



**Best Practices in  
Managing Patients With  
Chronic Obstructive  
Pulmonary Disease  
(COPD)**

# Novant Health Case Study

## Profile

Novant Health includes a physician-led division composed of 1150 physician partners in 350 clinic locations who represent a broad spectrum of primary and specialty care, including cardiology, endocrinology, orthopedics, and pediatrics. Medical group physicians are national and state leaders recognized by the National Committee for Quality Assurance (NCQA) for their care and treatment of diabetes, heart disease, and stroke. The group is part of Novant Health, a nonprofit, integrated healthcare system based in North Carolina that serves more than 5 million people across communities in North Carolina, Virginia, South Carolina, and Georgia.

## Program Summary

The medical group saw an opportunity to extend its successful Compass COPD Disease Management Program in 2 areas

- Provide a population mailing designed to help patients identify early signs and symptoms of an exacerbation and use tools to seek care earlier when it could be provided in the ambulatory versus acute setting
- Educate providers in the evidence-based guidelines and skills needed to support this population approach

## Program Goals and Success Measures

The medical group serves patients who are at high risk for COPD because they are part of a population whose livelihood is centered on the tobacco and textile industries. Two primary risk factors for COPD—cigarette smoke and occupational dust and chemicals—are prevalent in Novant Health's population.<sup>1</sup>

## Goals and objectives

Through its Compass program, the medical group has been effective in delivering care management services that reduce repeat inpatient admissions and emergency department (ED) visits by high-risk patients with COPD. Patient satisfaction with the Compass program is high when evaluated for patient experience with the program. However, the group identified 3 fundamental areas of COPD management that were falling short of expected evidence-based recommendations:

1. Continuity and coordination of care in transitions from acute to ambulatory settings
2. Patient-centered care and patient self-management
3. Compliance with COPD guidelines, including provider education

To address the first 2 areas, the group adopted a model of care that supports the patient-centered medical home (PCMH) in physician practices. Currently, 113 sites are recognized as Level 3 NCQA PCMHs. Further, continuity of care is supported by a call from a nurse who contacts patients with COPD within 2 days of discharge from the hospital to arrange a follow-up appointment with the patient's primary care provider (PCP). The Compass COPD Disease Management navigator focuses on a list of patients at high risk of COPD who have had multiple admissions or ED visits for symptoms associated with COPD. Self-management education for patient-centered care includes the Stay Safe in the Green Zone mailing to patients (described on next page) and other programs that address transitions of care.

Novant Health's medical group is continuing its participation in the Centers for Medicare & Medicaid Services (CMS) Physician Group Practice (PGP) Demonstration Project as a Transition Demonstration (TD) site. In the TD, quality specifications for the 9 participating sites were selected, and COPD measures were introduced by CMS as a measure group for performance. The 3 performance measures are:

***COPD-1: Tobacco use assessment/cessation intervention***

Tobacco use assessment/cessation intervention measure pair:

- Percentage of patients aged  $\geq 18$  years with a diagnosis of COPD who were queried about tobacco use  $\geq 1$  time during the measurement period or year prior to the measurement period
- Percentage of patients aged  $\geq 18$  years with a diagnosis of COPD who were identified as tobacco users and received a tobacco use cessation intervention at least once during the measurement period or year prior to the measurement period

***COPD-2: Spirometry evaluation***

- Percentage of patients aged  $\geq 18$  years with a diagnosis of COPD for whom spirometry evaluation results were documented

***COPD-3: Bronchodilator therapy***

- Percentage of patients aged  $\geq 18$  years with a diagnosis of COPD, a forced expiratory volume in 1 second (FEV<sub>1</sub>)/forced vital capacity (FVC)  $< 70\%$ , and were prescribed an inhaled bronchodilator

In October 2010, before the first year of participation in the TD project, the medical group added the full set of CMS PGP-TD metrics to its outcome goals, which included these 3 COPD performance measures that are evaluated on a monthly basis.

The aim of the Stay Safe in the Green Zone initiative—a mailing to patients with the diagnosis of COPD on discharge from 9 of Novant Health's inpatient acute facilities—is to educate patients so they recognize the early signs and symptoms of COPD exacerbation. The mailing is specifically targeted to patients who were admitted to the hospital with a COPD exacerbation or complications of COPD and not to those with a comorbidity of COPD that did not contribute to the admission.

The goals of the provider education initiative are to communicate evidence-based guidelines and the quality measures to the providers that are aimed to increase awareness of the quality outcomes associated with this project and the PGP-TD. These are increased proficiency in spirometry testing, an increased understanding of the use of medications for stable COPD and acute exacerbations, and increased assessment of tobacco use and cessation counseling.

## **Clinical standards**

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) standards<sup>1</sup> are approved as the clinical practice guidelines for the medical group. These are posted on the organization's intranet for provider access. In addition, all PCPs received individual packets of materials supporting these practice guidelines.

## **Data collection and measurement**

Data are collected by chart abstraction and use the numerator/denominator criteria adopted for the CMS demonstration project. This provides national measures aligned with NCQA, Healthcare Effectiveness Data and Information Set (HEDIS), and other nationally recognized quality measures.

The Amalga Microsoft product supports the program by identifying the population in real time. Amalga identifies all patients of a Novant Health provider who were discharged from one of Novant Health's acute care hospitals with a diagnosis of COPD. The patient lists can be exported into an Excel spreadsheet and sorted by insurance carrier, hospital, provider, or practice. The program does not integrate with the Epic electronic medical record system at this time. Novant Health is in the process of integrating the 2 systems.

## **Population Identification**

Novant Health collected Medicare fee-for-service data from CMS through its participation in the PGP Demonstration Project. The group received data about the COPD population attributed to the medical group and a comparison group that included providers in the same geographic area that Novant serves. This information demonstrated that, early in the PGP experience, total inpatient admissions, ED visits, and total expenditures for patients with COPD were positively impacted by disease management and care provided by Novant Health.

### **COPD registry**

The Population Health Management application uses information from the practice management system and the inpatient data warehouse, including medication J-codes, to identify and manage patients in the disease management program. The program was developed internally by Novant Health's Information Technology team and is maintained by this group and the Informatics Group.

## **Intervention**

### **Patient education**

In 2012, the medical group began mailing an "Air Bag" (Figure 1) to all patients with the diagnosis of COPD on discharge from 9 of Novant Health's inpatient acute facilities. This bag included educational materials to help the patient identify the early signs and symptoms of a COPD exacerbation, information about the Compass program, a symptom journal, an action plan, and a thermometer. The thermometer has a large back-lit display that changes color (green, yellow, and red) to indicate the implication of a given temperature level. The patient was instructed to take his or her temperature daily and contact the PCP if the display moved to the yellow zone (indicating a low-grade fever). Instructional materials compared this process with a traffic stoplight: when the color changes to yellow, the patient should be cautious and let the physician know. The kit includes a COPD Action Plan that the patient is encouraged to take to their PCP to develop specific parameters to follow in managing COPD symptoms. The packet also includes promotional information and contact numbers to connect with the Compass Disease Management Program by self or provider referral.

**Figure 1—Support Kit Distributed to Patients Diagnosed With COPD at Discharge**



### **Provider education**

Novant Health worked with its primary care practices to enhance provider education regarding evidence-based COPD care and communicate the HEDIS performance measures. Evidence suggests that many PCPs are not aware of recognized evidence-based COPD guidelines. A toolkit of materials was provided to all 500 PCPs across 136 practices and made available on the organization's intranet, including:

- Provider Practice Guidelines and Strategies for Chronic Care in COPD
- GOLD: Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease
- GOLD Pocket Guide to COPD Diagnosis, Management, and Prevention
- GOLD Guidelines for COPD Diagnosis and Management: At-A-Glance Desk Reference
- Use of Medications in Stable COPD
- Antibiotics for Acute Exacerbation Management
- Differential Diagnosis of COPD
- Spirometry—The Standard for Diagnosing COPD
- COPD and Other Respiratory Conditions: ICD-9-CM and ICD-10 CM

Clinical staff was trained in spirometry by a certified respiratory therapist at several 1-hour seminars that provided hands-on education in HEDIS best practices. During the project time frame, 7 RN practice facilitators were trained in spirometry testing, and more than 200 staff members in more than 55 practices have become certified.

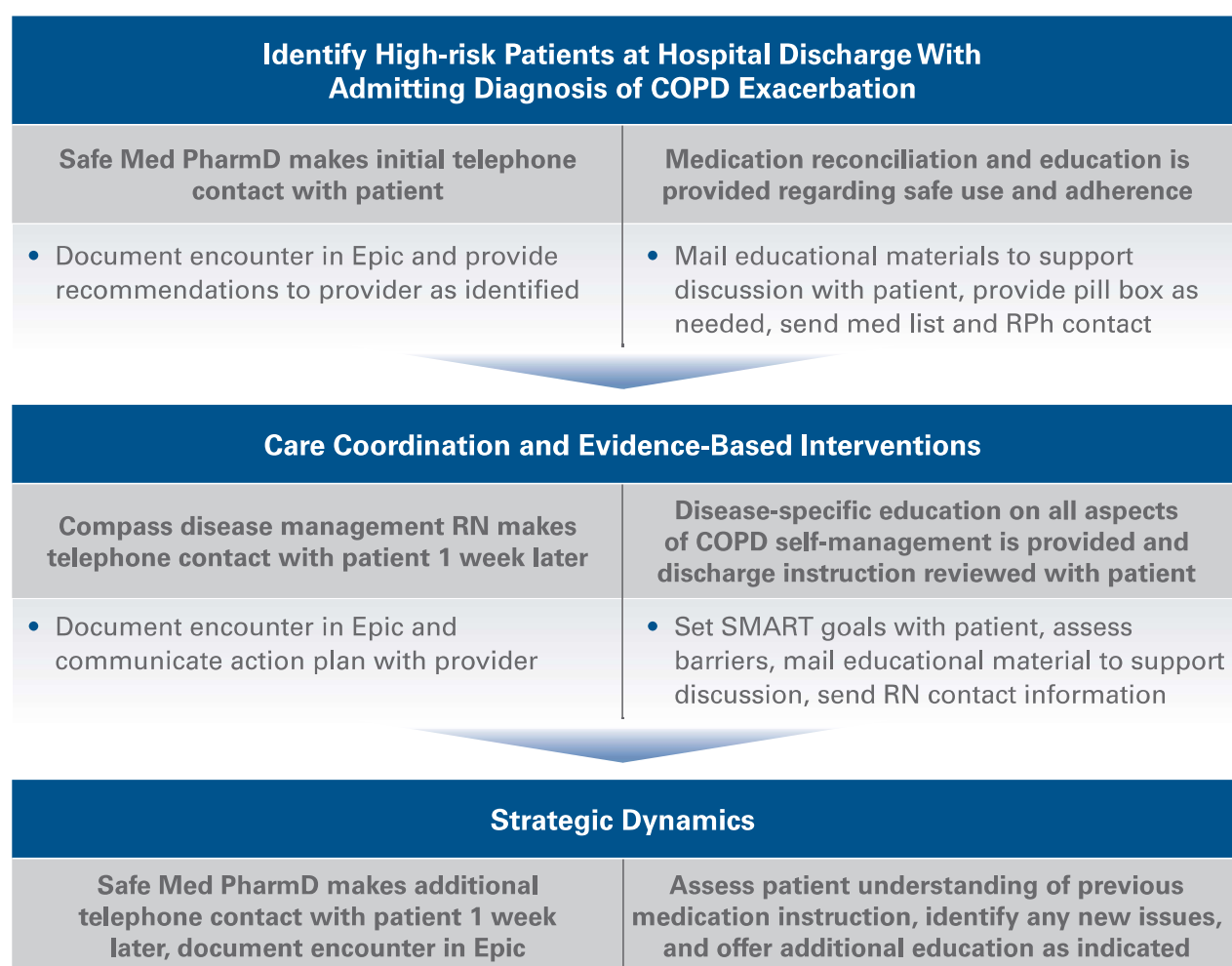
### **Provider recommendations**

Spirometry and flu/pneumonia vaccine best practice alerts were added to the electronic health record.

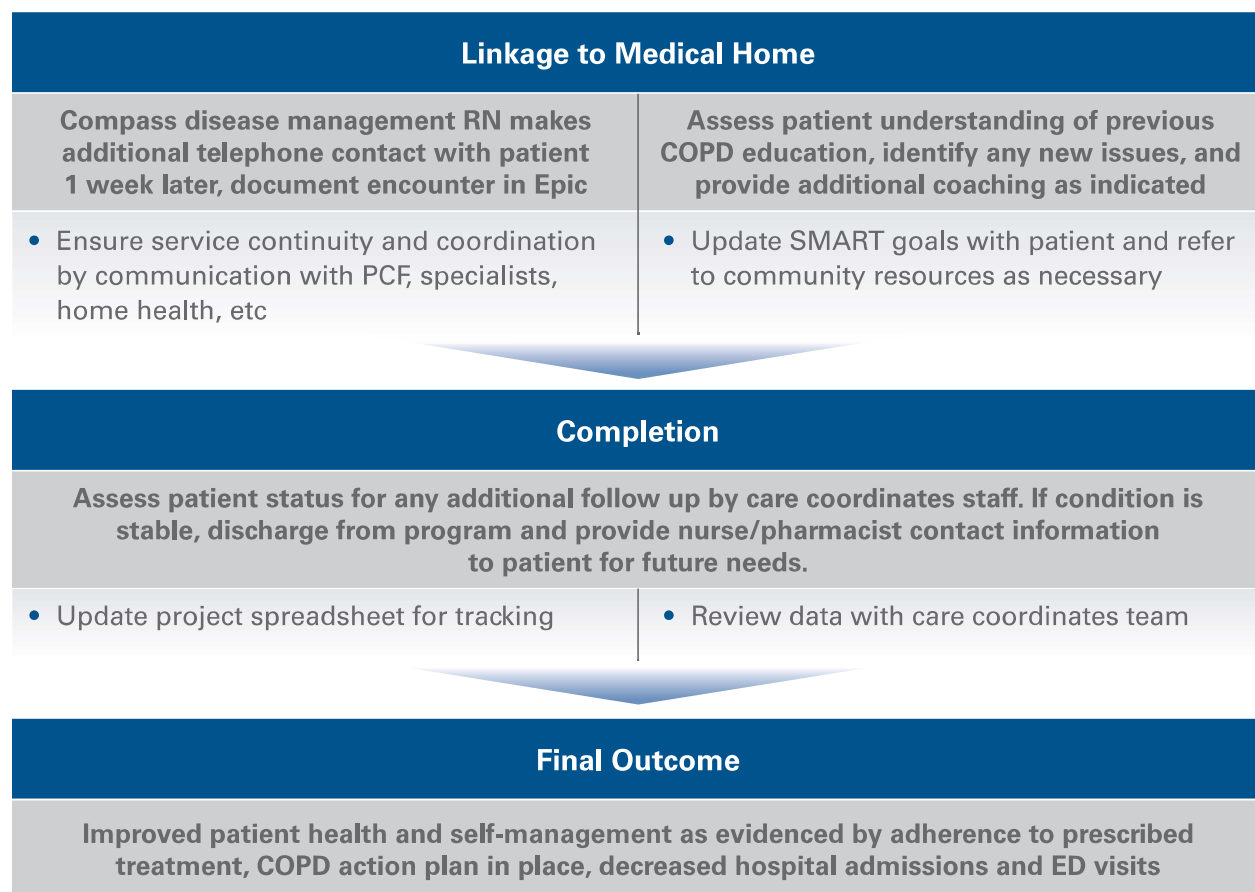
## Program modifications

Near the end of the project, an opportunity for an interdisciplinary approach to COPD patient management was explored between the existing Compass disease management and the Safe Med medication management programs at Novant Health. A Pathway Model (Figure 2) was developed and implemented for a high-touch approach to COPD follow-up after discharge from the hospital in an effort to prevent patient readmissions (Figure 3). A study group of 26 patients with COPD received alternating calls from a nurse navigator and pharmacist on a weekly basis for 4 weeks after discharge. Verbal and written education was provided at each contact, and community resources were identified as needed. Patient interventions and recommendations were communicated to the care team via EMR. Data results indicated that both 30- and 60-day readmission rates were significantly reduced based on the control group (a Novant Health Safe Med study of patient readmissions from 2008).

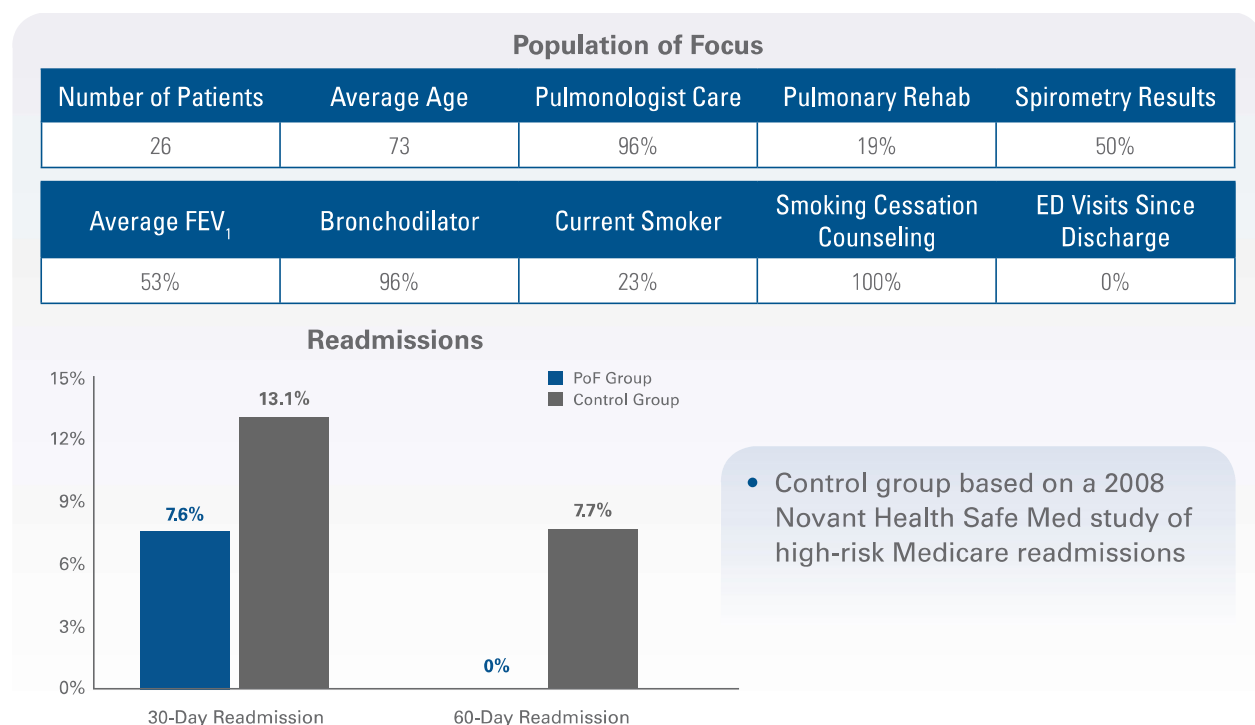
**Figure 2—COPD Collaborative Pathway Model**



**Figure 2—COPD Collaborative Pathway Model (cont'd)**



**Figure 3—COPD Posthospital Discharge Follow Up to Prevent Patient Readmissions**





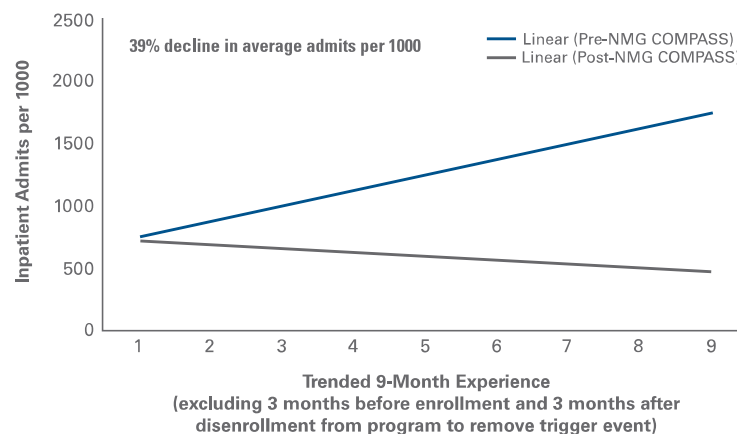
## Leadership Involvement and Support

The senior vice president and president of the medical group have overall responsibility for quality in the medical group and delegate oversight of the quality programs to the Health Management Committee. This committee is composed of physician representatives across the organization. The executive physician leader and the chairperson of the committee are physician champions for the 2 COPD initiatives. The senior director for the medical group clinical improvement and the director of disease management provide support for the process changes and connect to other departments in the organization, which is critical to success.

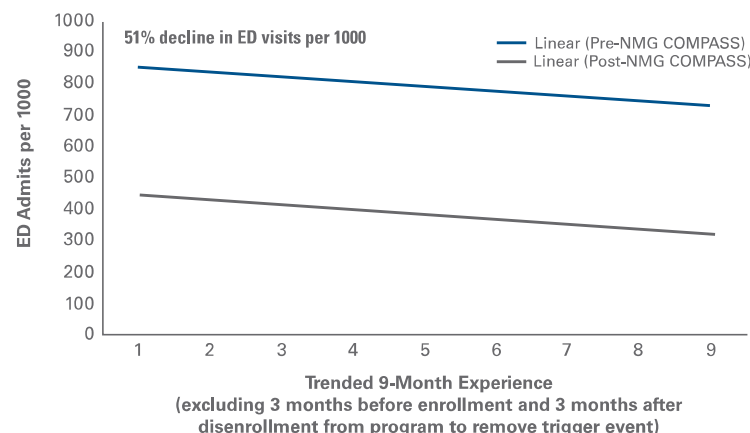
## Results

Initially, general assessment for Compass interventions in a population of high-risk patients (N=623) included the patients with COPD who received both a Stay Safe in the Green Zone mailing postacute inpatient admission and a follow-up assessment by a disease management navigator. These data demonstrated a 39% decrease in all-cause admissions for patients followed by a Compass nurse navigator for 2 or more encounters (Figure 4) and a 51% reduction in ED visits (Figure 5). The 3 months before the encounter and 3 months following discharge from the disease management program were trimmed from the review to remove the trigger event.

**Figure 4—Inpatient Admits (All Cause): All Participants in Program (N=623)**



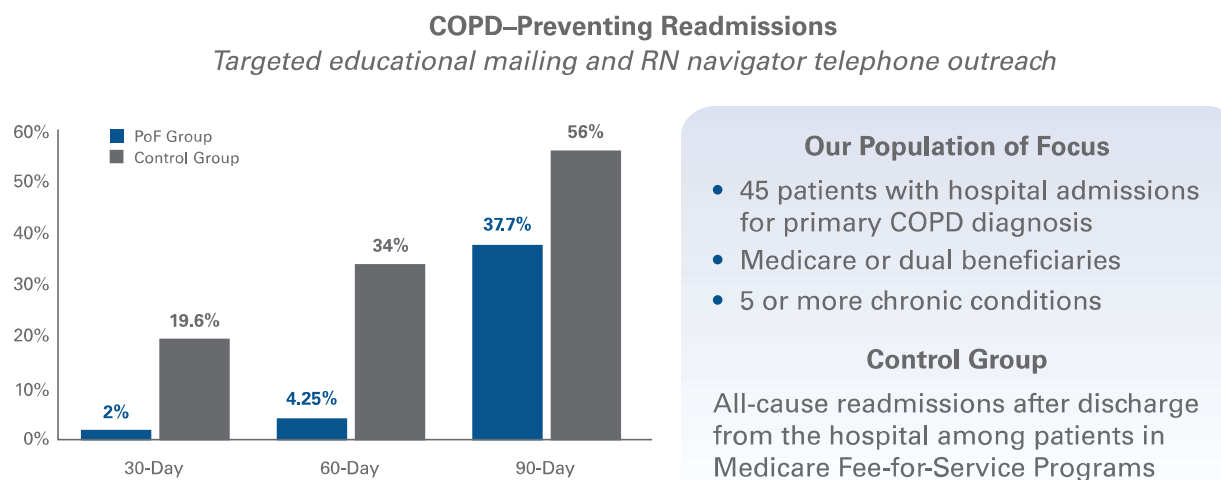
**Figure 5—ED Visits (All Cause): All Participants in Program (N=623)**





Additionally, a manual review was performed of 45 Novant Health's patients with hospital admissions for a primary COPD diagnosis. All 45 patients received the targeted COPD mailing in addition to registered nurse navigator telephonic outreach postdischarge. Data results demonstrated significantly lower hospital readmission rates for this cohort compared with Medicare fee-for-service programs with all-cause readmissions (Figure 6).<sup>2</sup> The Stay Safe in the Green Zone mailing project began in January 2012, and to date, more than 1000 patients have received the educational packet.

**Figure 6—Decrease in Hospital Readmission Rates Compared With Medicare Fee-for-Service Programs With All-Cause Readmissions<sup>2</sup>**



For the provider education interventions, the medical group measured the following outcomes:

- Percentage of patients with COPD who had spirometry evaluation documented
- Percentage of patients aged  $\geq 18$  years with COPD identified as smokers who received smoking cessation intervention at least annually
- Percentage of patients aged  $\geq 18$  years with a diagnosis of COPD, an  $FEV_1/FVC < 70\%$ , and symptoms who were prescribed an inhaled bronchodilator

The results indicate that provider education is driving improvement in COPD quality measures.

## Lessons Learned

### Challenges

- Obtaining hospital discharge data that accurately identify patients who were admitted because of COPD in an efficient format to drive the intervention to the right patients
- Budget constraints regarding assigning dedicated staff to the project

## Lessons

- COPD exacerbations leading to hospitalizations and ED visits are major cost drivers, and there is opportunity in exacerbation management, education, and support for both patients and physicians
- Evaluate progress toward end goals and objectives of the project frequently, and be prepared to change course as needed

## Next steps

Continue staff and provider education

- Develop process for identifying early stage patients with COPD for education and smoking cessation counseling
- Seek increased COPD referrals to the disease management program from providers and collaborate with newly imbedded care coordination nurses within some of the practices
- Continue collaboration with groups within the organization to manage transitions of care, including inpatient pulmonary staff and the Safe Med Medication Management Program
- Seek additional physician champions and support by compiling data and communicating our project value

Patients with COPD are clinically complex and care coordination to support physicians in managing patient care increases value to the provider and patient.

## References:

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global Initiative for Chronic Obstructive Lung Disease. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease. Revised 2013. <http://www.goldcopd.org/guidelines-global-strategy-for-diagnosis-management.html>. Accessed December 4, 2013.
2. Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. *N Engl J Med*. 2009;360(14):1418–1428.



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One Prince Street, Alexandria, VA 22314  
Tel: (703) 838-0033 Fax: (703) 548-1890 [www.AMGA.org](http://www.AMGA.org)

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