

Care Quality for Patients with Chronic Obstructive Pulmonary Disease in the Readmission Penalty Era

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Introduction

- Chronic obstructive pulmonary disease (COPD) is currently the third leading cause of hospital readmission in the US costing nearly 49 billion dollars in 2020.
- In October 2014, the Centers for Medicare & Medicaid Services (CMS) added COPD as a designated condition under the Hospital Readmissions Reduction Program (HRRP). This implemented a financial penalty for hospitals with excessive readmissions for COPD.
- While other work has examined the impact of the HRRP on readmission rates, this is the first to examine the impact of the HRRP on COPD quality of care.

Methods

- We conducted a retrospective cohort study using hospital admission data from the Premier Healthcare Database representing over 975 hospitals and 25% of US inpatient discharges ranging from 2010 – 2018.
- Inpatients (>40 years) admitted for COPD were determined using ICD-9 and 10 codes while patients with a secondary diagnosis of pneumonia were excluded. Additionally, patients with unavailable information were excluded.
- Quality of care, as determined by the American College of Physicians and the American College of Chest Physicians and the 2017 GOLD guidelines, was set into three categories: ideal care, recommended care, and nonrecommended care. (Fig. 1)

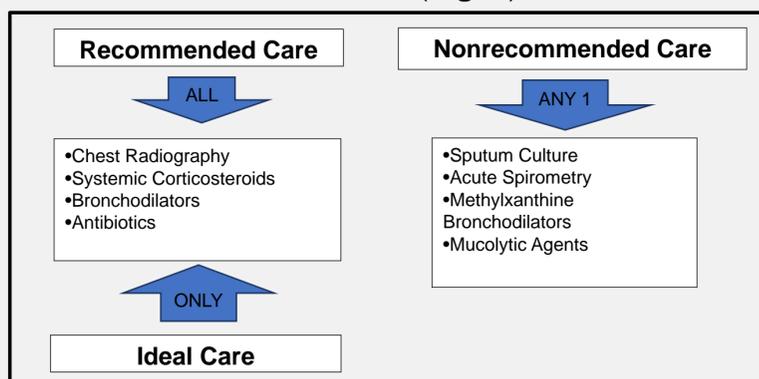


Figure 1- Diagram of care categories.

Results

- A total of 662,842 patients pre-HRRP and 285,508 post-HRRP meeting the inclusion criteria were obtained from the Premier database.
- In the pre-HRRP period, 72% of patients received recommended care, 36% non-recommended care, and 44% ideal care. In the post-HRRP period, 76% of patients received recommended care, 31% non-recommended care, and 50% ideal care. (Table 1)
- Following the designation of the COPD as a target condition under the HRRP, the rates of improvement in recommended care, non-recommended care, and ideal care all slowed. (Fig. 2)

	Pre-HRRP	Post-HRRP
Beneficial measures		
Chest radiography	629,357 (95)	276,530 (97)
Arterial blood gas analysis	303,358 (46)	143,292 (50)
Bronchodilator therapy		
□ Any Bronchodilator Therapy	589,589 (89)	268,905 (94)
□ Short-acting Beta2-agonist therapy (metered-dose inhaler)	84,986 (13)	28,001 (10)
□ Anticholinergic bronchodilator therapy (metered-dose inhaler)	60,785 (9)	17,146 (6)
□ Nebulized bronchodilator therapy	558,094 (84)	256,728 (90)
Systemic corticosteroid therapy		
□ Any corticosteroid therapy	592,977 (89)	267,257 (94)
□ Intravenous regimen (with or without oral regimen)	552,023 (83)	249,259 (87)
□ Oral regimen only	39,419 (6)	17,475 (6)
Antibiotic therapy		
□ Any antibiotic therapy	561,392 (85)	241,529 (85)
□ Narrow-spectrum coverage	87,815 (13)	54,623 (19)
□ Broad-spectrum coverage	473,577 (71)	186,906 (65)
□ Quinolone only	174,311 (26)	61,619 (22)
□ Macrolide only	62,229 (9)	37,359 (13)
□ Third generation cephalosporins only	20,323 (3)	9,251 (3)
□ Macrolides and third generation cephalosporins	82,099 (12)	34,151 (12)
□ Quinolones and third generation cephalosporins	18,159 (3)	5,540 (2)
□ Macrolides and quinolones	22,823 (3)	9,457 (3)
Noninvasive positive-pressure ventilation	129,675 (20)	77,380 (27)
Nonbeneficial measures		
Sputum testing	150,166 (23)	55,906 (20)
Acute Spirometry	57,744 (9)	20,669 (7)
Methylxanthine bronchodilator therapy	46,800 (7)	16,915 (6)
Mucolytic therapy	26,647 (4)	11,425 (4)
Composite measures of performance		
Recommended care	474,338 (72)	216,575 (76)
Non-recommended care	235,496 (36)	89,392 (31)
Ideal care	290,094 (44)	143,436 (50)
Number of Patients	662,842	285,508

Table 1- Baseline Patient Characteristics Before and After Hospital Readmissions Reduction Program (HRRP) COPD Designation.

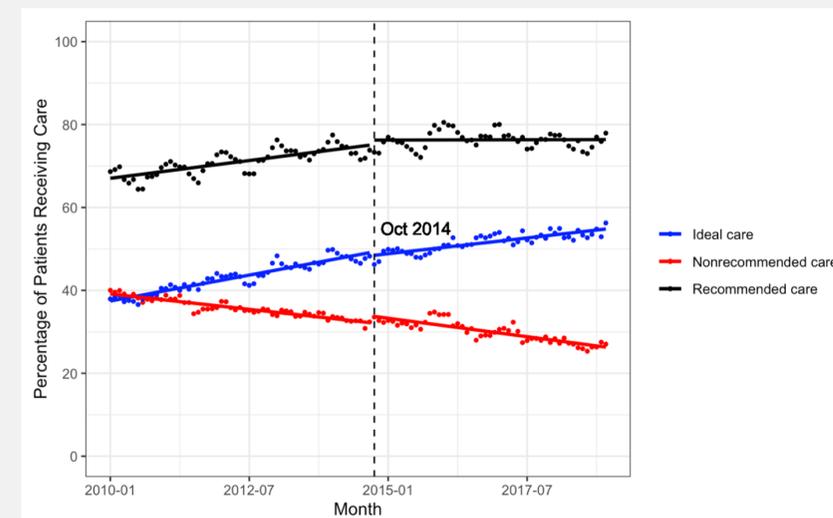


Figure 2- This figure depicts the trends in ideal care, recommended care, and non-recommended care from 2010-2018.

Conclusion

- The analysis found that since a national policy change, i.e., CMS' readmission penalties for excess rehospitalizations, there has been a decrease in the rate of increase for recommended and ideal care as well as an increase in the rate of nonrecommended care.
- Limitations-
 - The use of administrative data only allowed for us to study a maximum of 25% of nationwide inpatient encounters.
 - Significant decrease in patient encounters reported in 2017 and 2018.

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