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106. Healthcare utilisation and treatment of asthma and COPD

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Health, social and economic consequences of chronic obstructive pulmonary disease (COPD): A controlled national study

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Rationale: The objective direct and indirect costs of COPD among adults and the treatment are incompletely described.

Methods: From the Danish National Patient Registry (1998-2010), 171,557 (83,338 men and 88,219 women) COPD patients (ICD-10 diagnoses: J44.0 - 44.9) were identified and included. For every patient, four age-, sex- and socioeconomic-matched control citizens were randomly selected from the Danish Civil Registration System (322,233 men and 342,588 women).

Statistics Direct costs were extracted from the Danish Ministry of Health, Danish Medicines Agency and National Health Security and indirect costs were based on data from the Coherent Social Statistics.

Results: After 12 years only 33.1% of the COPD patients were still alive compared to 61.4% of the control citizens.

COPD were associated with significantly higher rates of health-related contact, medication use, unemployment, and accounted for increased socioeconomic costs. The annual mean excess health-related cost for each patient with COPD was €6121 before and €5909 after diagnosis, respectively, compared to controls.

Patients with COPD had medication, hospital and total health costs 2-3 times higher than controls and overall employment rates 30% lower than controls. Employed COPD patients earned only around 58% of the income of controls.

These socioeconomic consequences were present even 11 years prior to the first diagnosis in patients with COPD, and increased with disease advancement.

Conclusion: COPD has major socioeconomic consequences for the individual and for society. Mortality and morbidity from COPD is very high and earlier disease detection could have a greater impact on disease complications.

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P996**Health, social and economic consequences of spouses of patients with chronic obstructive pulmonary disease (COPD): A controlled national study**

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Rationale: The objective direct and indirect costs of spouses of COPD patients among adults and the treatment are incompletely described.

Methods: From the Danish National Patient Registry (1998-2010), 171,557 (83,338 men and 88,219 women) COPD patients (ICD-10 diagnosis: J44.0 - 44.9) were identified and included. Of these 50.3% (86,260) were married or co-lived with a spouse.

For every spouse, four age-, sex- and socioeconomic-matched control citizens were randomly selected from the Danish Civil Registration System (346,524). Statistics Direct costs were extracted from the Danish Ministry of Health, Danish Medicines Agency and National Health Security and indirect costs were based on data from the Coherent Social Statistics.

Results: Even 11 years prior to the first diagnosis in a COPD patient, being a spouse were associated with significantly higher rates of health-related contact, medication use, unemployment, and increased socioeconomic costs.

Compared to controls, the annual mean excess health-related cost for each spouse of a COPD patient was €3182 before and €1820 after the COPD diagnosis and the spouses received an annual mean excess social transfer income of €1045 before and €745 after diagnosis. The annual income level of an employed spouse was €2925 lower than that of an employed control before and €1454 after the COPD diagnosis.

Conclusion: For the first time ever the major socioeconomic consequences for the spouses of COPD patients has been shown and needs to be addressed in the future. In addition mortality and morbidity from COPD is very high and earlier disease detection could have a greater impact on disease complications.

P997**Influence of statin treatment on cancer mortality in COPD patients:****Retrospective observational cohort study**

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Background: The anti-inflammatory and immunomodulatory statin properties have been suggested for preventing cancer development in patients with Chronic Obstructive Pulmonary Disease (COPD). However, the effect of statin on cancer mortality in COPD patients is poorly documented. The study endpoint is to evaluate the impact of statin on cancer mortality of COPD patients.

Methods: Based on a large pharmaceutical French database of the North area, a retrospective cohort study was conducted in order to evaluate the effect of statin on cancer mortality in COPD patients. Analysis, based on a Cox proportional hazards model with statin exposure handled as a time-dependent variable, included the 66 429 individuals 40 years old or more who had at least one pharmaceutical dispensation between 01/01/2000 and 05/11/2007. In this cohort, 9531 COPD patients were identified; 18.1% of COPD patients were considered exposed to statin.

Findings: The overall death rate of COPD patients is 40.8%. The various causes accountable for COPD patients' death were: cardiovascular diseases for 33.7%, respiratory diseases for 33.7% and cancer for 24.8%. Statin treatment was significantly associated with a decrease of cancer mortality in COPD patients with estimates (hazard ratio [95% CI], p value) at 0.586 [0.465-0.739], p<0.0001.

Interpretation: It seems that statin delivery to COPD patient reduces the cancer death rate. However the result has to be checked out by prospective randomized studies.

P998**Relative exposure to inhaled steroids (ratio "ICS-to-total asthma therapy"): Concordant data from electronic medical records, claims data and patient-reported outcomes**

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Background: In claims data, computation of "ICS-to-total-asthma-therapy" ratios (R) has shown interest to identify asthmatics more at risk of exacerbations, as a result of insufficient exposure to ICS for their level of disease severity. Ratios have seldom been computed from other data sources. The relationship between asthma outcomes and ratios was studied, from different sources: electronic medical records (EMRs) (Cegedim-Strategic-Data), claims data, and patient-reported outcomes (PROs) obtained from a pharmacy-based survey.

Methods: In all settings, the primary comparison was between non users (R=0%), inadequate ICS users (0<R<50%) and adequate ICS users (R≥50%), as to asthma-related hospitalizations, use of oral steroids (OCS) or antibiotics (ATB), and Asthma Control Test (Pharmacy-based study).

Results: In claims data (n=2,142, mean age=27 yrs, 53% females), inadequate users had higher rates of hospitalizations (p=0.0007), oral steroids or antibiotics use than other groups (p<0.0001 for both). OCS and ATB use were more common (p<0.0001 for both) among inadequate users in EMRs (n=4,587, mean age=28 yrs, 54% females). In the pharmacy-based survey (n=919, mean age=37 yrs, 55% females), inadequate users were more likely to be poorly controlled, hospitalized for asthma and to receive OCS or ATB (p<0.0001 for all).

Conclusions: Despite differences in study designs and patients baseline characteristics, conclusions were highly concordant between the 3 data sources, with evidence of poorer control in inadequate users. Advantages and limitations of each data source for the interpretation of ratios will be discussed.

P999**Factors related to discontinuous use of inhaled drugs in COPD patients: A population-based cohort study in Lazio (Italy)**

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Inhaled therapy is essential to control symptoms in COPD, but information on real-life clinical practice is limited.

We measured treatment discontinuity and its predictors among COPD patients.

A cohort of residents in Lazio discharged after COPD exacerbation in 2006-7 was enrolled. The two-years follow-up was segmented in six months time-windows, in order to dynamically evaluate prescriptions of long-acting beta-agonists (LABA), tiotropium and inhaled corticosteroids (ICS). Patients were classified in two groups: "regularly treated" (at least one prescription of LABA and/or tiotropium in each time-window); "not regularly treated" (defined as those never treated or with late onset of treatment or with any interruption of treatment for at least six months). Multivariate logistic regression was performed.

A total of 7982 patients were included, 55% males, mean age (SD) 74 (10) years. Only 33% patients were regularly treated during follow-up. Old people (OR=1.01), females (OR=1.7) and those with comorbidities (diabetes OR=1.4, heart failure OR=1.3, psychiatric OR=2.1, nephropathy OR=1.6, cerebrovascular OR=1.4, obesity OR=1.4) were more likely to have discontinuity. Risk of discontinuity was lower among more severe patients (respiratory failure OR=0.7). Large heterogeneity in discontinuity was observed across areas of residence.

This observational study evidences that discontinuity of COPD therapy is influenced not only by demographic factors and COPD severity, but also by the presence of comorbidities. This information may be an important input for clinicians caring COPD patients.

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P1000**Costs of exacerbations in COPD**

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Background: Chronic obstructive pulmonary disease (COPD) is one of the most common chronic and disabling diseases worldwide, and exacerbations affect resource burden and healthcare costs.

Aim: To examine the costs of exacerbations in relation to degree of severity of COPD and of exacerbations.

Methods: The study sample was identified in earlier clinical examinations of general population cohorts within the OLIN (Obstructive Lung Disease in Northern Sweden) studies. The cohort consisted initially of 993 subjects with COPD according to the GOLD spirometric criteria. In 2009-2010, telephone interviews on resource utilization were made to a sample of 244 subjects, stratified by disease severity. Interviews were performed quarterly to minimize the risk of recall bias. Exacerbations were identified by asking questions on extra resource use due to respiratory problems, and were divided into different levels of severity, depending on intensity of resource use.

Results: At least one exacerbation was reported by 84 subjects (36%). A significant relationship was found between severity of exacerbations and costs. The mean annual total cost per exacerbation was: €9 (mild), €21 (mild/moderate), €205 (moderate), and €2,715 (severe). A significant relationship was also found between severity of COPD and costs. The mean annual total cost according to disease severity was: €71 (mild), €209 (moderate), €1,133 (severe), and €3,298 (very severe). The prevalence-weighted cost of all exacerbations for an average subject with COPD was about €200, accounting for about 35% of the direct costs of COPD.

Conclusions: The costs for exacerbations increase considerably by severity of exacerbation and also by severity of COPD. The prevention of exacerbations could be very cost-effective.

P1001**Differential socio-economic burden of chronic respiratory diseases in adults: Preliminary results from the Gene Environment Interactions in Respiratory Diseases (GEIRD) study**

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Chronic respiratory diseases are a significant cause of morbidity and mortality worldwide. We sought to evaluate their socio-economic burden among Italian adults.

In 2007/2010, a screening questionnaire was mailed up to 3 times to general population samples of adults (20-64 yr), and eventually given over the phone to the remaining non-responders, in 4 Italian centres (Pavia, Sassari, Turin, Verona) in the frame of the GEIRD study (response rate=55.4%). Ever asthma, chronic bronchitis (CB), allergic rhinitis, other respiratory conditions, and the absence of respiratory problems were defined on the basis of self-reported respiratory symptoms.

The percentages* of subjects who reported at least one emergency department (ED) visit/hospital admission and at least one working day lost because of health problems (apart from accidents and injuries) in the past 3 months are shown in this table:

Table 1

	Ever asthma and CB (n=296)	CB without ever asthma (n=733)	Ever asthma without CB (n=609)	Allergic rhinitis only (n=949)	Other respiratory conditions (n=1,455)	No respiratory problem (n=3,068)
ED visits/hospital admissions	15.9%	13.7%	11.4%	9.8%	10.5%	5.9%
Working days lost	31.5%	21.3%	22.4%	20.4%	20.1%	12.9%

*Adjusted for gender, age, season of response, type of contact, cumulative response rate, and centre.

The socio-economic burden was significantly different ($p < 0.001$) according to disease status. Patients with any respiratory condition had a two-fold greater risk of reporting at least one ED visit/hospital admission (11.5% vs 5.9%) and at least one working day lost (21.5% vs 12.9%) than subjects without respiratory problems.

P1002**COPD comorbidities – Do they add more cost? A 1-year follow-up study**

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Introduction: Comorbidities associated with COPD are an additional burden to disease severity.

Aim: This study attempted to determine the direct costs and costs of associated comorbidities derived from the management of COPD patients in hospital through a retrospective 1-year, follow-up study.

Methods: A total of 512 (397 male and 117 female) COPD patients with different severity degrees were recruited. Comorbidities were searched by history, previous medical papers and by performing clinical examinations. All direct medical costs incurred by the cohort and related to their comorbidities were calculated.

Results: The mean age of patients was 67 years (SD ± 10.3). Severity evaluation of airflow limitation showed that – 3.7% had mild COPD, 27.7% – moderate, 37.5% – severe and 31.2% – very severe obstruction. Mean FEV₁ was 42.5% predicted value. From all patients 82.5% (424) had comorbidities. The mean direct cost for COPD patients was €431 per hospitalization. The mean cost generated by the patients with COPD and with associated comorbidities were as follows – cardiovascular diseases €438, diabetes €437, anemia €571, osteoporosis €426, depression €503. The patients without comorbidities generated mean direct cost of €416.

Conclusion: Costs of comorbidities were found to be higher than the mean costs of COPD without comorbidities. In percentage the added cost were as follows – cardiovascular disease +5.13%, diabetes +4.93%, anemia +37.13%, osteoporosis +2.40% and depression +20.80%. Mean added cost is 12.34%. There was a statistically significant difference only for the costs incurred by COPD patients with cardiovascular diseases and anemia ($p > 0.05$) respectively compared to the cost of COPD patients without comorbidities.

P1003**Co-morbidities are associated with prolonged hospital length of stay (LoS) in patients with COPD**

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Identification of factors leading to prolonged hospital stay may help to find patients who need targeted approaches to management. Appropriate resource allocation would help to reduce the time spent in hospital. Co-morbidities are common in COPD and may lead to prolonged admissions.

We performed a retrospective case note analysis of patients with COPD who had admissions lasting longer than average. Spearman's correlation and Mann-Whitney test were used to identify relationships between co-morbidities and LoS.

Data were obtained for 204 patients (mean age 73.9, 135 males) who had 267 hospital admissions of duration greater than 9 days in a one-year period. The total number of bed-days was 6127. 38 patients (19%) had more than one admission, the number of admissions ranging from 2 to 7. These 38 patients occupied 2509 bed-days (41% of total).

LoS was found to be correlated with greater age ($p = 0.005$), admissions related to dementia ($p=0.005$) and the presence of respiratory infection diagnosed by the admitting team. Cardiac arrhythmias seem to be associated with prolonged LoS ($p=0.01$). As might be expected, patients who were admitted with exacerbations of COPD alone (i.e. no other reason for admission identified) had shorter LoS compared with those who had other identified reasons for admission ($p=0.028$). No definite correlations were found with heart failure, ischaemic heart disease, psychiatric history or stroke. Other co-morbidities seen included pulmonary embolism and lung cancer, but the numbers were low and the results for these were therefore inconclusive.

We conclude that age, dementia and the presence of respiratory infection are factors associated with prolonged stay.

P1004**Frequency and length of admission in patients with chronic obstructive pulmonary disease (COPD) as co morbidity (CO) in a university hospital setting. A cross sectional study**

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About 20% of the Danish adult population suffers from COPD [1]. About 50% of the patients are undiagnosed. COPD patients often have CO which may lead to hospitalization [2]. To analyze the frequency of COPD as CO among hospitalised patients, the number of undiagnosed COPD patients, COPD patients (PC) and patients without COPD (PwC) in regards of the cause of hospitalization, and duration of hospitalization for PC and PwC as CO.

Aalborg University Hospital covers all medical and surgical specialities. A one day cross-sectional study was performed on patients > 18 years of age. A spirometry was performed. Smoking habits, prior lung function measurements, prescribed lung medicine were recorded. The final diagnosis was registered after one month. 583 patients were admitted to the participating units. 147 couldn't participate, 47 didn't wish to participate. 111 weren't available at the time of the examination. 12 were excluded. 215 patients participated, 28% (61/215) suffered from COPD. 77% (47/61) were diagnosed at our examination. 36.1% (22/61) of the PC were admitted with infections, the majority non-pulmonary. The admission period was not significantly longer for PC as comorbidity (mean 13.03 days) compared to PwC (mean 12.1 days), ($p=0.24$).

28% of hospitalised patients suffered from COPD.

77% were diagnosed at our examination.

PC were primarily admitted with infectious diseases.

There was no significant difference in length of stay in hospital between PC and PwC as comorbidity.

References:

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P1005**Impact of reimbursement changes for fixed ICS/LABA combination treatment in Iceland**

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Background: From 1 January 2010 reimbursement of fixed combination (FC) of inhaled corticosteroid (ICS)/long-acting β_2 -agonist (LABA) for treatment of asthma and chronic obstructive pulmonary disease (COPD) are only reimbursed pending application to the Icelandic authorities.

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Objectives: To assess the reimbursement regulation regarding forced switch from FC treatment in patients with asthma and COPD (NCT01369810).

Methods: Retrospective medical records' data from primary and specialist care was linked to hospital and drug register data for patients with diagnosed asthma or COPD, or use of drugs for obstructive airway diseases. Data was collected 1 Jan 2008 - 31 Dec 2010. Index date; 1 Jan 2010.

Results: The population covered 25,483 patients (pts) who had used FC at any occasion before index; mean age 46.4 years, 59% females.

After index, number of patients collecting FC decreased with 65% (16,963, 2009 to 5,864 pts, 2010); while collection of ICS, LABA and short-acting β_2 -agonists (SABA) increased from 832 to 4,356; 189 to 1,024; and 5,626 to 6,503 pts, respectively.

Non-collection of prescribed FC increased after index from 5.9% to 26.6%; other drugs unaffected. In the first 6 months after index, 24% of the 3,977 patients who previously used FC >150DDD did not collect their prescribed ICS, LABA or SABA; 33% of the asthma patients did not collect any ICS.

Conclusion: This study shows that the reimbursement changes resulted in a forced switch from FC affecting medication access, either due to changed prescription patterns or restraints in patients' collection of their prescriptions. The decrease in FC was not matched by the increase in the mono-components ICS, LABA; or SABA.

Study sponsor AstraZeneca.

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Characterising asthma therapy in Scotland: Are the guidelines confusing?

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Background: Current British Thoracic Society (BTS)/Scottish Intercollegiate Guidelines Network (SIGN) guidelines recommend a five-step escalation of treatment in chronic asthma; combination therapy with a long-acting beta agonist (LABA) and an inhaled corticosteroid (ICS) is recommended as first line therapy at step 3.

Aim: To stratify therapy prescribed to patients with asthma in NHS Forth Valley according to the BTS/SIGN guidelines.

Methods: Data were obtained from 46 practices in NHS Forth Valley via an electronic interface with practice clinical software. Patients diagnosed with asthma (adults & children ≥ 5 years) with prescriptions issued in 2008 were classified into 5 steps according to guideline definitions. Patients meeting criteria for two steps were classified as the higher step.

Results: 12409 adults and 1401 children were included. In the primary adult analysis with a step 2 definition of ICS dose ≤ 800 mcg/day of beclomethasone dipropionate (BDP) equivalent, the distribution was 15.8%, 31.4%, 15.3%, 32.6% and 1.2% for steps 1 – 5. The secondary analysis (step 2 definition of ICS dose ≤ 400 mcg/day), resulted in an allocation of 15.8%, 22.2%, 24.6%, 32.6% and 1.2%. A breakdown of step 3 showed similar prescribing of an increase in ICS dose (37.6%) versus LABA as an add-on (32.2%). In the primary analysis (ICS ≤ 400 mcg/day) for children, prescribing tended towards step 2 (59.0%). In the secondary analysis, step 3 therapy showed higher prescribing of increased ICS dose (61.1%) versus LABA as an add-on (27.0%).

Conclusion: The BTS/SIGN asthma guidelines are subject to variable interpretation. Step 3 asthma therapy in NHS Forth Valley deviates from the recommended preference for combination therapy.

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The analysis anti-asthma drugs consumption dynamics in Yaroslavl

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The aim: to evaluate the dynamics of consumption of drugs for the treatment of bronchial asthma (BA) in Yaroslavl in 2008-2010.

Methods: Prospective cohort study; the data of healthcare and pharmacy department. There were chosen 4 groups of drugs: inhaled corticosteroids (ICS), long-acting beta-agonists (LABA), short-acting bronchodilators (SABD), combination drugs (ICS/LABA); also consumption of beclomethasone (B), fluticasone (F), fluticasone/salmeterol (FS) and budesonide/formoterol (BF) was estimated.

Results: In 2008 more than 74% of patients had moderate and severe asthma requiring mandatory prescription of ICS, including combination ICS with LABA, in accordance with international guidelines for BA. In 2010 the share of such patients has increased to 77.5 percent. In 2008 the share of patients receiving ICS was 40%, in 2009 - 42%, in 2010 - 39%. LABA consumption slightly decreased - 7%, 8% and 4%, respectively. The use of SABD had a slight tendency to increase: 12%, 16%, 19%. It should be noted that the number of registered patients with BA in the city has not significantly increased (in 2008 - 7308, in 2010 - 7426). In 2004, patients with BA received 11775 packs of B, 4(!) packs of fluticasone F, 36(!) packs FS; BF was not assigned. In 2010 intake of B was 8277 packs, increased use of F and combination drugs (F - 3590, BF - 2284, FS - 6410 packs). In 2004 patients with BA consumed 589,89 g ICS. In 2010, this volume increased to 681,93 g. In 2010, the share of the modern combined drugs increased to 27% of all anti-asthma drugs.

Conclusions: The analysis of consumption of anti-asthma drugs demonstrates positive dynamics - increased use of ICS in general, and the use of modern combined preparations ICS/LABA.

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The impact of medical education on asthma/rhinitis management by general practitioners

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Background: Studies on the effectiveness of medical education programs to improve the adherence to guidelines (GL) report conflicting results.

Aim: To evaluate the impact of a medical education course (MEC) on the behavior of general practitioners (GPs) to treat asthma and allergic rhinitis (AR).

Methods: 1820 patients with either AR or asthma (mean age 41yrs) of 107 Italian GPs. 50% of GPs attended a preliminary MEC (group A) and 50% did not (group B). The adherence for AR and asthma treatment was evaluated according to ARIA and GINA GL.

Results: AR and asthma were diagnosed in 78% and 56% of patients, respectively. Higher compliances to ARIA GL were found in Group B for treating mild AR, in Group A for treating moderate-severe AR. Adherence to GINA GL for asthma treatment did not significantly differ between group A and B: an insignificant trend to higher compliances was observed in group A for treating severe persistent asthma without AR (63 versus 46%), in group B for treating severe persistent asthma with concomitant AR.

Conclusions: We confirmed that GPs often tend to treat patients independently from GL. A single medical educational course seems to improve adherence to GL for treating severe patients.

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P1009

15-year temporal asthma patterns in a large French cohort of elderly women

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The use of repeated measurements to assess asthma has been little investigated, despite its relevance regarding temporal phenotypes. Using repeated answers to a single question asked 7 times over 15 yrs, 3 asthma patterns were *a priori* defined. The aim was to compare these patterns to prescription data to evaluate their validity.

Asthma answers (have you ever had asthma attacks?) were collected from 7 questionnaires in the French E3N study (70,428 women, 55-82 yrs). The first pattern "never asthma" included women who never answered yes (n=64,061, 91%). The second pattern "consistent asthma" included women who answered yes at least once, never followed by a no in subsequent questionnaire (n=2,853, 4%). The third pattern "inconsistent asthma" included women who answered yes followed by at least one no (n=3,514, 5%). Using prescription database, we identified inhaled corticosteroids (ICS) and bronchodilators (IBD) dispensed (2004-2009)

"Consistent asthma" claimed back more anti-asthma drugs than "never asthma"; "inconsistent asthma" had intermediate means of reimbursements (yearly means ICS/IBD: 2.24/1.17, 0.10/0.04, 1.23/0.73 resp.). Both "consistent" and "inconsistent" patterns had increasing reimbursements of ICS and IBD according to the number of positive answers to the question through the 7 questionnaires.

	Total number of positive answers through 7 questionnaires						
	1	2	3	4	5	6	7
Consistent asthma							
ICS, mean/yr	1.53	1.51	2.88	3.41	3.65	4.01	4.64
IBD	0.39	0.70	1.59	2.14	2.29	2.75	3.22
Inconsistent asthma							
ICS	0.39	0.69	0.88	1.63	2.28	3.29	
IBD	0.16	0.36	0.65	0.89	1.38	1.91	

Our results showed a good reliability of our *a priori* asthma patterns, underlying the importance of temporal variations in asthma.

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P1010**Acute asthma in Buenos Aires**

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Objective: To establish if management of acute asthma in the emergency rooms in Buenos Aires follows the international guidelines

Method: We conducted an anonymous survey to physicians from 48 public hospitals (25 from Buenos Aires and 23 from sub urban zone) during March/April 2011.

Results: One hundred sixty three medical doctors from emergency rooms were surveyed (Graduation year 1999±9), forty-two (25%) were pediatricians. There was one respiratory hospital in each zone. 93% of the medical doctors responded that they commonly treated patients with acute asthma. However, 48% did not have guidelines or protocol in the emergency room, whereas 65% commented that they did not have access to any poster, checklist or guide for acute asthma management. 91% of the doctors explained that they had a pulse oximeter in the emergency room but only 18% reported that they had a Peak expiratory Flow Meter. More than 80%, informed that they used nebulised salbutamol in the first hour of treatment, 39% associated to ipratropium and more than a third used systemic corticosteroids through intravenous route. More than three quarters of the doctors gave a written plan to the patient but a short course of oral corticosteroids was prescribed only by 20% of the surveyed doctors.

Conclusion: This survey showed that management of acute asthma in Buenos Aires does not follow international recommendations and guidelines.

P1011**Variation of seasonal (monthly) hospitalizations in asthmatic patients:****Difference between allergic and non allergic asthma**

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Background: The seasonality of asthma hospitalizations (AH) may reflect the variation of triggers exposure. The recognition of clear seasonal (monthly) patterns of asthma hospitalizations may allow preventive strategies to be developed.

Objective: The aim of this study was to determine if there is a seasonal (monthly) pattern to asthma hospitalizations in patients with allergic and non-allergic asthma.

Methods: This study retrospectively analyzes the seasonality of AH in our department of pneumology, between January 2006 and December 2011. We evaluated all AH occurring this period for patients with Allergic Asthma (AA) and Non-Allergic Asthma (N-AA). The diagnosis and classification in AA and N-AA were made according to the results of skin prick testing (SPT) to common aeroallergens. Patients with AA defined as those with ≥ 1 positive SPT and patients with N-AA defined as those with negative SPT.

Results: There were 82 AH in 50 patients with a mean age of 47 years and a sex ratio of 0.47. There were 38 AH in 27 patients with AA (9 males, 18 females) and 44 AH in 23 patients with N-AA (7 males, 16 females).

AH showed a peak in December-January, April and October. In Patients with AA we noted the three peaks. In Patients with N-AA we see only the peak of December-January.

Conclusion: These findings suggest that AH have a different clear seasonal (monthly) variation between patients with AA and N-AA. The seasonality in AA admissions was far more pronounced than in N-AA. These results may offer significant opportunities for improved disease management.

P1012**Hospitalizations for asthma in Portugal from 2000 to 2008: Different trends in different regions**

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Objectives: To study regional differences and time trends of hospitalizations due to asthma in Portugal between 2000 and 2008.

Material and methods: Retrospective study of hospitalizations for asthma (inpatient records only), for all ages, in acute care hospitals of the national healthcare system (N=85) in mainland Portugal, between 2000 and 2008. Analysis per region (North, Centre, Lisbon, Alentejo and Algarve) of all discharges that included asthma as the principal diagnosis, identified using ICD-9-CM (codes 493.xx).

Results: 28,707 patients were hospitalized due to asthma (0.3% of total admissions in the same period). Globally, the rate of hospitalizations for asthma per 100 000 inhabitants decreased from 35.3 in 2000 to 27.8 in 2008. In children (age<18 years) the rate decreased from 93.4 in 2000 to 67.5 per 100 000 in 2008, with the exception of 2 regions: Algarve increased from 40.2 to 82.4 and Alentejo from 50.1 to 69.7 per 100 000. In adults, the reduction was less pronounced over the years:

from 21.2 in 2000 to 18.9 per 100 000 in 2008. All regions, except the Algarve, had a decrease. In this region a steep increase was observed in hospitalizations: from 15.9 in 2000 to 40.1 in 2008 per 100.000 adults.

Conclusions: Overall, the rate of hospitalizations for asthma is decreasing over years (with a global decrease of 7.5 per 100.000 inhabitants in the 9 years). Further analysis should be performed in order to understand why the Algarve had such a steep increase while the other regions had decreases.

P1013**Participation in the ARGA study: Long term impact on asthma management**

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Background: Preliminary results of "Respiratory allergic diseases: monitoring study of GINA and ARIA guidelines (ARGA)" study show a poor effect of a medical education course on Global Initiative for Asthma (GINA) guidelines in improving asthma management.

Aim: To evaluate the long term impact of participating in a prospective study on Italian General Practitioners (GP) focused on monitoring the utilization of GINA and Allergic Rhinitis and Its Impact on Asthma (ARIA) guidelines for asthma and allergic rhinitis management.

Methods: 107 GP enrolled 936 asthmatic patients (mean age 44yrs). For each patient, a self-administered questionnaire on respiratory allergic diseases/symptoms, daily activity limitations, quality of life (by RHINASTHMA questionnaire), disease control (by Asthma Control Test – ACT), health self perception and the relative form filled in by GP were available at baseline and follow up 12 months apart.

Results: Comparing baseline with follow up, asthma outcomes show an improvement: from 54.2 to 67.4% for asthma control, from 85.2 to 80.0% for asthma-like symptoms in the last 12 months, from 71.9 to 67.2% for daily activity limitations, from 61.2 to 66.6% for good health self perception and from 21.7 to 18.9 for quality of life score.

Conclusions: Involvement in a prospective study on asthma management seems to produce a long term effect in GP attitudes ameliorating their asthmatic patients quality of life.

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P1014**The education of physicians GINA and GOLD and a registration of chronic lung diseases in adult population of the Russian Federation**

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Objective: To study the effects of educational programs GINA and GOLD on a registration of chronic lung diseases (CLD) according to the forms of State statistical reporting.

Material and methods: We analyzed a morbidity (M) and an incidence of disease (ID) in adults 18 years and older according to Federal State statistical observation (form No. 12) for the Russian Federation. The information about M and ID of chronic bronchitis (CB) and emphysema of lungs (EL) (code on ICD-10 J40-J43), COPD (code J44) and bronchoectasia (BE) (code J47), bronchial asthma (BA) (code J45-J46) was used for the period from 2004 to 2010. The mean levels of M and ID were calculated at 100 000 adult population of Russian Federation.

Results: Since 2004 the large educational programs GINA and GOLD were extended among physicians. During seven years M CB and EL decreased gradually from 1552.9 up to 1435.6 ($p<0.01$), i.e. -7.6% in 2010. ID CB and EL from 2004 to 2010 increased from 203.9 to 254.0 of cases ($p<0.01$), the growth rate was +24.6% in 2010. M COPD and BE gradually increased: M was +39.8% (from 487.1 to 680.8; $p<0.01$) and ID was +52.2% (from 42.1 to 64.1; $p<0.01$) at 2010. M BA was increased by +16.4% in 2010 year (from 719.0 to 861.7; $p<0.01$). The highest ID BA (+16.7%) was in 2006: 52.6 (2004) and 61.4 (2006) accordingly ($p<0.01$). In subsequent years ID BA declined and the growth rate was only +5.7% in 2010 (55.4cases). The similar trends in M and ID were observed throughout the territories of the Russian Federation.

Conclusion: Educational programs have had a significant impact on the registration of CLD in adults of the Russian Federation.