

A disease-specific self-management program reduced hospital utilization and improved health status in COPD

Bourbeau J, Julien M, Maltais F, et al. Reduction of hospital utilization in patients with chronic obstructive pulmonary disease: a disease-specific self-management intervention. *Arch Intern Med.* 2003;163:585-91.

QUESTION

In patients with chronic obstructive pulmonary disease (COPD), does a disease-specific self-management program reduce hospital utilization and improve health status more than usual care?

DESIGN

Randomized (allocation concealed*), blinded {data collectors and data analysts}†, * controlled trial with 12-month follow-up.

SETTING

7 hospitals in 3 cities in Quebec, Canada.

PATIENTS

191 patients ≥ 50 years of age (mean age 70 y, 55% men) with stable COPD (respiratory symptoms and medication unchanged for ≥ 4 wk before enrollment), current or previous smoker, FEV₁ 25% to 70% of predicted and FEV₁-forced vital capacity ratio $< 70\%$; no previous asthma, left congestive heart failure, terminal disease, dementia, or uncontrolled psychiatric illness; not in a respiratory rehabilitation program in the previous year; and no long-term-care facility stays. Follow-up was 86%; all patients were included in the analysis.

INTERVENTION

Patients were stratified by center and allocated to a self-management program ("Living Well with COPD"; Boehringer Ingelheim

Canada, Burlington, Ontario) ($n = 96$), or usual care (management by treating physician, free health care services, and drug benefit plan) ($n = 95$). The 1-hour per week self-management program was delivered by case managers (nurses, respiratory therapists, and a physiotherapist) in the patient's home for 7 to 8 weeks and included 7 modules on COPD, a customized action plan for acute exacerbations linked with therapeutic actions, an exercise program, and case manager availability by telephone.

MAIN OUTCOME MEASURES

Hospital admission (acute hospital stay of any duration, hospital stay ≥ 8 h for 2 consecutive d, or emergency department [ED] visit requiring ≥ 24 h of care). Secondary outcomes included unscheduled visits to the physician and ED visits.

MAIN RESULTS

Analysis was by intention to treat. Patients in the self-management group had fewer hospital admissions for acute exacerbations (71 vs

118 admissions), fewer ED visits for acute exacerbations (95 vs 161 visits), and fewer unscheduled visits to their physician (46 vs 112 visits) than patients in the usual care group. Fewer patients in the self-management group had ≥ 1 hospital admission or ≥ 1 ED visit for acute exacerbations than did those in the usual care group (Table).

CONCLUSION

In patients with chronic obstructive pulmonary disease, a disease-specific self-management program reduced hospital utilization and improved health status more than usual care.

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*See Glossary.

†Information provided by author.

Disease-specific self-management vs usual care for acute exacerbations of COPD at 12 months‡

Outcomes	Self-management	Usual care	RRR (95% CI)	NNT (CI)
Patients with ≥ 1 hospital admission	32%	51%	36% (10 to 55)	6 (4 to 24)
Patients with ≥ 1 ED visit	41%	63%	36% (15 to 52)	5 (3 to 12)

‡COPD = chronic obstructive pulmonary disease; ED = emergency department. Other abbreviations defined in Glossary; RRR, NNT, and CI calculated from data in article.

COMMENTARY

Acute exacerbations are a primary outcome target in many contemporary studies of COPD because exacerbations are costly and associated with substantial mortality. The study by Bourbeau and colleagues shows that a comprehensive self-management intervention is effective in reducing hospital admissions and ED visits. A recent Cochrane review of disparate studies was unable to find evidence of such an effect (1). Mean postbronchodilator FEV₁ at baseline was about 1 L and did not change over 12 months, and $< 15\%$ of patients in this Cochrane review were taking long-acting inhaled bronchodilators (1), which have been shown to reduce exacerbations (2, 3).

The intervention used in the study by Bourbeau and colleagues must have been expensive, mainly because 7 to 8 hours of individual teaching at home was delivered by a trained health professional. The exercise program that was encouraged did not affect distance in the 6-minute walking test, unlike supervised rehabilitation programs (4), and changes in quality-of-life scores at 12 months were not impressive. General provision of individual home teaching would be difficult in a primary care setting. However, the personal action plan for management of exacerbations using antibiotics and steroids with supporting advice could be

achieved much more easily. It is tempting to think that the self-management program might be the major reason for the reduction in hospital admissions with exacerbations in this study, but further studies are needed to separate the components.

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