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Harvard Vanguard Medical Associates

Atrius Health

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

Harvard Vanguard Medical Associates Case Study

Organization Profile

Founded in the 1960s, Harvard Vanguard Medical Associates is a nonprofit multispecialty medical group practice providing care to more than 480,000 adult and pediatric patients at more than 20 offices in urban and suburban settings across eastern Massachusetts. The organization employs 4100 people, including more than 600 physicians and 1000 other healthcare professionals practicing internal medicine, pediatrics, and 35 other specialties. Harvard Vanguard is among the leaders in the state in clinical quality as measured by Massachusetts Health Quality Partners, an independent, nonprofit organization that publicly reports statewide patient experience and clinical performance data. It also has been awarded recognition from the National Committee for Quality Assurance (NCQA) for patient education and from the Bridges to Excellence Physician Practice Connections program.

Project Summary

Harvard Vanguard's COPD Management Program, initiated in 2008, was an addition to the successful Complex Chronic Care Program, which currently cares for more than 1000 patients with congestive heart failure, advanced coronary artery disease, diabetes, and renal insufficiency, and now more than 500 patients with COPD. The COPD Management Program is based on a team approach with one advanced practice clinician (APC) in each of the internal medicine departments of Harvard Vanguard's 17 healthcare centers.

Program Goals and Measures of Success

Goals and objectives

Traditionally, spirometry has not been available in many primary care offices and, in reviews of patient medical records, often the diagnosis of COPD has been assumed in smokers who complain of shortness of breath; as a result, diagnosis and treatment have been inaccurate. Finally, commonly most clinicians inaccurately believe treatment for asthma and COPD is the same. Exacerbations are significant occurrences in patients with COPD, often leading to hospitalizations if not treated early or accurately with an antibiotic and prednisone.[1]

The overall goals of the program are to improve the diagnosis and treatment of patients who have COPD, in addition to decreasing hospitalizations and readmissions. Specific objectives are to

- Increase the number of patients with COPD who have spirometry testing on their medical records to confirm the diagnosis of COPD
- Improve the quality of spirometry testing
- Increase awareness among all clinicians of the need to conduct spirometry
- Achieve earlier diagnosis by screening smokers at risk for COPD
- Improve self-management of COPD
- Provide early and appropriate treatment of COPD exacerbations

Clinical standards

The COPD Management Program is evidence-based using the 2007 Global Initiative for Chronic Obstructive Lung Disease (GOLD) then in place and the American College of Physicians care guidelines.

Data collection and measurement

Harvard Vanguard uses an electronic medical record (EMR) system (Epic) to collect data in the following categories: qualitative information about numbers and types of patients enrolled in the program, adherence to the program, and utilization, including outpatient and inpatient records.

Other data collected included last spirometry done, pneumonia and influenza vaccines administered, smoking status, hospitalizations and emergency department (ED) visits.

Outcomes

- The rate of spirometry testing completed in patients who have COPD listed in the EMR problem list has increased from 44% to 60% over the first year that the project was in operation. The problem list in the patient's EMR is a list of active diagnoses for which the patient is being treated
- Hospitalizations and ED usage did not improve; however, it should be noted that the diagnosis of COPD is often used inappropriately during hospitalizations. Chart reviews of more than 300 patients who had been hospitalized and billed for a COPD diagnosis for one of their insurers were undertaken. In those chart reviews, at least 50% of patients who were given a diagnosis of COPD during hospitalizations did not have COPD in their problem list, had no encounters for COPD in their history, were not on medications for COPD, and had not had spirometry, including during their hospital stay. Generally, these patients were hospitalized for other reasons such as pneumonia or other nonrespiratory-related illnesses
- Patient satisfaction levels were high: 4 out of 5 patients in the program feel better able to manage their disease

Population Identification

To adequately identify patients appropriate for the COPD Management Program, Harvard Vanguard employs several measures. Data reports examining the EMR and associated claims information are run to flag patients who have been identified as having COPD or one of its related diagnoses, including emphysema and chronic bronchitis. Second, patients may self-enroll after learning about the program from mailings or Web postings. Third, clinicians can refer patients as they see fit. And finally, case managers and hospitalists refer hospitalized patients to the program upon discharge.

Demographics

- Enrolled patients n=658
- Percentage <65 years 98%

COPD registry

The registry includes all patients who have COPD on their problem list or had the diagnosis of COPD used in the past year and are on at least one bronchodilator.

The Intervention

Each APC was recruited and trained to be the "COPD expert" for his or her internal medicine department and works directly with patients, primary care providers (PCPs), nurses, support staff, other APCs, and pulmonary specialists.

After identification, patients receive an intake telephone call from the program registered nurse (RN), a dedicated respiratory disease-trained nurse who manages phone outreach. This RN then sends an introductory packet containing a letter, self-management plan form, and education

materials to the patient. In addition, proactive outreach is performed to patients who have had an ED visit or hospitalization for COPD. All patients are encouraged and helped to set up an appointment with the COPD-trained APC in their respective center.

At this appointment, a standardized history and physical exam are completed and a plan of care is developed and reviewed with the patient. The APC helps the patient to identify concerns and educational needs, organize their medication list, and use medications effectively. The APC reviews a self-management plan with the patient to facilitate early treatment of exacerbations.

All patients receive diagnostic testing in the form of spirometry, a 6-minute walk test, and oxygen desaturation evaluation. Spirometry machines were purchased for every internal medicine department so they would be used in the diagnosis of COPD. Appropriate changes in pharmacologic treatment, including oxygen, are made and reviewed with the patient.

Patients are stratified into the 4 GOLD guideline grades—mild, moderate, severe, and very severe disease.[1] (See Appendix for the stratification design, as well as the variable interventions assigned to each level of stratification.) Certain patients, depending upon their clinical stratification and APC evaluation, receive a home medication pack to start in the event of a respiratory exacerbation. This is prescribed during a visit with the APC or other clinician so the medications can be explained to the patient, and the clinician can also review allergies, renal function, and other comorbidities.

Nonpharmacologic treatment education regarding adaptive breathing techniques and daily planning is provided. A copy of the documentation for this visit is provided to the PCP. Patients are encouraged to adhere to their self-monitoring activities, medication regimen, and appointments with their clinicians.

Harvard Vanguard has 5 regional centers that each offers 3 to 4 patient-centered education classes throughout the year. These group sessions, taught by the APC from that center, include 2 hours of education, interaction with other patients with COPD, and a packet of educational literature. If the demand is high or the need exists, these courses can be expanded to locations outside the regional centers.

One cornerstone of a successful program is the promotion of a healthy lifestyle, including comprehensive tobacco cessation efforts and physical exercise education. APCs make appropriate referrals to smoking cessation programs and pulmonary rehabilitation programs.

One year after the initial letters are sent to patients, a retouch letter is mailed to all patients (enrolled and not enrolled) offering continued assistance and encouraging those who did not enroll to reconsider. Patients are reminded about the regional COPD classes and encouraged to register for a class with Harvard Vanguard's Health Education Department.

Program modifications

In an effort to decrease hospitalization and readmission rates, 2 interventions were added to the program. First, all patients hospitalized for COPD-related treatments are called to inform them about the program and encourage enrollment. The nurse also makes sure that the patient has a follow-up visit scheduled with their PCP or the APC in the department. The nurse practitioner from Harvard Vanguard's Intensive Home-Based Program contacts readmitted patients to schedule a home visit and evaluation for admission to this program to help them manage their COPD.

Staff education

Harvard Vanguard sponsored the training of 17 APCs to provide high-level respiratory care at each internal medicine site. They participated in a 12-week National Respiratory Training Center course to become skilled in the primary care of patients with COPD. In addition, the trained APCs meet quarterly for peer review meetings during which educational programs and/or COPD Management

Program issues are discussed. Pulmonary specialists are available to the APCs for consultation and educational needs.

Throughout the first 2 years of the program, Internal Medicine Continuing Education Unit programs were held for all clinicians in each of the 17 centers on the topics of "Introduction to the COPD Management Program," "COPD Diagnosis and Treatment Guidelines," and "Spirometry Interpretation." Physicians are kept informed via the EMR system and/or through targeted mailings regarding changes in guidelines, preferred medications, when their patients are seen in the program, and which of their patients need spirometry completed.

In addition, support staff sessions on performing reliable spirometry were held and are repeated every 6 to 12 months. The clinical coordinator of the COPD program teaches these classes.

Workflow and staffing changes

One nurse practitioner became the clinical coordinator for the program and spends 10 hours per week performing this role. This individual conducted the planning and coordination of clinician, support staff, and patient education programs. A full-time RN was hired to do outreach to the patients who are offered enrollment in the program and maintain the statistics for the program.

The "clinical champion" in each of the internal medicine departments performs the initial assessment of the patient once enrolled in the program. All internal medicine clinicians were educated about the program, GOLD standards for COPD, and spirometry interpretation. All support staff were trained to do spirometry.

The initial assessment tools used for patient visits were modified to meet quality standards and streamline the process. Originally, there were multiple screening tools to be completed at the initial visit, including depression screens, the St. George Respiratory Scale, the Epworth Sleepiness Scale, and the Medical Research Council (MRC) dyspnea scale. Utilizing all of these assessment tools became too time-consuming and complex so it was decided to use the BODE index and a 2-question depression screening tool. The BODE index includes items such as body mass index, MRC, 6-minute walk test, and measurement of the forced expiratory volume in 1 second (FEV_1). While the BODE Index helps to predict outcomes, it also helps the clinician to prioritize interventions and focus on counseling and teaching.[2]

Information technology

After the first year of the program, a "smart text" was integrated into the EMR system to ensure that the APCs were including and documenting a standardized but individualized assessment. The smart text is a document form that becomes the progress note for the visit. It includes areas where an option needs to be chosen that reflects the individual patient's history, concerns, goals, educational needs, physical exam, and interventions in the therapeutic, educational, evaluation, and follow-up areas. The APCs found this to be a very helpful tool.

Leadership Involvement and Support

Initially, an internal medicine physician who was a vice president of clinical programs headed the program. The program's working group included a medical director, an operations manager, a physician quality advisor, the nurse practitioner clinical coordinator, and the program RN. Over time, while there is still senior-level support for the program, the working group was streamlined to include the operations manager, clinical coordinator, and program RN, all reporting to the internal medicine chief. The 17 clinical champions in the internal medicine departments are under the direction of the clinical coordinator.

Lessons Learned

Challenges

- Project fatigue: one more thing to do
- Resistance to spirometry in internal medicine
  - Lack of time
  - Lack of confidence in reliability of the test and ability to interpret results
  - Belief that spirometry is not a good measure of COPD
  - Lack of pulmonary service visibility. While the chief of the pulmonary service supports the program by advising and consulting, he does not have a visible role the program. The program was meant to improve care of the patient with mild to severe COPD in the internal medicine department. More complicated patients and those with very severe COPD are handled in the pulmonary department

Lessons

- Having the diagnosis of COPD in a record does not mean the patient has COPD
- A significant number of primary care clinicians have some discomfort diagnosing and treating COPD
- Educating the patient will change clinician behavior

Appendix

Stratification[1]*

GOLD Severity	FEV_1/Oxygenation Level	Intervention	Treatment
I: Mild	• FEV_1/FVC <0.70 FEV_1 >80% predicted • With or without symptoms • Breathlessness when hurrying or walking up slight hill	• Written materials, contact number, intake questionnaire, spirometry orders, intake clinician visit and medical education/ inhaler classes, letter to PCP, test MRC	• Short-acting bronchodilator when needed
II: Moderate	• FEV_1/FVC <0.70 50% <FEV_1 <80% predicted • With or without symptoms • Breathlessness causing patient to stop after walking about 100 meters (or after a few minutes) on level ground	• Above intervention PLUS home rescue pack, telephone outreach call when needed	• Regular treatment with one or more bronchodilators • Rehabilitation • Add inhaled glucocorticoids if significant symptoms and lung function response or if greater than one distinct exacerbation
III: Severe	• FEV_1/FVC <0.70 30% <FEV_1 <50% predicted • With or without symptoms • Breathlessness causing patient to stop after walking about 100 meters (or after a few minutes) on level ground	• Both interventions above PLUS clinician visits and telephone calls when needed, pulmonary rehabilitation and/or intensive home-based program referral as needed, pulmonary consult if not already seen	• Regular treatment with one or more bronchodilators • Treat complications • Rehabilitation • Long-term oxygen therapy • Consider surgery
IV: Very Severe	• FEV_1/FVC <0.70 FEV_1 <30% predicted or presence of respiratory or right-sided heart failure • Breathlessness resulting in patient too breathless to leave the house, breathlessness after undressing, or presence of chronic respiratory failure or clinical signs of right-sided heart failure		• Inhaled glucocorticoids if significant symptoms and lung function response or if greater than one distinct exacerbation

*The highest level of stratification is always applied in favor of the lower.

References:

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease; revised 2007. http://www.goldcopd.org/Guidelines/guidelines-global-strategy-for-diagnosis-management-2007-3.html. Accessed June 19, 2012.
2. Celli BR, Cote CG, Marin JM, et al. The body-mass index, airflow obstruction, dyspnea and exercise capacity index in chronic obstructive pulmonary disease. *N Engl J Med*. 2004;350(10):1005-1012.

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