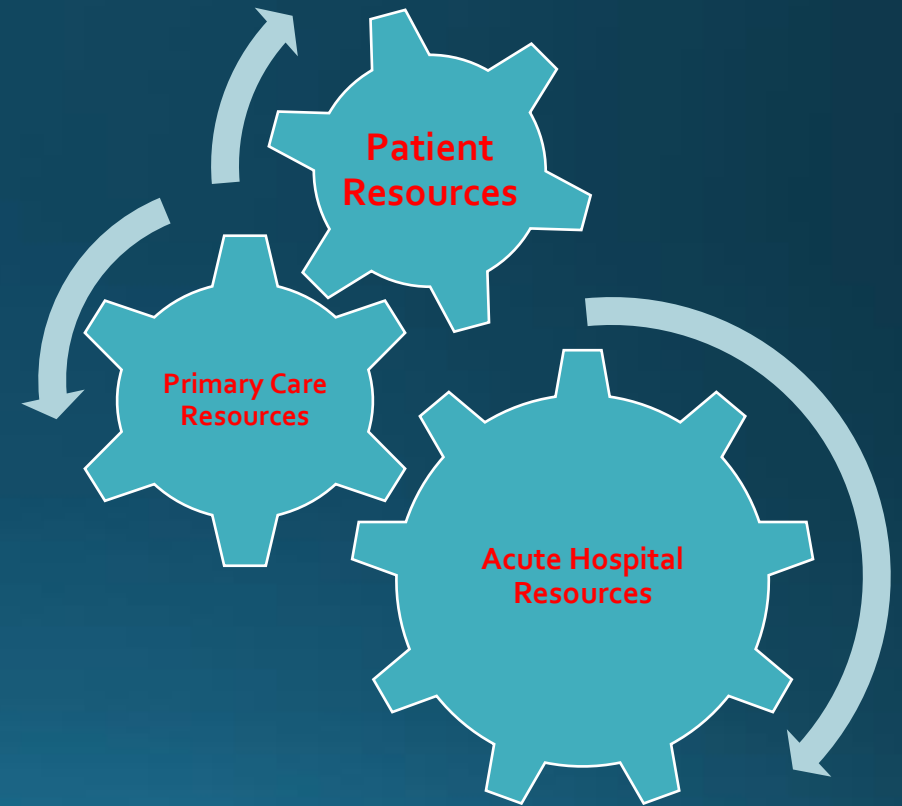
**Abstract**

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# Project Aim

- Provision of a 7 week home-based virtual pulmonary rehabilitation programme for patients with COPD under the guidance of a physiotherapist, utilising video conferencing equipment in the primary care setting with the patients own IT devices

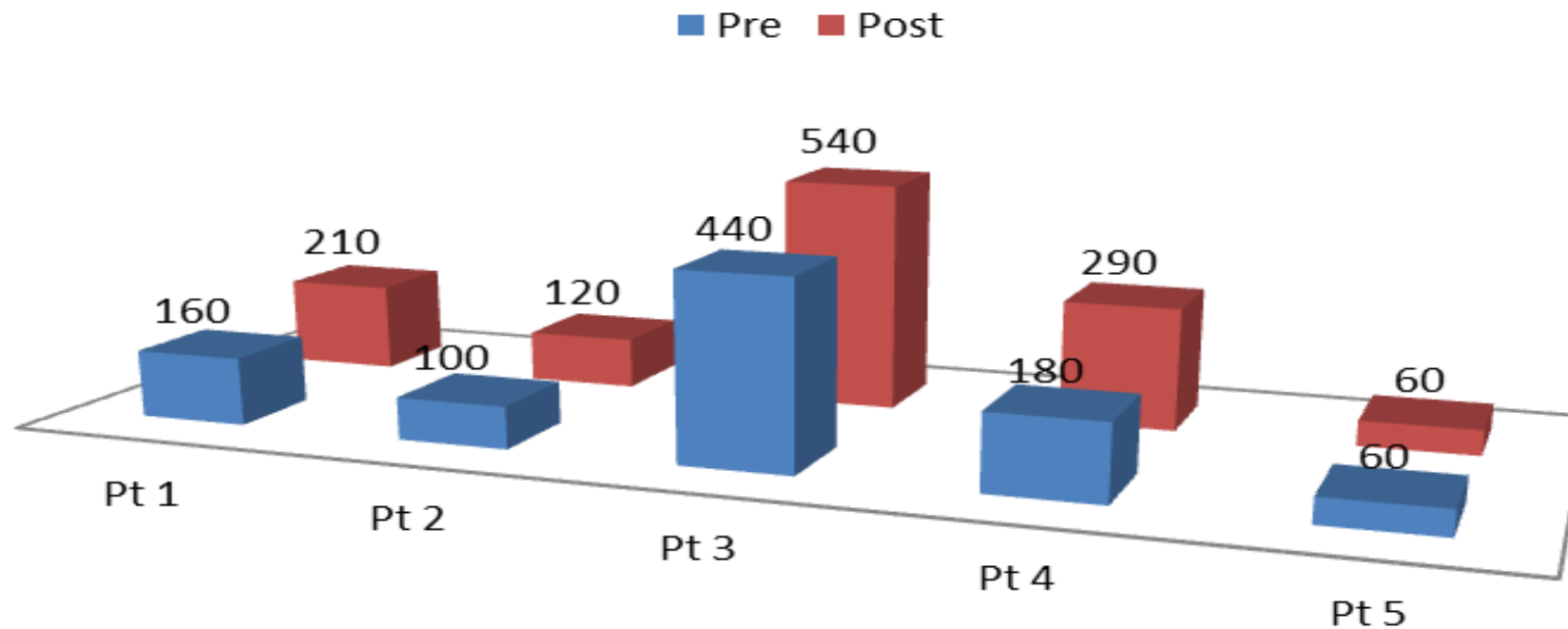




# RESULTS

## Exercise Capacity

### Differences in ISWT in metres

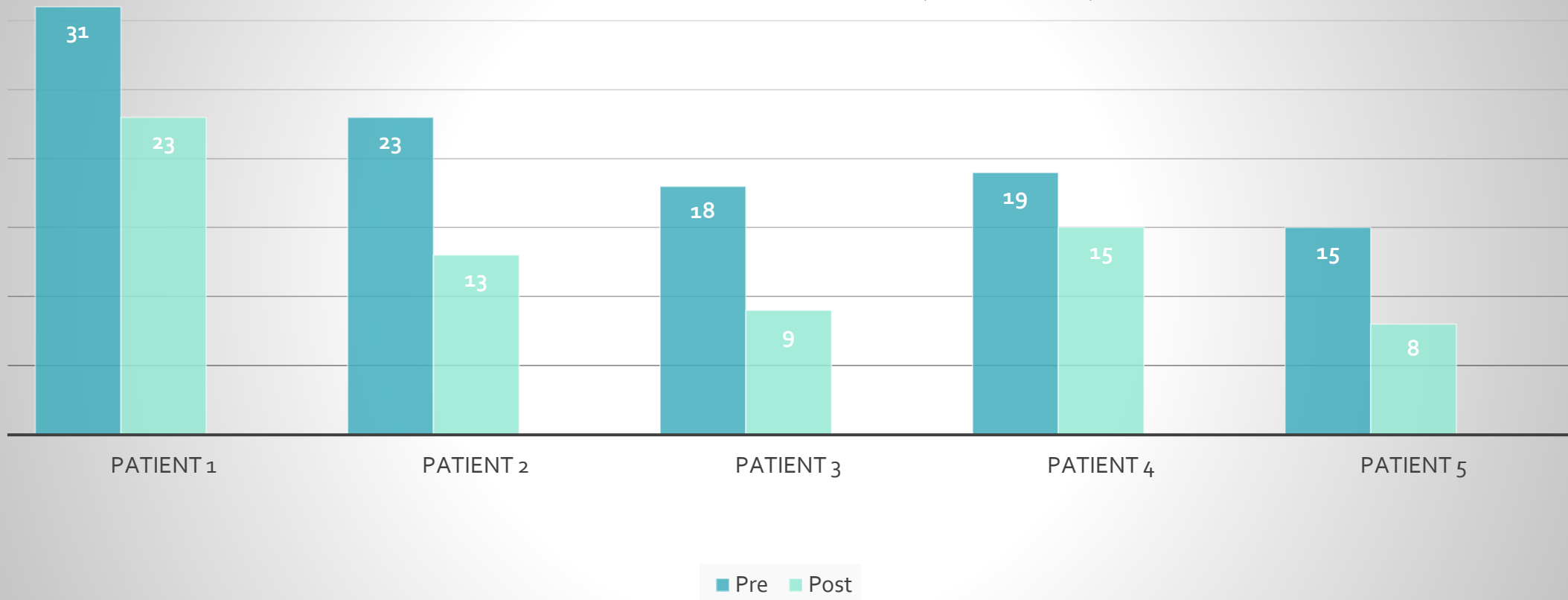




# RESULTS

## Quality of Life

Difference in CAT Score (MCID >2)



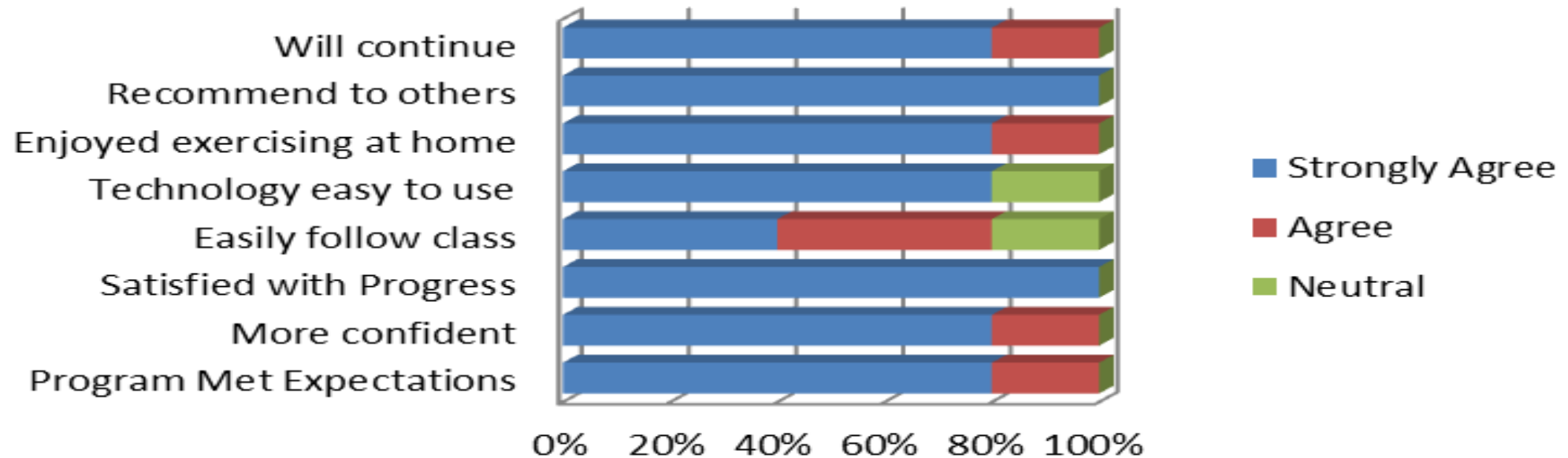
# Savings

- 1918 KM
- 42 Hours Travel Time
- Fuel & Parking
- Carbon emissions
- 50% less staff



# Patient Satisfaction

## Anonymous Patient Satisfaction Survey



# Patient Feedback



## Quotes

"..because I didn't have to leave home I probably put more into it because I didn't have the pressure or stress of getting to the hospital"  
Stephanie

"I much preferred the home programme for the simple reason its just more relaxed because when you get up in the morning you don't have this feeling of having to rush to the hospital and then look for a parking space..." Marion

"..its easy to set up the computer and then you can do the exercises anytime you want" James

"you can go straight from bed to the class, I didn't even have to go down the stairs" Nuala

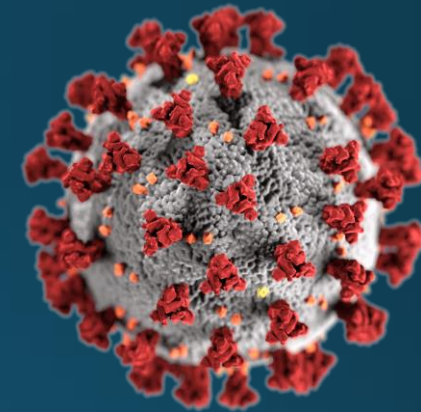
1 Min Sit -  
Stand

abc  
questionnaire

Covid

Platform  
Salaso

GAD -7 & PHQ-9



# RESULTS

- 8 PARTICIPANTS
- 100% COMPLETION
- 100% IMPROVED EXERCISE CAPACITY
- 83% IMPROVED COPD HEALTH STATUS
- 71% IMPROVED QUALITY OF LIFE SCORE
- 75% REPORTED PREFERENCE TO EXERCISE AT HOME



# What Next?

- National Clinical Programme
- Research
- IPF
- Tech instructional videos
- Provision of devices

<https://www.hse.ie/eng/about/who/cspd/ncps/copd/resources/ncp-respiratory-guidance-on-setting-up-virtual-pulmonary-rehabilitation-for-asthma-and-copd.pdf>







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# Thank you for listening

## Questions?