NICE advice

myCOPD for self-management of chronic obstructive pulmonary disease

Medtech innovation briefing
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Summary

- The **technology** described in this briefing is myCOPD. It helps people with chronic obstructive pulmonary disease (COPD) to manage their symptoms and reduce the number of healthcare visits they need. It also helps the healthcare professionals care for people with COPD.
- The **innovative aspect** is that it allows for care (such as pulmonary rehabilitation) to be provided remotely, based on a person's self-assessed needs. It can also help people with COPD to manage their condition at home where services are limited because of COVID-19.
- The intended **place in therapy** would be as part of self-management for people as an alternative to some routine healthcare visits such as pulmonary rehabilitation.
- The **main points from the evidence** summarised in this briefing are from 2 randomised controlled trials and 1 observational study, covering a total of 167 people with COPD. They show that myCOPD is associated with reduced COPD symptom severity and improved inhaler technique.

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- **Key uncertainties** are that the quantity and quality of evidence for myCOPD is limited. None of the studies followed up participants for longer than 3 months, so there is no medium- or long-term evidence. All studies had relatively few participants (fewer than 100), and had limited power to detect statistical differences between treatment groups.
- The **cost** of myCOPD is £40 per person (excluding VAT). The **resource impact** would be in addition to standard care. The estimated cost of an 8-week outpatient pulmonary rehabilitation programme ranges from £522 to £1,044 per person.

The technology

myCOPD (my mhealth) is a digital self-management tool for people with chronic obstructive pulmonary disease (COPD) and a care management aid for healthcare professionals. It is an app that people can access at home, on their phones, computers or tablets. Internet access is needed.

myCOPD provides online education, self-management advice, symptom reporting and pulmonary rehabilitation. It can:

- teach people how to use their inhalers
- make a self-management plan, to help people understand when to take their medications
- cross-check prescribed medication, to identify any potential conflicts
- conduct a COPD assessment, so that people can track their symptoms and learn how to control them better.
- provide access to an online 6-week pulmonary rehabilitation course, consisting of an incremental exercise programme and education sessions to help promote self-management.

People using myCOPD can give healthcare professionals access to their data, to enable remote care and monitoring. If enabled, clinicians can review the person's profile, including medications and assessment reports. Clinicians are also able to suggest a change to the person's medications (including inhalers and devices), and any changes are shared with the person automatically through the app.

It is listed in the NHS Apps Library.

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Innovations

myCOPD is a digital tool for people with COPD and healthcare professionals. It allows for remote care, and can create self-management plans based on self-assessed needs. The technology could be an alternative to some healthcare services such as face to face pulmonary rehabilitation and may be helpful for the people who are unable to access routine healthcare visits because of the COVID-19 pandemic, providing support to manage their COPD at home.

Current care pathway

According to NICE's full guideline on COPD, most people (90%) with COPD live at home, and their care is likely to be shared between healthcare professionals in primary and secondary care. COPD is mostly managed in primary care for people with mild and moderate symptoms who are not experiencing frequent exacerbations. People with severe COPD are likely to have frequent exacerbations, leading to hospital admissions.

The guideline covers management of stable COPD. A 2018 update covered monitoring, education and self-management. Follow up is recommended in the guideline for all people with COPD, at a higher frequency for people with more severe symptoms. Follow-up visits should review:

- the need for referral to specialist care
- smoking status
- symptom control
- complications
- effects of medication
- inhaler technique.

The guideline recommends training people to use their inhalers, and notes that most people with COPD can learn correct inhaler technique if they are trained.

It also recommends individualised self-management plans for people with COPD. These should include education, and an action plan for managing the risk of exacerbations. For some people with COPD (such as people who are functionally breathless or people who have recently been hospitalised because of an acute exacerbation), pulmonary rehabilitation is recommended. This helps to manage symptoms and improve exercise capacity and quality of life.

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Population, setting and intended user

myCOPD is a self-management tool and could be used by people at any stage of COPD, including:

- when newly diagnosed with COPD
- after discharge from hospital
- at an annual review
- for people who cannot attend pulmonary rehabilitation classes.

myCOPD would be used remotely by patients and healthcare professionals.

Costs

Technology costs

The cost of myCOPD is £40 per person.

Costs of standard care

No estimate for the complete cost of care for people with COPD was identified. Examples of costs for pulmonary rehabilitation include:

- 6-week outpatient pulmonary rehabilitation course (17 participants): £12,120 (Griffiths et al. 2001)
- 8-week outpatient pulmonary rehabilitation programme (8 to 16 participants): between £522 and £1,044 per person (Chakravorty et al. 2011).

Resource consequences

myCOPD would be an additional cost to standard care.

The technology was supported by the innovation and technology tariff during 2017 and 2019. The company states that myCOPD has been used in the NHS since 2016, working with over 100 clinical commissioning groups commissioning the technology. The expert commentators suggested that myCOPD would be unlikely to need significant changes to facilities. The application can be set up by healthcare professionals for people with COPD.

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Regulatory information

myCOPD is CE-marked as a class I medical device.

Equality considerations

NICE is committed to promoting equality of opportunity, eliminating unlawful discrimination and fostering good relations between people with particular protected characteristics and others.

myCOPD needs internet access, and a phone, computer or tablet that can run the app. Digital technologies like myCOPD may be unsuitable for people:

- with visual or cognitive impairment, problems with manual dexterity, or learning disabilities
- who are unable to read or understand health-related information (including people who cannot read English).

Disability, age and sex are protected characteristics under the Equality Act. Chronic obstructive pulmonary disease is most common in people over 50 years. Men tend to be at higher risk than women.

Clinical and technical evidence

A literature search was carried out for this briefing in accordance with the interim process and methods statement. This briefing includes the most relevant or best available published evidence relating to the clinical effectiveness of the technology. Further information about how the evidence for this briefing was selected is available on request by contacting mibs@nice.org.uk.

Published evidence

Three studies are summarised in this briefing, including 2 randomised controlled trials and 1 observational study. In total, there were 167 people with chronic obstructive pulmonary disease (COPD) in these studies.

The clinical evidence and its strengths and limitations is summarised in the overall assessment of the evidence.

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Overall assessment of the evidence

Overall, the quantity and quality of comparative evidence for myCOPD is limited. None of the studies followed up participants for longer than 3 months, so there is no medium- or long-term evidence. All studies were relatively small (fewer than 100 people), and had limited power to detect statistical differences between treatment groups.

Bourne et al. (2018)

Study size, design and location

A feasibility randomised controlled trial of 41 people with COPD in the UK. People were recruited following a hospital admission for an acute exacerbation.

Intervention and comparator

myCOPD, compared with usual care (written self-management plan).

Key outcomes

In the study, people using myCOPD (n=22) had significantly fewer hospital admissions compared with people receiving usual care (n=21) during the 3-month follow up.

Inhaler technique (total critical error count) improved in the myCOPD group (101 errors at baseline, 20 errors at end of follow up) compared with usual care (100 to 72; p=0.008).

People in the myCOPD group had a significantly larger reduction in COPD assessment test (CAT) scores than people in the usual care group (p=0.021).

No differences were seen in the quality of life between treatment groups.

Strengths and limitations

The study was done in a single centre. The sample size was small. All people were followed up for 3 months in the study.

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Bourne et al. (2017)

Study size, design and location

A single blinded non-inferiority randomised controlled trial of 90 people with COPD in the UK.

Intervention and comparator

A 6-week online pulmonary rehabilitation programme using myCOPD, compared with face-to-face pulmonary rehabilitation in a local rehabilitation facility.

Key outcomes

The myCOPD group (n=64) had a significantly larger reduction in mean CAT score from baseline to week 7, compared with the 'face-to-face' pulmonary rehabilitation group (n=26).

There was no significant difference in the 6-minute walking test between the 2 groups.

There was a decline in attendance in the myCOPD group, from a mean of 3.9 sessions per person in week 1 to 2.5 sessions per person in week 6. The attendance at the face-to-face sessions was relatively stable, with a mean of 1.6 sessions per person in week 1 and 1.4 sessions per person in week 6.

The differences in the mean improvement in scores for the quality of life questionnaires were in favour of myCOPD, but were not statistically significant.

Strengths and limitations

The study was done in a single centre. The study had a short follow up (6 weeks). No safety issues were identified.

North (2015)

Study size, design and location

A comparative observational study of 36 people with COPD in the UK.

Intervention and comparator

myCOPD, compared with usual care (a written self-management plan).

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Key outcomes

After the 3-month follow up, 21 of the 22 people who used myCOPD showed a significant decrease in their CAT score of 4 (SD=2.8) from the baseline. Five people in the usual care group showed an increase in mean CAT score of 2.4 (standard deviation=1.0) from the baseline. The difference between 2 groups was not reported.

The study suggested that 98% people using myCOPD were using their inhalers correctly at the end of the study. Those who only had access to written self management did not show an improvement in their inhaler technique and continued to have critical errors in using their devices.

Strengths and limitations

All people were followed up for 3 months in the study. The sample size was small. The study was reported as a brief article with limited details of the study methods.

Sustainability

Two experts said that people could use the technology in their own homes, so they do not need to travel to service centres.

Recent and ongoing studies

EARLY: A randomised controlled trial to explore how myCOPD can help people with mild, moderate COPD self-manage their condition. ClinicalTrials.gov identifier: NCT03620630. Status: recruitment completed. No interim results published. Indication: chronic obstructive pulmonary disease. Devices: myCOPD. Last update on 28 February 2020. UK.

Expert comments

Comments on this technology were invited from clinical experts working in the field and relevant patient organisations. The comments received are individual opinions and do not represent NICE's view.

Five experts were familiar with or had used this technology before.

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Level of innovation

Four expert commentators agreed that the technology is innovative. One expert noted that people with chronic obstructive pulmonary disease (COPD) currently receive lots of written information (such as paper leaflets), and myCOPD could allow people to access all relevant information about their condition in one place. People would be able to access information and services (such as pulmonary rehabilitation) in their own homes.

Potential patient impact

The main benefits identified by the expert commentators were improvements in self-management and education, and support for pulmonary rehabilitation. The technology offers training on inhaler technique and breathing control, helping people to manage their symptoms themselves. The experts thought the technology was accessible to any people with COPD who have access to the internet and a suitable device.

Potential system impact

A key benefit to the healthcare system would be a reduction in the use of NHS resources. Four experts thought that the use of myCOPD could potentially improve people's independence, help them manage their own condition, and reduce the need for GP appointments and hospital admissions. The expert commentators also identified possible reductions in staff time spent on patient education.

Four experts thought there would be little change to current facilities or infrastructure.

The experts noted that training would be needed for both healthcare professionals and people with COPD, but they thought this would be simple and brief. For example, staff might need an hour to learn how to navigate the app, and how to set it up for people with COPD.

General comments

Three experts expected myCOPD to be used as an add-on intervention to current standard care for COPD management. One expert suggested that myCOPD has been used as a part of a COPD bundle, to be offered to people as an aid for self-management. None of the experts were aware of any safety issues reported, but 1 expert indicated the need for people to have an assessment before they are referred onto online pulmonary rehabilitation, to ensure clinical safety. Two experts identified the main barriers to adoption as a lack of robust evidence to support the benefit outside

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the context of trials, and the cost of the technology.

One expert noted that service providers have been using myCOPD to support people after pulmonary rehabilitation since the outbreak of COVID-19. The expert shared a patient's story using myCOPD.

Expert commentators

The following clinicians contributed to this briefing:

- Professor John Hurst, professor of respiratory medicine, University College London. Professor Hurst has previously worked with and still collaborates with Professor Wilkinson, who is on the board of my mhealth.
- Dr Nawar Bakerly, consultant respiratory physician, Salford Royal NHS Foundation Trust. Did not declare any interests.
- Lisa Ward, lead respiratory nurse, Southend hospital, Southend University Hospital NHS Foundation Trust. Did not declare any interests.
- Matt Turner, senior transformation and commissioning manager, Mid Essex Clinical Commissioning Group. Did not declare any interests.
- Jenny Gates, clinical manager inpatient rehabilitation, Southend University Hospital NHS Foundation Trust. Did not declare any interests.

Development of this briefing

This briefing was developed by NICE. The interim process and methods statement sets out the process NICE uses to select topics, and how the briefings are developed, quality-assured and approved for publication.

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