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Background: Anxiety is common among people with obstructive lung diseases. However, reduced lung function in combination with anxiety in relation to the reporting of dyspnoea is not well studied.
Objectives: To study the association between reduced lung function and dyspnoea, and how anxiety affects this association.
Methods: We analysed data on 5627 women and 5066 men who participated in the Lung substudy of the Nord-Trøndelag Health Study in 1995-97. In a cross-sectional design we used logistic regression to calculate multivariably adjusted odds ratios (ORs) for dyspnoea associated with levels of FEV1% predicted and anxiety (measured by the Hospital Anxiety and Depression scale).
Results: Among women with FEV1 $\geq$100% predicted, those who had anxiety had an OR (95% confidence interval) for reporting dyspnoea when walking of 2.00 (0.68-5.90) compared to those without anxiety. Using the same reference group (FEV1 $\geq$100% predicted and no anxiety), women with FEV1 80-99% predicted had an OR of 2.46 (1.26-4.83) without anxiety and 7.67 (3.66-16.08) with anxiety, whereas those with FEV1 50-79% predicted had an OR of 4.61 (2.49-8.52) without anxiety and 14.37 (6.50-31.78) with anxiety. The corresponding ORs among men without and with anxiety were 1.00 (reference) and 4.55 (0.87-23.70); 1.15 (0.46-2.88) and 5.00 (1.82-13.73); and 4.10 (1.49-11.29) and 14.03 (4.04-48.76), respectively. The ORs for reporting dyspnoea at rest and waking up by dyspnoea showed similar patterns in both women and men.
Conclusions: Reduced lung function in combination with anxiety had a stronger association with dyspnoea than reduced lung function alone.

P4113
Functional health status and satisfaction with health in a population reporting a participation or activity limitation: Focus on COPD
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Background: Symptoms associated with COPD can result in participation and activity limitations as well as reduced quality of life.
Objective: To examine the impact of COPD on functional health status (FHS) and satisfaction with health (SWH) in persons with a participation or activity limitation among a national sample of Canadians.
Methods: This survey used data from the 2006 Participation and Activity Limitation Survey (PALS), a complex population survey of Canadians reporting a disability on the census. COPD was present if there was a self-report of COPD, emphysema, or bronchitis as the cause of disability. FHS was assessed using the Health Utility Index (HUI-3) and categorized as high, moderate, or severe. SWH was categorized as high, moderate, or low. Analyses were weighted to the population and bootstrapping used to estimate variances.
Results: The sample represents 5,185,980 adults with participation or activity limitation. Subjects without missing data (55%) for the variables of interest were included. COPD was reported as the reason for disability in 1.4% of the population. Among those reporting COPD, 44% reported moderate and 49% reported low SWH. FHS was moderately impaired for 31% and severely impaired for 46%. After adjustment, COPD was significantly associated with a lower SWH (p<0.05), but not with FHS (p=0.12).
Conclusions: While FHS was similar to the overall population with a disability, persons with COPD had a markedly lower SWH, suggesting the need to focus on quality of life enhancement strategies.

P4114
Lung function decline predicts disability in valued life activities, which in turn predicts impaired quality of life in COPD
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Background: Interrelationships among lung function, disability, and health-related quality of life (HRQL) in COPD need clearer delineation.
Methods: We carried out baseline/follow-up interviews, spirometry, and 6 minute walk tests (6MWT) for 646 participants in a COPD cohort (42% male; age 59±6; median follow-up 2.1 years). Valued Life Activities (VLA) disability was scored with a validated instrument; VLA increased disability [VLA-ID]=0.5 standard deviation increase in score baseline-follow-up (14.6% disability). We assessed respiratory-specific HRQL with the Airways Questionnaire 20-Revised. Logistic regression (including age, sex, height) estimated risk by change in absolute values of FEV_1 and 6MWT for VLA-ID; linear regression (including the same covariates, VLA-ID, and baseline HRQL) predicted follow-up HRQL.
Results: Mean decline in FEV_1=-91 ml; mean decline in 6MWT=-37 M. VLA-ID predicted worsened HRQL (p<0.001). Although FEV_1 decline predicted VLA-ID (p<0.001), neither change in FEV_1 or 6MWT was associated with change in HRQL. Including FEV_1 and 6MWT in multivariate modeling, VLA-ID retained its relationship with HRQL (1.3 point change; effect size=0.29; p<0.001).

421. Respiratory epidemiology: quality of life, therapy and socioeconomics

P4111
Late-breaking abstract: Postmenopausal hormone replacement therapy is associated with increased risk of asthma hospitalization
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Background: Postmenopausal hormone replacement therapy (HRT) has been associated with asthma, but is not yet an established risk factor.
Aim: To investigate, for the first time, the association between HRT use and risk of severe asthma exacerbations requiring hospitalization in a prospective study. COPD was analyzed simultaneously to account for potential misclassification.
Methods: Intake of HRT and potential confounders, including smoking status, occupational exposure, educational level, body mass index, and hysterectomy, were assessed in 1993-1997 in 23 138 postmenopausal women from the Danish Diet, Cancer and Health cohort. Incident (first-ever) asthma and COPD hospitalizations were registered prospectively in Danish Hospital Discharge Register between 1993 and 2006. Association with HRT was analyzed with Cox's regression analyses.
Results: We observed 446 (1.9%) incident asthma hospitalizations in 23 138 women over 9.9 years mean follow-up. 11 575 (50.0%) women ever used HRT. Ever using HRT was positively associated with asthma hospitalization (hazard ratio [95% confidence interval]: 1.37 [1.14-1.65]). The risk was highest with the longest duration of HRT use ($\geq$ 10 years: 1.51 [1.15-1.98], 3-10 years: 1.34 [1.05-1.72], < 3years: 1.29 [1.00-1.67], reference never users). Effect modification was detected by smoking, indicating strongest effect in never smokers (1.84 [1.32-2.56]) and no effect in current smokers (1.08 [0.79-1.45]). HRT was also associated with COPD hospitalization, with a smaller effect (1.19 [1.05-1.35]).
Conclusion: HRT use may cause asthma onset or worsening with severe exacerbation.

P4112
Lung function and anxiety in association with dyspnoea – The HUNT study
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Conclusion: VLA-ID, but not FEV_1 or 6MWT decrements, predicted HRQL impairment. Although FEV_1 decline was associated with VLA-ID, worsening respiratory status did not directly account for HRQL changes.
Clinical Relevance: Interventions directly focused on attenuating disability are likely to be critical in preserving HRQL, independent of respiratory function or exercise capacity.
Support: NIH HL077618, FAMRI CoE2007.

P4115
Recreational activity limitation in subjects with and without COPD in five Latin American cities: The PLATINO study
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COPD is a progressive and debilitating disease. With worsening disease, patients will progressively become less physically active, will have reduced social contacts, and this will create a downward vicious circle. Although much attention has focused on physical activity limitation, recreational and social activities limitation are also important to assess the burden of the disease.
We examined the frequency of recreational activity limitation due to health and lung problem in a population-based study. We used post-bronchodilator $FEV_1/FVC < 0.70$ to define COPD. Information regarding recreation limitation was assessed by the questions: "In the last 12-months, could you not perform recreational activities due to your health problems?" and "In the last 12-months, for how many days in total could you not perform recreational activities due to health or lung problems?
Interviews were completed in 5,571 subjects and spirometry was performed in 5,314 subjects. There were 759 COPD and 4,554 individuals without COPD. Among subjects with COPD 81 (10.7%) reported recreation limitation due to health problem, compared with 404 (8.9%) of non-COPD subjects (p<0.09). The number of days with recreational activities limitation due to health problem was increased in COPD in comparison with non-COPD (171.7 ± 18.5 vs. 99.6 ± 7.41 days; p<0.001). Similar findings were observed in the limitation due to lung problem (45.4 ± 12.3 vs. 11.3 ± 2.63 days; p<0.01).
These results indicate that COPD is associated important limitation of recreational activities. Understanding the impact of COPD on participation into these activities is important for appreciating the overall burden of the disease.

P4116
ECME: Epidemiologic study of the characteristics of women with COPD in Spain
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Background: Chronic obstructive pulmonary disease (COPD) clinical trial populations are often predominantly male ($\sim$75%), thus the female population is not so well characterized.
Aims and objectives: Determine a clinical and sociodemographic profile of women with COPD in Spain.
Methods: Multicenter, cross-sectional, observational epidemiological study. 379 pulmonologists from health centers in Spain recruited female patients aged $\geq$40 yrs, smoking history $\geq$10 pk-yrs, current COPD diagnosis and receiving treatment/follow-up during pulmonologist visits. Clinical and sociodemographic data were collected during study visit. Descriptive statistics were performed.
Results: 1732 women evaluated, of which: 80.8% pulmonologist diagnosis; 46.6% primary, 30.8% secondary education; 60.1% current-, 39.9% ex-smokers; 25.5% and 43.1% with history of depression or anxiety, respectively; 78.3%, 65.3%, 63.1% receiving long-acting anticholinergic, long-acting β_2-agonist/corticoid, short-acting β_2-agonists. Mean$\pm$SD values: age, 61.6 ± 10.0 yrs; body mass index, 26.7 ± 5.1 kg/m^2; time since, and age at, diagnosis, 7.5 ± 6.4 yrs and 54.1 ± 9.8 yrs; pre- and post-bronchodilator FEV_1/FVC, 57.5 ± 12.3% and 57.8 ± 12.2%; O_2 saturation, 93.8 ± 3.3%; PYI, 35.7 ± 19.9; SF-12 PCS and MCS scores, 37.6 ± 10.5 and 45.7 ± 12.0; LCADL total, personal care, and household, physical, leisure activities, 27.2 ± 10.9, 6.5 ± 2.9, 11.8 ± 5.9, 4.5 ± 1.6, 4.4 ± 1.8. Median no. exacerbations in prior year, 1.0 (P25/P75: 0.0/2.0)
Conclusions: Most women in this cross-sectional study were at an age that they could be actively working. The average FEV_1 and exacerbation history suggest an impact of the disease on these patients' daily lives.
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P4117
The restrictive spirometric pattern is associated with impaired health-related quality of life
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Previous population-based studies have shown that a restrictive spirometric pattern is present in a significant proportion of the adult population and is associated with an increased risk in morbidity and mortality. However, whether and to what extent this pattern is associated with impaired quality of life remains to be determined. In this study, we used data from 6005 participants from eleven European countries and the US who completed lung function tests and the Short Form-36 (SF-36) questionnaire during the second ECRHS survey. We defined the restrictive spirometric pattern as $FVC < 80$% predicted plus $FEV1/FVC \geq 70$% and the obstructive spirometric pattern as $FEV1/FVC < 70$%. Physical and mental component summaries (PCS and MCS) for health-related quality of life were computed and scores transformed so that the mean was 50 and the SD 10. Mean age of participants was 43 years (range 28 - 56 years) and 51% of them were females. Overall, 5254 subjects (87.5%) had a normal, 415 (6.9%) a restrictive and 336 (5.6%) an obstructive spirometric pattern. The mean PCS was 50.4, 46.9 and 47.6 for subjects with normal, restrictive and obstructive spirometric patterns, respectively (p < 0.001). The corresponding MCS mean scores were 50.0, 50.1 and 49.7 (NS). After adjustment for sex, age, body mass index and smoking, the restrictive spirometric pattern was associated with a -2.7 PCS deficit (p < 0.001) and the obstructive pattern with a -2.2 deficit (p < 0.001), as compared with the normal spirometric pattern. In conclusion, the restrictive spirometric pattern is associated with significantly impaired health-related quality of life

P4118
Dyspnoea in COPD patients recorded in a primary care database
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Background: Dyspnoea is a primary clinical feature of COPD [1,2]. Information on dyspnoea recording in electronic medical record databases has not yet been reported.
Methods: A cohort was identified in the UK General Practice Research Database (GPRD) (01/01/2003 – 30/6/2010) with both a COPD medical diagnosis code and spirometry (FEV1/FVC <70%) and 12months history before and after cohort entry. OXMIS/Read codes were used to identify and define records of dyspnoea as probable or possible (less likely associated with COPD) from cohort entry until censoring.
Results: A cohort of 9502 patients was identified: mean age 67 y. (SD 11), 55% males, GOLD stage I: 12%, II: 50%, III: 29%, and IV: 7%. At least one "probable" dyspnoea code was found in 76% of COPD patients; "possible" codes were identified in 2% of patients. Codes most frequently associated with dyspnoea were "shortness of breath" (16% of patients) and MRC Dyspnoea Scale grade; 45% patients recorded as grade 2, 34% grade 3 and 5.5% grade 4 (frequencies based on the total cohort). Dyspnoea was more often reported by older patients and those with more advanced disease (69% patients in GOLD stage I with "probable" dyspnoea vs. 81% in GOLD stages II or IV).
Conclusions: Dyspnoea was reported in > 75% of COPD patients identified in the GPRD. The high frequency of dyspnoea across all GOLD stages highlights this symptom as a significant burden and possible unmet need in COPD treatment. MRC Dyspnoea grade is the predominant code used, linked to the Quality Outcomes Framework, an NHS system supporting management of selected diseases.
References:
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[2] GOLD: Pocket Guide, December 2010.
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P4119
Symptoms experienced by COPD patients during exacerbations and their association with healthcare utilization – EXACO study
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Background: Definitions of COPD exacerbations are symptom-based while severity assessment often relies on the level of healthcare utilization.

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Objectives: To assess symptoms associated with COPD exacerbations and their association with patients' decision to seek healthcare.

Methods: Patients with GOLD stage $\geq$ II COPD participating in an observational study, reported symptoms and healthcare use associated with exacerbations by telephone interviews.

Results: 835 patients reported 3 527 exacerbations. The most common symptom was increased breathlessness. 82.2% of led to a medical consultation, visit to a hospital. Fever was the symptom most strongly associated with the decision to seek healthcare.

Frequency of symptoms reported during worsenings of respiratory state and association with seeking health care

	Symptom present		OR (95% CI) for seeking health care*
	N	%	
Onset of sputum production	1500	42,5	1.2 (0.9–1.6)
Increased sputum production	1159	32,9	0.8 (0.6–1.1)
Sputum newly purulent (or more purulent than usual)	1343	38,1	2.0 (1.5–2.6)
Onset of head cold	1408	39,9	1.1 (0.9–1.5)
Increased breathlessness	2835	80,4	–
Onset of cough	1547	43,9	1.6 (1.2–2.1)
Increased cough	937	26,6	1.9 (1.4–2.6)
Onset of fever	791	22,4	3.4 (2.2–5.0)
Onset of chest pain	810	23,0	1.1 (0.8–1.6)
Onset of wheezing	1538	43,6	1.6 (1.2–2.1)
Borg score (increase of 1 point)	–	–	1.2 (1.2–1.3)

*Adjusted on age, sex, education level, COPD GOLD stage, chronic bronchitis profile, season of exacerbation, and presence of cardiovascular comorbidities.

Conclusions: Breathlessness was by far the dominant symptom of exacerbations while fever was the strongest predictor of health care utilization.

P4120
Medication and preventive measures for COPD in the BOLD study

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Background: Inhaled beclomethasone and salbutamol are three to five times as expensive in poorest settings resulting in poor access (Ait-Khaled N, Rev Mal Respir 2006, 23, 10S76-10S79). We used the BOLD data to describe differences in reported medication use for COPD.

Methods: Preventive measures for COPD (flu vaccine in last year, advice or medication ever to stop smoking) and use of respiratory medications in the last year among population-based samples of adults aged 40+ with spirometrically defined COPD, were assessed across 18 BOLD sites.

Results: Over 14,300 subjects had information on flu vaccine and medication use. Over 7,900 had information on smoking cessation. Prevention strategies and medication use were significantly more common in the High Income Countries (HIC) and in people with COPD than in Low and Middle Income Countries (LMIC) and those with normal spirometry (p<0.000). Differences across countries were not related to COPD prevalence.

Bronchodilators and inhaled corticosteroids use increased with age, severity of COPD, BMI, any comorbidity or respiratory symptom and it was higher among the unemployed (p<0.000). After stratifying by country economic level, the use of these medicines was independent of education level and higher among the unemployed in HICs (p<0.000). The use of medication was not related to pack-years of smoking. However, after stratifying by gender the use bronchodilators and inhaled corticosteroids was significantly higher in women smoking 20+ pack-years (p=0.04).

Conclusion: The use of COPD prevention and medication is significantly higher in HICs than in LMICs. Improving access to care in LMICs is important, as is understanding risk factors for low medication uptake.

P4121
Medication use in multi-symptom asthma: Results from the West Sweden asthma study

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Background: Multi-symptom asthma (MSA) can be defined in epidemiological studies and has been shown to reflect severity. It has been uncertain if the definition reflects a more severe disease or is a result of inadequate use of asthma medication. The prevalence of MSA in West Sweden is 2.0%, representing 24% of subjects with physician-diagnosed asthma. The current study aims to determine the use of asthma medication in a group with MSA.

Methods: From a randomly selected population of 18 087 subjects aged 16-75, who participated in a postal survey on respiratory symptoms, a random sample of 2000 was selected for clinical examinations and interview, including questions on use of asthma medication. In addition all remaining subjects (n=1536) report-

ing asthma were invited. MSA was defined from the questionnaire as reporting physician-diagnosed asthma and reporting use of asthma medication, attacks of shortness of breath and recurrent wheeze and at least one additional respiratory symptom. Asthmatic subjects not having MSA are referred to as "other asthmatics".

Results: 92% of MSA used asthma medication at the time of the clinical examination, compared with 61% among "other asthmatics". 71% were on treatment with steroids and 47% used long-acting β2-agonists (either combined with ICS or separately) vs. 40% and 23%, respectively, for "other asthmatics". Oral steroids were used by 14% and bronchodilators by nebuliser by 6%, 18% used one or both of these.

Conclusion: Subjects with MSA are to a large extent treated with steroids. We conclude that a large majority of multi-symptom asthmatics defined by using a questionnaire have a more severe disease and only a minority does not use maintenance treatment.

P4122
Correlates of high levels of use of short-acting beta agonists in asthma

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Background: High use of short-acting beta agonists (SABAs) may reflect potential risks in asthma management. A better understanding of the characteristics of high users of SABAs is critical to improve quality of care.

Objectives: To describe asthma patients with high levels of use of SABA, including their characteristics and medical resource utilisation.

Methods: A random sample of patients aged 16-40, with regular use of dispensed respiratory drugs (R03, ATC classification) in 2005 was selected from the French claims database (EGB). Asthma-related hospital admissions were retrieved. Patterns of use of SABAs in 2007 were described. The correlates (baseline characteristics and asthma-related variables) of using $\geq$ 12 SABA units in 2007 were identified.

Results: Among 2093 patients (median age = 33 year-old, 54% females), 65% were using SABAs in 2007 and 8% used $\geq$ 12 units during this period. These patients were more likely to have a long-term disease status (p<0.001), free-access-to-care status (p<0.01), to use higher levels of systemic corticosteroids (p<0.001), and antibiotics (p<0.001) than other patients. Higher numbers of medical visits (p<0.001) and asthma-related hospital admissions (p<0.01) were also observed in this group. Conversely, no noticeable difference appeared with age, nor with gender.

Conclusions: Many patients are still using high levels of SABAs and are possibly at risk of exacerbations. The reasons of this high use of rescue medication require a better understanding.

P4123
Ratio "inhaled corticosteroids to total anti-asthma drugs", and asthma-related hospital admissions

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Background: The inadequate use of inhaled corticosteroids (ICS) remains an issue in asthma. The ratio of ICS units to total anti-asthma medications dispensed (ICS/R03 ratio) may be useful to assess the risk of severe exacerbations, leading to asthma-related hospitalisations (ARHs). We tested this hypothesis using claims data.

Objectives: To verify in claims databases whether patients with a higher ICS/R03 ratio experience fewer ARHs.

Methods: A random sample of patients aged 16-40, with regular use of respiratory drugs in 2005 was selected from the French national claims database (EGB). Three groups were defined according to the value of ICS/R03 ratio in 2007: 0% ("non users"), <50% ("non users") and $\geq$50% ("non users"). ARHs in 2007 and 2008 were compared between the 3 groups.

Results: Among 1812 patients (mean age=32 year-old, 54.2% females), non users, inadequate users and adequate users, were 17%, 37% and 46%, respectively. ARH rate was 0.9% in 2007 (0.7% in 2008). Patients with ARH in 2007 were more numerous (p=0.0006) among inadequate users (2.10%), compared with adequate users (0.24%) and non users (0.32%). Differences were also observed in mean ARH-induced costs: 2.16 €, 48.30 € and 3.70 € for non users, inadequate, and adequate users (p=0.0005). Conclusions were similar for ARHs in 2008. Over 80% of adequate users in 2007 remained in this group in 2008.

Conclusions: Patients with ICS/R03 ratio $\geq$50% experience fewer ARHs than inadequate users, suggesting improved asthma control. ICS/R03 ratio may help identify asthma patients at risk of ARHs in administrative databases.

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P4124
The pattern of use of asthma medication in adolescents and young adults: A nationwide study on 2.2 million people

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Pharmacological treatment of asthma is highly effective in controlling symptoms and improving quality of life. Within the last 15 years new drugs such as combinations of ICS and long-acting beta-2-agonists (LABA) and leukotriene modifiers for treating asthma has been introduced on the Danish market. Studies have shown that these drugs have changed the pattern of prescription, but most studies on prescription pattern of asthma medication have studied selected populations or population samples.

The study aimed to identify patterns of use of asthma medication in adolescents and young adults in an unselected population.

The study population comprised all Danish individuals aged 10-40 years at January 1 1996 (2,213,264 individuals). The population was followed until the end of 2006. From the national Danish prescription registry we collected data on all asthma medication (ATC code R03) claimed by the study population.

At every year in the study period, beta-2-agonists were the most commonly claimed drug both in number of users and number of prescriptions. The first years of the study, there was an increasing use of LABA, but after the introduction of combined ICS and LABA, the use of LABA decreased whereas there was a steady increase in use of ICS and LABA in fixed combinations. When leukotriene modifiers were introduced in 1998, usage increased rapidly the first two years and then plateaued with only a small yearly increase. The use of theophyllines more than halved during the study.

This study on the use of asthma medication in an unselected population shows a shift in the use of asthma medication, but short-acting beta-2-agonists remained the most frequently used drug.

P4125
Inhaler use among asthmatics – A cross sectional study in Alappuzha and Kottayam districts of Kerala, India

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Introduction: Asthma is an important health problem worldwide.Medcations in the inhaled forms are the best therapeutic options currently available for asthma [1]. Despite this, the percentage of patients opting inhalers as the preferred modality of treatment seems to be low [2].
Aims: 1. To find out the proportion of asthmatics using inhalers as the preferred modality of treatment. 2. To bring out the various reasons for not using inhalers among the above study group.
Materials and methods: Study subjects were asthmatics in the age group of 15 to 45 years who attended the medical camps conducted in Alappuzha and Kottayam districts of Kerala, India during the period 2006 - 2009 (n= 912). A semi structured interview schedule on the use of inhalers were administered to collect the data.
Results: 52% of the study subjects accept inhaled preparations as the preferred modality of treatment (male-64%, female-39%). 48% are reluctant to take inhalers (male-32%, female-65%). 47% believe the term inhaler is the name of a particular drug rather than a device (male-45%, female-48%). 76% of inhaler users do not know how to use it properly. 7% of inhaler users think the powder in the dry powder inhalers can block the airways.
Recommendations: More health awareness programmes are needed to alleviate fears and misconceptions about inhaled medications. Patients should be properly trained on correct usage of inhalers.
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Comparing the cost-effectiveness of a wide range of COPD interventions using a stochastic population model for COPD

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Objectives: To develop a stochastic population model of disease progression in COPD that includes the impact of COPD exacerbations on health-related quality of life, costs, disease progression and mortality and allows assessment of a wide range of different interventions.
Methods: The model is a multistate Markov model with time varying transition rates depending on age, sex, smoking status, COPD disease severity, and/or exacerbation type. The model simulates COPD incidence, prevalence, (severe) exacerbations, disease progression (annual decline in FEV_1% predicted) and mortality. Main outcome variables are quality-adjusted life years (QALYs) and COPD-related healthcare costs. The exacerbation-related input parameters were based on quantitative meta-analysis. All important model parameters are entered into the model as probability distributions. To illustrate potential use of the model, 10-year costs and effects were projected for three different COPD interventions, one pharmacological (ICS+LABA), one on smoking cessation and one on pulmonary rehabilitation.
Results: Compared to minimal intervention, the 10-year cost/QALY ratio of 3-year implementation was €8,300 for ICS+LABA, € 10,800 for the smoking cessation therapy and € 17,200 for pulmonary rehabilitation. If the maximum willingness to pay would be € 20,000/QALY, the probability that the cost/QALY was lower than that varied from 58% for pulmonary rehabilitation to 100% for ICS+LABA.
Conclusions: The COPD model provides policy makers with comparable information on long-term costs and effects of interventions ranging from primary prevention to care for very severe COPD and includes uncertainty around the outcomes.

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Fragmented care in asthma: Data from the French national claims database

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Background: Asthma management is a major public health issue. Little is known about the frequency of fragmented care in asthma patients. It is also unclear whether those patients induce higher levels of medical resource utilisation (MRU).
Objectives: To determine the proportion of asthma patients being prescribed asthma therapy by ≥ 2 different general practitioners (GPs), and the medical resource utilisation (MRU) induced by these patients.
Methods: A random sample of patients aged 16-40, with at least 3 reimbursements of respiratory drugs (R03, ATC classification) was identified in the French national claims database (EGB). Among them, those with at least 2 visits with prescriptions for respiratory drugs in 2007 were selected. Fragmented medical care in 2007 was defined as receiving prescription for respiratory drugs from ≥ 2 different GPs. Patients' MRU was studied according to the number of distinct GPs prescribing respiratory drugs in 2007.
Results: Among 1,009 patients (mean age = 32 year-old, 59% females), nearly 55% of patients received their respiratory therapy from ≥ 2 different GPs (2: 36%, 3: 13% >3: 6%). A salient increase in the dispensing of short-acting beta agonists in 2007 was observed with the level of fragmented care in 2007 (p<0.001). Likewise, fragmented care was associated with free-access-to-care status (p<0.01), more asthma-related admissions (p<0.01) and medical visits in 2007 (p<0.001). Conversely, no major association was observed as to patients' age and gender.
Conclusions: Our data suggest that fragmented asthma care is not exceptional and may result in higher unscheduled MRU. The reasons of fragmented care require a better understanding to optimise the quality of care in asthma.

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Productivity loss in ever-smoking COPD subjects from a general population

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Background: We aimed to estimate productivity losses of chronic obstructive pulmonary disease (COPD) in hospital- and population-based subjects with spirometric post-bronchodilator COPD, relative to a control group.
Methods: 53 COPD-cases and 107 randomly recruited individuals without COPD were included from a general population. 102 COPD patients were recruited from a hospital register. All participants were ever-smokers, 40-66 yrs of age. In 4 standardized telephone interviews we surveyed the utilization of sick leave and disability pension during one calendar year. Productivity loss was defined as number of days in sick leave or disability pension. The outcomes in a two-part regression approach were any productivity loss (multiple logistic regression) and number of days of lost productivity (multiple linear regression). The latter model excluded subjects without any productivity loss.
Results: The logistic regression model showed little effect of COPD when we compared the population-based COPD cases to the controls. In the linear regression model the increased productivity loss in population-based subjects with stage II, stage III and stage IV COPD were (95% CI) 73 (22 - 124), 178 (49 - 308) and 249 (33 - 465) days, compared to the controls. In addition, being a woman, a 1-yr increase in age and low education was associated with an increase of 59 (15 - 103), 6 (2 - 10) and 131 (65 - 197) days of productivity loss. Similar results were found for hospital recruited COPD patients.
Conclusion: The access to sick leave and disability pension was similar in subjects with and without COPD. The volume of these services was considerably higher in subjects with COPD and was also associated with disease severity.

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Socioeconomic correlates of hospitalization, medical visits and utilization of diagnostic tests in asthmatic children in Poland

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A recent (2010) population-based questionnaire survey of 4535 children aged 5-15 years in Katowice District, Poland yielded 186 cases (3.9%) of physician-diagnosed asthma. In the last 12 months 5.9% of asthmatic children underwent respiratory hospitalization and 44.0% were seen by physician, 30.6% had spirometry, and 24.7% skin prick tests, and all of those outcomes strongly depended on asthma attacks in the last 12 months. The goal of the study was to find out if other than health-related factors could also explain the examined outcomes. In univariate analyses hospitalization was related to age ($p=0.007$), medical visits to age ($p=0.009$), spirometry to rural residence ($p=0.007$), skin prick tests to age ($p=0.001$) and number of siblings ($p=0.01$). The identified correlates were tested by a multivariate regression - the table shows logistic Odds Ratios (and 95% CIs) if $p=<0.1$:

Explanatory Variable	Hospitalization	Medical Visit	Spirometry	Skin Prick Test
Attacks od asthma	4.5 (1.2–18.4)	14.0 (6.3–31.3)	2.0 (1.0–4.0)	1.9 (0.9–4.0)
Age <10 years	6.2 (1.2–30.5)	2.1 (1.0–4.3)	p=0.9	3.1 (1.5–6.5)
Number of siblings <2	p=0.4	p=0.5	1.7 (0.8–3.6)	3.2 (1.3–7.6)
Rural residence	p=0.8	1.94 (0.7–4,9)	4.9 (1.6–15.0)	2.5 (0.9–7.4)

Clinical status of asthmatic children and their young age are important determinants of utilization of medical care and diagnostic procedures. The effect of rural residence and family size may reflect a better maternal care over a sick child and/or better compliance with medical advice – in both settings (rural and urban) diagnostic tests require time consuming arrangements with specialized centers, usually located at a distance from family physicians' surgeries.

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