446. Effectiveness of respiratory disease management in primary care

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Can the organisation of COPD care in primary health care centres help preventing exacerbations in COPD patients?

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Introduction: COPD exacerbations are associated with lung function decline, lower quality of life and increased mortality, and can be prevented by pharmacological treatment and rehabilitation. The aim of this study was to explore if the organization of the COPD care in primary health care centres influences the risk for new exacerbations.
Methods: A clinical population of 775 COPD patients was randomly selected from 70 Swedish primary health care centres (PHCCs). Data on COPD exacerbations and following preventive measures were obtained from medical record review. Cox regression analyses were used to estimate the risk of a new exacerbation with adjustment for age and sex.
Results: During a study period of four years 458 patients had an exacerbation, and of these 278 patients (61%) had a second exacerbation during the follow-up period. Patients with a scheduled extra visit to an asthma/COPD nurse following an exacerbation had a decreased risk of a new exacerbation compared to patients with no extra follow-up besides regularly scheduled visits (adjusted hazard ratio (95% CI) 0.54 (0.32 to 0.93), p=0.026).
Conclusion: Scheduling an extra visit to an asthma/COPD nurse following a COPD exacerbation decreased the risk of reexacerbations in primary care patients. We conclude that a close cooperation between professional categories is important in the prevention of COPD exacerbations in primary care.

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Are disease management programs for COPD cost-effective?

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Background: There is insufficient evidence of cost-effectiveness of COPD disease management (COPD-DM) programs.
Aim: The aim of this study is to review the impact of COPD-DM on healthcare costs and outcomes. We also investigated the impact of disease-, intervention-, and study-characteristics.
Methods: We conducted a systematic review to identify cost-effectiveness of

COPD-DM. The data, results, and characteristics of the studies were grouped and, if feasible, included in a random-effects meta-analysis.
Results: We included 16 papers describing 11 studies. The meta-analysis showed that DM decrease hospitalizations (RR: 0.76 [95CI: 0.63-0.93]), and let to a significant reduction of hospitalization costs (€1196 [95CI: €722 -€1670]) per patient per year (PPPY). Average healthcare savings were €1914 [95CI: €1464-€2365] PPPY. These savings have to be weighed against the costs of developing, implementing and managing the DM program. Our results showed great variability in disease-, intervention-, and study-characteristics. There are indications that DM showed greater savings in hospital costs in studies with: severe COPD patients (GOLD stage 3+), patients with exacerbations, smokers, non-RCT design, short intervention duration, low methodological quality, 1-2 Chronic Care Model components and non-EU origin.
Conclusion: DM decreased the risk of hospitalization and healthcare costs (excluding program costs). Furthermore, cost-effectiveness was influenced by heterogeneity in study-, intervention-, and disease-characteristics. Although favourable results on healthcare costs and effects have been demonstrated, more studies are needed to draw conclusions on the impact of DM on total costs and cost-effectiveness of DM in different settings.

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COPD in primary care in Sweden – An 11 years epidemiological register study
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Background: Analysis of longitudinal clinical practice data yields important information about disease characteristics, natural course and disease management.
Objectives: To describe chronic obstructive pulmonary disease (COPD) in primary care in Sweden with special reference to management, co-morbidity, and life expectancy (NCT01146392).
Methods: Primary care medical records' data on COPD patients ≥18 years was linked to national hospital, drug, and cause of death register data for 1999 – 2009. Index date was first COPD diagnosis. Exacerbation defined as hospitalisations, emergency room visits, prescription of oral steroids, or antibiotics for COPD.
Results: Study population; 21,361 patients (47% males; 68.0 years). During the two years before index 77% had exacerbations, 40% prescribed oral steroids, 62% antibiotics, and 27% had inhaled steroids (ICS). During the 11-year period, COPD was to a larger degree first diagnosed in primary care (59%, 1999; 81%, 2009); and mean age at diagnosis decreased by 7 years (73 to 66 years). Prescriptions of tiotropium and fixed ICS/LABA (long-acting β2-agonists) combinations increased to 36% and 37%, respectively; while ipratropium, LABA and ICS showed stable/decreasing trends. Exacerbations simultaneously decreased from 3.0 to 1.3 exacerbations/patient/year.
Diagnosis of co-morbidities increased from index to 8 years after; diabetes from 12 to 19%, heart failure 16 to 26%, and lung cancer 0.94 to 1.47%. Mean life expectancy was 8.3±6.8 years shorter than for the average Swedish population.
Conclusion: Management of COPD improved during the study period, with earlier diagnosis, primary care focus, changes in treatment options and decrease of exacerbations.
Study sponsor; AstraZeneca.

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Adherence to a maintenance exercise programme 1 year after pulmonary rehabilitation: What are the predictors of drop-out?
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Objective: To study adherence to a maintenance exercise programme in patients with COPD, who had been following a pulmonary rehabilitation programme.
Methods: 70 patients with COPD were included in the study after completing the rehabilitation programme. All were referred to an community-based maintenance exercise programme. Adherence was assessed by open questionnaire after 6 and 12 months and lung function, exercise capacity, exercise self-efficacy, illness perceptions, health related quality of life, levels of anxiety and depression, duration of rehabilitation and number of exacerbations were studied as possible predictors of (non-)adherence.
Results: Ten patients died or were lost to follow-up. Of the remaining 60 patients, 73.3 and 63.3% were adherent to the exercise programme after 6 and 12 months, respectively. FEV1 (p=0.021), HADS depression score (p=0.025) and duration of rehabilitation (p=0.018) were statistically significant predictors of adherence.
Conclusion: Adherence to a maintenance exercise programme, after having followed a pulmonary rehabilitation course, is quite reasonable for patients with COPD: about one third drops out during the first year. A poorer lung function, a longer rehabilitation course, and higher level of depressive symptoms are predictive for drop-out.
Practice implications: To improve adherence to a maintenance programme, special attention should be paid to patients with lower FEV1, those with signs of depression or in need of a longer rehabilitation.

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Lower incidence of asthma exacerbations with F_ENO-guided anti-inflammatory treatment: A randomised controlled trial
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We examined the effects of anti-inflammatory treatment guided by fractional exhaled nitric oxide (F_ENO) on asthma outcomes in adult patients with allergic asthma.
This was a primary health care multicentre study (17 sites). 181 non-smoking participants (18-64 years) with perennial allergy and regular inhaled corticosteroid (ICS) treatment were randomly assigned to two treatment arms: a control group (n=88) where F_ENO was blinded for both patient and physician and the anti-inflammatory treatment (ICS and leukotriene receptor antagonists) adjusted according to routine clinical practice, and an active group (n=93) where the anti-inflammatory treatment was adjusted according to F_ENO. Participants were followed for one year (5 visits). F_ENO was measured and questionnaires on asthma-related quality of life (mini-AQLQ) and asthma control (6-item ACQ) were completed. Health care contacts and asthma events were noted at every visit.
The primary endpoint mini-AQLQ overall score over one year did not differ between the groups at last visit (p=0.20), whereas the mini-AQLQ symptom domain score (p=0.041) and the ACQ score (p=0.045) improved significantly more in the F_ENO-guided group than in the control group. Furthermore, a significantly lower cumulative incidence of exacerbations was found in the F_ENO-guided group vs. control group (p=0.029). This was dependent on a reduction in moderate (p=0.006) but not severe (p=0.73) exacerbations. Mean use of ICS over the study period was similar in the two groups (p=0.95).
Using F_ENO to guide anti-inflammatory treatment reduced exacerbation frequency and improved asthma control in adults with atopic asthma without increasing overall ICS use.

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Reducing asthma admission: Impact of the Easy Asthma Clinic Network
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Introduction: Easy Asthma Clinic Network has been developed as a model to enhance the implementation of GINA guidelines in Thailand since 2004. We set up Easy Asthma Clinic in the hospitals throughout Thailand. The Easy Asthma Clinic runs by GPs in general hospitals. In the clinic we simplified asthma guidelines and organized the system to facilitate the team work, emphasized the role of nurses and pharmacists to help doctors. We also developed on-line web database for registering and monitoring patients. This study aim to study the effect of the Easy Asthma Clinic Network on asthma admissions.
Method: All asthmatics under the universal health care scheme registered in the Easy Asthma Clinic Network during October 2007 to September 2009 were analyzed for hospitalization rate and hospital days due to asthma. The hospitalization rate and hospital days due to asthma during one year before and after registration were compared.
Results: There were 22,564 asthmatics registered from 360 hospitals. There were 6,449 admissions, which were associated with 36,588 hospital days during one year period before registration. The rate of hospitalization was 0.2858 admissions/patient/year. There were 4,071 admissions, which were associated with with 11,608 hospital days during one year period after registration. The rate of hospitalization was 0.1804 admissions/patient/year. Registration to the Easy Asthma clinic Network lower the risk of hospitalization (incidence rate ratio 0.39, confidence interval (CI) 0.38 to 0.41).
Conclusions: The Easy Asthma Clinic Network is effective in reducing hospitalization due to asthma.

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More than 50% of patients visit a general practitioner (GP), general physician (Gen P) or a pediatrician (P) in India for respiratory symptoms: Results of a one-day point-prevalence study in 2,04,912 patients across 22 states and 5 union territories in India
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A better understanding of the disease pattern and symptoms for which a patient visits a doctor will help design appropriate health care management strategies. This study was aimed to investigate the symptoms for which a patient visits a general healthcare provider in India using a 1-day point-prevalence cross-sectional study design.

Method: 13,225 practicing GPs, Gen Ps and Ps, randomly selected from 880 cities and towns in India based on a proportionate random sampling strategy were invited to participate in this study. On 1st February 2011, all participating doctors completed a questionnaire based on the validated ICD-10 classification, wherein they captured age, gender and symptoms of all patients who visited their clinic. Data was collected, cleaned and entered in Epi Info software and simple descriptive analysis was performed.
Results: A total of 2,04,912 patients visited 7400 doctors who consented and gave clean data. Amongst these, 50.6% presented with respiratory symptoms (31.8% cough, 15.8% rhinitis, 9.4% sore throat, 8.4% wheeze and 6.9% breathlessness), 25% presented with gastrointestinal symptoms, 18% cardiovascular, 5% dermatology and 3% for endocrine related symptoms/diagnosis. These observations were generally uniform across 22 states and 5 union territories in India with no hot spot regions.
Conclusion: Respiratory symptoms account for over 50% of symptoms for which a patient visits a doctor in India, which extrapolates to at least 20 million patient visits for respiratory symptoms every day in India.

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Comparative study of respiratory symptoms, lung function, BMI and exercise capacity in patients with COPD associated with tobacco smoke (TS) and biomass smoke (BS) exposure

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Background: COPD is the 4th leading cause of death and is expected to be 3rd by 2030. Tobacco smoke and indoor air pollution are the major risk factors for COPD. While there are large number of studies on tobacco smoke and COPD, there is paucity of data on biomass smoke and COPD. It is not clear whether this phenotype of COPD is different or similar to COPD caused by tobacco smoke.
Aim: To compare the clinical symptoms, lung function, BMI and 6MWD (exercise capacity) in TS-COPD and BS-COPD.
Methods: We prospectively evaluated 103 stable COPD patients from the outpatient clinic. COPD was diagnosed by GOLD guidelines (post bronchodilator FEV1/FVC <70%), respiratory questionnaire captured symptoms and six minute walk test (6MWT) was done as per ATS guidelines.
Results:

	TS-COPD (n=75)	BS-COPD (n=26)	p
Males	73 (97.3%)	2 (7.1%)	
Females	2 (2.6%)	26 (92.85)	p<0.001
Age mean (SD)	63.39 (8.87)	60.04 (7.57)	NS
Cough	70.7%	71%	NS
Wheeze	24%	3.6%	p = 0.017
BMI	19.83 (3.90)	18.46 (3.81)	NS
FEV1 Post	47.87 (14.98)	44.95 (14.49)	NS
6MWT	379.88 (84.84)	344.12 (88.31)	NS

There were 75(TS-COPD) and 28(BS-COPD) patients with mean age of 63.39(8.87) and 60.04(7.57) respectively. Females (92.85%) dominated the biomass group while 97.3% males were in the tobacco smoking group.TS-COPD presented with wheeze(24%) as compared to 3.6% in BS COPD(p=0.017). There was no difference in clinical symptoms of cough and dyspnea in both groups. Severity of disease, BMI and exercise capacity showed no statistical difference in both groups.
Conclusions: Our results confirmed that BS-COPD and TS-COPD have similar clinical characteristics.