Chronic Obstructive Pulmonary Disease: Management of adults with Chronic Obstructive Pulmonary Disease in Primary and Secondary Care

Managing Stable COPD
Education
Index

Author	Publication Date	ID
Carone, M., Bertolotti, G., Cerveri, I., De Benedetto, F., Fogliani, V., Nardini, S., Portalone, L., Rossi, A., Sanguinetti, C. M., Schiavina, M., & Donner, C. F. 2002, "EDU-CARE(R), a randomised, multicentre, parallel group study on education and quality of life in COPD", *Monaldi Archives for Chest Disease*, vol. 57, no. 1, pp. 25-29.	2002 Interim status	**ID 1159**
Devine, E. C. & Pearcy, J. 1996, "Meta-analysis of the effects of psycho educational care in adults with chronic obstructive pulmonary disease", *Patient Education & Counselling*, vol. 29, no. 2, pp. 167-178.	1996	**ID 78**
Howland, J., Nelson, E. C., Barlow, P. B., McHugo, G., Meier, F. A., Brent, P., Laser-Wolston, N., & Parker, H. W. 1986, "Chronic obstructive airway disease. Impact of health education", *Chest*, vol. 90, no. 2, pp. 233-238.	1986	**ID 103**
Emery, C. F., Schein, R. L., Hauck, E. R., & MacIntyre, N. R. 1998, "Psychological and cognitive outcomes of a randomized trial of exercise among patients with chronic obstructive pulmonary disease", *Health Psychology*, vol. 17, no. 3, pp. 232-240.	1998	**ID 1076**
Gallefoss, F., Bakke, P. S., & Rsgaard, P. K. 1999, "Quality of life assessment after patient education in a randomized controlled study on asthma and chronic obstructive pulmonary disease", *American Journal of Respiratory & Critical Care Medicine*, vol. 159, no. 3,	1999	**ID 113** See also ID 114

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Gallefoss, F. & Bakke, P. S. 1999, "How does patient education and self-management among asthmatics and patients with chronic obstructive pulmonary disease affect medication?", *American Journal of Respiratory & Critical Care Medicine*, vol. 160, no. 6, pp. 2000-2005.	1999	**ID 114** See also ID 113
Sassi-Dambron, D. E., Eakin, E. G., Ries, A. L., & Kaplan, R. M. 1995, "Treatment of dyspnoea in COPD. A controlled clinical trial of dyspnoea management strategies. [see comments.]", *Chest*, vol. 107, no. 3, pp. 724-729.	1995	**ID 62**

Author / Title / Reference / Yr	Carone, M., Bertolotti, G., Cerveri, I., De Benedetto, F., Fogliani, V., Nardini, S., Portalone, L., Rossi, A., Sanguinetti, C. M., Schiavina, M., & Donner, C. F. 2002, "EDU-CARE(R), a randomised, multicentre, parallel group study on education and quality of life in COPD", *Monaldi Archives for Chest Disease*, vol. 57, no. 1, pp. 25-29. Ref ID: 1159
N=	N=1,230 enrolled to date (interim data available from 1,003) Duration=6/12 Location=Italy. Sites=68 centres
Research Design	Multicentre, randomised, controlled, parallel-group study.
Aim	To evaluate the efficacy of an educational programme for pts with COPD.
Operational Definition	Inclusion criteria: Post bronchodilator FEV1 between 25-70% of predicted value, with FEV1/FVC <65%. Subsequent improvement of FEV1 compared with baseline value <12% and <200ml.
Population	Stable COPD (asthma excluded)
Intervention	Educational group (Received formal and structured educational programme)
Comparison	Normal General Advice group (Received usual general advice given by GPs on life style and on the disease's risk factors and treatment).
Outcomes	Pulmonary function test, walking distance (Borg dyspnoea scale), health related quality of life (SGRQ), locus of control, exacerbations, hospital admissions
Characteristics	85% Males Age >50yrs No antibiotic usage / no oral steroids unless if chronically used. Excluded asthma, bronchiectasis, diffuse interstitial disease, active TB and severe co morbid conditions.
Results	Pts were evaluated at baseline, 3 & 6 months. Telephone interview at 1, 2, 4, & 5 months.

	Interim results only available. These constitute baseline characteristics. No outcome data available.
SIGN Quality Rating	- (Due to interim status)
Hierarchy of Evidence Grading	1b
NCC CC ID	1159

Author / Title / Reference / Yr	Devine, E. C. & Pearcy, J. 1996, "Meta-analysis of the effects of psycho educational care in adults with chronic obstructive pulmonary disease", *Patient Education & Counselling*, vol. 29, no. 2, pp. 167-178. Ref ID: 78
N=	N=65 studies. Data from 3642 participants. Publication dates= 1954-1994.
Research Design	34% studies included had random allocation. 54% had a control group included. 15% studies included had a placebo-type control group.
Aim	To assess the effects of education, exercise and / or psychosocial support (psycho educational care) in adults with COPD.
Operational Definition	Treatments were classified as pulmonary rehabilitation only if they included both large muscle exercise and education. In most instances they included other types of treatments as well such as breathing exercises, relaxation, psychosocial support or vocational training. Education (provided alone or with other types of treatment) included didactic content. In 11 treatments education was combined with behavioural or non-behavioural counselling (e.g. relaxation, group support). Few types of treatments included cognitive counselling, imagery or frontalis muscle biofeedback.
Population	In 72% studies participants were reported to have COPD. In 25% of studies participants were reported to have COPD or asthma and in 3% participants were reported to have COPD, asthma or other chronic pulmonary disease.
Intervention	Education, exercise and / or psychosocial support (called psycho educational care by the authors)
Comparison	Not specified
Outcomes	Psychological well-being (e.g. Spielberger's Anxiety Inventory), endurance (time or distance able to walk, cycle or use treadmill), changes in O2 uptake, functional (e.g. Sickness Impact Profile), dyspnoea, pulmonary function, knowledge of psychomotor skills, adherence and utilisation of health care.
Characteristics	Average age 43-70yrs In 54 studies gender was reported; 81% of these had more men than women with 19% being men only. Studies conducted primarily in the USA (80%), 8% in GB. Most prevalent treatments tested were pulmonary rehabilitation (N=28) and education (N=21).
Results	Précised results taken from Cochrane abstract No 114 (all validated with original paper) Analyses by type of treatment showed that pulmonary rehabilitation had statistically significant beneficial effects on: Psychological well-being (N=13), mean effect size 0.58 (95% CI 0.35 to 0.81) Endurance (N=13) mean effect size 0.77 (95% CI 0.64 to 0.90)

	Functional status (N=8) mean effect size 0.63 (95% CI 0.39 to 0.88) O2 uptake (N=5) mean effect size 0.56 (95% CI 0.32 to 0.81) Dyspnoea (N=10) mean effect size 0.71 (95% CI 0.37 to 1.04) Adherence (N=2) mean effect size 1.76 (95% CI 1.24 to 2.27) Education alone had a significant beneficial effect only on the accuracy of performing inhaler skills (N=7) mean effect size 1.27 (95% CI 0.99 to 1.55) Relaxation alone had statistically significant beneficial effects on both dyspnoea, mean effect size 0.91 (95% CI 0.34 to 1.48) and psychological well-being mean effect size 0.39 (95% CI 0.08 to 0.70)
SIGN Quality Rating	-
Hierarchy of Evidence Grading	1a
NCC CC ID	78

Author / Title / Reference / Yr	Howland, J., Nelson, E. C., Barlow, P. B., McHugo, G., Meier, F. A., Brent, P., Laser-Wolston, N., & Parker, H. W. 1986, "Chronic obstructive airway disease. Impact of health education", *Chest*, vol. 90, no. 2, pp. 233-238. Ref ID: 103
N=	N=1,834. Duration=16/12. Location=USA. Sites=One of a pair of matched communities.
Research Design	Quasi experimental (controlled study, no randomisation).
Aim	To evaluate the impact of a health education program on the respiratory symptoms and health status of COAD pts.
Operational Definition	Persons with FEV1/FVC values between 70-60% were considered abnormal if they reported chronic symptoms of cough, phlegm, wheezing, or breathlessness. All persons with FEV1/FVC less than 60% were considered abnormal. No reversibility testing.
Population	Mild to severe chronic obstructive airway disease (No indication of inclusion or exclusion of asthmatic population). COAD pts in both communities were located and assessed to establish baseline health status. Assessments were repeated one yr following baseline measurements.
Intervention	Two education programmes: N=254 recruited (N=213 completed) One programme for severely impaired pts – six, 2hr sessions / One programme for mildly impaired pts – three, 2hr sessions (Moderately impaired pts were assigned to one or the other course on the basis of reported breathlessness.
Comparison	Identified and assessed as per participants in the intervention group but the comparison group were given the “findings only” (N=405 recruited and N=325 completed).
Outcomes	To evaluate the impact of health education programs pre-test and post-test scores were compared on 30 selected variables. Grouped into five domains; health perceptions, symptom status, mental health, physical function, social function.
Characteristics	Average age 60yrs / Gender % males - 54% intervention group and 51% control group. / Medication status not given.

Results	The health education program had no statistically significant impact on any measure of health status. The only variable demonstrating a significant post test difference between intervention and comparison pts was health locus of control (5.7 vs 5.9, p=0.003), which was one of five measures used to assess general health perceptions. Health locus of control decreased slightly but significantly for each disease severity subgroup of intervention patients and increased for each disease severity subgroup of control pts. This suggests that the health education program helped pts become somewhat more likely to believe that they can control their own health. There was no significant difference between groups at post-test on variables related to symptoms status, physical function, mental health, or social function.
SIGN Quality Rating	+
Hierarchy of Evidence Grading	11a
NCC CC ID	103

Author / Title / Reference / Yr	Emery, C. F., Schein, R. L., Hauck, E. R., & MacIntyre, N. R. 1998, "Psychological and cognitive outcomes of a randomized trial of exercise among patients with chronic obstructive pulmonary disease", *Health Psychology*, vol. 17, no. 3, pp. 232-240.Ref ID: 1076
N=	N=79. Duration=10 wk (data collected over 1yr) programme Location=USA
Research Design	RCT
Operational Definition	FEV1.FVC <. 70 / clinical symptoms of COPD
Population	Stable COPD (excluded asthma)
Intervention	a) Exercise, education and stress management (EXESM) N=29 EXESM participants met daily for 4 hr per day during a 5 wk period. EXESM included 37 sessions of exercise, 16 educational lectures and 10 wkly stress management classes.
Comparison	b) Education and stress management but no exercise training (ESM) N=25 (ESM included 16 lectures and 10 stress management classes). c) Waiting list (WL) N=25 (Participants were asked not to alter their activities significantly during the 10 wk period)
Outcomes	Before and after assessments were conducted of physiological functioning, psychological well-being (depression, anxiety, quality of life) and cognitive functioning.
Characteristics	Mean age 67yrs / 53% female / Significant diseases excluded e.g. TB, cancer / Mean baseline % predicted FEV1= 42 (SD 17) / Most participants were taking chronic pulmonary medication (e.g. inhaled and oral bronchodilators or corticosteroids). / At baseline there were no significant group differences in age, gender distribution, or indicators of pulmonary function, physical endurance, O2 use and medications were not significantly different.
Results	Multivariate analysis indicated that EXESM participants experienced changes not observed among EXM and WL participants, including improved endurance, reduced anxiety and improved cognitive performance (verbal fluency).

	Pulmonary Function (FEV1, % predicted FEV1, FVC, MVV) No significant effects. **Cardiopulmonary endurance** Participants in the EXESM condition increased work significantly, whereas control participants did not. Participants in the EXESM condition achieved gains in VO2 max that were not evident in the control groups (Significant increase of approximately 16% in VO2max among EXESM participants). **Psychological well being:** Depression: Post hoc analysis of within group change across time indicated significant reductions in depressive symptoms in both the EXESM and WL groups with no change in the ESM group. Anxiety: Results indicated no group or time main effects. Post hoc evaluation for within-group change across time indicated significant reductions in anxiety among EXESM participants but not among ESM or WL participants. **HRQL** Generalised health attributions: No effects Illness related impairment: Post hoc analysis of within group change indicated that participants in both the EXESM and WL groups reported decreases in impairment over time. **Cognitive Functioning** Attention & Motor speed – No significant effects Mental efficiency – Participants in all 3 groups improved but there was no interaction effect. Organised verbal processing – Participants in EXESM condition improved significantly but those in the control conditions did not change. **Illness Knowledge** Post hoc within group comparison across time indicated that both EXESM and ESM groups achieved significant increases in test scores but the WL group did not change. **Evaluation of mediating variables:** Regression analyses suggested that greater knowledge might have been associated with increased distress in the EXM group. A regression analysis was performed regressing change on the COPD knowledge test. Among the EXESM participants COPD knowledge was not a significant predictor of psychological well being. However, when the regressions were repeated with the ESM participants, change in COPD knowledge was strongly associated with SCL-Anxiety but in a negative direction suggesting that greater COPD knowledge was associated with increase anxiety.
SIGN Quality Rating	-
Hierarchy of Evidence Grading	1b
NCC CC ID	1076

Author / Title / Reference / Yr	Gallefoss, F., Bakke, P. S., & Rsgaard, P. K. 1999, "Quality of life assessment after patient education in a randomized controlled study on asthma and chronic obstructive pulmonary disease", *American Journal of Respiratory & Critical Care Medicine*, vol. 159, no. 3, pp. 812-817. Ref ID: 113 See also Paper ID 114
N=	N=140. Duration=1 yr follow-up. Location=Norway. Sites=Outpatient chest clinic at Central Hospital Norway
Research Design	RCT
Aim	To assess the effect of pt education on anti obstructive medication dispensed from pharmacies.
Operational Definition	Subjects with stable asthma were to have a prebronchodilator FEV1 equal to or higher than 80% of predicted value. A positive reversibility test, a documented 20% spontaneous variability (PEF) or FEV1 or a positive methacholine test. A positive reversibility test required at least 20% increase (FEV1 or PEF) after inhalation of 400ug salbutamol. Subjects with mild COPD had a prebronchodilator FEV1 equal to or higher than 40% and lower than 80% of predicted. Among pts with COPD 32% were reversible to Ipratropium Bromide 80ug and/or salbutamol.
Population	N=78 asthmatics N=62 COPD Groups analysed separately throughout. Control group N=39 asthmatics / N=31 COPD pts Intervention group N=39 asthmatics / N=31 COPD pts
Intervention	Education program – Received a booklet with essential information about condition / medication, compliance, self-care and self-management plan. The asthmatics and COPD pts were educated in separate groups. The COPD group received more information about tobacco weaning, but otherwise the educational interventions were comparable. The education consisted of two 2-hr group sessions of five to eight persons on two separate days. The participants then had one to two individual sessions by a nurse and another session with a physiotherapist. At the final teaching the pts received an individual treatment plan on the basis of the acquired personal information.
Comparison	The control group were followed by their GP
Outcomes	At randomisation, no validated lung-specific health related quality of life instrument was available in Norwegian. Four simple HRQL questions translated from the Omnibus interview were used. The same four questions were asked after a 1 yr follow-up. At the 1 yr follow up the St George's Respiratory Questionnaire (SGRQ) was used as at that time it had been translated to Norwegian and validated by translation back to English.
Characteristics	COPD Characteristics COPD mean age control group 58yrs / intervention group 57yrs (Asthmatics control group 44yrs / intervention group 41yrs) Sex, women, n (%) control group (48%) / intervention group (52%) At baseline 92% of COPD pts used steroid inhaler. 60% and 23% COPD pts used one and two regular medications respectively. COPD FEV1 % pred, mean +/- SD control group=56+/-11, intervention group=59+/-9 (Asthmatics control group=95 +/-17, intervention group=93+/-13)
Results	There were no statistically significant HRQL scores or FEV1 results in the educated pts with COPD compared with the control group

	after 1 yr. Patient education increased HRQL and FEV1 among asthmatics but not among pts with COPD.
SIGN Quality Rating	++
Hierarchy of Evidence Grading	1b
NCC CC ID	113

Author / Title / Reference / Yr	Gallefoss, F. & Bakke, P. S. 1999, "How does patient education and self-management among asthmatics and patients with chronic obstructive pulmonary disease affect medication?", *American Journal of Respiratory & Critical Care Medicine*, vol. 160, no. 6, pp. 2000-2005. Ref ID: 114 See also Paper ID 113
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Population	N=78 asthmatics N=62 COPD Groups analysed separately throughout. Control group N=39asthmatics / N=31 COPD pts Intervention group N=39 asthmatics / N=31 COPD pts

Intervention	Education program (specially constructed pt brochure, two 2hr group sessions (separate groups for asthmatics and pts with COPD) concentrating on pathophysiology, anti obstructive medication, symptom awareness, treatment plans, and physiotherapy. Both a nurse and a physiotherapist supplied one or two 40 min individual sessions. At the final teaching the pts received an individual treatment plan. Among the educated asthmatics 94% received standard treatment plans incorporating peak flow monitoring. In the COPD group 12 of 26 (46%) received standard treatment plans.
Comparison	The control group were followed by their GPs.
Outcomes	Dispensed medication was reported from all local pharmacies through monthly printouts from the pharmacy data registers. At the 1 yr follow up all pts were asked whether they had received medication elsewhere. This data was then included. Compliance of regular medication was calculated as a percentage. Defined a priori the pt as compliant when dispensed regular medication was greater than 75% of prescribed regular medication during the study period.
Characteristics	**COPD Characteristics** COPD mean age Control Group 58yrs / Intervention Group 57yrs. (Asthmatics Control Group 44yrs / intervention Group 41yrs) Sex, women, n (%) Control group (48%). Intervention Group (52%) At baseline 92% of COPD pts used steroid inhaler. 60% and 23% COPD pts used one and two regular medications respectively. COPD FEV1 % pred, mean +/- SD Control Group=56+/-11 Intervention Group=59+/-9. (Asthmatics Control Group=95 +/-17 Intervention Group=93+/-13)
Results	**The results for both asthmatics and COPD pts are cited here due to the difference in findings:** Among the asthmatics the proportion of pts with steroid inhaler compliance (SIC) above 75% in a 1 yr follow-up was almost twice (57/32=1.8) as large in the educated group as in the control group (p=0.04). The odds ratio for having a SIC >75% were 2.8 (95% CI 1.1 to 7.7) in the educated group compared with the control group. No significant difference was observed between the COPD treatment groups. Among the asthmatics 26 of 71 (37%) did not collect short acting beta agonist inhalations (rescue medication) at the pharmacies. In the COPD group the corresponding ratio was six out of 53 (11%) (p=0.001). For the amount of short acting beta agonist inhalations being dispensed during a 1 yr follow-up, the educated pts with COPD received less than half the amount of rescue medication compared with the control group (p=0.03). In the asthmatics a similar tendency was observed, but the difference was not statistically significant. Nine participants in both asthma treatment groups (p=0.63) reported a median number of two steroid courses during the 1 yr follow-up. Eighteen of 26 (69%) educated COPD pts reported steroid courses compared with 12 of 27 (44%) in the control group (p=0.07) among which a median of three and four steroid courses were recorded respectively.

	Steroid inhaled compliance seemed unaffected by pt education in the COPD group, while the need for short acting beta agonist inhalations as rescue medication was doubled in the uneducated group. Use of oral steroids did not differ significantly between the intervention and control group for COPD pts (or asthmatics).
SIGN Quality Rating	++
Hierarchy of Evidence Grading	1b
NCC CC ID	114

Author / Title / Reference / Yr	Sassi-Dambron, D. E., Eakin, E. G., Ries, A. L., & Kaplan, R. M. 1995, "Treatment of dyspnoea in COPD. A controlled clinical trial of dyspnoea management strategies. [see comments.]", *Chest*, vol. 107, no. 3, pp. 724-729.Ref ID: 62
N=	N=89. Duration=6 wk intervention (followed up at 6/12). Location =USA. Sites=Recruited from local newspaper advertisements, community physicians and clinics, and the local Better Breathers Clubs of the American Lung Association.
Research Design	RCT
Aim	Evaluate a limited pulmonary rehabilitation program focused on coping strategies for shortness of breath but without exercise training.
Operational Definition	Medical records and pulmonary function test evidence of expiratory obstruction to confirm the diagnosis of COPD. No operational definition provided.
Population	COPD
Intervention	6 weekly sessions during which strategies for coping with shortness of breath were presented. (N=47) During the sessions, one or more of the following strategies was presented followed by a question and answer period; pulmonary anatomy and physiology; description of COPD, a dyspnoea model, progressive muscle relaxation, diaphragmatic and pursed lip breathing, packing and energy saving techniques, self talk and panic control, and stress management. Participants also practiced the strategies at activity stations.
Comparison	Consisted of 6 weekly general health education lectures on topics not directly related to lung disease. Professionals presented lectures. (N=51)
Outcomes	2 hr assessment obtained at baseline, after the 6 wk intervention, and 6/12 later. Measures of dyspnoea, exercise tolerance (6MW), health related quality of well being (QWB scale), anxiety (Spielberger state trait anxiety inventory) and depression (Centre for Epidemiological Studies' Depression). Dyspnoea measure include; Baseline and Transition Dyspnoea Indexes; American Thoracic Society Dyspnoea Scale; Oxygen Cost Diagram; University of California, Sand Diego, Shortness of Breath Questionnaire; Visual Analogue Scale; Borg Scale of Perceived Dyspnoea
Characteristics	55% Male / Mean age 67 yrs / FEV1 L 1.2 / FEV1 % predicted 50
Results	There were no significant differences between the treatment and control groups on any dependent variable. Participants in both groups showed a reduction in SOBQ dyspnoea ratings over time ($p<0.01$). At the 6/12 follow up the treatment group showed significant improvement on the TDI as compared with the control group ($p<0.05$).
SIGN Quality Rating	+
Hierarchy of Evidence Grading	1b
NCC CC ID	62