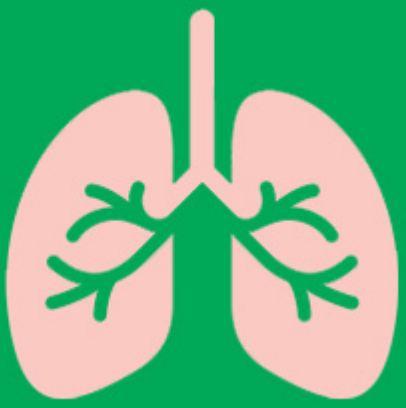
Rural Chronic Obstructive Pulmonary Disease Prevention Toolkit



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Rural Chronic Obstructive Pulmonary Disease Prevention Toolkit

Welcome to the Rural Chronic Obstructive Pulmonary Disease (COPD) Toolkit. The toolkit compiles evidence-based and promising models and resources to support organizations implementing COPD programs in rural communities across the United States.

The modules in the toolkit contain resources and information focused on developing, implementing, evaluating, and sustaining rural COPD programs. There are more resources on general community health strategies available in the Rural Community Health Toolkit.

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Module 1: Introduction to COPD

Chronic obstructive pulmonary disease (COPD) is a major cause of death and disability in the United States that imposes a particularly large burden on rural populations. This module provides an overview of COPD and the unique challenges of COPD prevention and management in rural settings. This module will provide important information needed before implementing a program to prevent and/or manage COPD in a rural community.

For general information on what to consider as you start your program, see Creating a Program: Where to Begin in the Rural Community Health Toolkit.

In this module:

Overview of Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) refers to a variety of chronic lung diseases, such as emphysema and chronic bronchitis, which cause blockage of airway passages and breathing-related problems. COPD is a major cause of disability, and was the fourth leading cause of mortality in the United States in 2016. Approximately 16 million people in the U.S. have been diagnosed with COPD and millions more suffer from the disease but have not been diagnosed.

In most cases, COPD is preventable. Approximately 80% of COPD cases are caused by smoking. While smoking is the leading cause of COPD deaths, it is not the only risk factor for COPD. Risk factors may include:

- Smoking
- Exposure to lung irritants, including secondhand smoke
- Genetics
- History of asthma
- Advanced age
- Poverty
- Abnormal development of lungs during childhood
- History of severe childhood respiratory infection
- Chronic bronchitis

Resources to Learn More

Chronic Obstructive Pulmonary Disorder (COPD)
Website
Provides information about COPD including data and statistics, publications of research, state specific fact sheets, and guidelines and reports for clinicians.
Organization(s): Centers for Disease Control and Prevention

COPD Across America: How Does Your State Compare?
Website
An interactive U.S. map providing fact sheets with data and statistics demonstrating the burden of COPD in each state.
Organization(s): COPD Foundation

Chronic Obstructive Pulmonary Disease in Rural Areas

The prevalence rate of COPD among the most rural residents was almost double that of the most urban in 2015, with a rate of 8.2% of adults in noncore counties compared to 4.7% of adults in large metropolitan centers. From 1999 to 2014, age-adjusted death rates for COPD have decreased in urban areas and increased in rural areas. A 2015 study using a nationally representative sample found that, in addition to poverty, rural residence was an independent risk factor for COPD.

Risk Factors and Rural Populations

The leading cause of COPD is cigarette smoking. Cigarette use is more prevalent among rural adults aged 18 or older (23.6%) than among their large and small metro counterparts (16.6% and 19.6%, respectively). In the Appalachian Region specifically, almost 20% of all adults report being cigarette smokers, a figure higher than the 16.3% reported at the national level.

However, 20-25% of COPD cases are not related to cigarette smoking. Genetic factors, respiratory infections, and long-term exposure to irritants such as air pollutants also play a role. Coal mine dust and crystalline silica exposures are known risk factors for COPD, which are common byproducts of rural industries like coal mining and construction. Other exposures that are common in rural settings are also associated with respiratory illnesses, such as mold spores, nitrogen dioxide, and organic toxic dust. Therefore, efforts to address COPD in rural settings should expand beyond tobacco use to account for occupational lung diseases and other rural exposures.

Prevention, Diagnosis, and Treatment

Since tobacco plays a major role in causing COPD, not smoking is the best way to prevent COPD and its complications; this includes never smoking and quitting smoking. Avoiding secondhand smoke, a lung irritant, is also important. Traditional prevention efforts may find less traction in rural communities where tobacco use is more common, so strategies should be tailored to local context.

COPD cannot be cured, but it can be treated and managed. Individuals with COPD may have better prognoses the earlier they are diagnosed. Early interventions can help slow the progression of COPD to preserve lung function and prevent complications down the line. Rural health initiatives should raise awareness about the signs and symptoms of COPD and promote early screening.

COPD treatment constitutes a combination of various clinical and pharmacologic therapies as well as behavioral changes that strive to slow lung function decline, increase exercise stamina, and reduce exacerbations (acute worsening of symptoms). Inhaled medications, such as bronchodilators delivered through inhalers, can ease short-term exacerbations and help maintain lung function in the long term. In addition, pulmonary rehabilitation and oxygen

therapy can help patients that have trouble breathing. However, rural communities may not have the healthcare infrastructure or workforce, such as specialty pulmonary rehabilitation clinics or respiratory therapists, to offer all respiratory services. Among individuals that smoke, quitting smoking is critical to managing COPD.

COPD exacerbations can send patients to the emergency department and require clinical support for transition to the outpatient setting. When COPD is accompanied by other conditions, treatment options and access in rural areas are more complicated. A 2009 study among Medicaid enrollees found that rural residents were among those most likely to have emergency room visits, both for COPD and comorbidities.

Resources to Learn More

Addressing the Burden of Chronic Obstructive Pulmonary Disease (COPD) in Rural America from the NACRHHS

Video/Multimedia

Webinar recording of presentations on the topic of COPD in rural areas featuring speakers from the National Advisory Committee on Rural Health and Human Services (NACRHHS), the National Institutes of Health (NIH), University of North Carolina's School of Public Health, and the Dorney-Koppel Foundation.

Organization(s): Rural Health Information Hub

Date: 3/2019

The COPD National Action Plan and its Impact on Patients in Rural America

Document

An overview of the COPD National Action Plan and how it can be utilized to advocate for improved treatment opportunities, including cost of care and access to care, for rural communities.

Author(s): Denning, B.

Organization(s): COPD Foundation

Date: 4/2018

Occupational Exposure to Vapor-Gas, Dust, and Fumes in a Cohort of Rural Adults in Iowa Compared with a Cohort of Urban Adults

Document

Reports on a study comparing jobs and occupational exposure to vapor-gas, dust, and fumes between rural workers, including farmers and non-farmers, and urban workers.

Organization(s): Centers for Disease Control and Prevention

Date: 11/2017

COPD Urban-Rural Differences as a Public Health Issue

Website

Data and statistics comparing COPD prevalence, hospitalization, and mortality rates between urban and rural populations in the United States.

Organization(s): Centers for Disease Control and Prevention

Challenges to Addressing Rural COPD

Rural communities face unique challenges in addressing COPD.

Tobacco Use

Greater tobacco use in rural areas contributes to the normalization of tobacco and the broad availability of tobacco products in rural communities. As a result, rural residents face greater barriers to avoiding tobacco use. In addition, secondhand smoke is another lung irritant that can cause or exacerbate COPD. Rural residents are still at risk if they live in a community where smoking is prevalent and secondhand smoke is common in the air, regardless of whether they smoke.

Poverty

A greater proportion of rural residents (16.4%) live below the poverty line than urban residents (12.9%); the decline in rural poverty has been slower than that of urban poverty, widening the disparity. Limited financial resources can delay diagnosis and limit treatment options for COPD, including clinical visits and prescription medications. Additionally, patients with COPD often have multiple comorbidities and may have to choose between paying for COPD medications and/or treatments and medications for other conditions, like heart disease or diabetes.

Lack of Specialty Treatment Programs

Rural communities may lack healthcare providers who specialize in providing care to patients with COPD. For example, respiratory therapists can help to reduce hospital readmissions and transition COPD patients to the outpatient setting, but rural facilities typically have fewer respiratory therapists on staff, if any at all, compared to urban facilities. Delivery services for oxygen devices may be limited in rural areas, which can jeopardize adherence to oxygen therapy. Rural residents may need to travel long distances to visit a provider, which impacts treatment retention and effectiveness.

Lack of Transportation

Limited or nonexistent public transportation in rural areas limits the ability of rural patients with COPD to travel to and access healthcare services to manage their COPD. The disease makes breathing and physical activity challenging, which often inhibits patients' mobility and can result in their dependence on caregivers for transportation between appointments. However, conflicting caregiver responsibilities, such as work schedules, may limit their availability to transport patients with COPD to appointments and reduce the frequency of healthcare visits. In addition, severe weather in rural communities may further inhibit travel by car or bus. Not only can transportation create a barrier to accessing primary care or family medicine providers that can help manage COPD, but insufficient transportation can further

inhibit a patient's ability to access specialty COPD treatments that are sparsely offered in rural communities and typically require patients to travel longer distances.

Resources to Learn More

Availability of Respiratory Care Services in Critical Access and Rural Hospitals

Document

A policy brief providing an overview of the availability of respiratory care services in rural healthcare settings, and the implications for prevention, early diagnosis, and treatment for rural populations.

Author(s): Casey, M., Evenson, A., Moscovice, I., & Wu, Z.

Organization(s): Rural Health Research & Policy Centers

Date: 6/2018

The National Institutes of Health and Centers for Disease Control and Prevention's COPD National Action Plan

In May 2017, the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) released the COPD National Action Plan, a comprehensive framework for addressing the disease. A lack of progress to address COPD's burden on population health and the health system motivated the creation of the Action Plan. The COPD-related mortality rate has not declined at the same rate as other leading causes of death in the United States, such as heart disease, cancer, stroke, and diabetes. Ultimately, the Action Plan strives to increase COPD awareness and minimize its burden through collaboration among COPD patients, providers, researchers, and decision-makers.

Originally requested by Congress in 2012, the National Heart, Lung, and Blood Institute (NHLBI) developed the Action Plan through a variety of trans-governmental meetings. The broader COPD community informed the framework's goals, including other federal partners, patients and caregivers, academics, healthcare practitioners, and industry leaders. The Action Plan emphasizes the role of collaboration among a wide variety of stakeholders within the COPD community to achieve goals to increase awareness of the disease and minimize its burden.

The Action Plan is based on five overarching goals, including various subgoals that could improve the health of rural communities:

> **"Goal 1:** Empower people with COPD, their families, and caregivers to recognize and reduce the burden of COPD.
>
> **Goal 2:** Improve the prevention, diagnosis, treatment, and management of COPD by improving the quality of care delivered across the healthcare continuum.
>
> **Goal 3:** Collect, analyze, report, and disseminate COPD-related public health data that drive change and track progress.
>
> **Goal 4:** Increase and sustain research to better understand the prevention, pathogenesis, diagnosis, treatment, and management of COPD.
>
> **Goal 5:** Translate national policy, educational, and program recommendations into research and public health care actions."

Resources to Learn More

The COPD National Action Plan and its Impact on Patients in Rural America

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An overview of the COPD National Action Plan and how it can be utilized to advocate for improved treatment opportunities, including cost of care and access to care, for rural communities.

Author(s): Bret Denning

Organization(s): COPD Foundation

Date: 4/2018

Module 2: Evidence-Based and Promising COPD Program Models

The goals of COPD intervention programs may vary depending on each community's needs and the resources that are available. Program models may focus on preventing COPD, assisting COPD patients with self-management of the disease, or both. Most programs include several of the models described in this toolkit.

To learn how to identify and adapt interventions, see Developing a Rural Community Health Program in the Rural Community Health Toolkit.

Evidence-based and promising COPD programs are being offered in a variety of settings, including healthcare facilities, homes, and in the community. This toolkit identifies seven models to address the prevention and management of stable COPD, divided into four categories.

These models are in line with the following recommendations and guidelines:

- American College of Physicians, American Thoracic Society, and European Respiratory Society: diagnosis and management clinical guidelines
- American Thoracic Society policy statement: pulmonary rehabilitation
- BMJ Best Practice prevention strategies
- Centers for Disease Control and Prevention (CDC)
- County Health Rankings & Roadmaps: chronic disease management programs
- Global Initiative for Chronic Obstructive Lung Disease (GOLD)
- The U.S. Department of Veterans Affairs/Department of Defense's Clinical Practice Guidelines

The clinical treatment of patients in acute exacerbation of COPD and patients with COPD in the hospital or emergency department are outside of the scope of this toolkit.

In this module:

Prevention and Risk Reduction Models for COPD

Prevention refers to taking measures to avoid the onset of illness. Prevention efforts may also include taking measures that lead to early diagnosis in order to begin prompt treatment or to prevent more severe complications from developing once a disease has been diagnosed. Rural communities are implementing programs aimed at preventing COPD as well as reducing its complications and slowing its progression.

This section describes three models for prevention and risk reduction:

- Smoking Cessation
- Vaccination
- Early Diagnosis

Smoking Cessation Models for COPD

Smoking is the primary risk factor for COPD and can contribute to diminished lung function among COPD patients. Among individuals who smoke, cessation is one of the most effective ways to manage COPD symptoms and reduce morbidity.

A 2001 study in Chest found that smokers with COPD had greater nicotine dependency compared to other smokers, while a 2015 *Respiration* article reports that smokers with COPD had higher levels of depression, higher cigarette dependence, and lower self-efficacy to stop smoking than smokers without COPD.

A 2016 systematic literature review found the most effective smoking cessation strategy for patients with COPD included a combination of behavioral counseling and pharmacotherapy. It also found that using nicotine replacement therapy, as well as with smoking cessation aids like varenicline and bupropion, has shown higher relative efficacy in smoking cessation among smokers with COPD.

Examples of Smoking Cessation Models

Typically, smoking cessation programs are not tailored specifically to smokers with COPD. Several examples of smoking cessation models can be found in the Rural Tobacco Control and Prevention Toolkit's Program Models section, with links to specific examples listed below.

- Quitline Interventions
- Reducing Out-of-Pocket Costs for Evidence-Based Cessation Treatments
- Faith-Based Interventions
- Tobacco Cessation Services Provided by Worksites
- Tobacco Dependence Treatment, Including Health Coaching or Counseling

Considerations for Implementation

Since smokers with COPD report less confidence in their ability to quit smoking, it's important to build self-efficacy. Additionally, a 2015 analysis mentioned several characteristics of effective smoking cessation counseling for patients with COPD, including:

- Provide a clear explanation of the relationship between smoking and COPD. Explain that quitting smoking is the best option to slow the progression of COPD and improve outcomes.
- Use spirometry results to increase motivation to quit.
- Inform patients that inhaled treatments may not work as well if they continue to smoke.
- Inform patients that quitting smoking can improve airflow obstruction, which alleviates COPD symptoms of breathlessness, cough, wheezing, and chest pain.

Resources to Learn More

Clear Horizons

Document

A smoking cessation guide created for people aged 50 or older.

Organization(s): National Cancer Institute

Date: 6/2013

Smoking Cessation Effectiveness in Smokers with COPD and Asthma under Real Life Conditions

Document

Study comparing the long-term effectiveness of a rigorous smoking cessation program between smokers with COPD, smokers with asthma, and a control group.

Author(s): Gratziou, C., Florou, A., Ischaki, E., Eleftheriou, K., Sachlas, A., Bersimis, S., & Zakynthinos, S.

Citation: Respiratory Medicine, 108 (4)

Date: 4/2014

Vaccination Models for COPD

All individuals with COPD are strongly recommended to receive certain adult vaccinations that provide protection against conditions that may affect the lungs. While there is not a vaccine for COPD specifically, vaccination against viral influenza and Streptococcus pneumonia provide secondary prevention by preventing or minimizing the severity of COPD exacerbations caused by respiratory infections. Flu and pneumonia can impair lung function, so individuals with COPD are at higher risk of complications from those infections. People with COPD are more likely to develop pneumonia and other respiratory diseases after a flu infection.

- **Influenza Vaccine.** Individuals with COPD should receive the annual flu vaccination. Flu season typically lasts from October to May, peaking from December to February. However, the flu can be transmitted at any time during the year.
- **Pneumococcal Vaccine.** The two pneumococcal vaccines, PCV13 and PPSV23, are recommended for all adults 65 years or older, particularly those with chronic lung conditions like COPD. They are also specifically recommended for younger individuals with COPD. These vaccines provide protection against various pneumococcal bacteria that can cause pneumonia, among other conditions.

Examples of Vaccination Models

- The Community Guide recommends client reminder and recall systems and provider reminders as an effective intervention to increase vaccination rates in adults.
- Experts have found the use of retail clinics as a promising practice for increasing vaccination rates. While retail clinics may improve access to care, additional evidence is needed.

Considerations for Implementation

Immunocompromised individuals may not be able to receive vaccinations because their immune systems might not be able to adequately respond to the weakened antigens in the vaccine. Patients with comorbidities (like HIV/AIDS) that affect their immune systems or older patients whose immune systems have weakened over time may not be appropriate candidates for vaccinations.

Resources to Learn More

COPD and Vaccines: What You Should Know

Document

Downloadable handout for health professionals, patients, and the general public providing an overview of the importance of vaccines for patients with COPD and identifying which vaccines are recommended.

Organization(s): National Heart, Lung, and Blood Institute (NIH), Centers for Disease Control and Prevention

Date: 10/2018

Early Diagnosis Models for COPD

Spirometry is a diagnostic lung function test used to determine how well the lungs are working by measuring how much air, and how quickly, a person is able to breathe in and out. Spirometry is required to make a clinical diagnosis of COPD.

Early diagnosis of COPD allows opportunities to implement interventions in the early stages of the disease and can decrease the rate of decline in lung function. Beginning treatment in the early stages of the disease can produce more favorable outcomes and improve quality of life.

Examples of Early Diagnosis Models

- The American Lung Association offers an Implementation and Interpretation of Spirometry in the Primary Care Practice training course designed for healthcare providers. Their website includes a schedule of upcoming trainings as well as videos on how to perform a spirometry test and other resources.
- Programs have had success in increasing the use of spirometry in asthma diagnosis and care. The Asthma Treatment Program uses a registered nurse to travel to primary care practices in rural eastern Colorado, providing spirometers and education materials to providers and patients. The program has demonstrated a tenfold increase in the use of spirometry.
- The Mobile Spirometry Unit, developed through a partnership among the American Association for Respiratory Care, the COPD Foundation, and the National Heart, Lung, and Blood Institute, was launched in 2007. The program began with a mobile unit traveling across the U.S. to perform spirometry at community events. While the mobile unit is no longer in use, the program still travels to a variety of health-related events offering educational materials and relevant screening.

Considerations for Implementation

A 2017 COPD Foundation statement reports that COPD is often diagnosed late and may even be untreated or undertreated even when an early diagnosis is given. For many rural healthcare providers, diagnosis and treatment of COPD were not significant components of their training. Therefore, spirometry is often underused.

Family practitioners are at the forefront of detecting, diagnosing, and treating patients with COPD symptoms. In Addressing the Burden of Chronic Obstructive Pulmonary Disease (COPD) in Rural America: Policy Brief and Recommendations, stakeholders noted their concerns about the need for rural healthcare providers to be better educated about diagnosing COPD using spirometry. There has been some confusion related to the use of spirometry for general screening of COPD, for which there is no evidence base in asymptomatic adults.

Resources to Learn More

Office Spirometry in Primary Care for the Diagnosis and Management of COPD: National Lung Health Education Program Update

Document

Discusses the use and underutilization of spirometry for diagnosing COPD in primary care settings.

Author(s): Ruppel, G., Carlin, B., Hart, M., & Doherty, D.

Citation: Respiratory Care, 63 (2) 242-252

Date: 2/2018

Pharmacologic Treatment Models for COPD

Pharmacologic Therapy

In addition to lifestyle change and behavior modifications, pharmacological treatment can help patients manage their COPD and avoid or mitigate exacerbations. These treatments do not reverse or slow lung function decline, but they can help patients breathe easier by controlling their symptoms. Central to a COPD treatment regimen, bronchodilators ease bronchial obstruction and airflow limitations to improve airflow in and out of the lungs. Most bronchodilators are taken using a device called an inhaler. Long-acting bronchodilators, such as beta-agonists and anticholinergics, alleviate long-term symptoms and help patients control their COPD overall. Fast-acting treatments, commonly known as rescue medications, are available to rapidly alleviate airflow limitations in situations of acute lung stress; however, the effects only last for a few hours. Leading respiratory and pulmonary medical associations offer different levels of recommendations regarding bronchodilator use for COPD patients with varying levels of lung function, with stronger recommendations for use among patients with weaker lung function.

Oxygen Therapy

In addition to medications, primary care providers may prescribe supplemental oxygen to COPD patients. This is often most useful for patients with severe resting hypoxemia, particularly low levels of oxygen in the blood. There is limited research on the long-term benefits of supplemental oxygen for individuals with moderate-to-low resting hypoxemia. Different types of devices deliver oxygen, such as continuous oxygen or intermittent pulse dose oxygen.

The following organizations offer more detailed treatment recommendations and guidelines:

- BMJ Best Practice treatment algorithm
- Global Initiative for Chronic Obstructive Lung Disease: GOLD global strategy report

Examples of Pharmacologic Treatment Models

- Through Cary Medical Center, the Better Breathing, Better Living project for the Maine Rural Health Collaborative is implementing a variety of COPD efforts including but not limited to the Centers for Disease Control and Prevention's Tips From Former Smokers campaign, a "Better Breathing Club" support group, and remote patient monitoring with medication therapy management and counseling support through videoconferencing technology.
- Ohio Northern University's HealthWise Mobile Health Clinic uses health professions students in an innovative mobile clinic model to deliver educational outreach and healthcare services in rural Hardin County, Ohio. The mobile clinic offers services 2-3 times each week at a variety of locations in the county, including churches, schools, and

other gathering spaces. The program is using health professions students in order to address local barriers related to health professional shortages. Services include smoking cessation education, medication reconciliation, and patient navigation assistance.

Considerations for Implementation

Patients with limited incomes may not be able to afford medications, especially if they are prescribed a combination of pharmacologic therapies. This presents additional treatment barriers in rural communities, which generally report higher rates of poverty than the nation as a whole. Many rural programs rely on the 340B Drug Pricing Program to help their COPD patients afford their medications. This federal program requires drug manufacturers to offer outpatient medications to qualifying entities like healthcare centers and hospitals at a reduced price. Rural COPD programs have also found the national nonprofit NeedyMeds to be a useful resource in helping patients obtain additional funds for medications and other healthcare costs.

A 2017 analysis of nationwide Medicare Part D plans found that although COPD inhalers were almost always covered, many plans still had high out-of-pocket costs. The average out-of-pocket costs ranged from $30 to $105 per inhaler, depending on the type of inhaler. Patients with moderate to severe COPD may need up to three inhalers per month.

In addition to the high costs associated with inhalers, the devices may be confusing and difficult to use. Inhaler designs vary across medication type and pharmaceutical company, so there is no standardized method for using the devices. This can lead to issues with medication adherence if patients (and sometimes healthcare providers) do not know exactly how their device should function. Use of training tools may assist in demonstrating proper inhaler technique. For example, research shows the use of the In-Check DIAL has led to significant improvements in asthma care and control. Healthcare providers may consider using a teach-back method as an effective way to ensure that patients understand instructions on how to use specific medications.

Patients with COPD often have comorbidities that also require medication regimens. Not only does this add a cost burden, but medication management may become an issue as patients attempt to manage a complex regimen of medications. One potential solution is incorporating the unique role pharmacists often play in patient management and care. In rural communities, it may be easier for a patient to access a pharmacist than another healthcare provider. Pharmacists may have more time to spend with a person with COPD and are often aware of the different types of medications they may be taking.

There are also challenges associated with delivering supplemental oxygen. The units in which supplemental oxygen is prescribed by a physician does not always match the units of oxygen that are delivered by devices. It can also be difficult to manage the supplemental oxygen supply chain across long distances. Oxygen cylinders are transported directly to patients' homes, so there may be limited delivery availability in rural communities.

Program Clearinghouse Examples

- Better Breathing, Better Living
- Multidisciplinary Rural Mobile Clinic Using Student Healthcare Professionals

Resources to Learn More

COPD 101 Educational Video Series

Tutorial/Training

A collection of educational videos about COPD including the physical limitations and injury caused by COPD, resources on COPD screening and disease management, and training on the proper usage of various types of inhalers.

Organization(s): COPD Foundation

Optimizing Home Oxygen Therapy: An Official American Thoracic Society Workshop Report

Document

Defines optimal home oxygen therapy, identifies key barriers to accessing oxygen therapy at home including in rural communities, and discusses potential strategies and solutions addressing these barriers.

Author(s): Jacobs, S., Lederer, D., Garvey, C., Hernandez, C., Lindell, K., McLaughlin, S., Schneidman, A., Casaburi, R., Chang, V., Cosgrove, G., & Devitt, L.

Citation: Annals of the American Thoracic Society, 15(12)

Date: 12/2018

Oxygen Therapy

Website

An overview of oxygen therapy with information about getting started with different oxygen delivery devices, using oxygen safely, and helping patients with chronic respiratory conditions like COPD.

Organization(s): American Lung Association

Non-Pharmacologic Treatment Models for COPD

Non-pharmacologic treatment models are typically used in conjunction with medications to improve lung function, reduce hospitalization, help navigate the healthcare system, and improve overall quality of life.

This section describes two overarching models for providing non-pharmacologic COPD treatment:

- Pulmonary Rehabilitation
- Chronic Care/Chronic Disease Management

Pulmonary Rehabilitation Models for COPD

Pulmonary rehabilitation is an intervention consisting of various programs designed to improve the health and well-being of people with chronic respiratory conditions through the adoption of and adherence to health-promoting behaviors. Pulmonary rehabilitation programs are based on a patient's individual health assessment and tailored to their specific goals and needs. They typically feature a team of healthcare professionals across a patient's care portfolio. Specialists may include respiratory therapists, dietitians or nutritionists, physical and occupational therapists, and psychologists. Pulmonary rehabilitation programs supplement other medical interventions — such as medications, vaccinations, and the use of supplemental oxygen — by emphasizing improvements in physical functionality as a result of long-term behavior change. As such, pulmonary rehabilitation is an appropriate intervention for most individuals with COPD. Typical components of pulmonary rehabilitation include exercise training and education.

- **Education.** Informing patients about how COPD impacts their body can inform them about appropriate treatment options and empower them to manage their symptoms. Personalized education is best to address patients' unique health needs and concerns. Education may include aspects of self-management.
- **Exercise.** Exercise training can help strengthen lung muscles and improve lung function through activities like endurance training, interval training, or strength training. Exercise interventions should address arms and legs in addition to cardio, flexibility, and other muscle training.

Examples of Pulmonary Rehabilitation Models

- The Appalachian Pulmonary Health Project is a regional collaboration with the national network of Grace Anne Dorney Pulmonary Rehabilitation Centers. This community-based pulmonary rehabilitation program has achieved outcomes on par with similar programs in larger hospitals and academic settings.
- In rural Worland, Wyoming, the Washakie Medical Center is offering pulmonary rehabilitation to its nearby residents. Their pulmonary rehabilitation program offers exercise training, motivational counseling, nutrition information, and disease management support.

Considerations for Implementation

Pulmonary rehabilitation programs are one of the most efficacious treatments in managing COPD. However, access to pulmonary rehabilitation in rural communities is frequently limited. Rural COPD patients often have to travel long distances to access these types of programs. Even when pulmonary rehabilitation services may be nearby, primary care providers may not be aware of the services and therefore not make referrals.

Additionally, healthcare providers should not assume that education alone will result in behavior change for all patients. They should maintain effective relationships with patients to help them turn this information into action.

Program Clearinghouse Examples

- Appalachian Pulmonary Health Project

Resources to Learn More

Chronic Obstructive Pulmonary Disease Education in Pulmonary Rehabilitation
Document
Workshop report gives an overview of the current state of education as part of pulmonary rehabilitation, including a literature review, and suggestions for enhancing educational components.
Organization(s): American Thoracic Society
Date: 3/2018

Health Topics: Pulmonary Rehabilitations
Website
Provides an overview of pulmonary rehabilitation and what patients should expect.
Organization(s): National Heart, Lung, and Blood Institute

What is Pulmonary Rehabilitation
Website
An overview of pulmonary rehabilitation clinic services and a map featuring pulmonary rehabilitation centers across the nation.
Organization(s): COPD Foundation

Chronic Care/Chronic Disease Management Models for COPD

Chronic disease management programs addressing COPD may be based on the Chronic Care Model. Components of this model include links to community resources, health system support, and self-management. The structure and delivery of these types of program may vary, but they usually provide information about COPD, offer education about behavior change, and provide information about medication adherence and management. According to the Global Initiative for Chronic Obstructive Lung Disease, self-management education — with coaching by a healthcare professional — should be a component of this model.

Self-management. Based on a definition from a consensus of international experts,

> "A COPD self-management intervention is structured but personalized and often multi-component, with goals of motivating, engaging and supporting the patients to positively adapt their health behavior(s) and develop skills to better manage their disease."

Programs focus on education and behavior change, such as the adoption and maintenance of health-promoting behaviors, and emphasize the patient's role in the active management of their COPD. Self-management change seeks to improve physical and emotional health and quality of life, in addition to minimizing COPD-related impairments. Strong partnerships with healthcare providers, caregivers, and loved ones underpin effective self-management programs, particularly iterative communication to maintain patient motivation and knowledge. These strategies typically originate in clinical settings, but remote connection options are available through computers and mobile devices.

Action Plans. Self-management is particularly effective when patients develop action plans outlining the steps that they will take to implement their strategies. These can be written or oral, based on standard templates or tailored to each patient. This action plan drives patients to move beyond knowledge of their self-management responsibilities and pushes them to think about how they will effectively change their behavior. A 2016 systematic review suggests that the development of COPD action plans is associated with reduced hospitalizations and emergency department visits for COPD exacerbations, compared to patients who received usual care. Action plans can provide enhanced benefits when supplemented by a short educational follow-up that supports patient plan adherence.

Examples of Chronic Care/Chronic Disease Management Program Models

- Chronic Disease Self-Management is an evidence-based program developed by Stanford University. It consists of a six-week workshop designed for people with multiple chronic conditions including COPD.
- Genesis HealthCare System's COPD Readmission Prevention Program in Zanesville, Ohio, uses a chronic disease care management approach to improve readmission rates for COPD patients. Through the use of registered nurses serving as both navigators and tobacco treatment specialists, the program is able to offer assistance to COPD patients throughout the continuum of care.
- The American Lung Association's Better Breathers Club connects people with various lung diseases to resources, support, and education. Activities are led by trained facilitators and are offered nationwide.
- Bridges to Care Transitions, a collaborative program led by Bay Rivers Telehealth Alliance, offers remote home monitoring and chronic disease management coaching to patients with chronic illnesses in rural Tidewater, Virginia. Patients enroll in the program at the time of discharge from the hospital and participate in up to 90 days of remote home monitoring and coaching. The program incorporates a variety of evidence-based models, including the Coleman model, the Healthy IDEAS model, and Stanford model for Chronic Disease Self-Management.
- The Adventist Health System Quality Improvement Project, based in rural Butte County, California, offers a variety of COPD services including medication, education, smoking cessation, and infection prevention, including information about recommended vaccines. The project was modeled on the evidence-based Reversible Obstructive Airway Disease (ROAD) program from the University of California Davis Medical Center. COPD patients are provided with treatment planning, case management, and one-on-one education.
- The Sarah Bush Lincoln Health Center in rural east central Illinois is using evidence-based efforts to improve the quality of life among COPD patients and reduce hospital utilization. Program efforts focus on patient activation, self-management behaviors, and medication management. The program uses motivational interviewing to assist patients with self-management techniques.

Considerations for Implementation

Strong patient-provider relationships with clear communication are critical to successful self-management. Care team members should ensure that they consistently support and encourage patients in their self-management efforts in order to build confidence in their ability to successfully achieve their goals and to hold them accountable to completing their action plans.

COPD is often accompanied by other chronic comorbidities, such as diabetes, heart disease, lung cancer, osteoporosis, and mood disorders. Patients with multiple chronic illnesses and comorbidities receive care from various providers, which can result in disparate and fragmented care strategies. Since many COPD patients present complex needs, chronic care models should seek to streamline various elements to improve quality of life and minimize exacerbations. Successful streamlined care is dependent upon effective collaboration and communication among different care team members and between the care team and the patient.

Program Clearinghouse Examples

- Adventist Health System
- Bridges to Care Transitions
- COPD Readmission Prevention Program
- Sarah Bush Lincoln Health Center

Resources to Learn More

Chronic Disease Management in Rural Areas

Document

Case descriptions of six rural health organizations that have implemented chronic disease management programs.

Author(s): Zuniga, M., Bolin, J., & Gamm, L.

Organization(s): Southwest Rural Health Research Center

Date: 2003

COPD Management Tools

Website

Offers a variety of tools helpful with managing COPD, including sample action plan in both English and Spanish for patients to complete with his/her healthcare provider.

Organization(s): American Lung Association

Integrated Disease Management Interventions for Patients with Chronic Obstructive Pulmonary Disease

Document

A literature review of 26 trials evaluating the effects of an integrated disease management (IDM) intervention for people with COPD.

Author(s): Kruis, A., Smidt, N., Assendelft, W., Gussekloo, J., Boland, M., Rutten-van Molken, M., & Chavannes, N.

Citation: Cochrane Database of Systematic Reviews, Issue 10

Date: 10/2013

Offering Chronic Disease Self-Management Education in Rural Areas

Document

Provides recommendations and resources for implementing chronic disease self-management education programs in rural settings and includes success stories.

Organization(s): National Council on Aging

Date: 7/2015

Palliative Care Models for COPD

Palliative care services are designed to make symptomatic patients as comfortable as possible while managing their COPD. Palliative care typically occurs alongside treatment and can help relieve suffering by offering help with symptoms like shortness of breath, fatigue, pain, depression, and anxiety. This care approach aligns well with COPD treatment, since it is a highly symptomatic condition that often intersects with burdensome comorbidities. A palliative care model can help improve patient well-being and quality of life.

For additional information about rural palliative care, see the Rural Hospice and Palliative Care topic guide.

Examples of Palliative Care Models

- Project ENABLE II (Educate, Nurture, Advise, Before Life Ends) is using telehealth to offer palliative care to patients with serious illnesses, along with their caregivers. While the program was designed specifically for patients with heart failure or advanced cancer, efforts are underway to tailor this intervention to the needs of COPD patients.
- Based in rural Zanesville, Ohio, Genesis Hospital's Palliative Care Home Program was designed for patients who may have barriers to accessing care. The palliative care team consists of specialized physicians, nurses, social workers, pharmacists, and chaplains to help provide comfort care at home (or in nursing homes or the hospital).

Considerations for Implementation

The topic of palliative care is frequently avoided, as many people confuse palliative care and hospice. Hospice is a type of palliative care that is generally designed for patients with a life expectancy of shorter than six months. Understanding the differences between these two terms may make the topic more palatable when discussing treatment options.

Additional research into palliative care services offered in rural areas is needed. A 2015 systematic review found promising approaches in the use of telehealth, academic partnerships with communities, and in training for healthcare providers. However, the researchers recommended additional studies for exploring best practices. A 2018 review found that palliative care telephone support significantly improved mood, suggesting promising results with the use of telehealth.

Resources to Learn More

Palliative Care and Chronic Obstructive Pulmonary Disease: Where the Lines Meet

Document

Review article that identifies the palliative care needs of patients with advanced COPD.

Author(s): Harrington, S.E., Rogers, E., & Davis, M.

Citation: Current Opinion in Pulmonary Medicine, 23(2), 154-160

Date: 3/2017

Palliative Care and COPD

Website

Provides an overview of the benefits of palliative care among COPD patients and includes information on how to access palliative care.

Organization(s): American Lung Association

Palliative Care in COPD Patients: Is It Only an End-of-Life Issue?

Document

Provides information on palliative interventions, including rehabilitation, noninvasive ventilation, oxygen, and the use of opioids.

Author(s): Carlucci, A., Guerrieri, A., & Nava, S.

Citation: European Respiratory Review, 21(126), 347-354

Date: 2012

Module 3: Program Clearinghouse

The HRSA Federal Office of Rural Health Policy has funded several programs in rural areas with the goal of addressing chronic obstructive pulmonary disease (COPD) as part of the 330A Outreach Authority program. This program focuses on expanding access to healthcare services in rural areas.

Examples of current 330A Outreach Authority grantees and other organizations that have developed promising programs designed to improve COPD in a rural community are provided below. Evidence-based and promising program models for improving COPD are available in Module 2.

- Adventist Health System
  Project: Quality Improvement Project to Address Chronic Obstructive Pulmonary Disease (COPD)
  Synopsis: This patient navigator program incorporates treatment planning and COPD education before patient discharge to reduce avoidable hospital readmissions.
- Bay Rivers Telehealth Alliance
  Project: Bridges to Care Transitions
  Synopsis: This telehealth program enhances COPD patients' self-management through remote patient monitoring.
- Cary Medical Center
  Project: Better Breathing, Better Living
  Synopsis: This care coordination program ensures that patients are informed about their COPD diagnosis and provides self-management education accompanied by regular follow-up assessments.
- COPD Foundation
  Project: Teaching and Outreach in Underserved Communities and Health Improvement (TOUCH COPD)
  Synopsis: This pilot training program sought to increase the capacity of healthcare professionals without a background in respiratory therapy or pulmonology to effectively care for COPD patients through webinars and workshops.

- Genesis HealthCare System
  Project: COPD Readmission Prevention Program
  Synopsis: This program combines care coordination, patient education, and coordination with community services to reduce hospital readmissions among COPD patients.
- Ohio Northern University
  Project: ONU HealthWise Mobile Health Clinic
  Synopsis: This mobile health clinic, staffed in part by health science university students, provides preventive health education and chronic care support to hard-to-reach populations.
- Partners in Health Network
  Project: Appalachian Pulmonary Health Project
  Synopsis: This regional network of pulmonary rehabilitation centers seeks to expand COPD treatment in rural West Virginia and other parts of Appalachia.
- Sarah Bush Lincoln Health Center
  Project: Care Coordination for CHF and COPD Patients at Family Medical Center
  Synopsis: This program focuses on patient engagement and self-management to enhance the well-being of COPD patients and reduce their emergency department visits and hospital readmissions.

Adventist Health System

- **Project Title:** Quality Improvement Project to Address Chronic Obstructive Pulmonary Disease (COPD)
- **Grant Period:** 8/01/2016 – 7/31/2019
- **Program Representative Interviewed:** Benjamin Mullin, Cardiopulmonary Director
- **Location:** Marysville, CA
- **Program Overview:** In response to high hospital readmission rates among COPD patients, Adventist Health System implemented a project based the University of California Davis Medical Center's evidence-based Reversible Obstructive Airway Disease (ROAD) program, in which respiratory therapists provide individualized case management and treatment planning to COPD patients before discharge to help them better manage their symptoms in the outpatient setting and avoid readmissions. Respiratory therapists also educate patients through a four-module series to review the COPD diagnosis, smoking cessation, infection prevention techniques, recognizing signs of exacerbation, the importance of primary care and pulmonology appointments, and pharmacologic treatments such as medications and supplemental oxygen. In addition, respiratory therapists review the patient's personalized COPD action plan to enhance self-management.

Models represented by this program:

- Chronic Care/Chronic Disease Management

Bay Rivers Telehealth Alliance

- **Project Title:** Bridges to Care Transitions
- **Grant Period:** 5/1/2015 – 4/30/2018
- **Program Representative Interviewed:** Donna Dittman Hale, Executive Director, Bay Rivers Telehealth Alliance
- **Location:** Tappahannock, VA
- **Program Overview:** The Bay Rivers Telehealth Alliance, which assists local healthcare organizations with grant resource development, has implemented a telehealth program to support COPD patients through remote patient monitoring technology and coaching. Patients measure their biometrics from their home on a daily basis, such as blood pressure and pulse oxygen levels, which are digitally transferred to their health record at their primary care provider's office. The remote monitoring system also regularly prompts patients with questions about their COPD symptoms and mental health. This telehealth program and coaching allows patients to more accurately monitor their COPD without the resource burden of increased healthcare utilization and empowers them to better self-manage their condition. Guided by the Coleman model as well as the Stanford model for Chronic Disease Self-Management, the remote patient monitoring program has resulted in reduced hospital admissions and emergency department visits while increasing unplanned doctor's visits.

Models represented by this program:

- Chronic Care/Chronic Disease Management

Cary Medical Center

- **Project Title:** Better Breathing, Better Living
- **Grant Period:** 9/1/2016 – 8/31/2019
- **Program Representative Interviewed:** Leslie KR Anderson, PT, MSB, Chief Operating Officer, Cary Medical Center
- **Location:** Aroostook County, Maine
- **Program Overview:** Cary Medical Center, as part of the Maine Rural Health Collaborative (MRHC), implemented the Better Breathing, Better Living program to ensure the appropriate diagnosis of COPD among their patients and to improve overall disease management. Pulmonary function testing, tobacco cessation services, and medication reconciliation ensure early and accurate COPD diagnoses. Once patients are on the right path, self-management education engages patients and caregivers in the disease management process, and follow-up visits help keep patients on track. The program's ultimate goals are to reduce hospital readmissions, emergency department visits, and cigarette smoking. Many of the care coordination services are delivered through telehealth, such as remote inhaler education.

Models represented by this program:

- Pharmacologic Treatment

COPD Foundation

- **Project Title:** Teaching and Outreach in Underserved Communities and Health Improvement (TOUCH COPD)
- **Program Representative Interviewed:** Stephanie Williams, Director of Community Programs and Volunteer Management, COPD Foundation
- **Location:** Tennessee
- **Program Overview:** Through the National Heart, Lung, and Blood Institute's COPD Learn More Breathe Better® Community Subcontractor Program, the COPD Foundation developed and implemented a pilot program that trained rural healthcare providers to deliver more effective COPD care. The COPD Foundation provided webinars and workshops focused on COPD diagnosis and treatment to healthcare professionals in rural Tennessee who did not specialize in respiratory therapy. This program particularly focused on training sub-acute care providers, such as those in skilled nursing facilities or long-term facilities, since COPD patients who transition from acute care to sub-acute care settings may receive less support than those who are discharged home. By the end of the pilot program, 67% of participating providers felt that the training materials helped improve the care they provided to COPD patients and approximately 83% of participants thought it helped improve the care provided across their facility.

Models represented by this program:

- Chronic Care/Chronic Disease Management

Genesis HealthCare System

- **Project Title:** COPD Readmission Prevention Program
- **Program Representative Interviewed:** Rob Williamson, RN, BSN, CRN, Pulmonary Nurse Navigator
- **Location:** Zanesville, OH
- **Program Overview:** Genesis HealthCare System seeks to prevent hospital readmissions among their COPD patients through a comprehensive care coordination and patient education program. Nurse navigators track patients while they are admitted to assess their COPD severity, offer tobacco cessation counseling, and provide education about various components of COPD causes, diagnosis, and treatment. Nurse navigators also assess for outpatient needs such as transportation, ability to afford medication, and access to healthcare providers. The nurse navigators then provide resources to help meet those needs. Nurse navigators continue follow-up after discharge through phone calls and as-needed home visits. COPD patients can also be enrolled in the system's lung clinic, which is dedicated to treating respiratory diseases. Patients enrolled with the lung clinic have the additional benefit of a federal grant funded medication assistance program which can provide respiratory medications at no cost to those who qualify. This program allows prescription respiratory medications to be picked up same-day at the onsite pharmacy. Beyond the clinical setting, the COPD Readmission Prevention Program has helped to develop a reserve-a-ride service in conjunction with their local public transportation system, South East Area Transit System (SEAT), which can coordinate transportation for patients between medical appointments. This program has inspired readmission prevention programs specific to other conditions in Genesis HealthCare System, such as congestive heart failure and stroke.

Read about the COPD Readmission Prevention Program in RHIhub's Rural Health Models and Innovations.

Models represented by this program:

- Chronic Care/Chronic Disease Management

Ohio Northern University

- **Project Title:** ONU Mobile Health Clinic
- **Grant Period:** 5/1/2015 – 4/30/2018
- **Program Representative Interviewed:** Dr. Michael Rush, PharmD, BCACP, CDE, NCTTP; Director of ONU HealthWise & Pharmacy Residency Programs; Assistant Clinical Professor of Pharmacy Practice, Ohio Northern University
- **Location:** Hardin County, Ohio
- **Program Overview:** Ohio Northern University (ONU) runs a mobile clinic to address a variety of preventive and chronic care needs among rural residents, including COPD. The mobile clinic was established to address priorities from a community health needs assessment, including preventive health education, medication reconciliation, and healthcare access and navigation. ONU leverages its access to a broad array of health sciences students to travel to hard-to-reach areas to provide preventive health services to rural residents and link them to primary care. The mobile clinic helps COPD patients access necessary medications and provides smoking cessation counseling.

Models represented by this program:

- Pharmacologic Treatment

Partners in Health Network

- **Project Title:** Appalachian Pulmonary Health Project
- **Program Representative Interviewed:** Dan Doyle, MD, Pulmonary Rehabilitation Medical Director, Cabin Creek Health System
- **Location:** Charleston, WV
- **Program Overview:** The Appalachian Pulmonary Health Project (APHP) seeks to expand access to pulmonary rehabilitation in rural settings through a collaborative network of 10 healthcare facilities, including Critical Access Hospitals, Federally Qualified Health Centers, and Rural Health Clinics. The APHP is a regional collaboration within the national network, Grace Anne Dorney Pulmonary Rehabilitation Centers. Guided by the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) model for pulmonary rehabilitation and the COPD National Action Plan, APHP members share resources and best practices through a hub-and-spoke model, West Virginia Project ECHO, to strengthen their pulmonary rehabilitation services. The APHP is expanding its scope to include primary prevention of COPD, namely through preventing first use of tobacco among middle and high school students, and ongoing chronic care management.

Read more about the Appalachian Pulmonary Health Project in our Rural Health Models and Innovations section.

Models represented by this program:

- Pulmonary Rehabilitation

Sarah Bush Lincoln Health Center

- **Project Title:** Care Coordination for CHF and COPD Patients at Family Medical Center
- **Grant Period:** 8/01/2016 – 7/31/2019
- **Program Representative Interviewed:** Carol Ray, Director of Coordinated Care
- **Location:** Mattoon, IL
- **Program Overview:** The care coordination program at the Sarah Bush Lincoln Health Center, aims to enhance care transitions and engage patients in their own COPD management in order to reduce hospital readmissions and emergency department visits. With a strong focus on patient engagement, coordinators use the patient activation measure (PAM) to determine the COPD patient's level of engagement with their care and tailor the care coordination strategies accordingly, in addition to leveraging motivational interviewing techniques to support positive health behavior change among patients.

Models represented by this program:

- Chronic Care/Chronic Disease Management

Module 4: Implementation Strategies for Rural Chronic Obstructive Pulmonary Disease Programs

Each rural health program designed to treat chronic obstructive pulmonary disease (COPD) is unique, and there is no one-size-fits-all implementation strategy. Successful programs identify existing resources and best practices and tailor them to address their community's needs. This module identifies key concepts to consider when implementing a program to prevent and/or manage COPD.

For a general overview of rural program implementation, see Implementing a Rural Community Health Program in the Rural Community Health Toolkit.

In this module:

Common Comorbidities of COPD

Patients with COPD typically have multiple comorbidities, many that share risk factors. In particular, smoking cigarettes and obesity are well-documented causes of inflammation. Systemic inflammation — the activity of immune-related cells in the body that promote inflammation — increases risk for COPD as well as a variety of other chronic conditions, such as cardiovascular or metabolic conditions. Having COPD can increase risk for developing a comorbid condition or vice versa. In addition, COPD comorbidities may exist because COPD and common comorbid conditions frequently occur in older age. Common comorbidities of COPD include:

Cardiovascular Disease

Various forms of cardiovascular disease, including hypertension, coronary artery disease, and heart failure, are the most common and most notable COPD comorbidities, because they have a significant impact on mortality. One systematic review found that patients with COPD had 2.5 times higher odds of developing any form of cardiovascular disease, including ischemic heart disease, cardiac dysrhythmia, heart failure, and arterial diseases like hypertension.

Diabetes and Metabolic Syndrome

The prevalence of diabetes among COPD patients ranges from 10% to 19%; the prevalence of metabolic syndrome among COPD patients has been estimated to be between 20% and 50%, depending on COPD severity. Research on COPD and type 2 diabetes suggests that systemic inflammation may increase the risk for or impact the trajectory of each condition. Lung inflammation is the hallmark of COPD; systemic inflammation, in part driven by obesity, can reduce insulin resistance and increase risk for type 2 diabetes. In addition, the use of inhaled steroids — a common medication for COPD treatment — increases risk for the development of diabetes and influences disease progression.

Osteoporosis

Osteoporosis results in reduced bone density and increased risk for bone fractures. Smoking and systemic inflammation increase risk for both COPD and osteoporosis; some research suggests that steroid use may also be a risk factor for osteoporosis. Fractures due to falls among older adults are more severe among individuals with osteoporosis, and functional impairment and physical limitations resulting from COPD can increase that risk. Declining health status due to older age increases risk for both osteoporosis and COPD.

Lung Cancer

Individuals with low lung function are 2 to 4 times more likely to have lung cancer compared to those with normal lung function. Exposure to respiratory irritants, such as cigarette smoke or environmental pollutants, are risk factors for both conditions. Symptoms of COPD, such as

obstructed airflow, respiratory exacerbations in the past year, and visual emphysema, have been shown to increase the odds of developing lung cancer.

Depression

Mood disorders, particularly depression, are common among individuals with COPD. The prevalence of depression among individuals with COPD is estimated to range from 20% to 60%, depending on COPD severity and screening techniques. Most research suggests that mood disorders may result from or be amplified by COPD. Functional impairment resulting from depression can reduce a COPD patient's ability to socialize, which may increase isolation. COPD and various comorbidities may also cause an individual distress that could contribute to depression, such as declining health status, reduced quality of life, or overwhelming financial burdens. In addition, age can influence the relationship between depression and COPD. Older adults are more likely to experience social isolation, which has negative mental health impacts, and are more likely to have COPD due to declining health status and the cumulative impact of smoking and other respiratory irritants.

Sleep Disorders

Approximately 10% of COPD patients have obstructive sleep apnea and about 20% of people with sleep apnea are also diagnosed with COPD. Overlap of the two conditions can result in even lower oxygen levels in the blood while an individual sleeps, but it is still unclear whether the two respiratory conditions lead to worse health impacts compared to each condition separately. In general, patients with COPD often report greater sleep disturbances than individuals without COPD, including interrupted sleep and less deep sleep.

Medication Reconciliation

Since patients may manage a large quantity of pharmacologic treatments for multiple conditions, medication reconciliation is a critical component of COPD management. Patients should take the correct medications at the appropriate dosages and frequencies. For example, it is important that patients stop taking certain medications when directed or that they not accidentally take someone else's medication. In addition, some medications may produce adverse effects when combined, so it is important that healthcare providers keep an accurate and updated record of a patient's prescription medications to avoid medication-related complications.

Using Patient Navigation for COPD

Care coordination is a critical element of COPD management and treatment, due to both the variety of treatment models that are often employed in tandem for COPD care and the comorbidities that COPD patients typically experience. As such, patient navigation is a promising approach to supporting COPD patients as they navigate and adhere to treatment.

Patient navigators help individuals track their appointments and reconcile their medications across multiple healthcare settings, which can encourage adherence and ensure safety. Navigation is particularly useful in the context of multiple comorbidities because patients may have many appointments with different healthcare providers and various combinations of medications could result in complications.

Resources to Learn More

Starting a COPD Navigator Program

Document

Explores the role of a chronic obstructive pulmonary disease (COPD) navigator in supporting patient care and reducing hospital readmissions. Provides examples of the work being done by COPD navigators in a variety of settings.

Author(s): Spear, L.

Citation: RT: For Decision Makers in Respiratory Care

Date: 4/2019

Access to Specialty Care for COPD

While primary care providers are a critical component of COPD care coordination, specialty pulmonary services are necessary for comprehensive treatment. The most common specialty service is pulmonary rehabilitation, which includes exercise interventions and consultations with respiratory therapists or dietitians. In more extreme cases, COPD patients may require lung surgery if medications or pulmonary rehabilitation are not effective. In addition, COPD patients may require specialty care services for other commonly comorbid conditions, such as cardiovascular services for heart disease or dialysis services for diabetes.

However, there is often a lack of specialty pulmonary services for COPD in rural communities. As such, rural patients may need to travel substantially farther than their urban counterparts to receive care. Limited access to specialty care can negatively impact COPD treatment adherence and disease management. Programs that operate remotely to engage with patients in hard-to-reach areas could help increase access to care within resource-constrained settings. For example, the Bay Rivers Telehealth Alliance's Bridges to Care Transitions program supports the implementation of remote patient monitoring devices in conjunction with coaching for patients with COPD. Programs that incentivize specialty providers to practice in rural communities could increase access to specialty care services for COPD among rural patients. The Rural Healthcare Workforce and Recruitment and Retention for Rural Health Facilities topic guides have additional information on recruitment and workforce initiatives.

Resources to Learn More

Availability of Respiratory Care Services in Critical Access and Rural Hospitals
Document
A policy brief discussing the availability and importance of respiratory care services and respiratory therapists in rural settings.
Author(s): Casey, M., Evenson, A., Moscovice, I., & Zhengtian, W.
Organization(s): University of Minnesota Rural Health Research Center
Date: 6/2018

Increasing COPD Care with Telehealth

Telehealth services can increase rural residents' access to COPD care when they otherwise would experience barriers to accessing specialty respiratory care due to distance. Patients can review and improve many self-management practices with their primary care provider or a respiratory therapist via telehealth. For example, patients can accomplish the following through video appointments:

- Discuss their self-management plan with their provider
- Review how to accurately use an inhaler, practice, and receive feedback on proper use
- Upon presentation of a COPD exacerbation, describe their symptoms to a provider to determine whether they should go to the emergency department or if they can manage it themselves, such as by taking emergency antibiotics
- Engage in a follow-up visit with a patient navigator

Digital connectivity has increased treatment options for patients in hard-to-reach areas. For example, online programs can facilitate participation by rural residents. A study of an internet-based walking program for patients with COPD suggests that remote options can help recruit hard-to-reach residents, such as those living in rural or remote areas.

Telehealth can also be used to advance patient education. The University of Virginia is developing a series of educational videos on a variety of topics about COPD management that patients can access through a low-bandwidth platform. Local providers will determine the video topics to respond to local needs; education may focus on smoking cessation, pulmonary rehabilitation, and comorbidities like lung cancer and sleep apnea. This telehealth program allows patients to learn about different components of their diagnosis regardless of their distance from a specialty care provider.

Telehealth reimbursement is currently limited in comparison to services provided in person and varies by state and type of insurance, but there are increased efforts to expand reimbursement policies and increase access to telehealth services. In May 2019, the Better Respiration through Expanded Access to Tele-Health (BREATHE) Act was introduced to the U.S. Congress. This bill would allow respiratory therapists to deliver care management services via telehealth to select Medicare beneficiaries with COPD.

It is important to note that not all rural residents may have the technological capacity to take advantage of telehealth services. In addition, some components of COPD treatment inherently require in-person visits, like lung function measurement or physical pulmonary rehabilitation activities. Nonetheless, telehealth is a promising approach for certain components of COPD treatment that warrants further exploration.

For more information, please see RHIhub's Rural Telehealth Toolkit and Telehealth and Health Information Technology in Rural Healthcare topic guide.

Resources to Learn More

How Telemedicine is Transforming Treatment in Rural Communities

Document

Discusses the role of telemedicine and in-home monitoring of patients with chronic conditions such as COPD to increase contact with their care team and avoid hospitalizations.

Author(s): Ripton, J.T. & Winkler, S.

Date: 4/2016

Using Video Telehealth to Facilitate Inhaler Training in Rural Patients with Obstructive Lung Disease

Document

A study of telehealth inhaler training sessions for rural patients comparing techniques and reporting patient satisfaction.

Author(s): Locke, E., Thomas, R., Woo, D., Nguyen, E., Tamanaha, B., Press, V., Reiber, G., Kaboli, P., & Fan, V.

Citation: Telemedicine and e-Health, 25(3)

Date: 3/2019

Transportation Considerations for Implementing COPD Programs

Transportation presents a critical challenge to COPD treatment in rural communities. Rural communities are often more geographically dispersed compared to urban areas, so there may be longer distances between an individual's home and healthcare settings. In addition, lower-resource rural communities often have fewer specialty respiratory care services, so rural residents may need to travel outside of their regions to urban or suburban communities to access care. The National Advisory Committee on Rural Health and Human Services policy brief, Addressing the Burden of Chronic Obstructive Pulmonary Disease (COPD) in Rural America, highlighted distance and transportation as particular burdens in the management of rural COPD, citing findings that in 2013 only 34.5% of rural residents had access to a pulmonologist within 10 miles, compared to 97.5% of urban residents. Longer distances create additional time and resource burdens for patients traveling to primary care or pulmonary rehabilitation appointments for COPD.

In addition, not all COPD patients are able to drive. Some may depend on caregivers for transportation. Others may rely on public transportation between appointments; however, there is limited public transportation infrastructure within and across rural areas, in addition to limited service during severe weather. Also, patients with more severe COPD may struggle to access bus stops or train stations due to decreased physical mobility and difficulty breathing. Primary care and specialty respiratory providers can help increase patient access to COPD services by providing transportation services.

For more information, please see RHIhub's Rural Transportation Toolkit.

Addressing Hospital Readmissions and Emergency Department Visits for COPD Patients

COPD exacerbations are acute events in which disease symptoms become more severe than usual, including shortness of breath from routine activities and excessive coughing. Patients experiencing exacerbations typically a) visit the emergency department and may be admitted to the hospital and b) are readmitted to the hospital shortly after discharge. Such service utilization is a hallmark challenge of COPD management. Providers often examine rates of emergency department visits and hospital readmissions among their COPD patients to determine how well the condition is controlled, since well-maintained COPD typically does not flare up and require emergency services.

Due to the high cost of emergency department services and hospitalizations and the fact that COPD exacerbations are typically preventable, many programs focus on preventing emergency department visits and hospital (re)admissions. Such programs help patients maintain their COPD through wellness practices and care management to prevent exacerbations. Patients should work with their healthcare providers to create an action plan as a method of self-managing COPD. Action plans may include directions for taking emergency antibiotics and steroids, or "rescue packs" that contain a five-day course that patients can start if they begin to feel an exacerbation and are unable to get to a healthcare provider or hospital in a reasonable amount of time. This is critical for rural patients, who may not be able to easily access a hospital. As such, efforts to reduce emergency department visits and hospitalizations typically take place outside of the inpatient setting.

Resources to Learn More

Insights about the Economic Impact of COPD Readmissions Post Implementation of the Hospital Readmission Reduction Program

Document

A review of the literature published between 2016 and 2017 discussing the direct and indirect financial savings in COPD readmission costs after the implementation of CDC's Hospital Readmissions Reduction Program (HRRP).

Author(s): Press, V, Konetzka, RT, & White, S.

Citation: Current Opinion in Pulmonary Medicine, 24(2), 138-146

Date: 3/2018

Specific Population Considerations for Implementing COPD Programs

COPD disproportionately impacts specific populations. Knowing which subpopulations are at higher risk for COPD helps practitioners target the appropriate populations and tailor their programs to high-risk patients.

Older Adults

COPD is characterized by declining lung function, which is often caused or amplified by old age. As individuals grow older, their overall health status tends to decline and their level of physical functioning decreases. In addition, older adults face the cumulative impacts of risk factors. For example, an individual who has smoked cigarettes for 30 years will manifest greater signs of lung damage due to tobacco smoke compared to an individual who has only smoked for five years. It is critical that providers screen older adults for COPD to capture cases as early as possible.

Women

Based on self-reported data from the 2013 Behavioral Risk Factor Surveillance System, age-adjusted prevalence of COPD is higher among women (6.6%) than men (5.4%).

Women may be more susceptible to developing COPD and may experience more severe symptoms than men. Women diagnosed with COPD report more exacerbations and are more likely to have never smoked. In general, women diagnosed with COPD are younger, smoke less, have a lower body mass index, and are more likely to be of lower socioeconomic status than men diagnosed with COPD.

A 2017 review of the literature highlighted several key differences between COPD in men and women. The authors listed the following key suggestions for improving the management of COPD in women:

- Use a multi-faceted approach, including targeted educational awareness campaigns, that recognize the differences in risk factors for COPD between men and women
- Continue research into the sex differences in both symptoms and presentation of COPD
- Address and reduce bias in diagnosing COPD, including spirometry and succinct history-taking of patients
- Continue research on how interventions may be tailored to fit women's needs, including how to treat their distinct comorbidities

Low Socioeconomic Status

Tobacco use as well as employment in occupations with higher risks of exposures to lung irritants — both risk factors for COPD — are more prevalent among economically

disadvantaged populations. Individuals with low-incomes not only face increased exposure to COPD risk factors, but they face more barriers in accessing and affording treatment. COPD management typically requires a multi-pronged approach that includes prescription medications, pulmonary rehabilitation, and regular appointments with providers. It can be expensive to adhere to all treatments to appropriately maintain the disease, and COPD patients with low-incomes may not be able to afford treatment for all of their comorbid conditions. For example, individuals with low incomes who have COPD may need to prioritize paying for hypertension medication or insulin for diabetes instead of their COPD medication.

Industrial and Agricultural Workers

Individuals who work in agriculture and the manufacturing, construction, and mining industries — which are more common in rural areas than urban areas — are regularly exposed to lung irritants that increase risk for COPD. There is no safe level of exposure for most irritants, but lifelong career exposure puts an individual at particularly high risk for COPD. One study found that individuals who were exposed to vapors, gases, dusts, and fumes during the longest job they ever had held had two times higher odds of developing COPD, controlling for cigarette smoking; this trend also occurred among people who had never smoked. When those occupational exposures were combined with past or current smoking, individuals faced a 14 times higher odds of developing COPD compared to people who never smoked and never faced occupational exposures. Interventions to reduce exposure to harmful lung irritants — such as worker education about how to use personal protective equipment (PPE) appropriately and programs to support consistent PPE enforcement — or COPD screening initiatives that target individuals with occupational exposures could be beneficial. COPD is often comorbid with mood disorders like anxiety and depression, so holistic approaches to care for workers in high-stress occupations can help improve overall patient well-being.

People with Disabilities

Beyond barriers to COPD treatment adherence such as a large number of appointments to attend and a lack of transportation, people with disabilities often face unique barriers to accessing care. People with physical disabilities may need additional accommodations to arrive at appointments or face challenges in completing treatment, such as using machines for supplemental oxygen. People with intellectual and developmental disabilities may depend on caregivers to accompany them to appointments, administer treatments, or help manage their care coordination. It is critical that providers are aware of any COPD patients' needed accommodations and that they create an accessible and comfortable environment for all patients.

American Indians and Alaska Natives

In 2013, American Indians and Alaska Natives (AI/AN) had the second highest COPD prevalence among stratified racial and ethnic groups (10.2%), behind individuals who identified as non-

Hispanic and multiracial (10.7%). The AI/AN COPD prevalence was nearly twice as high as that of their non-Hispanic White (6.3%), Black (6.5%), and Native Hawaiian/Pacific Islander counterparts (6.2%). One reason for this high prevalence is smoking: In 2015, the AI/AN population had the highest adult and adolescent cigarette smoking prevalence in the country (21.9% and 7.5%, respectively).

Resources to Learn More

Faces of Work-Related COPD

Video/Multimedia

A series of videos featuring a pulmonologist and individuals diagnosed with COPD as a result of occupational exposures. Videos discuss the role of work-related exposures, how COPD impacts quality of life, and how workers can minimize their risk for developing COPD.

Organization(s): CDC National Occupational Research Agenda, Respiratory Health Cross-Sector Council
Date: 5/2019

Rural Residence and Poverty Are Independent Risk Factors for Chronic Obstructive Pulmonary Disease in the United States

Document

Study of a nationally representative sample determining that both rural residence and poverty were independent risk factors for COPD, even among people who never smoked.

Author(s): Raju, S., Keet, C., Paulin, L., Matsui, E., Peng, R., Hansel, N., & McCormack, M.
Citation: American Journal of Respiratory and Critical Care Medicine, 199, 8
Date: 5/2019

Module 5: Evaluation Consideration for COPD Programs

Evaluation is a tool for measuring a program's impact and providing information on where to make improvements. Careful evaluation of programs designed to prevent and manage chronic obstructive pulmonary disease (COPD) is critical to ensuring that the programs are achieving their desired objectives and goals.

This module provides methods and considerations for conducting evaluations of programs designed to prevent and manage COPD.

For a detailed overview of program evaluation, see the Conducting Rural Health Research, Needs Assessments, and Program Evaluations topic guide and Evaluating Rural Programs in the Rural Community Health Toolkit.

In this module:

Evaluation Questions for COPD Programs

A key component of designing an evaluation is determining what questions should be asked throughout the process. There are two types of questions to consider when evaluating quality of care: process and outcome. Process evaluation questions focus on clinical activities: whether or not the program is operating as planned and why. Outcome evaluation questions focus on the desired health result: health outcomes, hospitalization rates, behavior changes in patients, and improvement in patients' quality of life.

Examples of evaluation questions for COPD programs are provided below. For additional information about process and outcome evaluations, please see Evaluation Design in the Rural Community Health Toolkit.

Examples of Process Evaluation Questions

- Are evidence-based models being used?
- What COPD services are being delivered and to whom (smoking cessation, vaccinations, oxygen therapy)?
- What percentage of patients are receiving referrals to other services?
- What percentage of patients are being screened for ventilation failure?
- How frequently are patient action plans included in discharge instructions?

Examples of Outcome Evaluation Questions

- Has the program demonstrated improved and measurable health outcomes, such as improved pulmonary functioning?
- Did the population served experience reductions in hospital readmission rates?
- Did the population served experience a reduction in the average length of hospital stays?
- Did the population served experience reductions in emergency department visits?
- Did the population served experience a reduction in influenza infection rates?

Resources to Learn More

Research and Evaluation Tools
Website
Provides a variety of helpful tools and resources to use when developing an evaluation plan for chronic disease self-management programs.
Organization(s): Self-Management Resource Center

Evaluation Measures for COPD Programs

Having a common set of performance measures can help the project team move toward the same goals. Baseline and interval measures can be used to monitor the effectiveness of program activities and document changes in the target population over time. The measures used to evaluate rural COPD programs vary depending on the program model and its goals.

Process measures focus on how COPD services are provided. Examples of process measures related to COPD programs include:

- Number of patients enrolled in the program
- Number of patients referred to pulmonary rehabilitation
- Number of patients completing the pulmonary rehabilitation program
- Number of participants referred to the tobacco cessation quitline
- Number of healthcare providers trained on assessing inhaler technique
- Number of staff members who attended a COPD presentation
- Number of steering committee meetings held

Outcome measures focus on health outcomes and the overall results of the program. Examples of outcome measures related to COPD include:

- Percentage of patients screened for tobacco use
- Percentage of tobacco-using patients who received tobacco cessation counseling intervention
- Percentage of patients who received a flu vaccine or who reported already receiving a flu vaccine
- Percentage of patients aged 65 or older who received a pneumonia vaccine or reported already receiving a pneumonia vaccine
- Percentage of patients with a COPD diagnosis who have documented results from spirometry
- Percentage of patients with a diagnosis of COPD and an FEV1/FVC ratio of < 70% and who have symptoms who were prescribed an inhaler

It is important to note that patients with COPD frequently have comorbid conditions like heart disease, mood disorders, lung cancer, and other illnesses. These conditions, along with the extensive medication regime COPD patients typically must follow, can impact COPD health outcome measures.

Additional information on identifying strategies and measures for gathering appropriate data and evidence can be found in the Rural Community Health Toolkit.

Resources to Learn More

Chronic Obstructive Disease Program Implementation Guide

Document

A guide for hospital care providers and stakeholders to improve the quality of care for COPD inpatients. Identifies best practices in COPD care, offers advice on obtaining organizational support, and recommends measures to incorporate into an evaluation plan.

Organization(s): Society of Hospital Medicine, Center for Hospital Innovation & Improvement

Validated Data Collection Tools for COPD Programs

COPD programs may need to collect different types of data in order to effectively evaluate program efforts. The program may be able to use existing data from a variety of sources, including electronic medical records. The Finding Statistics and Data Related to Rural Health topic guide provides information on finding data sources relevant to local programs.

If new data must be collected, there are several validated data collection tools available, including but not limited to the following:

- The BODE Index for COPD Survival (BODE Index) – The BODE Index is used to predict survival in COPD patients and should not be used for determining therapy options. It incorporates body mass index (BMI) and a six-minute walk test, so it should not be used during an acute exacerbation. The BODE Index is also a good predictor of hospitalizations related to COPD.
- The COPD Assessment Test (CAT) – The CAT is an eight-question, patient-completed questionnaire used to assess the impact of COPD on quality of life. The questionnaire evaluates cough, sputum, breathlessness, chest tightness, confidence, activity, sleep, and energy level to help the patient's healthcare provider determine appropriate treatment strategies. The CAT is recommended by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) treatment guidelines.
- The Clinical COPD Questionnaire (CCQ) – The CCQ is a 10-item questionnaire used to assess COPD symptoms.
- GOLD Criteria for COPD – The GOLD Criteria is used to determine the severity of COPD. The GOLD Criteria act as a framework that can prompt disease management or risk reduction efforts; the score can be linked to recommendations for treatment.
- The Modified Medical Research Council (mMRC) Dyspnea Scale – The mMRC is used in patients with respiratory diseases and dyspnea (shortness of breath) to assess their baseline lung functioning. The mMRC is recommended by GOLD.
- The Patient Health Questionnaire (PHQ-9) – The PHQ-9 is a self-administered questionnaire used to assess the severity of depression, a common comorbidity with COPD.
- The Patient Activation Measure (PAM) – The PAM survey is used to assess patient knowledge, skill, and confidence for self-management of COPD.

Resources to Learn More

Research and Evaluation Tools
Website
Provides a variety of helpful tools and resources to use when developing an evaluation plan for chronic disease self-management programs.
Organization(s): Self-Management Resource Center

Module 6: Funding and Sustainability of Rural COPD Programs

It is important to consider sustainability early in the planning stages of chronic obstructive pulmonary disease (COPD) programs and to incorporate sustainability strategies throughout implementation. This module discusses key issues for sustainability planning and highlights several strategies for sustainability.

For sustainability strategies that would apply to any type of program, see Planning for Funding and Sustainability in the Rural Community Health Toolkit.

In this module:

Importance of Sustainability Planning for COPD Programs

To achieve sustainability, rural COPD programs often need to demonstrate that the program has had a measurable impact on the lives of people served, the health system implementing the program, and the overall community. Long-term sustainability also depends on successful implementation of COPD-related services. Evaluation activities can help demonstrate this value by tracking progress on process and outcome measures of COPD programs.

The Center for Public Health Systems Science developed the Program Sustainability Assessment Tool to provide a reliable assessment instrument that has demonstrated effectiveness when used with chronic disease programs. The tool helps users assemble a sustainability planning team, review sustainability efforts, prioritize actions, write an action plan, and implement the action plan.

Rural programs interviewed for this toolkit repeatedly mentioned similar key considerations for encouraging sustainability:

- Establish a strong and engaged steering committee
- Establish solid partnerships in the community
- Maintain open and honest lines of communications between stakeholders
- Market the services to community members, providers, and other stakeholders
- Demonstrate program outcomes using data
- Embrace flexibility when things do not go as planned

Resources to Learn More

Assessing Capacity for Sustainability of Effective Programs and Policies in Local Health Departments

Document

This study examined a sample of local health departments to determine what aspects of sustainability planning led to sustainable programs.

Author(s): Tabak, R., Duggan, K., Smith, C., Aisaka, K., Moreland-Russell, S., & Brownson, R.
Citation: Journal of Public Health Management and Practice, 22(2), 129-37
Date: 3/2016

Sustainability Strategies for COPD

There are several strategies rural COPD programs are using to sustain programs that may be useful for rural healthcare systems and providers. The Rural Community Health Toolkit provides information about general Sustainability Strategies.

Reimbursement for COPD Services

Several rural COPD programs rely on reimbursements from Medicare, Medicaid, and private insurers to finance COPD programs.

The Centers for Medicare and Medicaid Services (CMS) plays a prime role as a major payer of COPD-related services for patients enrolled in Medicare and Medicaid. For example, Medicare Part B covers several COPD-related services such as pulmonary rehabilitation, smoking cessation, and oxygen therapy or oxygen equipment and accessories.

Some states have begun to pass legislation that expands the definition of "healthcare providers." For example, in January 2019, Ohio passed Senate Bill 265 allowing for the designation of pharmacists as healthcare providers. Pharmacist services that may now be covered include drug therapy management and vaccine administration. This designation will allow pharmacists new billing options in order to expand access to care for many patients.

Other Payment and Reimbursement Considerations

One of the most common goals of COPD programs is to reduce hospital readmission rates. In 2015, Medicare added COPD as a condition for the Hospital Readmissions Reduction Program, a value-based purchasing program that measures hospital performance using excess readmissions within a 30-day period. Many programs indicated that being able to demonstrate that their COPD-related efforts had reduced hospital readmissions created buy-in from the administration and senior staff. Additionally, the Merit-Based Incentive Payment System (MIPS) also includes COPD-related quality measures.

Of note, the National Advisory Committee on Rural Health and Human Services' Addressing the Burden of Chronic Obstructive Pulmonary Disease (COPD) in Rural America included three policy recommendations, two of which were related to payment rates and reimbursement:

1. “The Committee recommends the Secretary and the Department of Health and Human Services undertake a national campaign to educate rural primary care providers and individuals with COPD symptoms about rural-urban disparities in COPD outcomes with an emphasis on the need to do more screening and referral for effective treatments to help manage the disease.
2. The Committee recommends that prior to the next revaluation of outpatient prospective payment rates, the Department of Health and Human Services consult with experts in pulmonary treatment to refine the definition of rehabilitation services and, in Medicare cost reports, confirm that there is adequate accurate data on this service to be used as a basis for the rate.
3. The Committee recommends the Secretary work with Congress to expand direct supervision of pulmonary rehabilitation to include physician assistants, nurse practitioners and other primary care providers under general supervision of a physician.”

Resources to Learn More

Identifying Patients with COPD at High Risk of Readmission

Document

Discusses hospital readmission rates within 30 days of discharge for COPD patients and determines risk of readmission by tracking a variety of demographic data, including age, comorbidity status, and payer type.

Author(s): Simmering, J., Polgreen, L., Comellas, A., Cavanaugh, J., & Polgreen, P.

Citation: Chronic Obstructive Pulmonary Diseases, 3(4), 729-738

Date: 5/2016

Grant Funding for COPD Programs

Rural programs frequently rely on grant funding from federal agencies, state agencies and associations, and philanthropic organizations in order to sustain COPD programs.

More information about building relationships with various philanthropies and grant makers can be found in A Guide to Working with Rural Philanthropy.

Federal Agencies

Rural programs often rely on federal grant programs to implement and sustain COPD programs. The National Heart, Lung, and Blood Institute's *COPD Learn More Breathe Better®* 2020-2021 Community Subcontractor Program offers funding to organizations across the U.S. to improve COPD program efforts in a variety of settings.

The Centers for Disease Control and Prevention's National Center for Chronic Disease Prevention and Health Promotion provides funding to a wide variety of organizations including state and local health departments, community organizations, and foundations to implement chronic disease programs. The website maintains a list of current funding opportunities as well as other resources.

State Agencies and Associations

Each state varies in the opportunities its agencies and associations offer to rural programs. RHIhub provides a list of active and inactive funding opportunities by state. Opportunities for COPD program funding may also be found through general searches related to:

- Smoking and tobacco use
- Chronic disease prevention and management
- Occupational exposures like farming and coal mining
- Transportation barriers
- Access to specialty care

Foundations and Nonprofit Organizations

Many foundations and nonprofit organizations provide funding or other resources to implement, expand, or sustain rural COPD programs. Foundations may have a variety of interests ranging from improving access to care in underserved areas, to improving health outcomes among specific populations, to supporting innovative healthcare delivery models. Foundations and nonprofit organizations funding rural COPD programs or research include:

- COPD Foundation
- CHEST Foundation
- Dorney-Koppel Foundation
- Hearst Foundations

- Kate B. Reynolds Charitable Trust
- Leona M. and Harry B. Helmsley Charitable Trust
- Patient-Centered Outcomes Research Institute (PCORI)
- Robert Wood Johnson Foundation

RHIhub provides a list of active and inactive funding opportunities related to chronic respiratory conditions and chronic disease management.

Module 7: Dissemination of Rural COPD Program Best Practices

Community-wide dissemination efforts are essential to ensure the success of COPD programs. Through dissemination, rural communities can learn from the experiences of others and incorporate promising strategies.

For more information on how to share your program's results, see Disseminating Best Practices in the Rural Community Health Toolkit.

In this module:

Dissemination Audiences for COPD Programs

A number of audiences may benefit from learning more about rural COPD programs. Target audiences should include individuals both internal and external to the program. Sharing information with internal audiences can increase buy-in and support for the COPD program — both of which are important for success and sustainability. For example, leadership, staff, healthcare providers, and other employees should be informed that the COPD program is available and how it is being implemented within the organization. Sharing information with external audiences can ensure broad awareness of the COPD program. External audiences should be informed of the potential benefits of the COPD program and ways they can access services for their own patients, family members, and others in the community.

For a general list of key audiences for dissemination, see Methods of Dissemination in the Rural Community Health Toolkit.

Other key audiences for disseminating information about rural COPD programs include:

- Hospital/medical center administrative leadership and staff
- Hospital/medical center healthcare providers and support staff
- Other healthcare centers and clinics in the community
- Health insurance providers and health plans
- State and local health departments
- Local councils on aging
- Local faith-based organizations
- Prospective patients and their families
- Community members and the general public
- Funders of rural COPD and chronic disease programs
- The regional Quality Innovation Network-Quality Improvement Organization
- Local, state, and federal policymakers

Dissemination Methods for COPD Programs

It is important for rural programs to share with other organizations and the broader community information about their COPD program, including experiences with implementation, outcomes, and lessons learned.

The best methods for sharing information about COPD programs depend on the intended audience. Common methods of dissemination that rural COPD programs use include:

- National, state, and local COPD events. For example, events related to COPD Awareness Month.
- Posters or oral presentations at conferences
- Radio or television broadcasts
- Newspaper or print ads
- Articles in organizational newsletters or professional organization publications
- Print materials (flyers, information sheets, brochures)
- Direct (mailed) marketing
- Webinars
- Social media
- Sponsored events like health fairs and farmers markets
- Personal contact
- Word of mouth
- Online forums
- Video or in-person demonstrations

Resources to Learn More

Dissemination of Rural Health Research: A Toolkit

Document

Offers advice to researchers on developing and distributing products of health research findings including fact sheets, journal articles, policy briefs, infographics, PowerPoint presentations, and other promotional products. Modes of dissemination are also included.

Author(s): Schroeder, S. & Bauman, S.

Organization(s): Rural Health Research Gateway, University of North Dakota Center for Rural Health

Date: 2019

Talking Quality: Reporting to Consumers on Health Care Quality

Website

Provides an extensive list of resources and guidance to assist healthcare organizations in producing and disseminating reports targeted to consumers about the quality of healthcare delivered by their programs.

Organization(s): Agency for Healthcare Research and Quality

About this Toolkit

Toolkit Development

The *Rural Chronic Obstructive Pulmonary Disease Toolkit* was first published on 10/14/2019.

Toolkits are developed based on a review of FORHP grantees' applications, foundation-funded projects, and an extensive literature review, to identify evidence-based and promising models. Programs featured in the toolkit were interviewed to provide insights about their work and guidance for other rural communities interested in undertaking a similar project.

Credits

This toolkit was produced by the NORC Walsh Center for Rural Health Analysis in collaboration with and the Rural Health Information Hub (RHIhub).

Contributors from the NORC Walsh Center for Rural Health Analysis include Shannon Gonick and Patricia Stauffer.

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- Meredith McCormack, Johns Hopkins Medicine
- Antonello Punturieri, National Heart, Lung, and Blood Institute

Contact

For questions or comments about the toolkit, or for further assistance with using the toolkit, please contact:

- RHIhub at 1-800-230-1898 or email info@ruralhealthinfo.org

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