Self-management in people with COPD

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Wat is a self-management intervention?

> Structured intervention aimed at improvement in self-health behaviours and self-management skills

> Includes training with feedback to improve:

- problem solving
- decision making
- resource utilisation
- formatting patient-provider partnerships
- action planning
- self-tailoring

Lorig, Nursing Research 2003
Conceptual definition of a COPD self-management intervention

A COPD self-management intervention is structured but personalised and often multi-component, with goals of motivating, engaging and supporting the patients to positively adapt their health behaviour(s) and develop skills to better manage their disease.

The ultimate goals of self-management are: a) optimising and preserving physical health; b) reducing symptoms and functional impairments in daily life and increasing emotional well-being, social well-being and quality of life; and c) establishing effective alliances with healthcare professionals, family, friends and community.

The process requires iterative interactions between patients and healthcare professionals who are competent in delivering self-management interventions. These patient-centred interactions focus on: 1) identifying needs, health beliefs and enhancing intrinsic motivations; 2) eliciting personalised goals; 3) formulating appropriate strategies (e.g. exacerbation management) to achieve these goals; and if required 4) evaluating and re-adjusting strategies. Behaviour change techniques are used to elicit patient motivation, confidence and competence. Literacy sensitive approaches are used to enhance comprehensibility.

Effing et al. ERJ 2016
Conceptual definition of a COPD self-management intervention

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Self-management education

Patient education is an indispensable component of self-management, however education alone is insufficient to achieve the goal of behavioural change

Effing et al. CRD 2012
Cochrane review self-management education in adults with COPD

RCT self-management in adults with Asthma

Latest Cochrane review self-management in COPD

Controlled trial self-management in COPD
Reduction of Hospital Utilization in Patients With Chronic Obstructive Pulmonary Disease

A Disease-Specific Self-management Intervention

Jean Bourbeau, MD; Marcel Julien, MD; François Maltais, MD; Michel Rouleau, MD; Alain Beaupré, MD; Raymond Bégin, MD; Paolo Renzi, MD; Diane Nault, RN; Elizabeth Borycki, RN; Kevin Schwartzman, MD; Ravinder Singh, MSc; Jean-Paul Collet, MD; for the Chronic Obstructive Pulmonary Disease axis of the Respiratory Network, Fonds de la Recherche en Santé du Québec

**Self-management intervention:**
Self-recognition of COPD exacerbations, action plans for COPD exacerbations, iterative process with feedback on actions by case-manager, education regarding COPD, and an exercise component

**Significant outcomes after 12 months:**
↓ Respiratory hospitalisations: 39.8%
↓ Emergency department visits: 41.0%
↓ Unscheduled physician visits: 58.9%

Improvements QoL impact score

*Bourbeau, Arch Intern Med 2003*
## Cochrane reviews

### COPD self-management / COPD action plans

<table>
<thead>
<tr>
<th>Study</th>
<th>N total</th>
<th>SGRQ-total</th>
<th>N</th>
<th>Hospital admissions</th>
<th>N</th>
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<tbody>
<tr>
<td><strong>Monninkhof (2002)</strong></td>
<td>9</td>
<td>No effect</td>
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<td>COPD Self-management</td>
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<td><strong>Turnock (2005)</strong></td>
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<tr>
<td>Use of an AP in COPD</td>
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<tr>
<td><strong>Effing (2007)</strong></td>
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<td>Improved</td>
<td>7</td>
<td>Reduction - Respiratory related</td>
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<tr>
<td>COPD Self-management (update)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Walters (2010)</strong></td>
<td>5</td>
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<td>4</td>
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<tr>
<td>AP with limited patient education</td>
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<td><strong>Zwerink (2014)</strong></td>
<td>23</td>
<td>Improved</td>
<td>10</td>
<td>Reduction - Respiratory related</td>
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<td>COPD Self-management (update)</td>
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<td></td>
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<td>Reduction - All cause</td>
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<td><strong>Howcroft (2016)</strong></td>
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<td>Improved</td>
<td>3</td>
<td>Reduction - All cause</td>
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<tr>
<td>AP with limited patient education (update)</td>
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<td><strong>Lenferink (2017)</strong></td>
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<td>Improved</td>
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<td>Reduction - Respiratory related</td>
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<td>COPD Self-management including AP</td>
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<tr>
<td>Study or subgroup</td>
<td>Action Plan</td>
<td>Usual Care</td>
<td>Odds Ratio</td>
<td>Weight</td>
<td>Odds Ratio</td>
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<td></td>
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<td>n/N</td>
<td>M-H,Fixed</td>
<td>95% CI</td>
<td>M-H,Fixed</td>
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<td>Action Plan</td>
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<tr>
<td>McGeech 2004</td>
<td>7/84</td>
<td>6/70</td>
<td></td>
<td>7.7 %</td>
<td>0.97 [0.31, 3.03]</td>
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<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>84</strong></td>
<td><strong>70</strong></td>
<td></td>
<td>7.7 %</td>
<td><strong>0.97 [0.31, 3.03]</strong></td>
</tr>
<tr>
<td>Total events: 7 (Action Plan), 6 (Usual Care)</td>
<td>Heterogeneity: not applicable</td>
<td>Test for overall effect: Z = 0.05 (P = 0.96)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Plan + Phonecall Follow-up</th>
<th>Rice 2010</th>
<th>62/372</th>
<th>86/371</th>
<th>92.3 %</th>
<th>0.66 [0.46, 0.95]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>372</strong></td>
<td><strong>371</strong></td>
<td></td>
<td>92.3 %</td>
<td><strong>0.66 [0.46, 0.95]</strong></td>
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<td>Total events: 62 (Action Plan), 86 (Usual Care)</td>
<td>Heterogeneity: not applicable</td>
<td>Test for overall effect: Z = 2.21 (P = 0.027)</td>
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<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>456</strong></td>
<td><strong>441</strong></td>
<td></td>
<td>100.0 %</td>
<td><strong>0.69 [0.49, 0.97]</strong></td>
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<td>Total events: 69 (Action Plan), 92 (Usual Care)</td>
<td>Heterogeneity: $\chi^2 = 0.39$, df = 1 (P = 0.53); $I^2 = 0.00%$</td>
<td>Test for overall effect: Z = 2.13 (P = 0.033)</td>
<td>Test for subgroup differences: $\chi^2 = 0.39$, df = 1 (P = 0.53), $I^2 = 0.00%$</td>
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**Howcroft et al, Cochrane 2016**
# Quality of Life - SGRQ

<table>
<thead>
<tr>
<th>Study or subgroup</th>
<th>Action Plan</th>
<th>Usual Care</th>
<th>Mean Difference</th>
<th>Weight</th>
<th>Mean Difference</th>
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<tr>
<td></td>
<td>N</td>
<td>Mean(SD)</td>
<td>N</td>
<td>Mean(SD)</td>
<td>IV/Fixed 95% CI</td>
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<tr>
<td>I Action Plan</td>
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<tr>
<td>McGeoch 2004</td>
<td>94</td>
<td>-1.7 (14.664)</td>
<td>70</td>
<td>-0.43 (13.3866)</td>
<td>-1.27 [-5.70, 3.16]</td>
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<tr>
<td>Wood-Baker 2006</td>
<td>54</td>
<td>-0.3 (10.8)</td>
<td>58</td>
<td>-2 (11.5)</td>
<td>1.70 [-2.43, 5.83]</td>
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<tr>
<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>138</strong></td>
<td></td>
<td><strong>128</strong></td>
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<td><strong>0.32 [-2.70, 3.34]</strong></td>
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<tr>
<td>Heterogeneity: Chi² = 0.92, df = 1 (P = 0.34); I² = 0.0%</td>
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<td>Test for overall effect: Z = 0.21 (P = 0.84)</td>
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<td>2 Action Plan + Phone Call Follow-up</td>
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<td>Rice 2010</td>
<td>372</td>
<td>1.3 (18.0796)</td>
<td>371</td>
<td>6.4 (18.0796)</td>
<td>-5.10 [-7.70, -2.50]</td>
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<td><strong>Subtotal (95% CI)</strong></td>
<td><strong>372</strong></td>
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<td><strong>371</strong></td>
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<td><strong>-5.10 [-7.70, -2.50]</strong></td>
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<tr>
<td>Heterogeneity: not applicable</td>
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<td>Test for overall effect: Z = 3.84 (P = 0.00012)</td>
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<td><strong>Total (95% CI)</strong></td>
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<td><strong>100.0 % -2.79 [-4.77, -0.82]</strong></td>
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<td>Heterogeneity: Chi² = 8.02, df = 2 (P = 0.02); I² = 75%</td>
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<td>Test for overall effect: Z = 2.78 (P = 0.0055)</td>
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<td>Test for subgroup differences: Chi² = 7.10, df = 1 (P = 0.01), I² = 86%</td>
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</table>
What components are essential?

> COPD exacerbation action plan
  • Included in most studies
  • Positive effects in individual RCT

Zwerink et al. Cochrane 2014
Lenferink et al. Cochrane 2017
Effing et al. Thorax 2009
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> Smoking cessation component
  • Quality of life (+)
  • Respiratory-related hospitalisations (-)
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Zwerink et al. Cochrane 2014
Lenferink et al. Cochrane 2017
Effing et al. Thorax 2009

> Smoking cessation component
  • Quality of life (+)
  • Respiratory-related hospitalisations (-)

Lenferink et al. Cochrane 2017

> Number of behavioural change techniques (-)

Lenferink et al. Cochrane 2017
What components are essential?

- COPD exacerbation action plan
  - Included in most studies
  - Positive effects in individual RCT

- Smoking cessation component
  - Quality of life (+)
  - Respiratory-related hospitalisations (-)

- Number of behavioural change techniques (-)

- Use of an exercise component (-)
Individual Patient Data analyses

COPD self-management interventions lead to:
- ↓ respiratory-related hospitalisations
- ↓ all cause hospitalisations
- Modest effect QoL

Duration of a self-management intervention is linked to reduction in all-cause hospitalisations

Jonkman et al. ERJ 2016
COPD self-management interventions effective in all patients?

> Male patients and those having a high body mass index had better outcomes for **COPD-related hospitalisations** at 6 months

> Under patients with a high body mass index there was less **mortality** at 6 months

> Patients with severe lung function had better **all-cause hospitalisation** outcomes at 6 months

> Patients with moderate self-efficacy had better **COPD-related hospitalisation** outcomes at 12 months

*Jonkman et al. Int J COPD 2016*
COPD self-management interventions effective in all patients?

> 42% of the intervention group participants were successful self-managers’
  • Patients that started treatment after a recorded symptom deterioration

Bucknall et al. BMJ 2012

> 40% of the intervention patients were successful self-managers
  • Good action plan adherence → quicker recovery from an exacerbation

Bischoff et al. Thorax 2011
COPD self-management interventions effective in all patients?

- Patients monitored in a COPD clinic: up to 60% of the patients had the ability to properly self-manage acute exacerbations
- Unknown how long patients should be trained before they are able to manage their exacerbations properly
- Adherence to self-management instructions takes time

*Bourbeau Respir Med 2013*
Summary evidence

> Self-management interventions are effective on group level
> Self-management interventions do not work for all patients
> Exacerbation action plans should be offered with training
> Predictive factors for success are still unclear
> Longer interventions do better
Self-management interventions in practice
Health literacy

> Just over a third of patients with low literacy are able to show how many tablets should be taken when given a written label containing the instruction

   ‘Take two tablets by mouth twice daily’


> Single question may be useful for detecting patients with inadequate health literacy:

   “How confident are you filling out medical forms by yourself?”


> Use of a simple single step action plan or pictograms in patients in with low literacy
Co-morbidities
Taking into account co-morbidities

> COPD frequently co-exists with other diseases

> ‘One size fits all’ approach that focuses solely on traditional markers of respiratory disease is probably inadequate for patients with (severe) comorbidities

Barnes et al. ERJ 2009
Vanfleteren AMCCM 2013
Training of health care providers
Training of health care providers

> Aim of any self-management program should be behavioural change

> Health care provider delivering the self-management intervention should be trained

> Trial fidelity – quality control
Tanja Effing, PhD
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