Respiratory-Related Healthcare Costs for Patients with COPD: A State Medicaid Perspective

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Introduction: The costs of treating COPD may vary with differing populations at risk. This study assessed healthcare costs among patients with COPD covered by the California Medicaid ("Medi-Cal") program. Methods: We employed a retrospective cohort design and data for a 20% random sample of Medi-Cal recipients to examine respiratory-related Medicaid expenditures among adults with COPD. Patients were selected who were 18+ years of age diagnosed with COPD in CY2000 and eligible for the entire year. Subgroups were defined by disease type (emphysema vs chronic bronchitis (CB)). The presence of comorbid CHF or vascular disease also was evaluated. Mean Medi-Cal payments for CY2000 were reported. Results: In total, 8,540 patients met study inclusion criteria. On average, patients were 60 years old and 55% were female. Sixteen percent were diagnosed with CHF and 32% with vascular disease. Mean respiratory-related healthcare costs were $2,953 for CB patients and $5,201 for emphysema patients. The most costly components of care were hospitalizations (50% of the total), nursing home stays (22%), drugs (10%), and physician visits (9%). However, hospital expenditures were a lower proportion of costs among those 65+ years (32% vs. 58% for patients <65), since Medicare is the primary payer among the former. Respiratory-related costs for patients with vascular disease or CHF were 1.5 to 2.9 times those of patients without these comorbidities, depending on COPD subtype. Conclusions: Respiratory-related Medicaid expenditures vary by age and comorbidity. CHF and vascular disease increase costs markedly. Strategies to improve outcomes and reduce costs should target both the primary disease and its comorbidities.

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Global Warming, Has It Had an Impact on Obstructive Lung Diseases in the United States?

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RATIONALE: Estimates suggest earth has warmed 1-2°C over the last 20 years and is predicted to warm an additional 2-3°C over the next 50-100 years. In the U.S. asthma and COPD mortality and morbidity rose during the last 20 years despite declining ozone, particulate matter <10 microns, NO2, and SO2 levels. Changes in ambient temperature may affect the predilection toward respiratory infection or airway reactivity. We sought to examine the relationship between average annual U.S temperature and COPD and asthma morbidity (measured by ICD-9 hospital discharge rate) and mortality corrected for census. METHODS: Data for 1979-1998 was obtained from the American Lung Association website. Average annual temperatures for the U.S. were obtained from the National Oceanic and Atmospheric Administration. RESULTS: Mortality data was continuous. Morbidity analysis was complicated by a survey design change in 1988 and an ICD-9 change in 1992. Asthma morbidity, therefore was analyzed for 1979-87 and 1988-98 and COPD morbidity was analyzed for 1979-87 and 1992-98. COPD mortality correlated with increasing ambient temperature ($p=0.056$, $r=0.428$). In contrast, there was no correlation between increasing temperature and morbidity from COPD or asthma or asthma mortality. CONCLUSION: Global warming may result in increased mortality from COPD. Examining the impact of warmer temperatures on a local and regional basis over a broader time frame may yield additional insight.

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Profile of COPD Disease Burden in the Managed Care Setting

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Introduction: A managed care claims analysis was performed to quantify the disease burden and patterns of COPD treatment. **Methods:** Enrollees with diagnosed COPD were identified from a managed care research database. A comparison group of enrollees was matched by age and gender at a ratio of 4:1. The COPD group was stratified into Low, Moderate, and High Utilizers based upon respiratory-attributed ER visits and hospitalizations. **Results:** The study included 23,596 COPD patients and 94,384 Matched patients. Of every 1000 enrollees age 45 and older who used health care services, 57 sought care related to COPD. COPD prevalence tripled between the ages of 45 years and 55 years, from 13.5 to 41.2 per 1000. COPD patients presented a substantial burden:

Burden of COPD Patients

	COPD	Matched
Avg. No. Medical Conditions Per Patient	12.2	6.6
Avg. Total Health Care Charges Per Patient Per Month ($PPPM)	$2,330	$651

COPD care accounted for 1/5 of health care charges ($420 PPPM). Only 58% of patients filled a bronchodilator prescription during the 12-month study period. Total health care charges were 8.5% lower for bronchodilator users than for non-users. This difference increased to 32.4% for Moderate Utilizers and 23.6% for High Utilizers. **Conclusions:** COPD prevalence is substantial and costly to managed care. A large number of patients seeking care for COPD are under the age of 65 years. Despite the availability of evidence-based COPD treatment guidelines, there is underuse of recommended medications. Appropriate use of medications may lead to pharmacoeconomic benefits.

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COPD:The Impact Occurs Earlier Than We Think

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Chronic obstructive pulmonary disease (COPD) is the 4th leading cause of mortality and results in significant human, societal and economic burden. Prevalence and morbidity data may underestimate the disease impact as it is often not diagnosed until moderately advanced. We performed a retrospective analysis of patient demographics at entry into our COPD disease management program and tracked COPD-related utilization within the preceding 6 months (n=2129; male=47.3%, female=52.7%). Patients presented with moderate-severe disease (mild=25.7%, moderate=32.5%, severe=41.5%) as assessed by resource utilization and functional capacity. Age and gender data were as follows:

Age	<50	50-54	55-59	60-64	65+
N	119	184	353	403	1070
Male	40	71	151	193	551
Female	79	113	202	210	519
%Total Pts	5.6%	8.6%	16.6%	18.9%	50.3%

In the total population, 46.1% are employed (less than 65 years = 56.3%) and missed an average of 4.6 work days in the last 6 months (total loss of 4366 days). Of this group, 29.9% required unscheduled physician visits and 29.1% were hospitalized for COPD. (average stay 3.8 days). These results suggest that COPD is not just a disease of the elderly, but is disabling in those well under 65 years of age. It impacts the patients normal daily life and is associated with significant health resource utilization. Given these data, physicians should consider earlier screening in all patients with chronic respiratory symptoms, to facilitate early intervention and alleviate the burden of disease.

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(COPD) in an Inner-City

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OPD are diagnosed at an e prevention of COPD. The tients at increased risk for COPD. Methods: A questionnaire based on established guidelines for suspicion of COPD was given to in-patients. Exclusion criteria included those patients with known obstructive airway disease and those who were unable to answer the questionnaire. Results: We had 40 patients, mean age of 46, of which 21 were male. Thirty-two patients warranted further investigation for COPD and 20 had at least 2 risk factors for COPD. Twenty-one patients received regular out-patient care. Five patients had spirometry done prior to admission.

Risk for COPD

Tobacco	Chronic Dyspnea	Chronic Sputum	Chronic Cough
30(94%)	19(59%)	11(34%)	9(28%)

Conclusions: Eighty percent of the patients interviewed qualified for further investigation for possible COPD. Significant tobacco exposure was the most common indicator of possible COPD and chronic dyspnea was the most common associated symptom. The use of a questionnaire could increase the detection rate of possible COPD patients and result in diagnosis at an earlier stage. We propose inclusion of a simple questionnaire during admission to help identify patients at risk for COPD and tailor further investigation.

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Influence of Early COPD on Employment Status

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BACKGROUND: There is limited information about the impact of early COPD on employment status. METHODS: Participants in a longitudinal smoking cessation intervention trial were followed 6 years. All had early COPD (defined as 55 < FEV1 < 90% predicted with FEV1/FVC ratio < = 0.70). Employment status and spirometry were determined at baseline and at 5 annual follow-up examinations. Airway responsiveness (FEV1 methacholine dose slope) was measured twice. At each visit, subjects were asked employment status, dust exposure, fume exposure, and mask use. Influence of these factors upon employment status at the 5th annual follow-up was determined with a series of logistic regression analyses. The following predictors of continued employment at the 5th annual follow up were considered: baseline FEV1 residual, baseline FEV1/FVC, airway responsiveness, change in FEV1 between baseline and year 5, age, gender, exposures (dust, fume, mask use), "ever exposed" to occupational agents, and years in current job. RESULTS: Overall, age was consistently a significant negative predictor of remaining at work after 5 years. Neither mild abnormality of spirometry nor FEV1-exposure interactions were predictive. Similarly, methacholine reactivity did not affect employment at year 5. "Ever exposed" (men, OR= 0.73) and years in current/ job women, OR= 0.97) were inversely related to likelihood of employment at five years. CONCLUSIONS: Early COPD does not lead to change in employment status. However, this does not exclude possibility that subtle effects of accelerated FEV1 decline or airway hyperresponsiveness on employment occur early in the career of individuals.

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