

Self-care support for people with COPD

- As the prevalence of long-term conditions increases there is a greater focus on encouraging people to manage their condition(s).
- Self-care has been identified as integral to maintaining the health and wellbeing of people with COPD.
- There is consistent evidence that multicomponent interventions reduce respiratory-related hospital admissions and improve quality of life for people with COPD.
- Multicomponent interventions that include action plans, exercise, education and smoking cessation are likely to be beneficial.
- Smoking cessation programmes are more successful when people are informed about the link between smoking and COPD, have an action plan, and make use of social support.
- Hospital- and community-based pulmonary rehabilitation has some short-term impact on health-related quality of life and hospital admissions, but the effects of home-based rehabilitation are unclear.

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Background

The prevalence of long-term conditions is increasing and there is now a move towards encouraging people to manage their condition(s).¹ Self-care has been identified as integral to maintaining the health and wellbeing of people with long-term conditions,² and may contribute to effective and sustainable delivery of healthcare services.

There are a variety of interventions to support people living with long-term conditions. They aim to help people manage their medication and change their health behaviours in order to improve management of acute episodes and reduce unplanned hospital admissions. COPD is one such long-term condition that has a relatively large self-care evidence base.

This evidence briefing focuses on self-care support for people with COPD and looks at the following interventions compared with usual care:

- multicomponent self-care interventions (including elements such as education, telephone support and action plans)
- pulmonary rehabilitation

Outcomes of interest include unplanned hospital admissions, length of hospital stay, quality of life, and any associated costs.

We have not looked at the evidence for telehealth for COPD; see our recent briefing about telehealth for patients with long-term conditions for further information [www.york.ac.uk/inst/crd/pdf/Telehealth.pdf]

Evidence base for effectiveness

We found 12 relevant systematic reviews looking at self-care support for people with COPD. The evidence suggests both multicomponent interventions and pulmonary rehabilitation may reduce unplanned hospital admissions and improve quality of life.

Multicomponent interventions

Three recent, well-conducted reviews³⁻⁵ build on early findings that multicomponent interventions have the potential to reduce hospital admissions and improve quality of life.^{6,7} The reviews included a range of interventions delivered in hospital and/or in the community.

The largest and most up-to-date systematic review included 32 randomised controlled trials of interventions combining two or more components.³ Interventions such as respiratory home care, rehabilitation, self-care education, action plans, integrated care, telephone support and pharmacy-led management programmes were delivered in a variety of combinations. Interventions were delivered face-to-face or by phone, at home or in hospital, by a range of health professionals working alone or in teams. Multicomponent interventions were formed of between 1 and 6 components, with between 1 and 60 treatment sessions. Overall, the findings suggest that multicomponent interventions may reduce urgent healthcare use compared to standard care (odds ratio (OR) 0.68, 95% CI 0.57 to 0.80). The authors could not identify which individual components were most effective but interventions that included education, exercise or relaxation seemed to reduce urgent care use in particular. Results appear to be similar in both hospital and community settings.

Two recent Cochrane reviews have looked at self-management interventions⁴ and “integrated disease management”, defined as multicomponent interventions delivered by multidisciplinary teams.⁵ Interventions were diverse and involved a mixture of action plans, education, exercise programmes, smoking cessation support, advice about diet and medication, and coping with breathlessness. Cognitive behavioural therapy, motivational interviewing, goal-setting or providing feedback were some of the methods used in the interventions.⁴ Both reviews found a reduction

in respiratory-related hospital admissions compared with usual care, but not all-cause hospital admissions.^{4,5} This may be due to the majority of people with COPD having at least one other co-morbidity that may lead to hospital admission, which highlights the importance of tailoring self-care to individual patient needs.⁴ Similarly to Dickens 2013 review above, there was insufficient evidence to identify the most effective elements of the multicomponent interventions.

While there is some overlap between these three systematic reviews (some studies are included in more than one review), there is consistent evidence that multicomponent interventions reduce respiratory-related hospital admissions and improve quality of life for people with COPD.

The majority of studies included in these three systematic reviews involved an action plan and smoking cessation support. We found one Cochrane systematic review that suggests an action plan alone, or with up to an hour of education, is not sufficient to reduce healthcare resource use or improve quality of life.⁸ This adds further support to the evidence that consistently suggests it is the multicomponent nature of self-management interventions that produces improved outcomes. A systematic review of smoking cessation suggests programmes are more successful when people are informed about the link between smoking and COPD, have an action plan, and make use of social support.⁹

Pulmonary rehabilitation

Rehabilitation programmes are delivered in a range of settings (in-patient, out-patient, home-based) and consist of exercise training, self-management education, behaviour modification and support. We found two systematic reviews that evaluated rehabilitation delivered in any setting,^{10,11} one systematic review of rehabilitation in out-patient, community or home settings¹² and two systematic reviews of home-based rehabilitation.^{13,14}

Moderate quality evidence from nine randomised controlled trials suggests hospital admissions are reduced with pulmonary rehabilitation delivered in in-patient and out-patient settings for people who have had an acute exacerbation (OR 0.22, 95% CI 0.08 to 0.58).⁽¹⁰⁾ Programmes lasted for 6 to 12 weeks and some involved longer term supervised home-based exercise. A health technology assessment of 17 studies found that pulmonary rehabilitation including at least 4 weeks of exercise training significantly improved health-related quality of life.¹¹ It has been noted that effects of rehabilitation diminish over time and it is noteworthy that the majority of trials included in these two reviews have relatively short-term follow up of patients.

Following initial rehabilitation, some programmes involve supervised exercise training. There is some evidence to suggest that supervised exercise training (ranging from 8 weeks to 3 months) is more effective than usual care in maintaining peoples' exercise capacity, but there was no difference in hospital admissions, length of stay or health-related quality of life.¹²

It has been suggested that home-based rehabilitation may be utilised more than programmes delivered in other settings as patients may be more able to fit a home-based programme into their daily lives. A systematic review of 18 randomised controlled trials evaluating home-based rehabilitation compared with usual community care showed some improvements in health-related outcomes, such as quality of life, exercise capacity and pulmonary function. However, the impact on hospital admissions was mixed and was reported in only three of the included studies reported on hospital admissions, and the review authors did not compare the effects of home-based rehabilitation with rehabilitation programmes in other settings.¹³

In a second review, which included 12 poor to average quality randomised controlled trials, home-rehabilitation seemed to improve peoples' health-related quality of life in most studies, but only three studies reported a clinically significant difference in improvement when rehabilitation patients were compared with standard care patients.¹⁴ When compared with patients receiving hospital-based rehabilitation, health-related quality of life outcomes appeared equivalent. Again, there was a lack of evidence about the impact of rehabilitation on hospital admissions.

Cost effectiveness

We found seven economic evaluations of multicomponent interventions, pulmonary rehabilitation and telemedicine;¹⁵⁻²¹ we have focused on the five most relevant.¹⁵⁻¹⁹

Multicomponent interventions

Two self-management interventions in the UK have been evaluated; a pharmacy-led programme¹⁵ and a peer support programme.¹⁶ The pharmacy-led self-management programme showed a trend towards fewer GP visits and hospital bed days compared with usual care and was cost effective at a threshold of £20,000 per quality-adjusted life year (QALY). The programme consisted of a consultation with a hospital pharmacist, with follow up phone calls and outpatient visits.¹⁵ The peer-delivered support programme (Better Living with Long-term Airways disease) showed potential to improve health outcomes and be cost-effective but the findings need to be confirmed in a larger trial.¹⁶

Two evaluations of self-management support programmes in the USA, which consisted of action plans, educational leaflets or group sessions, and scheduled telephone follow-up with a case manager.^{17,18} Both evaluations showed a trend towards fewer hospital admissions and a reduction in costs. However the interventions may be health care setting specific and may not be deliverable in an NHS context.

Pulmonary rehabilitation

An economic evaluation of telerehabilitation (telemonitoring device installed in patients' homes for 4 months) compared with standard rehabilitation was conducted as part of a large Danish telehealthcare study.¹⁹ Telerehabilitation appeared to reduce hospital admissions, but the study was not large enough to detect any differences in admission rates between the intervention and control groups. Average costs for the telerehabilitation group were EUR3,261 per patient, and for the standard care were EUR4,576 per patient.

Implementation

Implementation of self-management support in routine NHS practice has proved challenging, as demonstrated by a recent well-conducted UK randomised trial.²² In the study, training in self-management support was delivered to primary care staff, who were also provided with resources and access to activities to support self-management. The authors took a realistic and flexible approach to what was possible for practices implement. However pressures on time and resources meant that none of the practices could complete the training and the level of self-management support across practices was likely to vary. The support package delivered no benefits in terms of patient outcomes or on service use compared with existing routine care. The authors concluded that considerable incentives may be needed to embed self-management support into routine primary care. The study also highlights the need to be realistic about what can be achieved by busy practices with competing priorities.

Efforts to engage patients with the self-management of their condition are essential.⁴ Completion rates of the rehabilitation programmes in the Cochrane review by Puhan et al. ranged from 40% to 94%.¹⁰ Successfully engaging patients with self-management interventions could involve using mobile technology and integrating support into patients' personal social networks, such as family, friends and social groups.²²

The evidence suggests there is likely to be variation in engagement with self-management interventions. People who participate in expert patient programmes are likely to be more affluent and educated than the wider population with long term conditions.²² Roll out of self-management interventions will need to consider how best to reach those groups requiring more help to change health behaviours and manage their condition.

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Evidence summary

The table summarises the state of the evidence for each of the interventions considered in this briefing that aim to support self-care for people with COPD. Interventions in **bold** have the most, and better quality, evidence to support them

Type of intervention	Detail of intervention	Effectiveness
Multicomponent interventions ³⁻⁵	Combinations including: Self-management education: covering the disease, the use of medications and devices, breathing and relaxation techniques; delivered by physiotherapists, nurses, occupational therapists Exercise sessions: including walking, strength and endurance training, in groups or individually, more than once a week Action plans: individually tailored, detailing self-treatment of exacerbations Smoking cessation: including education about the link between COPD and smoking, developing social support, having an action plan and encouraging self-recording	Likely to be beneficial
Hospital- or community-based pulmonary rehabilitation ¹⁰⁻¹²	Exercise training, self-management education, behaviour modification and support	Likely to be beneficial
Home-based rehabilitation ^{13,14}	Exercise training, self-management education, behaviour modification and support	Unclear evidence of effect
Action plans alone ⁸	Written action plan with information booklet; guidance on self-initiation of medication	Unlikely to be beneficial