

# Multi-Center COPD Registry: Implications for the Management of Patients with COPD

Marcia Brinson, MPH, RD<sup>1</sup>; Brian Regan, PhD<sup>1</sup>; Irene Lee, MD, MPH, MS<sup>1</sup>; Neil Schluger, MD<sup>2</sup>; Byron Thomashow, MD<sup>2</sup>; Eliot J. Lazar, MD, MBA<sup>1</sup>;

<sup>1</sup>NewYork-Presbyterian Healthcare System, New York, NY;  
<sup>2</sup>NewYork-Presbyterian Hospital / Columbia University Medical Center, New York, NY

## I. Background:

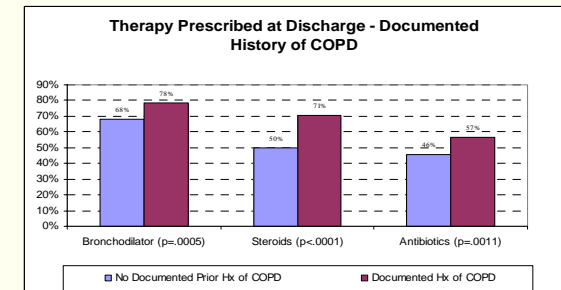
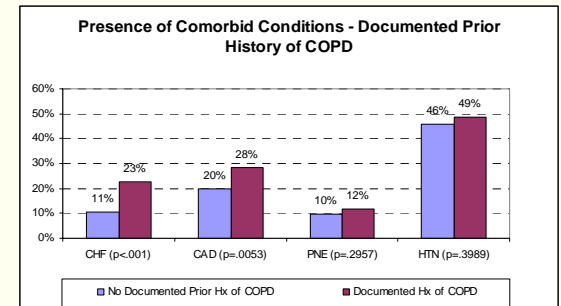
- Chronic Obstructive Pulmonary Disease (COPD) is the fourth leading cause of death in the US with approximately 110,000 deaths attributed to the disease annually.
- The recommended therapy for the management of patients has been developed and published in the Global Initiative on Obstructive Lung Disease (GOLD) Guidelines.
- There is little data that assesses either adherence to the guidelines or the outcome of COPD patients against the guidelines.

## II. Program Description:

- The Respiratory Diseases Council of the NewYork-Presbyterian Healthcare System (NYPHS) consists of pulmonologists representing the Systems 27 acute care institutions. An identified focus of the Council is the improved management of COPD across the System.
- NYPHS was awarded a one year grant from the United Hospital Fund to create an extensive registry that would then be used to assess adherence to the GOLD Guidelines as well as to assess the therapy provided to COPD patients discharged from five of its New York City hospitals.
- Project Hypothesis: To assess the proportion of patients discharged with COPD who are receiving therapies consistent with the GOLD Guidelines on admission to the hospital, during the hospital stay and at discharge from the hospital.

## IV. Results / Key Findings:

To date, 1379 charts have been abstracted across the 5 study sites. After general exclusions, 1251 charts were included in the analysis. Overall sample is 56.7% female, 53.1% Caucasian, 21.4% African American, with a mean age of 72.9 years and a mean length of stay of 6.5 days. Significant variations in presentation and therapy were observed based on a prior history of COPD and are provided below:



## III. Methods:

- Study Sample: Patients with principal ICD-9 discharge diagnosis of COPD, discharged from study hospitals during the timeframe: 1/1/2005 – 6/30/2006. Study hospitals include:

- NewYork-Presbyterian Hospital – Columbia University Medical Center, NY, NY
- NewYork-Presbyterian Hospital - Allen Pavillion, NY, NY
- New York Hospital Medical Center of Queens, Queens, NY
- New York Methodist Hospital, Brooklyn, NY
- St. Barnabas Hospital, Bronx, NY

- Retrospective chart review has been performed by a trained nurse abstractor using a web-based electronic data collection tool. IRB approval was received from each study hospital prior to the initiation of chart abstraction.

- Data analysis and statistical testing have been conducted using SAS 9.1.3.

- Cases were excluded from the analysis for the following reasons:

- Transfers from another facility
- Patients who left against medical advice
- Patients less than 18 years old
- Patients who expired
- Patients who were admitted for Lung Reduction Surgeries or VATS
- Cases upon chart review were determined to be incorrectly coded

## V. Conclusions

- Significant variations exist, based on a documented history of COPD, in therapy provided during the hospital stay and at discharge from the hospital.
- Compliance with GOLD Guideline recommendations for patients with a discharge diagnosis of COPD is poor and indicates an area for focused intervention and quality improvement activities.
- Preliminary data results from this multi-center COPD registry provide an informative and important snapshot of the demographics, co-morbidities, medical and pharmacological therapy provided to COPD patients discharged from these hospitals and will support the design, implementation, and assessment of strategies for improving care of COPD patients across a wide area of New York City.

### Therapy at Each Stage of COPD

	At Risk	Mild	Moderate	Severe	Very Severe
Characteristics	Chronic symptoms	FEV <sub>1</sub> /FVC < 70%	FEV <sub>1</sub> /FVC < 70%	FEV <sub>1</sub> /FVC < 70%	FEV <sub>1</sub> /FVC < 70%
Exposure to risk factors	FEV <sub>1</sub> = 80%	50% < FEV <sub>1</sub> < 80%	30% < FEV <sub>1</sub> < 50%	FEV <sub>1</sub> < 30%	or presence of chronic respiratory failure or right heart failure
Normal spirometry	With or without symptoms	With or without symptoms	With or without symptoms	With or without symptoms	
Avoidance of risk factors	smoking cessation influenza vaccination				
Add short-acting bronchodilator when needed					
Add regular treatment with one or more long acting bronchodilators					
Add inhaled glucocorticosteroids if repeated exacerbations					
Add long-term oxygen if chronic respiratory failure					
Consider surgical treatment					

### THE COPD POCKET CONSULTANT

**Consider a COPD Diagnosis**

- Chronic Cough: Present, intermittently or every day. Often present throughout waking hours, year-round.
- Chronic sputum production: Present, present on most days. Sputum production may indicate COPD.
- Age: ≥ 40
- Dyspnea: Shortness of breath (increases over time). Present on most days. Worse on exertion. Worse during respiratory infections.
- History of exposure to risk factors: Occupational dusts and chemicals. Genetic (rare) home cooking and heating fuel.

**DO SPIROMETRY TO DIAGNOSE COPD**

### Commonly Used Formulations of Drugs for COPD

Drug	Inhaler (mcg)	Solution for Inhaler (mg)	Oral	Injections	Duration of Action (hours)
<b>Beta 2 Agonists - Short Acting</b>					
Albuterol	90 (MDI)	0.63 to 2.53 ml	4 mg (Pill)		4-6
Levalbuterol		0.315 to 1.26 ml			6-8
<b>Beta 2 Agonists - Long Acting</b>					
Formoterol	12 (DPI)				12+
Salmeterol	50 (DPI)				12+
<b>Anticholinergics - Short Acting</b>					
Ipratropium Bromide	18 (MDI)	0.52 ml			4-6
<b>Anticholinergics - Long Acting</b>					
Tiotropium	18 (DPI)				24+
<b>Combination Short-Acting B2-Agonists Plus Anticholinergic</b>					
Albuterol / Ipratropium	90/18 (MDI)	3/0.53 ml			4-6
<b>Methylxanthines</b>					
Aminophylline			200-600 mg (Pill)		Variable, up to 24
Theophylline (SR)			100-600 mg (Pill)		Variable, up to 24

Inhaled Glucocorticosteroids	
Beclothemson®	40, 80, 160 (MDI)
Budesonide®	200 (DPI) 0.252 ml
Fluticasone®	44, 250 (MDI & DPI) 0.5/2 ml
Fluticasone®	100 (MDI)
Combination Long Acting B2-Agonists Plus Glucocorticosteroids	
Fluticasone / Salmeterol	100/50, 250/50, 500/50 (DPI)
Systemic Glucocorticosteroids: For Exacerbations.	
Prednisone	5-40 mg (Pill)
Methylprednisolone	2-32 mg (Pill)
MDI: Metered Dose Inhaler DPI: Dry Powder Inhaler	
Indications for Hospital Admissions for Exacerbations	
<ul style="list-style-type: none"> <li>Marked increase in intensity of symptoms, such as sudden development of resting dyspnea</li> <li>Severe background COPD</li> <li>Onset of new physical signs (e.g. cyanosis, peripheral edema)</li> </ul>	<ul style="list-style-type: none"> <li>Failure of exacerbation to respond to initial medical management</li> <li>Significant comorbidities</li> <li>Newly occurring arrhythmias</li> <li>Diagnostic uncertainty</li> <li>Older age</li> <li>Insufficient home support</li> </ul>

Source: Adapted from Global Initiative for Chronic Obstructive Lung Disease 2004  
 Publication Date: January 2005