ABSTRACT

This study examines the incidence of hospitalizations for chronic obstructive pulmonary disease (COPD) among elderly Medicare beneficiaries. COPD comprises several conditions that cause airflow obstruction and breathing problems. Acute exacerbations of COPD frequently require inpatient hospitalization, often with mechanical ventilation. Patients age 65 and older account for over 67% of U.S. COPD hospitalizations.

MEDPAR inpatient hospital discharge data are examined for Medicare fee-for-service beneficiaries age 65 and over discharged during fiscal year 2005 for DRG 88 (COPD) (N=355,178). Incidence patterns and length of stay are examined by Medicare beneficiary group, age, race and sex. Source of admission, discharge destination, rehospitalizations, in-hospital and post-discharge mortality are also examined.

The average patient was 77 years old. Over 58% of these patients were female. Approximately 87% of the patients were white and 8.4% were black. Nearly 73% of admissions came from the emergency room. The average length of stay for these hospitalizations was 4.9 days. The average inpatient charge was $16,519. Patients frequently required additional formal care after discharge. While 62.1% of patients were discharged to home, 34.7% were discharged to some form of post-acute care. Beneficiaries in older age groups had a higher frequency of discharge to post-acute care (most often home health care). While only 1.6% of patients died during hospitalization, 27% died within one year after discharge and 40.8% died within 2 years after discharge. Post-discharge mortality was greater among older age groups. Readmission in 2005 or 2006 for COPD or other respiratory conditions was common among these patients.

Proportional Hazards Two Year Post-Discharge Mortality Model

Predictors	Coefficient	Standard Error	T	Odds Ratio
Age	0.0314	0.0003	87.81	1.032
Female	-0.1448	0.0054	-26.76	0.865
Black	-0.0915	0.0101	-9.04	0.913
Hypertension	-0.2054	0.0053	-38.56	0.814
Atherosclerosis	-0.0609	0.0061	-9.99	0.941
Heart Failure	0.4404	0.0572	76.92	1.553
Diabetes	-0.0363	0.0063	-5.75	0.964
Asthma	-0.4959	0.0087	-56.97	0.609
Depression	0.1499	0.0090	16.74	1.162
Ischemic Heart Disease	-0.0123	0.0108	-1.13	0.988
Malignant Neoplasms	0.9709	0.0099	97.96	2.640
Peripheral Vascular Disease	0.0715	0.0251	2.85	1.074
Gastrointestinal Hemorrhage	0.4622	0.0263	17.56	1.587
Renal Failure	0.4202	0.0137	30.79	1.522
Stroke	0.1405	0.0144	9.75	1.151

N = 355,178, Likelihood Ratio X^2 = 31,369.61 with 15 Degrees of Freedom

Effects of Comorbidities on (Log) Medicare Covered Charges: Initial Hospitalization

Predictors	Coefficient	Standard Error	T .
Age	0.002	0.0002	11.39
Female	0.073	0.0026	28.33
Black	0.089	0.0045	19.64
Hypertension	- 0.000	0.0025	- 0.12
Atherosclerosis	0.016	0.0029	5.54
Heart Failure	0.181	0.0029	63.08
Diabetes	0.023	0.0029	7.90
Asthma	0.054	0.0035	15.49
Depression	- 0.010	0.0043	- 2.30
Ischemic Heart Disease	0.006	0.0051	1.14
Malignant Neoplasms	0.126	0.0061	20.76
Peripheral Vascular Disease	0.031	0.0123	2.53
Gastrointestinal Hemorrhage	0.429	0.0148	28.90
Renal Failure	0.392	0.0076	51.52
Stroke	0.060	0.0072	8.94
Intercept	9.054		

N = 354,074, R^2 = 0.03, F= 738.64 with (15, 354,058) Degrees of Freedom

Logistic Regression: Any Rehospitalization, 2005-2007

Predictors	Coefficient	Standard Error	T	Odds Ratio
Age	- 0.0034	0.0005	- 6.21	0.997
Female	0.0891	0.0082	10.85	1.093
Black	0.2336	0.0154	15.19	1.263
Hypertension	0.0707	0.0081	8.74	1.073
Atherosclerosis	0.3247	0.0097	33.58	1.383
Heart Failure	0.1821	0.0095	19.17	1.198
Diabetes	0.2757	0.0099	27.79	1.318
Asthma	0.0174	0.0113	1.54	1.017
Depression	0.1066	0.0141	7.57	1.112
Ischemic Heart Disease	- 0.0294	0.0169	-1.74	0.971
Malignant Neoplasms	- 0.2883	0.0181	-15.95	0.750
Peripheral Vascular Disease	0.1610	0.0415	3.88	1.175
Gastrointestinal Hemorrhage	- 0.0843	0.0465	- 1.81	0.919
Renal Failure	- 0.1919	0.0237	- 8.09	0.825
Stroke	0.0595	0.0235	2.53	1.062
Intercept	1.0492			

N = 355,178 Likelihood Ratio X^2 = 3,966.95 with 15 Degrees of Freedom

Effects of Demographics and Comorbidities on Number of Rehospitalizations, 2005-2007

Predictors	Coefficient	Standard Error	T
Age	- 0.055	0.0009	- 60.68
Female	0.090	0.0136	6.60
Black	0.983	0.0239	41.44
Hypertension	0.022	0.0134	1.68
Atherosclerosis	0.620	0.0153	40.62
Heart Failure	0.395	0.0152	26.04
Diabetes	0.673	0.0156	43.20
Asthma	0.092	0.0185	4.96
Depression	0.278	0.0228	12.22
Ischemic Heart Disease	- 0.013	0.0270	- 0.47
Malignant Neoplasms	- 0.838	0.0321	-26.11
Peripheral Vascular Disease	0.021	0.0650	0.32
Gastrointestinal Hemorrhage	- 0.082	0.0786	28.90
Renal Failure	- 0.280	0.0404	- 6.94
Stroke	- 0.162	0.0381	- 4.25
Intercept	6.811		

N = 355,178, R^2 = 0.03, F= 821.82 with (15, 355,162) Degrees of Freedom