



Harvard Vanguard
Medical Associates

Atrius Health

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

Harvard Vanguard Medical Associates Case Study

Profile

Founded in the late 1960s as Harvard Community Health Plan, a staff-model HMO, Harvard Vanguard Medical Associates is a nonprofit multispecialty medical group practice providing care to more than 510,000 adult and pediatric patients at more than 20 offices in urban and suburban settings across eastern Massachusetts. In 2008, Harvard Vanguard marked its 10th anniversary as an independent physicians group. The organization employs 4300 people, including more than 630 physicians and 1000 other healthcare professionals practicing internal medicine, pediatrics, and 35 more 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 recognized by the National Committee for Quality Assurance (NCQA) for patient education and for meeting the Bridges to Excellence Physician Practice Connections® standards.

COPD Program

Program Summary

In 2008, Harvard Vanguard initiated a COPD care management program to improve the care that patients with COPD receive. Based in the internal medicine (IM) practice, this educational and consultation-based program takes a team approach to patient care, with advanced practice clinicians specially trained as COPD Clinical Champions in each of the group's 17 centers. In the past 5 years, more than 600 individuals have been enrolled in the COPD program, which includes an initial assessment and development of a plan of care; education regarding the disease, diagnosis, progression, treatment with medication, and proper use of medications; and an individual self-management plan focused on early treatment of exacerbations. The program also offers education to clinicians related to diagnosis and treatment of COPD and exacerbations, use and interpretation of spirometry, and recommendations related to appropriate referrals after hospitalizations.

Program Goals and Success Measures

Goals and objectives

Overall goals are to improve the diagnosis and treatment of patients who have COPD and to decrease hospitalizations and readmissions. Specific objectives are to

- Raise the number of patients with COPD who undergo spirometry testing to confirm diagnosis
- Improve the quality of spirometry testing
- Increase the ability of primary care providers (PCPs) to order and interpret spirometry
- Achieve earlier diagnosis by screening smokers, who are at risk for COPD
- Advance self-management of COPD through patient education
- Provide early and appropriate treatment of COPD exacerbations
- Lower the number of hospitalizations and readmissions of patients with COPD

A long-term goal related to early diagnosis of COPD is to improve patient outcomes in terms of hospitalization and readmission. The COPD program has educated patients and clinicians to recognize and treat exacerbations early with antibiotics and/or oral corticosteroids.

Pilot Project

COPD is among the top 3 reasons patients are hospitalized or readmitted to Harvard Vanguard. Given the progressive course, shortened life expectancy, and nature of symptoms (eg, shortness of breath, dyspnea) associated with increasing severity of COPD, the program coordinator thought it was important to pilot a project to identify individuals with COPD at an earlier stage and younger age. It was hypothesized that enrollment in the COPD program, counseling, and education would improve smoking cessation outcomes, slow the progression of the disease for individuals, and reduce hospitalization and readmission rates.

Clinical standards

The COPD program is evidence-based, applying the Global Initiative for Chronic Obstructive Lung Disease (GOLD)¹ then in place and the American College of Physicians' *Chronic Obstructive Pulmonary Disease: A Clinical Practice Guideline*.²

Data collection and measurement

In the past year, the pilot project has undertaken to identify and diagnose smokers, who are at risk for the development of COPD. Approximately 80% of the more than 600 members enrolled in the COPD Management Program are older than 70 years and diagnosed with severe or very severe COPD.

Population Identification

Demographics

Harvard Vanguard uses the Epic electronic medical record (EMR) system. Data reports distilling the problem list and social histories identified patients who were current smokers. The initial data set included all Harvard Vanguard current or former smokers between the ages of 45 and 95 years who did not have a diagnosis of asthma, COPD, emphysema, or chronic bronchitis on their problem list. This yielded 49,145 individuals, 78% of whom had quit and 22% of whom were currently smoking. Given that the goal was to find early disease, the population was limited to those aged 50 to 65 years, yielding 5582 individuals.

Patient participation

Forty patients scheduled an appointment at the spirometry clinics: 34 had spirometry completed, and 6 patients failed to keep their appointments. The 34 patients had smoking histories ranging from 15 to 78 pack-years.

Disease severity

Of these 34 patients, 24 (71%) had normal spirometry results, 6 patients (18%) with a 25 to 42-pack-year history had mild obstructive defect, 2 patients (5%) with a 25 to 48-pack-year history had moderate obstruction, and 2 were unable to perform reliable tests.

Intervention

Background

Letters were mailed to 5200 individuals to describe the program (Appendix 1) and ask them to complete an enclosed validated COPD risk screener (Appendix 2). If the recipient scored ≥ 5 ("at risk") on the screener, they were invited to one of 16 spirometry clinics to receive COPD screening, smoking cessation counseling if they were interested and ready to quit, and education about

COPD if they had an obstructive pattern on spirometry. Interested recipients were directed to call for an intake appointment and screened further at that time (Appendix 3). There was no charge to patients. The clinics had capacity to screen 288 individuals and were staffed by the COPD Clinical Champion nurse practitioners (NPs) and physician assistants (PAs), a registered nurse (RN) from the COPD program, and a pulmonologist. The patient was checked in, underwent spirometry, saw the pulmonologist (who interpreted the spirometry results), and then proceeded to appropriate stations for smoking cessation and/or COPD education. Educational literature related to COPD (Appendix 4) and smoking cessation (Appendix 5) was provided to patients when appropriate. If the patient felt ready to quit smoking, a referral was made to QuitWorks, a state-funded smoking cessation telephone support program.

Program modifications

Written personalized COPD management plans were given to all patients enrolled in the program. As appropriate, patients were prescribed medications to treat exacerbations early and at home. A brochure about the COPD program was created for case managers to give to patients hospitalized for COPD (Appendix 6); it included the program phone number. The COPD program RN called patients after hospital discharge to encourage enrollment.

Finally, standard procedures were developed to follow up with patients within 7 days after a hospitalization. This follow up included medication reconciliation and discussing the hospitalization with the patient. If the patient had been hospitalized 2 or more times during the prior year, the COPD program staff e-mailed recommendations to the PCP regarding pulmonary consultations and palliative care referral.

The intent behind each intervention was to decrease hospitalizations and improve the outpatient care that patients with COPD received.

Staff education

The clinical coordinator of the COPD program attended each center's IM meetings to review GOLD guidelines for diagnosis, staging, and treatment of stable COPD and treatment of exacerbations. In addition, as spirometry machines were obtained by each IM practice, the clinical coordinator again visited to review spirometry interpretation with physicians, NPs, PAs, and RNs. Finally, the clinical coordinator also trained the medical assistants to perform spirometry and provided retraining as needed.

Workflow and staffing changes

After a delay in mailing the introductory letters to patients, a vendor was hired to handle this step. With the low response rate, fewer clinics were held than originally planned, and staffing was decreased to 1 NP, who was the clinical coordinator of the COPD program, and 1 RN from the program. Also, the pulmonologist was not present at all clinics.

Information technology

A record of the COPD program patient visit was input to the EMR and a copy sent to the PCP for any necessary follow up. Spirometry results were scanned into the EMR and added to the progress note. In addition, the spirometry result was input to the EMR and a copy sent to the PCP for smoking cessation program referral or COPD treatment.

Leadership Involvement and Support

The project was reviewed and supported by the chief medical officer (CMO) and the pulmonary chief. The CMO was instrumental in developing the patient letter and introducing the project to the IM chiefs at a meeting several months before the project started. She recommended substituting the COPD program clinical coordinator's signature with that of each patient's PCP, believing the response would be stronger if his or her personal physician recommended participation. This information was also communicated to the IM chiefs.

The pulmonary chief was informed about the project from its early development, was strongly supportive of the program, and participated in the clinics. He was interested in learning whether patients would participate in an on-site smoking cessation group if Harvard Vanguard were to offer one. This question was added to the phone screening with patients.

Results

All patients were counseled to quit smoking, and 4 requested referrals to QuitWorks. Eight patients requested information and were educated about COPD. Three of the 34 patients quit smoking and remained smoking-free 3 months after their clinic visit. It is interesting that 1 of these patients had normal spirometry, 1 had mild obstruction, and 1 had moderate obstruction.

Lessons Learned

Challenges

Certainly, the low enrollment is disappointing. The small population does not lend itself to interpretation of the results. Some patients who participated were anxious to learn about their lung health, and most expressed a desire to quit but were unsure of their readiness. The program attempted to remove barriers to participation by providing free-of-charge spirometry and holding many of the clinics on weekends at convenient locations. Some patients may have viewed the project as just another smoking cessation effort that they did not want to participate in.

Lessons

The program will continue to encourage PCPs to regularly screen smokers for respiratory symptoms, use a validated COPD risk screener, and order spirometry tests for patients with symptoms or high-risk scores. In cases of a mild change in spirometry results, PCPs may become more consistent in counseling smoking cessation at each office visit. For some patients, spirometry results may be an incentive to more seriously consider quitting or to attempt to more frequently.

Next steps

For individuals who persist in smoking, shame and embarrassment may cause them to avoid further discussion about cessation. Telephone calls to reinforce the initial letter may improve participation. This step would require increased staffing and an extended timeframe.

Appendix 1

Project Introductory Letter to Patient From PCP

Dear _____,

At Harvard Vanguard, our goal is to partner with our patients and to assist them in learning ways in which they can take an active role in improving their health. We are currently offering smokers a FREE tool/evaluation to assess their breathing patterns to determine if they are at risk for Chronic Obstructive Pulmonary Disease, or COPD.

COPD is a serious lung disease (known by other names, such as emphysema or chronic bronchitis) affecting 24 million people and most often caused by smoking. It can cause shortness of breath, chronic coughing/wheezing, and excessive mucous production. More than half affected do not realize they have COPD and that symptoms will worsen over time. Many incorrectly attribute the symptoms to aging, a lack of fitness, or being overweight and will try to adapt by becoming less active. While there is no cure for COPD, people can learn ways to stop the progression of the symptoms and improve their breathing, fitness, and quality of life such that their symptoms can be controlled and they can participate in more activities.

Attached is a short survey that asks 5 questions about your breathing and your activity level. This survey does not confirm the diagnosis of COPD; however, a score of 5 or higher is an indicator that you may be at risk for COPD. You may benefit from a simple breathing test called spirometry. Spirometry is a lung function test used to measure the rate at which the lung volume changes during forced breathing maneuvers.

We invite you to complete the survey and share your results with me and with our COPD Management Program staff. If your score is 5 or more and you are interested in scheduling a FREE spirometry session at one of 6 Harvard Vanguard practice sites, please call Vandette Little, RN, at 617-421-2673. Spaces are limited, so call early. The visit will take about 45 minutes, during which time you will have a spirometry test and we will discuss your results with you and provide resources and treatment options that may help you breathe better and enjoy a more active life. We hope you will complete the survey and take advantage of this free opportunity, which may help improve your health. If you have any questions, please call 617-421-COPD (2673).

Sincerely,

[PCP]

Appendix 2

COPD Risk Screener

COPD Population Screener™ (COPD-PS)

This survey asks questions about you, your breathing, and what you are able to do.
To complete the survey, mark an X in the box that best describes your answer for each question below.

1. During the past 4 weeks, how much of the time did you feel short of breath?

None of the time	A little of the time	Some of the time	Most of the time	All of the time
<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 2

2. Do you ever cough up any “stuff,” such as mucus or phlegm?

No, never	Only with occasional colds or chest infections	Yes, a few days a month	Yes, most days a week	Yes, every day
<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 2

3. Please select the answer that best describes you in the **past 12 months**. I do less than I used to because of my breathing problems.

Strongly disagree	Disagree	Unsure	Agree	Strongly agree
<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2

4. Have you smoked at least 100 cigarettes in your **ENTIRE LIFE**?

No	Yes	Don't know
<input type="checkbox"/> 0	<input type="checkbox"/> 2	<input type="checkbox"/> 0

5. How old are you?

Age 35 to 49	Age 50 to 59	Age 60 to 69	Age 70+
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 2

How to score the survey: In the spaces below, write the number that is next to your answer for each of the questions.
Add the numbers to get the total score. The total score can range from 0 to 10.

#1 + #2 + #3 + #4 + #5 = TOTAL SCORE

If your total score is 5 or more, your breathing problems may be caused by chronic obstructive pulmonary disease (COPD). COPD is often referred to as chronic bronchitis and/or emphysema and is a serious lung disease that slowly gets worse over time. While COPD cannot be cured, it is treatable.

Please share the completed survey with your clinician. The higher your score, the more likely you are to have COPD.
Your clinician can help evaluate your breathing problems by performing a simple breathing test, also known as spirometry.

If your total score is between 0 and 4, and you experience problems with your breathing, please share this survey with your clinician. Your clinician can help evaluate any type of breathing problem.

The COPD Alliance advocates clinician use of this, and other, validated screeners for the early detection of COPD in at risk populations.



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Appendix 3

Spirometry Clinic Intake Form

Clinic date:_____ Location:_____

Name:_____

MR#:_____

DOB:_____

Height:_____Weight:_____

Score on COPD Population Screener_____

Smoking history: Packs per day_____ Years of smoking_____Pack
Years_____

Have you been thinking about stopping smoking? Yes ☐ No ☐

Do you want to stop smoking? Yes ☐ No ☐

Are you ready to stop smoking? Yes ☐ No ☐

Would you be interested in a smoking cessation group if it was offered within
HVMA?

Yes ☐ No ☐

Primary MD_____

FOR OFFICE USE ONLY:

Spirometry results: Normal ☐

Obstructive: Mild ☐ Mod ☐ Severe ☐ V. Severe ☐

Restrictive

Other

Interpretation by:_____

Quitworks Referral? Yes ☐ No ☐

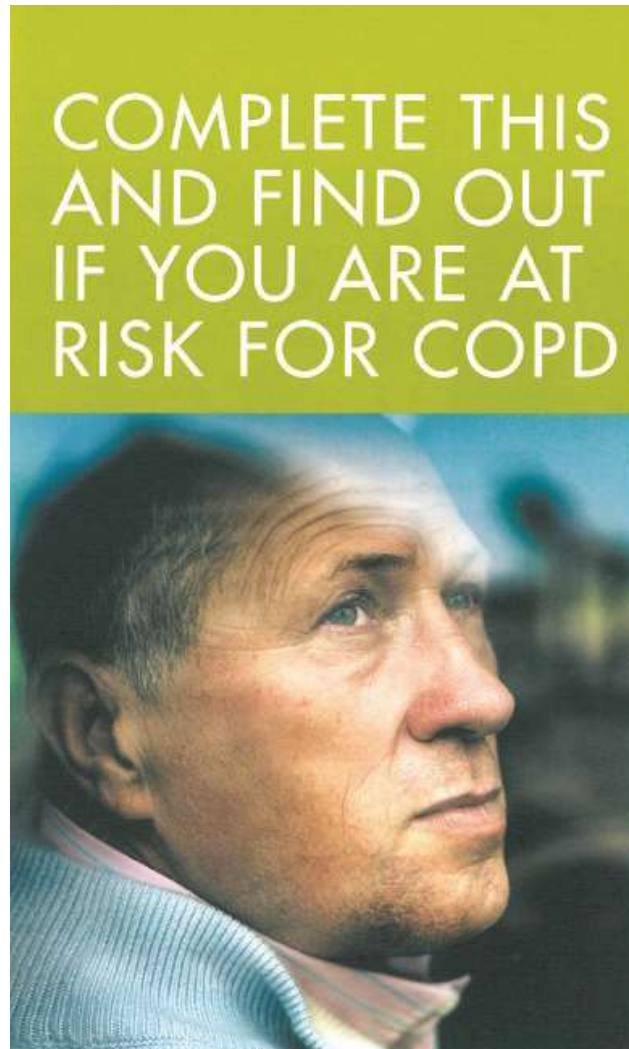
COPD Literature given? Yes ☐ No ☐

Epic input by_____

Cc to PCP ☐ Sent note to follow up ☐

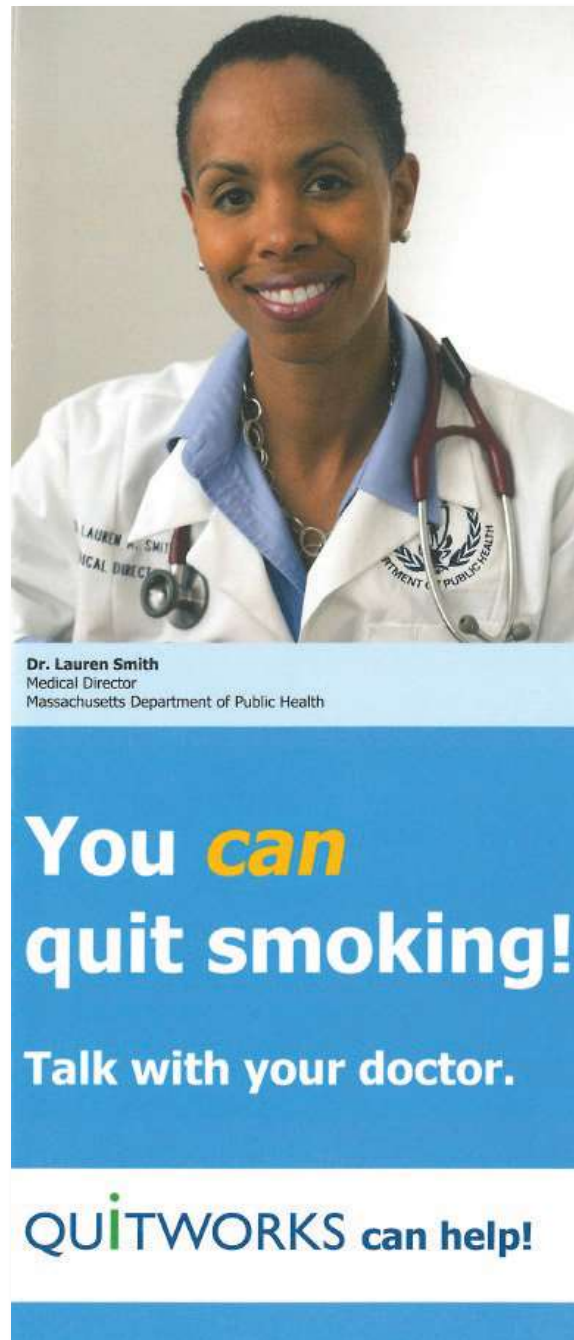
Appendix 4

Brochure for Participants With Undiagnosed COPD



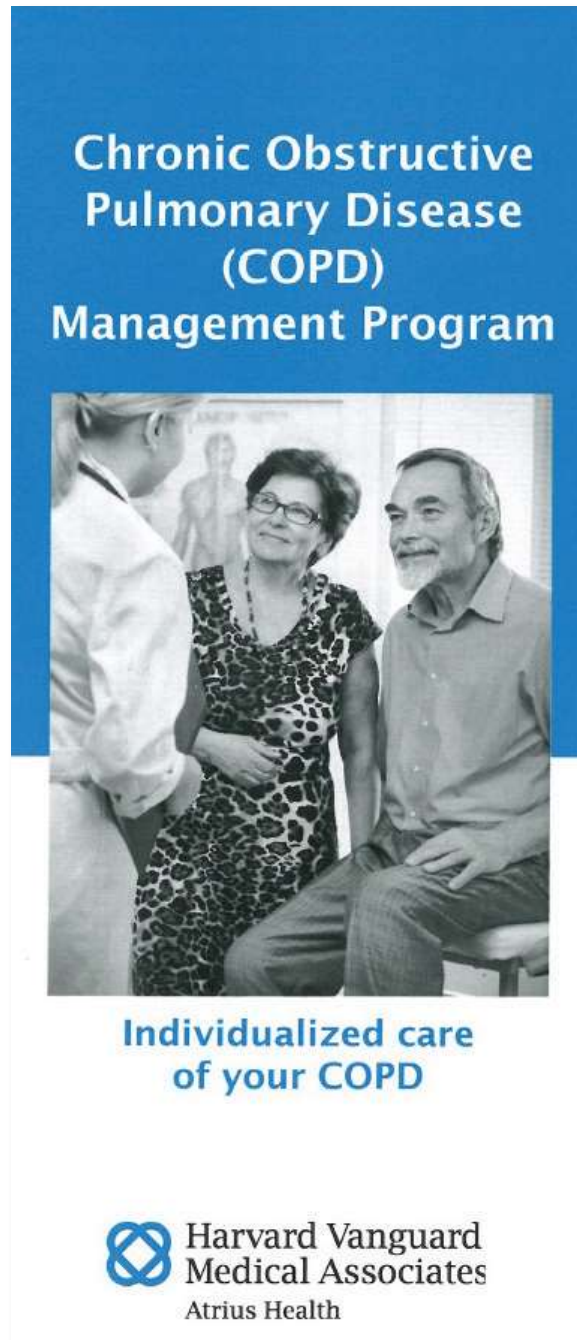
Appendix 5

Literature Related to Smoking Cessation



Appendix 6

Brochure for Patients Hospitalized for COPD



References:

1. 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. Qaseem A, Wilt TJ, Weinberger SE, et al; for the American College of Physicians, the American College of Chest Physicians, the American Thoracic Society, and the European Respiratory Society. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, the American College of Chest Physicians, the American Thoracic Society, and the European Respiratory Society. *Ann Intern Med*. 2011;155(3):179-191.



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