447. Managing COPD in primary care

E4561

Impact of a spirometry expert system on general practitioners' decision-making when diagnosing chronic respiratory disease: a cluster-randomised trial

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This study assessed the impact of computerised spirometry interpretation expert support on the diagnostic achievements of general practitioners (GPs), and on GPs' decision-making in diagnosing chronic respiratory disease.
We performed a cluster-randomised controlled trial in 78 GPs who completed 10 standardised paper case descriptions each. Intervention consisted of commercially available spirometry expert software (SpidaXpert®), GPs in the control group received sham information (i.e., volume-time curve). Agreement of GPs' diagnoses were compared with an expert panel judgement, which served as the primary outcome. Secondary outcomes were additional diagnostic test rates, width

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of differential diagnosis, certainty of diagnosis, estimated severity of disease, referral rate, and disease management changes. Effects were expressed as odds ratios (OR) with 95% confidence intervals.
There were no differences between the expert support and sham information groups in the agreement between GP and expert panel diagnosis of COPD (OR = 1.08 [95% CI 0.70–1.66]), asthma (OR = 1.13 [95% CI 0.70–1.80]), and absence of respiratory disease (OR = 1.32 [95% CI 0.61–2.86]). A higher rate of additional diagnostic tests was observed in the expert support group (OR= 2.5 [95% CI 1.17–5.35]).
Computerised spirometry expert support had no detectable benefit on GPs' diagnostic achievements and decision-making process when diagnosing chronic respiratory disease.

E4562

Assessment of relation between BODE index and quality of life, nutritional status, and C-reactive protein in patients with COPD

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Chronic obstructive pulmonary disease (COPD is characterized by an incompletely reversiblelimitation in air-flow. Patients with COPD have systemic manifestations that ar not reflected by the FEV_1. Multidimensional grading system, BODE index, was used to evaluate the COPD patients.
In this study, assessment of relation between bBODE index and quality of life, nutritional status, and C-reactive protein (CRP) in patients with COPD was investigated. Between October 2006 and January 2007, patients with COPD were included to the study. Pulmonary function test, modified Medical Research Council (MMRC) dyspnea scale, six-minute walk test, body mas index (BMI), smoking status, co-morbidity, St. George Respiratory Questionnaire (SGRQ), CRP and albumin levels, triceps skin fold thickness (TSFT), upper arm muscle circumference (AMC) were recorded 218 patients with COPD were included to the study (29 female, 189 male). Mean age was 58.2±13.6 years. Mean FEV_1, MMRC dyspnea scale, distance walked in 6 minutes, BMI, level of albumin, level of CRP, TSFT, and AMC were 1.34±0.72 L (%40.7±18.9), 2.9±0.91, 229±119 meter, 25.4±5.7, 3.9±0.7 gr/ml, 2.8±0.6 mg/L, 10.3±4.9 milimeter, and 24.4±4.5 respectively. Mean BODE index score was 6.1±2.4. The correlation between BODE score and CRP, COPD stage, SGRQ scores, and andropometricparameters (albumin level, TSFT, and AMC) were significant but correlation between BODE score and CRP and total SGRQ scores was more significant than others.
The BODE index, a simple multidimensional grading system, may be used to investigate the systemic manifestations of COPD.

E4563

Psychologic impairment according to GOLD COPD staging for patients in a primary care setting

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The aim was to assess the psychological impact of COPD severity on patients in a primary care setting.
Materials and Method: Patients with a valid COPD diagnosis participated voluntarily. COPD severity and clinical symptoms were evaluated and the psychologic impact is assessed with the Hospital Anxiety and Depression Scale (HADS).
Results: Preliminary analysis is perfomed for 5532 patients. The mean values (±SD) for age and FEV1%pred was 65.1 years (±11.5) and 61.4 (±15.5) respectively. The mean total HADS Scores was 18.3 (±9.2). Abnormal anxiety (AS) and depression score (DS) were identified in 39.1% and 36.5% of the population, respectively. An advanced COPD stage was associated with increased scores for AS, DS and Total HADS($p < 0.0001$). HADS scores were found to be negatively correlated to FEV_1% pred values in all age groups. In patients >60 years of age the relationship was more evident (all pearson's: lrl>0.4). The severity of dyspnea was the predominant COPD symptom when predicting the increase in AS, DS and HADS ($p < 0.0001$).
COPD symptoms, GOLD stage and aging were positively correlated to AS, DS and total HADS scores ($p < 0.0001$). The sex had an influence($p < 0.0001$), while the smoking status and BMI did not have any influence on the scores (Table).
Conclusions: The psychologic impact of COPD increases as the disease progresses. COPD severity, age and gender may play an important role.

Anxiety, Depression and HADS score vs disease severity

GOLD disease staging	Anxiety Score mean (+/–SD)	Depression Score mean (+/–SD)	Total HADS Score mean (+/–SD)
I	6.59 (4.3)	5.7 (4.5)	12.2 (8.27)
II	8.62 (4.29)	8.39 (4.4)	17.2 (8.1)
III	12.38 (4.4)	12.17 (4.7)	24.5 (8.5)
IV	14.12 (5)	13.26 (5.4)	27.3 (9.9)

E4564

Spirometries in patients at a high risk of developing chronic obstructive pulmonary disease in general practices in Switzerland

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Introduction: Chronic obstructive pulmonary disease is a leading cause of mortality and morbidity worldwide and can be easily detected in its preclinical phase by office spirometry.
Aims: To investigate the effectiveness of spirometry for case finding in smokers at risk of developing chronic obstructive pulmonary disease who visit their general practitioner.
Methods: A prospective study of smokers aged 40 and above visiting their general practitioner with a short interviewer administered questionnaire (about respiratory symptoms, reason for consultation) and office spirometry.
Results: 8301 smokers underwent office spirometry. Mean age was 54 years (range 40–90 years). 57% of participants were male. According to the modified Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria by Hardie et al. 893 (11%) were having mild, 1050 (13%) moderate, 360 (4%) severe and 86 (1%) very severe obstruction. 3432 (41%) were complaining of cough, 2284 (28%) phlegm and 3288 (40%) dyspnea. The reason for the consultation were problems regarding musculoskeletal system in 1314 (16%), cardiovascular system in 1388 (17%), respiratory system in 1535 (19%), gastrointestinal system in 345 (4%) and others in 3719 (45%).
Conclusions: 29% of smokers aged 40 and above in a general practice sample in Switzerland have chronic obstructive pulmonary disease.

E4565

Easy-use device for screening COPD in primary care: prospective validation study

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Introduction: Optimal COPD management requires accurate diagnosis preferably before symptoms are obvious. Spirometry is difficult for general practitioners (GPs), and practical screening tools are needed to prioritise patients for spirometry confirmation of COPD.
Aim: To assess the validity of the FEV_1 / FEV_6 ratio, measured with an easy-to-use device, as a screen for COPD in general practice. We hypothesised a priori that the device-measured FEV_1 / FEV_6 ratio could distinguish presence or absence of spirometry-confirmed COPD with a high degree of sensitivity and specificity.
Methods: Smokers and former smokers, aged 50+ with no previous diagnosis of COPD, were recruited from five GP practices in Australia. COPD diagnosis was based on post-bronchodilation FEV_1 / FVC < 0.70 (GOLD criterion), measured by independent, trained operators with spirometry (EasyOne™; ndd Medical Technologies). Pre-bronchodilator FEV_1 / FEV_6 was measured by GPs and practice nurses using an inexpensive pocket-sized device (PiKo®-6; Ferraris Respiratory).
Results: Complete data were available from 297 of the 333 participants (mean age 60); 31% had spirometry-confirmed COPD). The device-measured FEV_1 / FEV_6 distinguished those with or without COPD with a high degree of sensitivity (83%; 95% CI 74–90%) and specificity (70%; 95% CI 63–76%) with cutpoint 0.75. Area under the ROC curve (0.86; 95% CI 0.81–0.91), PPV (56%; 95% CI 47–64%) and NPV (90%; 95% CI 84–94%) were also acceptable.
Conclusion: The FEV_1 / FEV_6 ratio, measured with an inexpensive easy-use device, provides GPs with a practical and valid COPD screening tool for identifying patients who should be prioritised for diagnosis with spirometry.

E4566

Aerosolotherapy in stable chronic obstructive pulmonary disease (COPD) – common inhalers use ability and usefulness of PIF measurement in choice of inhalers

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Objectives: To assess the correctness of common inhalers use by COPD patients and the relationship between the level of COPD education and quality of life.
Methods: 66 subjects, 23 women and 43 men suffering from COPD (age 67±8.7; disease duration 9.44±8.05; cigarette consumption 39.7±28.6 PY) and classified at II, III and IV stage of the disease severity by GOLD were enrolled in the study. The assessment of inhalers ability use was performed utilizing an original assessment scale. The patient's COPD educational level and quality of life (SGRQ) were evaluated as well. In all cases lung function tests including PIF measurement with dry powder inhaler resistance valves were performed.
Results: There were significant differences concerning the correctness of inhalers use. Patients fulfilled the manufacturer recommendations in 86%, 80.8%, 77.9%, 68.8% and 67.6% in case of Discus (D), Meter Dose Inhaler with spacer (MDI-S),

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Aeroliser (A), Turbuhaler (T) and MDI respectively. There were statistically significant differences found between A vs D (p = 0.0375), D vs MDI (0=0.0001) and D vs T (p = 0.007). No relationship between COPD educational level and the quality of life was revealed. The PIF values and the percentage of patients reaching optimal and minimal PIF value for each device were found as follows: (D) 88.2 l/min (100% i 100%); (T) 66.09 (62.8% i 100%); (A) 95.73 (18.6% i 86%).

Conclusions: The choice of appropriate inhaler in COPD patients should be individual and take into account PIF value and the patient's ability of inhaler use. We found no relationship between COPD educational level and the quality of life.

E4567

Factors associated with seeking care for COPD: a qualitative analysis

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Introduction: It is believed that COPD is under-recognized, under-diagnosed and under-treated. Both health-care provider and patient factors have been suggested, for example, attribution of symptoms to other causes, such as asthma or aging. But little data on the range of possible factors involved in patient care-seeking is available.

Objective: The aim of this study was to obtain and analyze qualitative data regarding patients' initial decisions to seek medical care for COPD symptoms.

Methods: Sixteen patients with recently diagnosed COPD were recruited. In semi-structured interviews, patients were asked about their experience of first being diagnosed with COPD, including symptoms and other factors that led to their decision to seek medical care. Constant comparative analysis was used to analyze interview transcript data. Data were coded line by line; similar concepts were organized into categories and compared with concepts from earlier data to produce themes.

Results: Four themes related to patients' decisions to seek care emerged: 1) perception and appraisal of symptoms, 2) perceived risk of COPD, 3) psychological/social/emotional factors, and 4) immediate reactions to diagnosis. Each theme also contained several related concepts. Reasons for delayed treatment-seeking included misappraisal of symptoms, underestimation of risk, and fearful avoidance. Role impairment and pressure from family members led to initial care seeking. Immediate reactions to diagnosis included self-blame, depression, and worry.

Conclusion: Several factors were identified related to patients initially seeking care for COPD symptoms. Many may be amenable to interventions targeted to patient education and health-care provider behavior.

E4568

Gender specific differences in complaints in mild to moderate COPD patients in general practice

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Chronic Obstructive Pulmonary Disease (COPD) is widespread in Europe, with a rising incidence. The impact of gender on complaints presented by patients with COPD has not been studied in detail. In this study complaints presented by COPD patients were recorded in a systematic protocolled way in the general practice and analysed for gender specificy, linking those to clinical data and spirometry. *Population*: 627 men and 457 women with COPD (Gold 1.2 and 3) were included. *Results*: There was no difference in frequency between women and men for coughing, phlegm and wheezing. However, women reported significantly more nightly complaints and a statistically significantly higher dyspnea score was found in women as compared to men, with in the same category of dyspnea scores higher predicted FEV1 and FVC for women than for men ($p < 0.05$). Several aspects of this features will be discussed. *Conclusions*: (dyspnea) complaints presented in the general practice by COPD patients should ideally be objectified with spirometry, taking gender differences into account.

E4569

Assisted early discharge for COPD exacerbations in Bradford

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Supported early discharge schemes for COPD exacerbations are widely used in the UK. Bradford Teaching Hospitals NHS Trust, serves a population of 400,000 and admits about 1000 patients with COPD exacerbations anually. Between February and December 2006 we admitted 450 patients with COPD exacerbations. 65 patients were discharged on our pathway.

Suitable patients (Table 1) were assessed by the respiratory team and enrolled onto an integrated care pathway. Supported early discharge was planned and patients were assessed by the community intervention teams (CIT). Patients were supplied a 2 week supply of their medications. The CIT were equipped with nebulisers and oxygen cylinders. They also had access to telephone advice from one of the hospital respiratory consultants with an interest in COPD. Discharged patients were followed up twice daily by the community nursing teams until they were deemed suitable for discharge after meeting agreed criteria. Upon discharge a 4 week follow appointment at the hospital chest clinic was made and the hospital respiratory consultant was intimated.

58 patients were caucasian with a mean FEV1 of 40%. 60% of patients had very severe dyspnoea scores (MRC Grade IV–V). 22% had home oxygen. The mean duration of hospital stay was 2.78 days (national average 8 days), with 83% of patients discharged wihin 72 hrs of admission. The cost per admission was reduced by 50% and the 90 day readmission rate was 16% compared to the national average of 31%. Only 11 patients were admitted more than twice over the 10 month period.

Discharge criteria
Ability to cope at home
No confusion
Respiratory rate < 30/min
BP > 90.60 mmHg
Ph > 7.35
Absence of consolidation on CXR
Not dependent on oxygen
Afebrile

E4570

Is COPD diagnosis in primary care performed according to guidelines?

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Objective: To relate diagnosing of COPD in primary care to guidelines.

Background: The Swedish National Board of Health and Welfare produced guidelines for asthma and COPD in 2004. The Praxis-study intends to compare these guidelines to the actually performed care. This part of the study analyses a survey to patients with COPD attending primary care and diagnostic data from the records of these patients.

Method: A survey was in 2005 sent to 1096 randomly selected patients with COPD attending 56 randomly selected primary health care centres. It included questions about demographics and patients conception of their diagnosis. The response rate was 74%. A study of the medical records from 2000–2003 of these patients was performed, where patient data regarding the diagnostic process were obtained for 463 patients.

Results: Of patients receiving a diagnosis of COPD 67% were current smokers, 60% were women and 40% men, mean age 63. When asked in the survey 57% agreed with the COPD diagnosis and 34% thought they had asthma. In the records 24% of the patients had both COPD and asthma. Of 56 participating centres 55 had a spirometer. At diagnosis, 66% had performed a spirometry, 66% had a peak flow, 12% a saturation measurement and 55% had a chest x-ray performed. Of all patients 10% were referred to the hospital to confirm the diagnose. Odds ratio for women compared to men having a spirometry performed at the time of diagnosis was 0.6 (95% CI 0.38–0.97) adjusted for age and current smoking.

Conclusion: Spirometry was performed in only two-thirds of the patients in primary care when diagnosing COPD, although almost all centres had a spirometer. Men were more likely to have a COPD diagnosis based on spirometry.

E4571

Prevalence of COPD in the general population according to cardiovascular risk factors

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The CORSAIB study was conducted in the year 2000 and identified a high prevalence of cardiovascular risk factors (tobacco use 27.5%, hypertension 47.8%, hypercholesterolemia 24.3%, diabetes-hyperglycemia 11.7%, and obesity 27%) in a random sample of 1,685 individuals from the general population 35 to 75 years old of the Balearic Islands, Spain (Rigo F, et al. Rev Esp Cardiol 2005). We aim to follow-up the original CORSAIB cohort, seven years after the initial survey, repeating all tests plus performing post-bronchodilator forced spirometry and measuring respiratory symptoms.

Up to 31 December 2006, 97 participants completed fieldwork. Mean age was 59 years and 56% were female. The prevalence of COPD, defined as a ratio FEV_1/FVC post-bronchodilator less than 0.7 was of 8.2%, and according to the ERS/ATS COPD severity grading, there were two individuals with mild COPD, 5 with moderate COPD and 1 with severe COPD. The mean (SD) percent predicted FEV_1 according to increasing number of cardiovascular risk factors was 101.2

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(19.8) for those with 0 cardiovascular risk factors, 91.2 (18.3) for those with 1, and 88.4 (18.3) for those with 2 cardiovascular risk factors.
Although we only have preliminary results, it appears COPD is frequent in individuals with cardiovascular risk factors. Because COPD is a treatable disease, COPD should be screened out in cardiovascular patients.

E4572
Health status and utility for COPD patients: a questionnaire-based study
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Introduction: COPD places considerable burden on patients. Treatment aims to minimise respiratory problems and improve patients health status, which can be assessed using generic (e.g. EQ-5D) and disease-specific (e.g. St George's Respiratory Questionnaire (SGRQ)) measures. EQ-5D scores can be converted into a utility value, capturing patients' values for health states.
Aims: The purpose of this study was to assess changes in health status and health utility for a cohort of COPD patients in primary care.
Methods: Consented patients completed the EQ-5D every three months and the SGRQ every six months over an 18 month period via postal survey. Data from 12 months are presented here due to the potential issues of seasonality in presenting data at 18 months.
Results: 103 patients consented to take part in this study (mean age 71y, 57% male). Mean baseline scores on the SGRQ were: 56 total; 59 symptom; 77 activity; 42 impact. At 12 months there was a 3.2 point mean deterioration in total score, with the symptom and activity scores showing mean deteriorations of 1.8 and 0.8 points respectively. However, the impact score deteriorated by a mean of 3.9, which was statistically significant ($p=0.028$) and almost clinically significant. Mean baseline utility on the EQ-5D was 0.60 and the VAS was 54. A small mean deterioration in utility was seen (–0.03) along with a statistically significant mean deterioration on the visual analogue scale (VAS) (–3 points, $p=0.047$).
Conclusion: The health status of this primary care cohort of COPD patients showed deterioration after 12 months. This was particularly evident for the total score and the impact domain of the SGRQ.

E4573
Adaptation rate between COPD treatment in clinical practice and guidelines recommendations
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Objetive: To describe the adaptation rate between COPD treatment in clinical practice and guidelines recommendations (GOLD 2006).
Methods: This is a descriptive study. We included 132 subjects with COPD criteria, and they was older than 40. The individuals was recruited in eight primare care centers in Andalucia. Spain. We collected anthropometric, social demographic data, lung function values, measured at rest, and quality of life patients perception data.
Results: 93.2% of subjects included are men. Actually, 34.8% are smokers. Only 33.9% of population studied have a good treatment, adequate to their severity rate. So, 46.2% of mild COPD; 20.8% of moderate COPD, 27.9% of severe COPD and 76% of very severe COPD patients had a good adaptation between their treatment and the guideline recommendations (GOLD 2006). 53.8% of mild COPD patients have inadequate treatment by unreasonable or excess. For all subjects, the 31.4% have under-use of treatment.
Conclusions: It's necessary to improve the adaptation of COPD treatment to international recommendations.

E4574
Vitamin D (25OHD3) and parathyroid hormone (PTH) status in patients with COPD
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Objective: To assess the prevalence of hypovitaminosis D (25 dihydroxycholecalciferol $\leqslant$15ng/ml) and secondary hyperparathyroidism (PTH $\geqslant$ 53pg/ml) in patients with severe COPD
Methods: Male patients aged $\geqslant$ 45 years with COPD GOLD III-IV were identified from outpatient settings and included in this observational study.
In all cases, blood samples to determine calcium, 25 OHD3, phosphorus, iPTH, and creatinine levels were collected. Urine calcium and clearance of creatinine were analysed. Bone mineral density (BMD) was measured at the lumbar spine (L1 to L4) and femoral neck by using DXA (QDR Hologic 4500). Subjects were diagnosed as osteoporotic according to the World Health Organization criteria.
Comparative analysis was performed in relation to hypovitaminosis D.
Results: Over a two-year period, 79 patients were included in the study. A diagnosis of hypovitaminosis D was obtained in 58 of 79 patients (72%), 40 of them showed secondary hyperparathyroidism (68%). The diagnosis of osteoporosis was made in 49 of 79 patients (62%). The results of comparative analysis are summnarized in table 1.
Conclusions:
1. Moderate-severe COPD patients have high prevalence of hypovitaminosis D and secondary hyperparathyroidism.
2. This group of patients are at elevated risk of osteoporosis.
3. Vitamin D status and osteoporosis screening should be performed in COPD with GOLD III-IV stage.

Table 1. Characteristics of included patients

	No hypovitaminosis-D	Hypovitaminosis-D	p*
Number of patients (n)	21	58	
Age (years)	67±1	71.2±7.6	p = 0.03
BMI (Kg/m^2)	28.4±6.4	27±4.4	ns
FEV1 (ml)	1090±266.6	1056±	ns
Lumbar osteoporosis	26.3% (15/57)	73.7% (42/57)	ns
Femoral osteoporosis	18.1% (8/44)	81.8% (36/44)	p = 0.04

E4575
Detecting patients at risk of developing airflow obstruction in general population
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Chronic airflow obstruction is a major health problem. Forced expiratory volume in one second(FEV1) is a reliable method to assess airway obstruction and several spirometers are now available for use in general practice.
Objectives: Selecting patients on the basis of risk factors to identify those at risk of developing chronic airway obstruction.
Methods: Patients recruited throughout the Hospital's activities in primary care setting, completed a brief questionnaire on smoking history and respiratory symptoms and perfomed spirometry. Airflow limitation was diagnosed by FEV1/FVC<0.7.
Results: All three hundred and ninety individuals perfomed a good quality spirometry, 289 (74.1%) aged 40 years or more, mean age 60.47±10.41, 168 females (58%), cough in 94 (33%), pleghm 105 (36.6%), dyspnea 140 (48%). One hundred patients had airflow limitation, correlations with: age ($p<0.001$), smoking($p=0.03$), gender($p=0.06$), cough($p<0.001$),pleghm ($p=0.05$), dyspnea($p=0.06$). Differences in correlations were found related to severity.
Conclusions: Risk factors for airflow limitation are older age, smoking and cough but they are not sufficient for an accurate diagnosis that can only be made through spirometry, a technique that can be perfomed with good quality outside the Hospital.

E4577
The AIRTEM project: home telemonitoring of patients affected by COPD and chronic respiratory failure
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AIRTEM (Integrated Assistance by Respiratory TeleMedicine) is a multicentric study carried out in Milan, with the aim of evaluating the advantages of home telemonitoring patients (pts) with COPD and long term oxygen therapy. The study plains to enroll 600 patients, and is intended to last 24 months.
Eligible pts are randomized in two homogeneous groups (300 pts active + 300 pts control group). At first pneumological visit, patients sign an informed consent, then the pneumologist fills in forms with personal data, clinical history, clinical evaluation and therapies; data are then stored in a web data-base, with a secure system to protect data confidentiality and, from here, imported in a central system. Central telemedicine station provides the control and the coordination of activities.
At home, patients are provided a periodic nursing assistance and clinical monitoring by general practictioner, who is in contact with the pneumologist at the call center, to evaluate possible problems (second opinion) and to modify or confirm undergoing therapies.
Active pts also undergo hospital visits, every three months. Control group patients only undergo routine follow-up visits every three months.
The enrolment started in May 2006: up to now only 35 patients have been enrolled (20 males and 15 females), mean age 70±5 years. General practitioner performed 19 scheduled home visits and 40 nursing accesses were made.
During the present 10 months follow up, no unscheduled visits and/or hospitalizations occurred in either group.
Difficulties in the enrolment are mainly due to the burocratic length of ethic committees and to the difficult coordination between hospital and local health administration.

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