



DuPage Medical Group

WE CARE FOR YOU

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

DuPage Medical Group Case Study

Organization Profile

Established in 1999, DuPage Medical Group (DMG) is a multispecialty group located in the western suburbs of Chicago, Illinois. The group includes 333 physicians in more than 40 specialties and 2500 employees serving 350,000 active patients at 45 locations. DMG is the predominant medical group at 3 area hospitals and is looking to expand its presence in new geographical areas. The group also provides ancillary services, including lab, imaging, and infusion therapy. DMG implemented the Epic electronic health record (EHR) system for all providers; queries can identify patients with COPD, their medications, pulmonary function test (PFT) results, and other pertinent data.

Project Summary

The Department of Health and Human Services' Healthy People 2010 target for COPD is 60 deaths per 100,000 people. For DuPage County in 2006, there were 35.5 deaths per 100,000 adults. While deaths from COPD are significantly below the Healthy People 2010 target, COPD is the fourth leading cause of death in DuPage County.¹ Also, according to an article in *Thorax*, undiagnosed COPD ranges between 45% and 85% globally. The authors state that 5% to 10% of the worldwide population is affected by COPD.² Therefore, accurate identification of patients with COPD is a critical step in improving patient outcomes.

As part of DMG's focus on quality, efficiency, and access, the organization began improvement efforts in 2010 for chronic diseases prevalent in the community, including COPD. Transition of care and emergency department (ED) utilization, as well as pathway development, were the primary focus. DMG patients who had been discharged from the hospital began receiving telephone calls urging them to schedule an appointment with their primary care provider (PCP). In addition, pathway developments were underway for asthma, congestive heart failure, diabetes, and COPD. Physician leaders in the organization came together to develop clinical pathways, which entail evidence-based medicine and best practices, for the above chronic conditions that all physicians within the group can utilize in order to provide the best care for their patients. Like the other developments, the COPD Disease Management Program was initiated with the aim of improving patient care and outcomes, and decreasing hospitalizations.

Supporting its COPD initiative in 2010, DMG established its Value Driven Health Care (VDHC) department. The VDHC department facilitates DMG's organization-wide effort to improve patient outcomes, reduce healthcare costs, and increase access to care for patients. VDHC, in conjunction with DMG's pulmonary medicine department, manages the COPD Disease Management Program.

Between 2011 and 2012, the National Committee for Quality Assurance (NCQA) recognized all DMG primary care sites as patient-centered medical homes (PCMHs), representing a significant milestone in DMG's VDHC journey. The NCQA Medical Home program recognizes physician practices that place an emphasis on patient access, physician-patient communication, and care coordination. The program establishes standards for PCPs and specialists to closely work together to provide comprehensive, coordinated, patient-centered care. COPD is one of the disease states on which DMG is focusing with its medical home.

Part of DMG's PCMH initiative is the development and implementation of clinical pathways into the EHR. Physicians, operations, and information technology leaders came together to develop a COPD clinical pathway centered on evidence-based medicine and best practices.

Program Goals and Measures of Success

The overall vision for the program is to improve the outcomes for DMG patients with COPD.

Goals and objectives

- Improve the management of COPD to decrease exacerbations and improve the quality of life for patients
- Decrease COPD exacerbations that require hospitalization
- Decrease COPD exacerbations requiring the addition of steroids or an increase in steroids to the treatment regimen
- Decrease patient-reported results on the Borg Dyspnea Scale
- Prescribe inhaled bronchodilators if the PFT value of forced expiratory volume in 1 second/forced vital capacity (FEV_1/FVC) is $<70\%$
- Identify patients who have not been diagnosed with COPD and initiate treatment

Clinical standards

DMG uses the Global Initiative for Chronic Obstructive Lung Disease (GOLD) as the national clinical standard for the COPD Disease Management Program.³

Data collection and measurement

Since DMG utilizes Epic EHR, most data needed for this project were tracked, queried, and analyzed from the system.

Population Identification

The target COPD population is identified primarily by COPD-related diagnosis codes (ICD-9) added to the patient's problem list in Epic. The problem list houses all patients' current diagnoses, which are updated on an as-needed basis by the physician. The Epic EHR thus serves as DMG's COPD registry, as all patients can be identified from the problem list.

Patients who had COPD added to their problem list between January and October 2011 (610 people) became the measurement population for the project. They were followed and outcomes were tracked to make sure any changes implemented had a positive effect.

Demographics

- Patients with COPD on problem list: $n=4297$
- Patients with COPD with spirometry performed: $n=1910$ (320 or 52% of these patients had COPD added to their problem list between January and October 2011)
- Percentage >65 years: 70%

Disease severity³

- | | |
|---|-----|
| • Mild: $FEV_1 >80\%$ of predicted | 7% |
| • Moderate: FEV_1 between 50% and 80% | 50% |
| • Severe: FEV_1 between 30% and 49% | 35% |
| • Very severe: $FEV_1 <30\%$ | 8% |

The Intervention

A gap analysis performed by COPD team members revealed that improvements could be made to existing processes for patients with COPD. As a way to improve communication and coordination among the COPD caregivers, a clinical pathway for care of the patients in ambulatory settings was created and implemented. This pathway encompasses standard procedures for the initial visit, plan of treatment, and follow-up examination.

The COPD pathway was introduced to PCPs, pulmonologists, and office staff through a site-by-site rollout over the course of several months in 2011. Pulmonary medicine department staff traveled to each primary care site to provide detailed education on the pathway functionality, use, and expected outcomes.

Although the Epic EHR provides access to most data on patients with COPD, spirometry results were not easily identified within the patient records because they were a scanned document in Epic. As part of this project, DMG developed a new process for entering results into Epic following the procedure. After the new process was in place in early 2011, the team entered 2 years of previous spirometry results into Epic so that physicians could reference that historical information.

COPD Pathway Team

The team, whose champion is a pulmonary medicine physician, is comprised of internal medicine and family practice physicians, pulmonary nurses, and representatives from the VDHC and information technology departments. The team also includes case managers who conduct outreach to patients with COPD posthospitalization to schedule follow-up appointments and ensure understanding of postdischarge instructions.

How the COPD Pathway Works

Once the physician diagnoses COPD and adds the diagnosis to the patient's problem list in Epic, the patient EHR header turns yellow, indicating a best practice pathway has been initiated. This change in color of the header is an indication to all care providers that the patient has a clinical pathway that is being followed by the care team.

The pathway has several other features

- Smart Sets: Smart Sets, or order sets, were developed by the COPD team using evidence-based guidelines and include recommendations for the management of the disease. The Smart Sets allow the physician to order the appropriate COPD orders, including labs, medications, vaccinations, referrals, and follow-up appointments for the patient
- COPD flowsheet: includes the Borg Dyspnea Scale and a place where PFT results are entered. Within the flowsheet the physician has the ability to review and graph patient results over time
- Synopsis section: within the synopsis section the physician can review the flowsheet data over time and compare it with the medications a patient has been on and is currently taking
- Patient education materials: these are stored on Epic and can be printed and provided to the patient by their physician or care team member

Workflow and staffing changes

As a result of implementing the COPD Pathway, office workflow for the management of patients with COPD is more structured and efficient for all care team members as well as the patient. A significant workflow change, which was easily implemented and well received, was the process of having the respiratory therapists document PFT results in the COPD flowsheet immediately

following the completion of the test. Since the results are now documented in a discrete field within Epic, DMG is able to gather the data electronically and report off the flowsheets. An added benefit was the elimination of the physician's need to search through the Media tab of the EHR for the scanned PFT results.

Outreach Patient Contacts

In addition, to reduce rehospitalizations, DMG began an outreach program for patients with COPD postdischarge. One nurse and 2 nonclinical DMG employees were hired to act as posthospitalization case managers. They link into the hospital's portal system to determine who has been discharged and to what location. If the patient is discharged home, the case manager follows up with the hospital discharge team and the patient at home to ensure the patient understands the discharge instructions and has a follow-up appointment scheduled.

Another part of the outreach program is automated outbound telephone calls. Phytel, the technology solution in use at DMG, determines which patients should be contacted based on data from DMG's Epic modules for billing, scheduling, and registration. Patients who have not been seen by their PCP within 6 months and do not have a visit scheduled in the next 2 months receive a call from Phytel. Patients can opt out of the calls if they choose.

DMG found that the outreach calls had a positive effect on patient follow-up; 56% of patients contacted through October 2011 via an outreach call scheduled a follow-up appointment with their provider and 43% of these scheduled the appointment within 5 days of the call.

Outcomes

During the measurement period (January–October 2011) the following outcomes were achieved for the 610 patients in the measurement population

- 52% had spirometry results documented compared with 44% of the entire DMG COPD population
- The percentage of the entire DMG COPD population with documented spirometry results increased from 23% in February 2011 to 44% in October 2011. The increase is partially due to the input of historical spirometry results into the EHR
- 75% of the measurement population had an inhaled bronchodilator prescribed compared with 72% for the entire DMG COPD population
- 83% of the measurement population had COPD symptoms documented compared with 68% for the entire DMG COPD population

Leadership Involvement and Support

The COPD Disease Management Program was an integral part of DMG's VDHC initiative and the medical home program. Because this project aligned well with organizational goals, it had a broad base of support from physician and operational leaders across the organization.

Lessons Learned and Ongoing Activities

Challenges

- DMG is not part of an integrated health system and inpatient outcome data were not readily available. Using claims data as a proxy for hospital admission and ED visit information was difficult as the information was often incomplete. Therefore, DMG developed partnerships with area hospitals to retrieve data on ED visits and hospital admissions