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

Novant Medical Group Case Study

Organization Profile

Novant Medical Group is a physician-led organization comprised of 1117 physician partners in 360 clinic locations who represent a broad spectrum of primary and specialty care, including cardiology, endocrinology, orthopedics, and pediatrics. Novant Medical Group physicians are national and state leaders in earning recognition from 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 3.5 million people in 34 counties reaching from southern Virginia to northern South Carolina.

Project Summary

Novant 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 vs acute setting
- Educate providers in the evidence-based guidelines and skills needed to support this population approach

Program Goals and Measures of Success

Novant Medical Group serves patients who are at high risk for COPD because they are part of a population whose livelihood centered on the tobacco and textile industries. Two primary risk factors for COPD—cigarette smoke and occupational dust and chemicals—are prevalent in Novant’s population. Specifically, North Carolina’s rate of smoking is higher than the national average and is becoming worse.

Through its COMPASS program, Novant 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

- Continuity and coordination of care in transitions from acute to ambulatory settings
- Patient-centered care and patient self-management
- 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 by a nurse who contacts patients with COPD within 7 days of discharge from the hospital to arrange a follow-up appointment with the patient’s primary care provider (PCP). The COMPASS 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 below in *Goals and objectives*) and other programs that address transitions of care.

Novant 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

Description: Tobacco use assessment/cessation intervention measure pair:

- Percentage of patients aged ≥ 18 years with a diagnosis of COPD who were queried about tobacco use one or more times during the measurement period or year prior to the measurement period
- Percentage of patients aged ≥ 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

Description: Percentage of patients aged ≥ 18 years with a diagnosis of COPD for whom spirometry evaluation results were documented.

COPD-3: Bronchodilator therapy

Description: Percentage of patients aged ≥ 18 years with a diagnosis of COPD, a forced expiratory volume in 1 second (FEV_1)/forced vital capacity (FVC) $< 70\%$, and were prescribed an inhaled bronchodilator.

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

Goals and objectives

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 project began in January 2012 and to date, more than 500 patients have received the packet postdischarge. 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) standards¹ are approved as the clinical practice guidelines for Novant Medical Group. These are posted on the group'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 NCOA, Healthcare Effectiveness Data and Information Set (HEDIS), and other nationally recognized quality measure owners.

The Amalga Microsoft product supports the program by identifying the population in real time. Amalga identifies all patients of a Novant Medical Group provider who were discharged from one of Novant'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 (EMR) system at this time. Novant is in the process of integrating the 2 systems.

Outcomes

General assessment for COMPASS interventions in a population of high-risk patients (n=629) 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 and a 51% reduction in ED visits. 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 1—Inpatient admits (all cause): all participants in program (N=623)

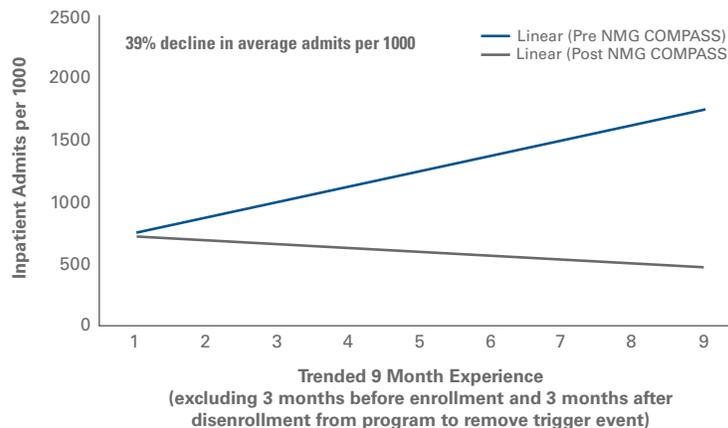
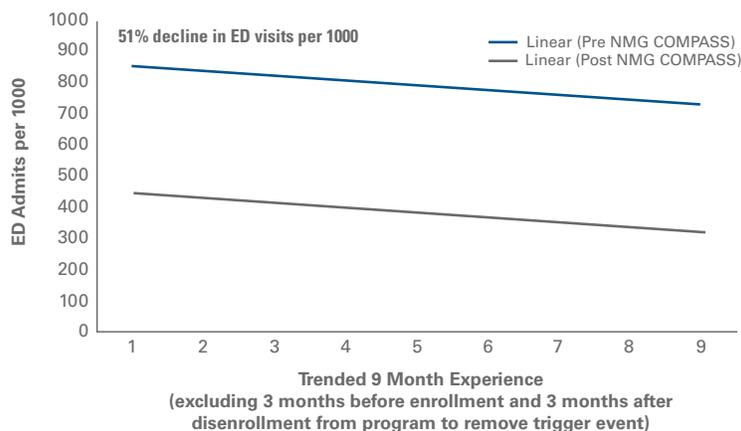


Figure 2—ED visits (all cause): all participants in program (N=623)



For the provider education interventions, Novant Medical Group measured the following outcomes

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

2012 NMG Quality Indicators	N/D	Jan-12	N/D	Feb-12	N/D	Mar-12	N/D	Apr-12	N/D	May-12	N/D	2012 YTD Perform.	Top Perform.	Median/Average	2010 HEDIS Top
Use Assessment/Cessation Intervention	50/58	86%	127/140	91%	87/100	87%	134/139	96%	87/94	93%	485/531	91%	78%	39%	88%
COPD-2-Spirometry Evaluation	47/58	81%	102/136	75%	84/100	84%	108/139	78%	68/94	72%	409/527	78%	29%	15%	44%
COPD-3-Bronchodilator Therapy	30/31	97%	76/87	87%	69/70	99%	69/70	99%	42/44	95%	286/302	95%	76%	38%	TBD

These results indicate that provider education is driving improvement in COPD quality measures. A fourth metric, the number of admissions for the COPD population, will be reported via claims-based methodology for participants in the TD and will provide an admission rate for all patients aged ≥ 18 years with an ICD-9 principal diagnosis code for COPD. This information will be reported in the fall of 2012 for the 2011 measurement period. Novant does not expect to see a decrease in COPD admissions from this intervention until the information is received for PY2 (2012), which encompasses the dates of the intervention.

Population Identification

Novant Medical Group 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 comprised 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 and Novant Medical Group.

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's Information Technology Group and is maintained by this group and the Informatics Group.

PGP Subpopulation Profile, Base Year and Performance Year Five, Forsyth Medical Group

	Assigned Beneficiaries			Comparison Group			BY-PY1	BY-PY2	BY-PY3	BY-PY4	BY-PY5
	BY	PY5	% Growth	BY	PY5	% Growth	CG minus				
							AB	AB	AB	AB	AB
							%	%	%	%	%
							Growth	Growth	Growth	Growth	Growth
Chronic Obstructive Pulmonary Disease											
Chronic Obstructive Pulmonary Disease											
CPD Beneficiaries	2,172	2,458	13.2	15,969	13,140	-17.7	-4.8	-7.5	-24.4	-38.4***	-30.9***
Discharges for COPD Beneficiaries	1,946	2,003	2.9	15,413	11,166	-27.6	-10.6	-16.4	-28.4	-35.1***	-30.5***
Discharges Per 10,000 COPD Beneficiaries	8,959	8,149	-9.0	9,823	8,539	-13.1	-3.2	-7.1	-0.8	3.0	-4.0
% of COPD Beneficiaries w/ At Least 1 Discharge	46.7%	40.8%	-12.5	47.2%	42.1%	-10.7	0.8	-1.4	0.3	4.7	1.8
CPD Discharges for COPD Beneficiaries	206	226	9.7	1,346	1,064	-21.0	-6.4	6.4	-23.9	-28.5**	-30.7**
CPD Discharges Per 10,000 COPD Beneficiaries	948	919	-3.1	870	905	3.9	5.8	19.8	13.5	20.4**	7.0
% of COPD Beneficiaries w/ At Least 1 COPD Discharge	7.9%	7.1%	-10.6	6.5%	6.5%	0.4	27.0	25.5	18.9	26.2*	11.0
Emergency Dept Visits for COPD Beneficiaries	2,845	3,750	31.8	21,127	18,984	-10.1	-1.5	-16.4	-34.4	-46.3***	-42.0***
Emergency Dept Visits Per 10,000 COPD Beneficiaries	13,099	15,256	16.5	13,717	15,093	10.0	5.9	-2.0	1.1	1.9	-6.4
% of COPD Beneficiaries w/ At Least 1 Emergency Dept Visit	54.0%	54.5%	0.9	54.3%	55.3%	1.9	0.3	-5.3	-3.7	0.1	1.0
Office or Other Outpatient E&M Visits Per Beneficiary	9.6	10.5	9.5	9.4	9.8	3.9	-1.5	-8.0	-7.3	-4.1	-5.6
Provided by PGP	6.5	6.6	2.8	-	-	-	-	-	-	-	-
Total Expenditures for COPD Beneficiaries	\$12,795	\$15,094	18.0	\$14,933	\$16,645	11.5	-2.7	-11.9	-7.5	-3.2	-6.5
Risk Score for COPD Beneficiaries	1.747	1.968	12.7	1.967	2.059	4.7	-3.3	-7.0	-5.9	-5.6	-8.0
Expenditures Adjusted by Overall Risk Score for COPD Beneficiaries	7,325	7,668	4.7	7,592	8,083	6.5	0.5	-4.3	-1.3	2.5	1.8
Heart Arrhythmia											
Heart Arrhythmia Beneficiaries	1,999	2,329	16.5	13,845	11,490	-17.0	-8.9	-12.1	-29.2	-43.8***	-33.5***
Discharges for Heart Arrhythmia Beneficiaries	1,970	1,871	-5.0	13,636	10,123	-25.8	-4.7	-15.8	-22.1	-34.3***	-20.7***
Discharges Per 10,000 Heart Arrhythmia Beneficiaries	9,855	8,033	-18.5	10,475	9,450	-9.8	8.9	-2.5	9.5	11.2***	8.7**
% of Heart Arrhythmia Beneficiaries w/ At Least 1 Discharge	51.0%	43.9%	-13.9	51.7%	47.9%	-7.4	5.5	-1.0	5.5	8.0**	6.5**
Heart Arrhythmia Discharges for Heart Arrhythmia Beneficiaries	160	158	-1.3	1,186	835	-29.6	-19.1	-18.8	-37.7	-30.5**	-28.3**
Heart Arrhythmia Discharges Per 10,000 Heart Arrhythmia Beneficiaries	800	678	-15.2	864	784	-9.2	-9.3	2.1	1.2	14.5*	6.0
% of Heart Arrhythmia Beneficiaries w/ At Least 1 Heart Arrhythmia Discharge	7.3%	6.1%	-17.1	7.6%	7.1%	-6.7	-7.5	0.8	-3.5	18.5	10.5
Emergency Dept Visits for Heart Arrhythmia Beneficiaries	2,364	2,916	23.4	16,402	13,671	-16.7	-10.7	-24.1	-42.4	-48.2***	-40.0***
Emergency Dept Visits Per 10,000 Heart Arrhythmia Beneficiaries	11,826	12,520	5.9	12,946	12,988	0.3	2.1	-10.6	-5.1	5.4	-5.5
% of Heart Arrhythmia Beneficiaries w/ At Least 1 Emergency Dept Visit	54.8%	54.7%	-0.2	56.9%	55.0%	-3.3	-0.2	-8.3	-2.9	1.3	-3.1
Office or Other Outpatient E&M Visits Per Beneficiary	9.7	10.7	11.0	10.3	11.0	6.7	-7.2	-8.3	-6.2	-7.4	-4.3
Provided by PGP	6.6	6.9	4.9	-	-	-	-	-	-	-	-
Total Expenditures for Heart Arrhythmia Beneficiaries	\$14,641	\$16,418	12.1	\$16,434	\$18,673	13.6	7.6	-6.6	1.3	6.4	1.5
Risk Score for Heart Arrhythmia Beneficiaries	1.973	2.023	2.5	2.205	2.307	4.6	4.8	-4.6	0.9	3.5	2.1
Expenditures Adjusted by Overall Risk Score for Heart Arrhythmia Beneficiaries	7,420	8,117	9.4	7,452	8,094	8.6	2.7	-1.7	0.3	2.5	-0.8

The Intervention

Stay Safe in the Green Zone population mailing

In 2012, Novant Medical Group began mailing an Air Bag 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 backlit display that changes color (eg, green, yellow, 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 to 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 included promotional information and contact numbers to connect with the COMPASS Disease Management Program by self- or provider referral.

Provider education

Novant 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 intranet site

- 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

Further, clinical staff were trained in spirometry at several 1-hour seminars presented by a certified respiratory therapist that provided hands-on education in HEDIS best practices. In 2011, 65 staff members participated in the seminars.

Leadership Involvement and Support

The senior vice president and president of Novant 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 comprised of physician representatives across all markets. The executive physician leader and the chairperson of the committee are physician champions for the 2 COPD initiatives. The senior director for Clinical Resource Services 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.

Lessons Learned

Challenges

- Getting hospital discharge data that accurately identify patients who were admitted due to 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

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

Reference:

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease; revised 2011. <http://www.goldcopd.org/>. Accessed August 7, 2012.



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