

# South Carolina COPD Strategic Plan

## April 2016



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## Introduction

Chronic obstructive pulmonary disease (COPD) is the third leading cause of death in South Carolina and affects approximately 15 percent of the adult population. Unfortunately, recent data suggests that almost half of the COPD-affected population in South Carolina remains undiagnosed. Despite good evidence-based guidelines for optimal care of COPD, the diagnosis, management, and outcomes for the disease are suboptimal and care is too often fragmented. Although tobacco cessation and avoidance are slowly advancing in South Carolina, 20 percent of COPD occurs in non-smokers, and this percentage will likely increase in the coming years. Therefore, a strategic plan must include other initiatives in addition to smoking cessation.

COPD is a disease that reflects notable disparities in South Carolina: less than 50 percent of COPD patients completed high school, and African-American males are a group with relatively high rates of undiagnosed disease. Individuals who have COPD need a variety of services to optimize their care, including access to medications, durable medical equipment providers, pulmonary rehabilitation services, and knowledgeable health care providers who understand and screen for the co-morbidities frequently associated with COPD.

This document was developed by a multidisciplinary group of health care providers, public health practitioners, and patients, as such a combined approach is imperative to target this disease. The SC Strategic COPD Plan was designed to advance the diagnosis and management of COPD in the state over the next five years and was done under the auspices of the National Heart, Lung, and Blood Institute (NHLBI) “Learn More, Breathe Better” COPD awareness campaign.



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# 2013 South Carolina Governor's Proclamation for COPD

## State of South Carolina Governor's Proclamation

**WHEREAS,** chronic obstructive pulmonary disease (COPD) is a term used to refer to a group of diseases that cause airflow obstruction and breathing related problems, including emphysema, chronic bronchitis and, in some cases, asthma; and

**WHEREAS,** in 2011, chronic lower respiratory diseases, primarily COPD, was the third leading cause of death nationally and the fourth in South Carolina; and

**WHEREAS,** more than 12 million people in the United States, including 7.5 percent of South Carolina adults, have been diagnosed with some form of COPD, and it is estimated that another 12 million people with forms of the disease are undiagnosed; and

**WHEREAS,** a leading cause of disability nationwide, COPD hospitalization cost more than \$300.6 million in South Carolina in 2012 not including other costs such as lost wages or productivity; and

**WHEREAS,** awareness, early detection, and treatment are crucial to reducing the incidence and slowing the spread of chronic obstructive pulmonary disease.

**NOW, THEREFORE, I, Nikki R. Haley, Governor of the Great State of South Carolina, do hereby proclaim November 2013 as**

### CHRONIC OBSTRUCTIVE PULMONARY DISEASE AWARENESS MONTH

throughout the state and encourage all South Carolinians to learn more about this disease and the importance of respiratory health to the well-being of our citizens.



Handwritten signature of Nikki R. Haley in black ink.

**NIKKI R. HALEY**  
GOVERNOR  
STATE OF SOUTH CAROLINA

## Executive Summary

Chronic obstructive pulmonary disease (COPD) is the third most frequent cause of death in the State of South Carolina. COPD has a tortured history in South Carolina: Tobacco was once an economic engine for the state. However, with cigarette smoking rates only slowly declining, COPD is projected to remain a costly cause of morbidity and mortality for the next three decades, with the majority of those costs affecting rural communities where tobacco was once king. Hidden within these statistics is the fact that at least 20 percent of COPD is not caused by smoking. The next generation of non-smoking patients with COPD will be impacted by chronic inadequately treated asthma, childhood lung diseases that burden adult lung function, workplace exposure to fumes and occupational particulates, and more completely understood genetic susceptibility diseases.

Today, COPD is common. The 2013 Center for Disease Control Behavioral Risk Factor and Surveillance Survey (BRFSS) included South Carolina COPD modules that recorded COPD prevalence at 9.1 percent for adults older than 35; 9.4 percent for adult women; 13.7 percent among those age 65 or older; and 25.6 percent in adults over 45 years old with at least a 30-pack/year history of tobacco smoking (Liu, et al., 2015, Pleasants, et al. 2015). These rates are significantly higher than national averages. In addition, 8 percent of adults in South Carolina over age 35 have a cough, wheezing or dyspnea, have smoked for at least 10 years are characterized as “high risk” for COPD. These individuals have never been tested for COPD and do not know that they have the disease. Under-diagnosis is common.

COPD is costly. \$1.9 billion is spent annually in direct health care costs caused by smoking tobacco products (Xu, et al., 2014). In 2014, there were 10,140 COPD-related hospitalizations and 41,546 COPD-related emergency department admissions in South Carolina (SC RFAO, 2014). In 2014, \$527 million was spent in COPD-related hospital and emergency department visitation costs (SC RFAO, 2014). These costs impact hospitals, municipalities, insurance premiums, households, and individuals with and without medical insurance.

This document was prepared with a grant from the National Institute of Health “Learn More, Breathe Better” Campaign. The grant, written by COPD experts from North Carolina who completed a similar process a few years ago, proposed to develop a strategic plan for COPD prevention, awareness, diagnosis, and treatment in South Carolina. The opportunity to learn from regional colleagues, foster shared programs on education and, most importantly, advance the care of South Carolina COPD to benefit patients with this burdensome disease was compelling. The document was assembled by volunteer efforts of a multidisciplinary team of people who touch patients with COPD in daily life.

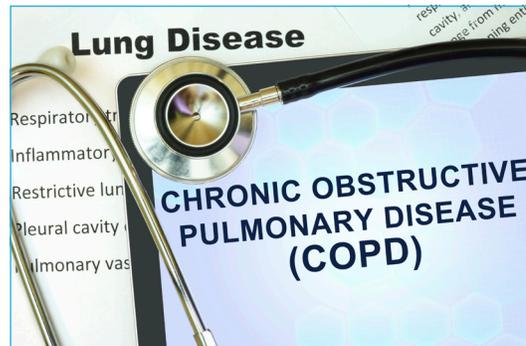
As with any strategic plan, the goals always exceed current resources. However, we provide a vision to advance multidisciplinary care for a disease that requires multiple providers in a health care environment that is increasingly difficult to navigate for individuals with the worst diseases. Medication costs that contribute to non-compliance, inadequate use of current resources that can improve diagnostic and management outcomes, and over reliance on short-term solutions to chronic diseases are barriers to care that have evidence-based solutions.

Specifically, the goals of the document are divided into sections on COPD prevention, awareness, diagnosis, management, and outcome assessments. Prevention is the most cost-effective solution. If strong laws are enacted to adequately resource proven strategies to limit cigarette access to youth and to increase efforts at smoking cessation in those who currently smoke, then COPD is lessened in incidence and severity. Separate prevention initiatives on vaccination are designed to lessen the incidence of acute exacerbations (flares) of COPD. The specific **Prevention Objectives** proposed are to:

1. *Raise awareness among COPD patients and their health care providers of available tobacco cessation interventions (state and local resources).*
2. *Increase access to evidence-based tobacco cessation treatments and counseling for COPD patients.*
3. *Support quality care initiatives concerning tobacco use screening and cessation, such as standards set by the U.S. Centers for Medicare and Medicaid Services (CMS) and The Joint Commission.*
4. *Promote tobacco quit attempts and cessation through and by community-based organizations, workplaces, prisons, and existing health care programs, particularly those serving disparate persons, minorities, and other vulnerable populations.*
5. *Increase the percentage of pulmonologists and other health care providers who ask, advise and refer their COPD patients to evidence-based tobacco cessation treatment.*
6. *Increase public awareness regarding the role of environmental tobacco smoke on children in the development and worsening of both COPD and asthma.*
7. *Promote clean indoor and outdoor air quality in the environment.*
8. *Increase public awareness of the importance of receiving influenza , pneumococcal, and pertussis vaccinations in patients with lung diseases, including COPD.*
9. *Increase the vaccination rates in the COPD population for influenza, pneumococcal, and pertussis*

*based on published guidelines including the GOLD COPD guidelines and the CDC.*

COPD is not a household word for a disease that is the third most common cause of mortality in South Carolina. Cough from cigarette smoking is often not recognized as the beginning of disease onset. Shortness of breath with exercise or carrying a load is often dismissed as part of normal aging. Wheezing is often seen in other diseases such as asthma and congestive heart failure. Therefore, awareness and COPD detection are intimately related



topics. More specifically, awareness relates to a state of public recognition of this costly disease. Many of the implementation strategies to improve awareness will be public health advertisements that drive affected individuals to knowledgeable health care practitioners. Knowledgeable health care practitioners will use spirometry, a test that assesses how well the lungs work, more frequently to accurately diagnose the disease and understand the nuances of COPD genetic risks, environmental causes, and clinical presentations.

Therefore, the **COPD Awareness Objectives** are to:

1. *Create a coalition to bring awareness of COPD to the general public in South Carolina.*
2. *Improve recognition in the primary care setting across the state.*
3. *Increase awareness of COPD symptoms and risk factors.*
4. *Understand the demographics of the COPD burden in South Carolina.*

And the **COPD Detection Objectives** are to:

1. *Expand the availability of spirometry.*
2. *Provide standardized spirometry and guidelines for the diagnosis and staging of COPD.*
3. *Increase testing for Alpha-1 antitrypsin deficiency.*

Once a COPD diagnosis is established, the barriers to effective therapy in today's health care systems add cost, time and ineffectual outcomes at many junctures. Evidence-based guidelines are available that are designed to treat the usual patient with COPD. Educational initiatives about those guidelines are limited.

There has never been better access to online literature directed at patients; however, the demographic affected by COPD includes disadvantaged populations that may not easily access this information or translate it into meaningful lifestyle lessons. Specific access to therapies that are proven to limit downstream costs and improve outcomes such as long-acting bronchodilators and pulmonary rehabilitation are subject to restrictive payer mandates that fail to account for other costs in the health care system. This is the longest section in the strategic plan to reflect where the most opportunities for improved care reside. Therefore, the **COPD Management Objectives** are to:

1. *Promote patient and health care provider education of and adherence to guideline-based best practice treatment plans for COPD.*
2. *Educate providers and patients regarding different phenotypes of COPD.*
3. *Promote education for providers about the importance and availability of pulmonary rehabilitation programs in South Carolina.*
4. *Educate providers on clinical trials for the treatment of COPD.*
5. *Promote optimal pharmacotherapy prescribing, use and compliance to improve the well-being of patients with COPD.*
6. *Identify and communicate community resources relevant for the care of COPD patients.*
7. *Communicate and encourage use of new evidence-based therapies.*

The goal of improved health for all of South Carolina has led to significant consternation of how to reach historically disadvantaged populations in rural corridors of the state. Unfortunately, these are the same populations that have high cigarette sales, low educational performance, high prevalence of COPD and the highest risk of undiagnosed COPD populations. Some of the proposed solutions to these problems include telemedicine initiatives, improved education of rural health practitioners, and direct-to-patient initiatives in these communities. A further complication of COPD in these communities is that the patient with lung disease has an increased chance of having other co-morbid diseases such as heart disease or diabetes compared to the general age and smoking matched population. Therefore, these patients are more complex to manage because of their co-morbidities and need special care. The objectives advanced to deal with **Special Populations** in the COPD community are to:

1. *Further identify, define and decrease disparities in COPD prevention, diagnosis and management in South Carolina.*
2. *Improve awareness of significant COPD co-morbidities to include implications on prevention, diagnosis, and management of the disease.*
3. *Target persons with or at-risk for the asthma COPD overlap syndrome (ACOS) or COPD and obstructive sleep apnea to improve outcomes.*

COPD outcomes can be measured in many ways. However, uniformity in data collection, appropriate measurement of valid data with direct linkage to patient health, and frequent measurement are hallmarks of a program that can define if resources applied to this large health care problem are having desired effects. Administrative databases based on claims data are not generally regarded as accurate in this disease that has greater than 12 different codes for differing phenotypes of disease. Therefore, access to South Carolina specific data from national survey instruments is preferred and should be continually monitored as available. Therefore, the objectives to improve **COPD Outcomes** are to:

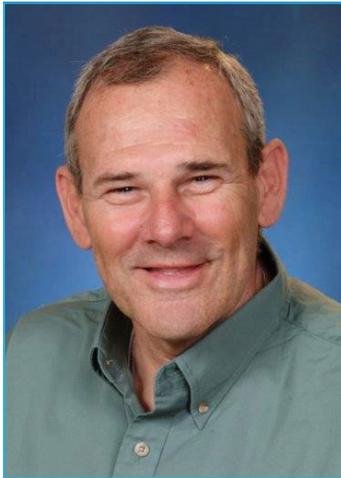
1. *Use state and national health databases to help monitor disease prevalence and outcomes in S.C. adults with COPD.*
2. *Encourage use and communication of current quality improvement measures regarding COPD.*
3. *Increase utilization of strategies that can be used to measure and monitor clinical outcomes in COPD patients.*

In summary, COPD will continue to be the third leading cause of death in South Carolina for many years. The costs associated with COPD are staggering and the disease impacts the economic, social and cultural fabric of the state. The status quo in which every patient with COPD is left to find their own resources and navigate a complex health care landscape costs the state immeasurably. For COPD, a disease that progresses for more than a decade on average before death, no care leads to higher costs of emergency room and hospital utilization, worse patient outcomes, and worse financial outcomes for the families affected. Furthermore, this is a disease of disparities in which those with less education and more rural sites of care have more disease and worse outcomes.

This strategic plan was generated by a cross-cultural and multidisciplinary group of individuals who hope that COPD care and prevention have a brighter future in South Carolina. They have all volunteered their time to share a vision in which South Carolina can be more healthy and prosperous. Unfortunately, the vision cannot be actualized without resources that target COPD prevention, detection and treatment strategies. Public funding, grants from federal, private and foundation sources, community resources, telemedicine initiatives, and donations of time, energy, and money from disease affected individuals are needed.

The goals articulated in this strategic plan are necessarily broad and optimistic. However, the need for comprehensive health care reform to address severe chronic diseases like COPD has never been greater. Please help the State of South Carolina realize the vision of improved health regarding chronic lung disease.

## Perspectives from the COPD Patient Community



### Jim Quill

I am from a family of five children who all have been diagnosed with COPD. My oldest brother was the first to be diagnosed at age 38. Although a smoker, he was considered very young to be diagnosed with severe emphysema. In spite of many visits to several physicians, endless treatments and medications, his condition continued to rapidly decline. Finally, at age 44, he found a physician who tested him for a rare genetic disorder known as Alpha-1 Antitrypsin Deficiency or “Alpha-1”. Alpha-1 is a genetic disorder that can cause liver disease in young children and liver/lung disease at any age. Unfortunately, at the time of his diagnosis, there were no options for treating the genetic root of his lung disease. He was seeking a lung transplant when he was also diagnosed with liver disease. He passed away at the young age of 46. In addition to my oldest brother,

other family members have succumbed to Alpha-1 related lung/liver disease (mother, brother, sister, nephew). My brother’s Alpha-1 diagnosis provided our family with the critical education needed for us to seek physicians who know the condition, who test for the condition, and who know how to treat it.

In 1980, I was tested and diagnosed with Alpha-1 at age 29. Although asymptomatic for several years, I began to experience shortness of breath in 1988 and was diagnosed with COPD due to Alpha-1. In 1992, I was placed on augmentation therapy to slow the disease process, began to use supplemental oxygen, and participated in pulmonary rehabilitation programs, disease management through AlphaNet, Alpha-1 support group opportunities, and Alpha-1 Foundation-related events to do all I could to stay as well as possible. In spite of my efforts, my condition continued to slowly deteriorate. In 2000, I was placed on a lung transplant waiting list at the University of Pennsylvania, and after waiting several years with extremely poor lung health, I received a bilateral transplant on May 31, 2006.

The transplant has provided me renewed health and a wonderful quality of life. However, it does present different challenges. I was unable to return to my career as an elementary school administrator due to the high risk of infection in that type of environment, and there is always the risk for rejection and other health-related issues due to the powerful transplant medications.

From my own personal experience as one who has Alpha-1, it is imperative that all those diagnosed with COPD be tested for this condition so that proper treatments, family testing and education can be accessed.



## Bill White

I am a 55-year-old man with Stage 4 COPD and emphysema. My FEV1 is 16 percent of normal. I was diagnosed with COPD in December of 2012, but continued to smoke. On May 31, 2014, I was admitted to the hospital with respiratory failure.

I have had to retire due to this condition and focus on maintaining the best quality of life I can. The problems that faced me initially after my lengthy hospital stay were trying to seek out effective support and rehabilitation. I now attend Better Breathers, which is supported by the American Lung Association. I also participate in pulmonary rehabilitation three times per week and on off days, I go to the local gym. I truly feel that without the exercise, I would not be here.

Patients are ultimately responsible for seeking out their own education and support system. We must also recognize the high financial cost of COPD, from the drugs that can cost upwards of \$300 per month to constant visits to the doctors.



## Marvin Sineath

Having been an athlete all my life and giving up smoking shortly after returning from Vietnam, at the age of 23 I never considered the thought that I might have COPD. I continued working out and playing football, basketball, and tennis. When I reached my mid-30s I started experiencing shortness of breath during the spring. I went to my family doctor and he tried using allergy medications to correct the problem. Over time, things worsened and he thought that since I ran my own small business and invested in real estate, that it might be more of a stress- or heart-related problem. He sent me for a stress test year after year and I always passed them with flying colors. He never recommended a lung doctor because he knew of my athletic involvement and that I had quit smoking so long ago. I suggested that I see a pulmonary doctor. He referred me and I was

diagnosed with Alpha-1 Anti-Trypsin Deficiency. I was shocked to find that I had emphysema and eventually was diagnosed with COPD.

All this took about 10 years to figure out. I was diagnosed at age 46. Since that time, members of my family have been tested and are carriers of Alpha-1 or did not tell me the results. None of them show any symptoms except allergies. My Father died at age 49 in 1959 of cirrhosis of the liver and he did not consume alcoholic beverages; we now know it was because of Alpha-1.

COPD is a killer and a terrible disease to deal with, but you have to exercise and pray hard to help yourself to help the doctors help you. I am a 68-year-old white male and I am still fighting this horrible disease. I have not had a lung transplant.

### **EDITOR'S NOTE:**

*Julie—Marvin's wife—is a caretaker for her husband. Having family and friends' support is immeasurable for those with COPD.*

## Perspectives from Health Care Providers

Physicians, nurses, nurse practitioners, physician's assistants, pharmacists, physical therapists, occupational therapists, respiratory therapists, caseworkers and palliative care providers comprise a multidisciplinary team providing health care for persons with COPD. Knowledgeable providers should recognize, diagnose, educate, and treat patients with COPD.



- Primary care providers, including family practitioners, internal medicine physicians, nurse practitioners, and physician's assistants, diagnose and manage more than two-thirds of all COPD patients and are critical to management of the disease. Although spirometry access, performance and interpretation is sometimes challenging for primary care providers, especially in rural areas, spirometry is the only currently validated way to establish a diagnosis of COPD.
- Pulmonary consultation should be considered in instances such as developing disease early in life, recurrent exacerbations or severe disease. Pulmonologists have advanced training and expertise in caring for patients with lung disease and will provide expert care, including diagnosis, management, and enrollment in clinical trials. The pulmonologist may provide an overarching care plan that can be overseen by the primary provider on a more frequent basis.
- Respiratory therapists treat hospitalized COPD patients using a variety of medications and therapeutics aimed at improving airway clearance, reducing bronchoconstriction, and reducing airway inflammation. Therapists also help COPD patients requiring assisted ventilation or recovering from surgical treatment. In the outpatient setting, respiratory therapists may assist in the diagnosis and monitoring of disease progression with pulmonary function testing (PFTs) and assist with bronchoscopic evaluations. Also, respiratory therapists assist with formulation of patient care plans, providing home care therapeutics, and educating about medication use, breathing techniques, tobacco cessation and management of daily activities of living.

- Pharmacists may work with patients in the community pharmacy, ambulatory care clinic, research, or hospital settings. Pharmacists dispense and provide counseling for medications, work with the patient, providers and insurance companies to coordinate affordable options, and assist with medication selection, and monitor drug therapies. Pharmacists may also promote tobacco cessation, optimize current drug therapies, provide inhaler teaching, and provide vaccinations.
- Occupational therapists can provide strategies that enable patients to carry out their daily activities and function at their highest possible level to improve quality of life. An occupational therapist will help the individual learn how to manage life's activities by slowing their pace and alternating rest and activity. They also instruct patients on how to conserve energy so that they are able to engage in purposeful functional tasks and/or social activities and live more active, fulfilling lives.
- Case managers assist the patient with coordinating care and facilitating transitions. They also connect patients with relevant resources in the community. These services may include, but are not limited to, referral to patient assistance programs providing low-cost drugs, housing and transportation options, and charitable organizations.
- Physical therapists design care plans that enable patients to reach and maintain their best physical condition. They may be part of the pulmonary rehabilitation team. Physical therapists use positioning, breathing exercises and therapeutic exercises as ways to help manage breathlessness associated with COPD. Physical therapists can also perform chest physical therapy to help clear patients' lungs. The goal of physical therapy is to progress functional mobility and restore quality of life.
- Palliative care providers may be engaged upon diagnosis to assist patients in achieving optimal quality of life while actively treating their COPD. Palliative care providers may also help patients and caregivers manage symptoms like pain and shortness of breath as well as proactively make decisions about end-of-life care and hospice care.

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*We welcome and encourage patients and families to be actively engaged partners in care.*

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## Perspectives from the Public Health Community

The role of public health is to bring together resources that improve and impact the well-being of the state's population. In South Carolina, legislated authority for public health rests with the Department of Health and Environmental Control (DHEC) whose mission is to promote and protect the health of the public and the environment. While many services at DHEC are regulatory in nature, other services are devoted to surveillance and tracking, prevention, intervention, and treatment of major chronic health conditions. Under the umbrella of Health Services, the Bureau of Community Health and Chronic Disease



Prevention offers programs that focus on preventing and reducing the incidence and prevalence of major chronic diseases, while promoting protective and lifestyle interventions that help manage these conditions and reduce the burden of direct and indirect health care costs and lost productivity to our state.

Early assessment of health problems and the implementation of evidence-based interventions are key drivers in public health practice. A comprehensive, multi-pronged public health approach is often needed when tackling the most serious chronic conditions; one that combines: (1) Prevention—proven efforts that reduce the likelihood of disease occurrence; (2) Policy—a set of guidelines, rules or procedures that are enacted to determine improved disease outcomes; and (3) Practice—systematic implementation of those evidence-based guidelines and protocols that are shown to help diagnose, treat and reduce the prevalence of disease.

Not enough is being done in South Carolina to address COPD from the public health perspective. As a progressive and costly disease, COPD greatly impacts the lives of individuals, families and entire communities. Successful public health interventions for COPD should include improving access to smoking cessation, protecting COPD patients from exposure to tobacco smoke and other environmental toxins or hazards in the home, workplace, or communities, and promoting preventive lifestyle interventions that can improve the quality of life for those living with COPD. Public health should also help educate the public about the disease.

## Burden and Impact of COPD in South Carolina

In 2000, an international survey on the impact of COPD in North America and Europe “confirmed the great burden to society and high individual morbidity associated with chronic obstructive pulmonary disease” (Rennard, 2002). Out of 201,921 randomly screened households, 3,265 self-reported that at least one occupant had COPD, chronic bronchitis, emphysema, or chronic respiratory symptoms, such as a productive cough or shortness of breath that limited physical activity. Over 35 percent of those under 65 years of age reported previous years’ work loss directly related to COPD. Additionally, 12.8 percent were hospitalized, 13.8 percent reported an emergency department visit within the last 12 months, and 61 percent reported taking medication due to COPD. Affected participants underestimated the severity of their disease, and COPD prevalence increased with decreasing socioeconomic status. Based on self-reported data, diagnosed COPD prevalence was estimated at 6 percent within the general U.S. population (CDC, BRFSS, 2013).

During the 2000 National Health and Nutrition Examination Survey (NHANES), 12.7 million Americans were diagnosed with COPD, and an additional 24 million showed evidence of pulmonary function impairment (ALA, 2013). National 2000-2010 COPD-related annual death rates were between 39.5 and 43.4 per 100,000 for the standard U.S. population. If age-adjusted to those over 18 years of age, COPD-related annual death rates were between 43-46 deaths per 100,000 individuals (ALA, 2013). Non-Hispanic white males displayed the highest average age-adjusted death rate at 53 per 100,000 and “other” women (Asian, mixed race) the lowest at 11 per 100,000 (ALA, 2013).

Chronic lower respiratory disease, primarily COPD, was the third leading cause of death in the United States in 2011 (Hoyert 2012), only marginally behind cancer and heart disease (ALA, 2013).

### For South Carolina:

- In 2013, COPD was the third leading cause of death in the state (CDC, MMWR, 2005).
- COPD prevalence was at 8.1 percent, compared with 6 percent nationally (CDC, BRFSS, 2013).
- COPD self-reported prevalence was highest among women at 9.4 percent (CDC, BRFSS, 2013).
- COPD prevalence was at 13.7 percent among those age 65 years or older (CDC, BRFSS, 2013).
- COPD prevalence was at 25.6 percent in adults over 45 years of age with at least a 30-pack/year history of tobacco smoking (Liu, et al., 2015).
- \$1.9 billion is spent annually in direct health care costs caused by smoking tobacco products (Xu, et al., 2014).

- 28.3 percent of the COPD population are current smokers (CDC, BRFSS, 2013).
- In 2014, there were 10,140 COPD-related hospitalizations and 41,546 COPD-related emergency department admissions (SC RFAO, 2014).
- In 2014, \$527 million was spent in COPD-related hospital and emergency department visitation costs (SC RFAO, 2014).
- COPD mortality is highest among non-Hispanic white males at 45 per 100,000 (ALA, 2013).

**Also for South Carolina, those with COPD were:**

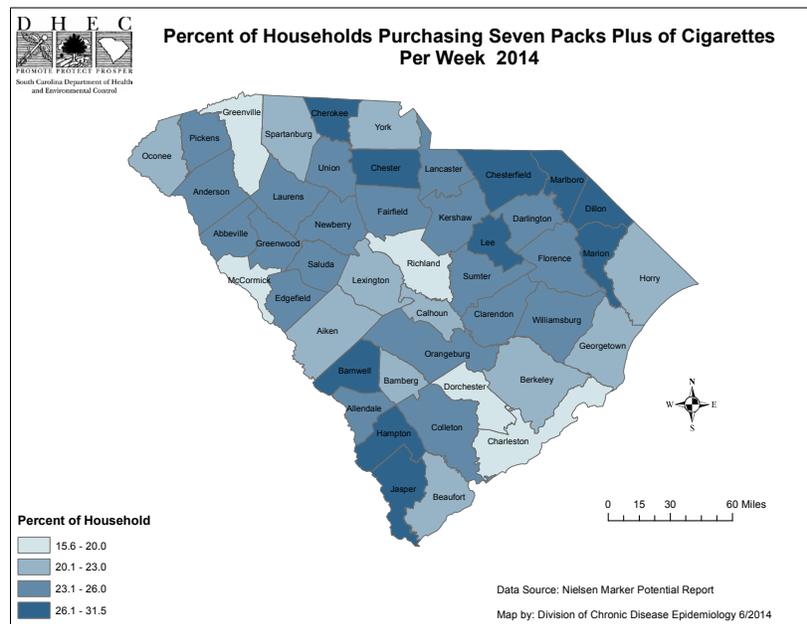
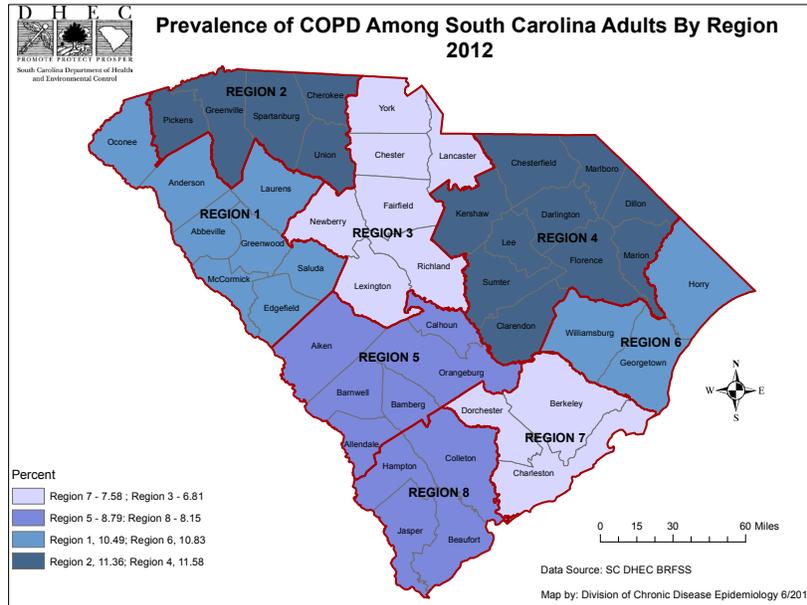
- 3.97 times more likely to report “poor to fair” general health status,
- 2.2 times more likely to display physical activity limitations, and
- 2.1 times more likely to report 14 or more physically unhealthy days in the previous year when compared to South Carolinians without COPD (Antwi 2013).

Leading causes for COPD include tobacco smoke, environmental tobacco smoke (“secondhand”), occupational inhalation of dust, fumes, or chemicals, and indoor/outdoor air pollution (ALA, 2013). In the United States, 80 percent to 85 percent of COPD incidence is directly associated with smoking or inhaling combustible tobacco. On average, 15 percent to 20 percent of those diagnosed with COPD are never smokers (ALA, 2013). For those who smoke, the most important aspect of treatment is smoking cessation, while avoiding tobacco smoke and removing other air pollutants from a COPD patient’s home or workplace are also important. The Center for Disease Control’s (CDC) webpage on COPD prevention notes that, “In the United States, tobacco smoke is a key factor in the development and progression of COPD, although exposure to air pollutants in the home and workplace, genetic factors, and respiratory infections also play a role” (CDC, MMWR, 2005).

As shown in the map, rural areas of South Carolina have relatively high rates of diagnosed COPD (SC BRFSS, 2012). This is consistent with smoking rates in those areas.

COPD is closely tied to smoking and, as seen with this map, retail sales of tobacco products are greater in areas of South Carolina that have high rates of COPD.

Clearly, COPD-related impact on health and the economy plays a detrimental role to the well-being of the residents of South Carolina. Therefore, a collective public health effort to reduce the burden of COPD throughout the state warrants immediate attention.



## Engaging Public Health Stakeholders

To combat COPD, prevention, policy and practice levels will require concerted and sustained efforts. COPD will improve in South Carolina only through collaboration, engagement and alignment of work across systems and organizations. While not an exhaustive list, there are certain key stakeholders who will need to be engaged in this work.

To address primary prevention, state government agencies, including DHEC, the Departments of Health and Human Services (DHHS), Alcohol and Other Drug Abuse Services (DAODAS), Mental Health (DMH), Social Services (DSS), and the State Department of Education (SDE), the three major research universities with public health components (Clemson, USC, MUSC), community-based organizations, the faith community, and major media outlets all will have an important role to play.

From a practice perspective, public and private South Carolina hospital and health care systems, along with the SC Hospital Association (SCHA), the SC Medical Association (SCMA), the SC Primary Health Care Association (SCPHCA), and other professional and technical associations that address COPD and related conditions are key stakeholders. In addition, entities responsible for training practitioners (such as schools of medicine, nursing, respiratory therapy and pharmacy) are integral to this work, as are organizations (public, private and nonprofit) that work to improve the practice of prevention and treatment related to COPD and other chronic conditions within the clinical setting.

In the policy area, professional associations, state nonprofits [SC Tobacco Free Collaborative, the American Lung Association in SC, the SC Asthma Alliance (SCAA), and the Alliance for a Healthier South Carolina] will need to be engaged to advocate with policy makers for support of this plan.

## Perspective of the Pharmaceutical and Device Industries

The pharmaceutical industry has had a substantial impact on COPD through drug and device development. The industry also has had substantial influence by facilitating knowledge of medications and treatment of diseases as well as being advocates across the spectrum of health. Beginning more than 50 years ago with the development of the first metered dose inhaler, the pharmaceutical industry has developed more than 20 different drug therapies for COPD. Innovation has accelerated in the last five years with a number of new and investigational agents and devices, partially in response to increasing awareness of the burden of COPD and changes from the use of chlorofluorocarbons (CFC) as propellants in inhalers. As a consequence of drug therapies available today, COPD patients can have better control of respiratory symptoms, improved quality of life, fewer exacerbations and possibly better survival.



The first widely used treatments for COPD in the United States were inhaled short-acting bronchodilators. Isoproterenol inhaler (Isuprel®), one of the few bronchodilators available in the 1970's, had a short duration of action and caused excessive tremor and tachycardia. Safer short-acting bronchodilators, like albuterol, which is still heavily relied upon to relieve acute shortness of breath, were developed later. The next breakthrough in COPD medications was the availability of ipratropium, another inhaled bronchodilator that works by a different mechanism than albuterol. Together, the two provide additive bronchodilation—a key concept in the treatment of COPD. The subsequent development of long-acting bronchodilators, which work similarly to albuterol and ipratropium but are used only once or twice daily, provided a substantial improvement in treatment. In general, agents that require once- or twice-daily administration lead to better patient adherence than those required to be given more often, and are more convenient.

Inhaled corticosteroids, principally used for their anti-inflammatory effects, were the next agents to gain widespread use in COPD; most often in a combination inhaler with a bronchodilator. Today, many patients with more advanced airway obstruction are receiving two long-acting bronchodilators and an inhaled steroid—called triple therapy. These agents may be augmented with oral drugs, such as low-dose theophylline, which has been available since the 1950's but its use is limited due to side effects and drug interactions. Roflumilast is a phosphodiesterase inhibitor biochemically similar to theophylline that is known to reduce exacerbations (flares) of COPD. A drug given by infusion, called Alpha-1 protease

inhibitor or Alpha-1 antitrypsin augmentation therapy, is also available for the treatment of Alpha-1 antitrypsin deficiency, a genetic cause of emphysema. The potential benefit of other types of therapies, such as azithromycin and n-acetylcysteine, continues to be explored. In the future, agents that work on different cells and mediators that play an important role in the airways of the COPD patient may be available. Medications that work similarly to corticosteroids, but with fewer side effects, could prove to be particularly impactful.

Another key area being addressed is the delivery of medications. “Smart Inhalers”—devices with counters to track doses and mechanisms that alert patients that a dose was appropriately taken—have already been developed and will be available soon. In addition, more efficient and user-friendly inhalers have or soon will become available, e.g. “triple therapy” in a single inhaler. But the most common problem with inhalers is the patient not being able to afford them or being non compliant.

Cost is a major issue with COPD treatment; many commonly used medications are still only proprietary, and more than 50 percent of COPD patients have low annual incomes. Although the albuterol/ipratropium combination inhaler has been available for more than 25 years, it currently costs more than \$200. Inhalers with long-acting medications often cost more than \$300 for a one-month supply. Triple therapy along with an albuterol inhaler could cost a COPD patient nearly \$800 per month without insurance subsidies. Medicare is the primary insurance for a substantial portion of the COPD population, and even those patients with prescription coverage often fall into the “doughnut hole” and may be unable to appropriately treat their COPD during these periods due to the costs. The pharmaceutical industry is required to help subsidize proprietary drugs for patients with Medicare Part D, but often the medicines are still unaffordable. Some elderly patients have to rely on the use of selected nebulized medications through Medicare Part B, but the available medications are limited.

The complexity and cost of conducting studies needed to bring a generic inhaler to market are a barrier to development. The recent FDA-issued guidance on the development of generic inhaled agents such as ipratropium and availability of some of the products generically in 2017 will hopefully increase the number and types of inhalers available at a lower cost. There are no great solutions in the near future to target drug costs for the COPD patient. This is compounded by the drug costs necessary to treat other common comorbidities. Of note, some of these expensive medications decrease overall health care costs, largely due to decreasing COPD exacerbations (flares). Despite this, it is often difficult to engage policymakers and insurers about the financial benefits of secondary prevention with medications. Patient assistance

programs, which can be used to obtain some free or reduced-cost medications through pharmaceutical companies, are often very cumbersome and subsequently not readily used in most patient care settings. In South Carolina, WELLVISTA can provide reduced-cost or free medications for COPD patients who qualify (See Resources section). Proprietary drug samples provided by pharmaceutical industry, dispensed in some outpatient clinics by health care providers, are typically used to assess response to a new medication or to help patients get access to costly medications. The use of vouchers, rather than providing actual drug samples, is increasing, but Medicare patients are usually excluded, except for single-month supplies. Pharmaceutical industry and health care providers must work together to increase drug access and decrease drug costs to the COPD population.

In addition to developing new agents for COPD, the pharmaceutical industry has also played a substantial role in the education of providers—such as the historic model in physician practices where sales representatives share key points about their products. New regulations and changes in pharmaceutical industry policies have led to a marked decrease in such interactions. The full impact of this decreased interaction is unknown. The pharmaceutical industry continues to support educational programs, albeit lower levels than in the past, for providers where experts share perspective at local and regional meetings. In health systems, pharmaceutical companies may provide outcome measurement tools, share best practices from other institutions, or find other ways to support the system in optimizing disease-management programs.

Pharmaceutical companies are often interested in helping optimize disease-management programs in health systems. Examples include sharing best practices among different health care institutions and providing outcome measurement tools. Some have developed tools to assist providers in the care of individual COPD patients, such as COPD action plans and patient education materials. For both COPD and asthma, several companies have begun offering skilled personnel to train medical office staff to perform quality spirometry and to provide disease and drug education. In some instances, licensed pharmaceutical industry employees—such as respiratory therapists—assist in patient care.

The tremendous perspective across many areas of health and health care, whether it's related to a specific medical practice, a major institution, or the government's role in health care-related policies, is one of the greatest values of the pharmaceutical industry. Certainly pharmaceutical companies can function as health care organizations, not only to develop better and safer drugs and devices, but also by educating

and working with the public and health care providers to improve outcomes in the COPD population. The pharmaceutical industry, as a member of overall health care team, will continue to have a substantial impact on COPD through research, innovation, and facilitation.

The device industry has also been active in COPD. The understanding of drug particle size and mass that leaves a nebulizer device and where these particles deposit in the lung has led to more advanced nebulizer products. Since smaller drug particle sizes target the deep lung, these nebulizer devices become more efficient at drug delivery. The advantage of the inhaled route of drug delivery is that smaller drug doses can be given to optimize effects to the lung affected with COPD.

For a selected group of COPD patients in which air enters the lung but becomes trapped in the enlarged airspaces of emphysema, new devices are in clinical trials to cause lung volume reduction. Lung volume reduction currently is performed surgically and has been shown to improve mortality for a subgroup of COPD patients. The new devices and procedures to effect a lung volume reduction using the bronchoscope are in late phase clinical trials in the United States, and have been approved in Europe.

The bronchoscope is a lighted, flexible device that is steered into the lung to visualize the airways and allow site specific devices and procedures in the lung. Lung volume reduction with the bronchoscope has been performed with nitinol coils, one way valves and steam treatment of lung segments. The smaller resulting lung has less hyperinflation and improved respiratory mechanics. As a result, the patient has less shortness of breath and improved quality of life.

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*The remainder of the strategic plan for COPD is presented with goal-directed recommendations to comprehensively improve prevention activities, awareness, diagnosis and management of COPD.*

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# COPD Prevention

## PREVENTION GOAL 1

Decrease the prevalence and impact of smoking tobacco products and other environmental exposures that lead to the development and/or worsening of COPD.



## RATIONALE

More than 75 percent of COPD cases are due to prolonged use of combustible tobacco products, most often cigarettes. Occupational exposures, as well as secondhand smoke, are also known causes of COPD. Prevalence of tobacco use among adults in South Carolina is 17.8 percent (2012, SC Adult Tobacco Survey), which is consistent with the national average. A more recent telephone survey conducted by the Center for Disease Control placed adult smoking prevalence at 28.3 percent (2013 CDC BRFSS), higher than the national average. However, in the COPD population, prevalence of ever cigarette smoking is approximately double that of the general population at 40 percent. This is also true for asthma patients, many of whom will develop COPD with prolonged tobacco use. Health care providers play an integral role in helping patients quit tobacco, and evidence supports that advice from a physician leads to increased rates of smoking cessation. Additionally, research now supports the role of environmental tobacco smoke exposure in young children in increasing the risk of developing COPD later in life. (Johannessen 2013) Minimizing exposure to tobacco smoke and occupational irritants, and improving indoor and outdoor air quality are necessary steps to reducing morbidity and mortality in COPD patients. While smoking continues to slowly decrease, the number of nonsmokers developing COPD is rising. Thus it is important to focus on the role indoor and outdoor air quality play in the development of COPD. Air quality is also important for the well-being of persons who already have disease. Short-term exposure to air pollution has been associated with exacerbation of COPD. New studies warn of serious effects from breathing ozone over longer periods. Encouraging “Healthy Home Assessment” is key for addressing obstructive lung diseases.

## OBJECTIVES

1. *Raise awareness among COPD patients and their health care providers of available tobacco cessation interventions (state and local resources).*
2. *Increase access to evidence-based tobacco cessation treatments and counseling for COPD patients.*
3. *Support quality care initiatives concerning tobacco use screening and cessation, such as standards set by the U.S. Centers for Medicare and Medicaid Services (CMS) and The Joint Commission.*

4. *Promote tobacco quit attempts and cessation through and by community-based organizations, workplaces, prisons and existing health care programs, particularly those serving disparate persons, minorities and other vulnerable populations.*
5. *Increase the percentage of pulmonologists and other health care providers who ask, advise and refer their COPD patients to evidence-based tobacco cessation treatment.*
6. *Increase public awareness regarding the role of environmental tobacco smoke on children in the development and worsening of both COPD and asthma.*
7. *Promote clean indoor and outdoor air quality in the environment.*

## **STRATEGIES**

### ***Objective 1—Raise awareness among COPD patients and their health care providers of available tobacco cessation interventions (state and local resources).***

- 1.1 Promote quit attempts through tobacco cessation awareness campaigns among the general public.
- 1.2 Identify and communicate best practices for smoking cessation interventions in health systems, medical practices and other settings, particularly those currently being used in South Carolina.

### ***Objective 2—Increase access to evidence-based tobacco cessation treatments and counseling for COPD patients.***

- 2.1 Undertake educational interventions to promote state-of-the-art tobacco cessation interventions that align with the U.S. Public Health Service Clinical Practice Guideline, Treating Tobacco Use and Dependence: 2008 Update (Fiore 2008).
- 2.2 Increase the number of certified tobacco treatment specialists in South Carolina by communicating available training programs.
- 2.3 Engage community pharmacies to facilitate smoking cessation counseling and drug therapies through educational programs.
- 2.4 Increase insurance coverage for tobacco cessation treatments and counseling by engaging insurance companies and communicating to providers which companies provide such coverage.

**Objective 3—Support quality care initiatives concerning tobacco use screening and cessation, such as standards set by the Centers for Medicare and Medicaid Services (CMS) and The Joint Commission.**

- 3.1 Engage the South Carolina Area Health Education Consortium system to provide more educational programs concerning tobacco use and tobacco-related diseases, including COPD.
- 3.2 Raise awareness among health care providers about tobacco use screening and cessation standards.

**Objective 4—Promote tobacco quit attempts and cessation through and by community-based organizations, workplaces, prisons and existing health care programs, particularly those serving disparate persons, minorities and other vulnerable populations.**

- 4.1 Encourage system-wide smoking cessation programs that address tobacco use at all points of health care provision, including worksites and hospitals.

**Objective 5—Increase the percentage of pulmonologists and other health care providers who ask, advise and refer their COPD patients to evidence-based tobacco cessation treatment.**

- 5.1 Educate providers about the value of positive messaging for smokers.
- 5.2 Promote health care provider training in brief tobacco intervention through educational programs for health care providers, such as DHEC’s online CME training at [www.helppatientsquitsc.org](http://www.helppatientsquitsc.org)

**Objective 6—Increase public awareness regarding the role of environmental tobacco smoke on children in the development and worsening of both COPD and asthma.**

- 6.1 Undertake a public awareness campaign about the risks of combustible tobacco products (smoking cigarettes, cigars, etc.) and the use of electronic nicotine delivery systems [ENDS] (e-cigarettes and vaping devices) in asthmatics.
- 6.2 Promote messaging about children’s exposure to secondhand smoke in advertising, public service announcements and venues accessed by the general public.
- 6.3 Encourage children’s health care practitioners to counsel parents and caregivers about secondhand smoke exposure on an ongoing basis. Provide tip sheets and promotional materials, and include questions of secondhand smoke exposure on patient questionnaires.

**Objective 7—Promote clean indoor and outdoor air quality in the environment.**

- 7.1 Promote awareness in the general population and COPD patients about the role of occupational exposures in the development and progression of COPD.
- 7.2 Promote advocacy for clean air policies that reduce environmental exposure to harmful airborne toxins, including indoor biomass fuels, such as use of wood stoves or open wood fires as a primary source of indoor heating, through engaging policy makers and the general public.
- 7.3 Increase the number of institutions, educational campuses, businesses, cities and counties with smoke-free ordinances and regulations. Promote policies to eliminate smoking and secondhand smoke exposure in workplaces and places open to the public.
- 7.4 Promote greater awareness of information sources on outdoor air quality, such as DHEC’s South Carolina Air Monitoring Network (<http://gisweb01.dhec.sc.gov/monitoring/monitoring.html>) and EnviroFlash ([www.baaqmdsparetheair.enviroflash.info/signup.cfm?uCityID=28](http://www.baaqmdsparetheair.enviroflash.info/signup.cfm?uCityID=28)), an electronic information system designed to alert the public about air quality forecasts via email or the toll-free phone line at 1-866-238-4973.
- 7.5 Increase awareness of the Air Quality Index, especially among health care providers and patients with COPD. The Air Quality Index grades air quality exposure in terms of health effects. It is used as a tool to advise people to stay indoors when the pollution index is very high.



## PREVENTION GOAL 2

Optimize utilization of immunizations, specifically influenza, pneumococcal and pertussis in the COPD population and their household members as well as health care workers



## RATIONALE

Vaccine protection is important in the management of COPD. Progressed disability and death from COPD are greatly exacerbated by influenza and pneumonia. The National Heart Lung and Blood Institute (NHLBI) recommends that individuals with COPD should talk with their doctor about whether and when they should get flu (influenza) and pneumonia vaccines. These vaccines can lower the chances of getting these illnesses, which are major health risks for people who have COPD at any stage.

## OBJECTIVES

1. *Increase public awareness of the importance of receiving influenza, pneumococcal, and pertussis vaccinations in patients with lung diseases, including COPD.*
2. *Increase the vaccinations rates in the COPD population for influenza, pneumococcal, and pertussis based on published guidelines including the GOLD COPD guidelines and the CDC.*

## STRATEGIES

**Objective 1—Increase public awareness of the importance of receiving influenza, pneumococcal and pertussis vaccinations in patients with COPD.**

- 1.1 Promote utilization of the CDC Chronic Disease Indicator online database to access current rates of influenza and pneumococcal vaccinations in the COPD population in South Carolina.
- 1.2 Include the role of vaccinations as an important preventive therapy for COPD to the general public and health care providers when addressing preventive therapies such as tobacco cessation.

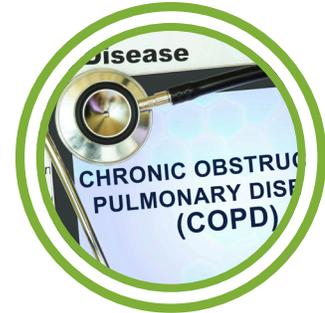
***Objective 2—Increase vaccination rates in the COPD population for influenza, pneumococcal and pertussis based on published guidelines, including the GOLD COPD guidelines and the CDC.***

- 2.1 Engage health care providers through education and sharing best practice models to achieve vaccination rates greater than 90 percent for all COPD patients as follows:
  - a. Influenza vaccination annually including use of high-dose version in persons older than 65;
  - b. Pneumococcal vaccinations and boosters; and
  - c. Pertussis vaccination and booster.
- 2.2 Promote vaccinations in traditional and nontraditional settings to increase rates of use.
- 2.3 Distribute best practice models for vaccinations provided by the CDC.
- 2.4 Support CMS and other insurers' guidelines for screening and administration of vaccinations in hospital settings.

# COPD Awareness

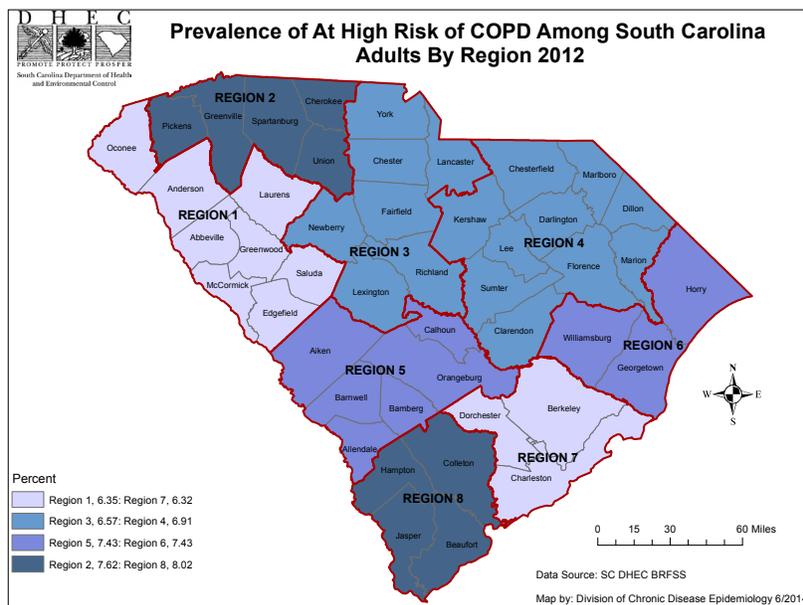
## GOAL

Improve COPD recognition as a major public health issue and a common condition associated with significant morbidity and mortality.



## RATIONALE

The most cost effective and patient-focused way to impact COPD is to prevent it. Of the many causes of COPD, tobacco use is the most common. Tobacco-related COPD is frequently viewed as a self-imposed condition and therefore may not get the same attention as other chronic diseases. Additionally, patients may deny symptoms as they develop because they do not want to admit that their actions have been injurious and/or that they do not want to change their lifestyle. Raising awareness and early detection are important strategies to identify patients prior to the development of symptoms or disability. As can be seen in the following figure, the prevalence of individuals who have smoked for more than 10 years and have pulmonary symptoms and also do not carry a current diagnosis of COPD is quite substantial, especially in the rural areas of South Carolina.



Primary care providers deliver clinical care to about 60 percent of all COPD patients and are frequently engaged in the care of patients with undiagnosed COPD. A multi-faceted approach that involves public health agencies, health care professionals and health care organizations, including hospitals, clinics, pulmonary rehabilitation facilities, pharmacies and payers, is necessary to address these challenges. Awareness of COPD will require resources that become cost effective long term. Existing state resources that were established to address tobacco-related illness should be applied to COPD. Furthermore, public and private partnerships could find additional resources to target COPD awareness. These partnerships would optimally be directed by a broad base of health professionals with knowledge and interest in COPD.

## OBJECTIVES

1. *Create a coalition to bring awareness of COPD to the general public in South Carolina.*
2. *Improve recognition in the primary care setting across the state.*
3. *Increase awareness of COPD symptoms and risk factors.*
4. *Understand the demographics of the COPD burden in South Carolina.*

## STRATEGIES

**Objective 1—***Create a coalition to bring awareness of COPD to the general public in South Carolina.*

- 1.1 Leverage public and private resources to establish a SC COPD Coalition.
- 1.2 Develop a SC COPD Coalition to target the prevention, recognition, and management of COPD.

**Objective 2—***Improve recognition in the primary care setting across the state.*

- 2.1 Pursue grant funding for COPD education and awareness in various health care settings.
- 2.2 Change the stigma that COPD is a self-induced disease.
- 2.3 Encourage use of questionnaires [e.g. COPD Population Screener(R) and Lung Function Questionnaire(R)] and screening spirometry in primary care settings to identify undiagnosed COPD patients. The COPD diagnosis tools should be distributed to primary care providers and employer-funded wellness programs.

- 2.4 Utilize data from the 2012 SC BRFSS COPD At-risk Module to target persons in the general adult population who exhibit characteristics of those at high risk for undiagnosed COPD.
- 2.5 Develop a network of trained respiratory care practitioners who can launch a statewide COPD community diagnosis program.
- 2.6 Communicate the results of the diagnosis tools for patients to share with their primary care providers.
- 2.7 Educate primary care providers regarding COPD guidelines established by the World Health Office (GOLD COPD), COPD Foundation, American Thoracic Society and American College of Chest Physicians

***Objective 3—Increase awareness of COPD symptoms and risk factors.***

- 3.1 Facilitate a public awareness campaign highlighting early signs and symptoms of COPD.
- 3.2 Educate the public and providers about the role of non-tobacco-related etiologies of COPD such as genetic causes and occupation and environmental exposures.
- 3.3 Target political action groups to assist in awareness efforts.

***Objective 4—Understand the demographics of the COPD burden in South Carolina.***

- 4.1 Utilize the SC BRFSS annual health survey and other health databases to define the prevalence and burden of COPD in South Carolina.
- 4.2 Increase collaboration among health care institutions and public health agencies to define and communicate the burden of COPD in South Carolina.
- 4.3 Communicate COPD epidemiology and health care utilization data to the public, health care providers, insurance organizations and policy makers.

# COPD Diagnosis

## GOAL

Increase the number of persons at high risk for COPD or with a current diagnosis of COPD who have proper spirometry and clinical evaluation performed.



## RATIONALE

COPD is nationally and internationally underdiagnosed and often is undetected until severely advanced. Some estimate that approximately half of the individuals with COPD remain underdiagnosed or misdiagnosed. COPD should be suspected in any individual 40 years or older with symptoms of cough, sputum production, or shortness of breath, and/or a history of exposure to risk factors, most notably tobacco.

Technically, screening is a word applied to use of testing in asymptomatic populations. To date, the US Public Health Service has not recommended screening with spirometry to smoking individuals without any symptoms because the yield is low and outcomes are not different. However, the moment that respiratory symptoms occur, spirometry is not a screening test any longer. Spirometry is a test applied to understand the cause of symptoms.

Simple spirometry is something that can be used in any health care provider's office and can be used to quickly and easily determine if a patient has COPD. Spirometry is also used to stage the disease along with other parameters, such as shortness of breath, presence of exacerbations, exercise tolerance, and body mass. The Global Initiative for Obstructive Lung Disease (called the GOLD COPD guidelines) has created classifications that are internationally accepted and can be used to determine if patients have COPD. If present, COPD severity is also determined using spirometry. However the largest barrier to COPD detection is the lack of spirometric data to see if patients have obstructive disease. Although, use of questionnaires, peak flow meters and alternative forms of COPD detection are being explored, spirometry is the standard by which a COPD diagnosis should be established. Demographic features of populations at high risk for COPD are known. Spirometry applied to these populations with symptoms is evidence-based and improves care.

## Characteristics of Persons in SC At High-risk For Undiagnosed COPD (2012 SC BRFSS)

High-school or less education > college graduates

African Americans > Caucasians

Males > females

Current smokers > ex-smokers > never smokers

## OBJECTIVES

1. *Expand the availability of spirometry.*
2. *Provide standardized spirometry and guidelines for the diagnosis and staging of COPD.*
3. *Increase testing for Alpha-1 Antitrypsin Deficiency.*

## STRATEGIES

### **Objective 1—Expand the availability of spirometry.**

- 1.1 Assess the availability of spirometry statewide, identify gaps in coverage and implement a plan to expand the pool of trained spirometry providers and equipment to areas lacking resources.
- 1.2 Develop a set of guidelines to be used for spirometry training and equipment maintenance. To ensure high-quality, reproducible results, spirometry testing providers will verify compliance with guidelines on an annual basis.
- 1.3 Implement an electronic spirometry system, allowing trained professionals to complete the testing and electronically transmit the data to knowledgeable providers for expert interpretation.

### **Objective 2—Standardize guidelines for diagnosis and staging**

- 2.1 Establish an expert panel to develop consensus on diagnosis and staging guidelines and promote consistent use of the guidelines across the state. The diagnosis and staging guidelines will address airway disease severity (based on spirometry) as well as symptom severity. The guidelines will be reviewed and distributed to providers annually.

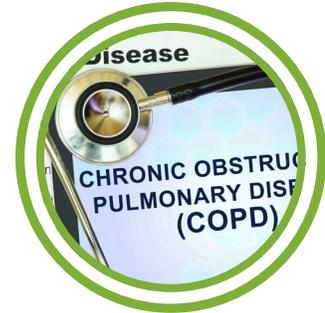
***Objective 3—Encourage primary care and lung specialists to screen for Alpha-1 Antitrypsin Deficiency according to published guidelines.***

- 3.1 Identify practice models that incorporate Alpha-1 Antitrypsin Deficiency screening into routine patient care.
- 3.2 Communicate value of screening to health care providers considering that a drug therapy is available; identification of genetic carriers can improve genetic counseling of family members.

# COPD Management

## GOAL

Ensure that SC COPD patients consistently have access to evidence-based state of the art treatment.



## RATIONALE

COPD is underdiagnosed and undertreated both at a state and national level. Therapeutic regimes require multidisciplinary providers who work most efficiently if patients are empowered in their care through education. Successful management of COPD must also incorporate community outreach interventions. Various clinical guidelines are available to guide management, but clinicians should individualize strategies for maximum patient response.

South Carolina has a long way to go to improve COPD management. Care is often fragmented between health systems that do not communicate effectively between each other. Patient education is also fragmented and inadequately addresses optimal oxygen use, rescue and management plans, advance directives, and living with chronic lung disease. The most basic education of teaching patients such as how to properly use their inhaled medications is too often not done. Medication adherence is suboptimal with claims-based data suggesting that less than 50 percent of prescribed medications are filled at the pharmacy.

Specific resources that limit overall costs but are poorly reimbursed are not being optimally used. Medications that decrease exacerbation frequency and costly emergency room and hospital stays are expensive at the patient care level, although improved compliance would save overall costs. Pulmonary rehabilitation improves COPD quality of life and hospital readmission rates, but access is too frequently limited due to costs and pragmatic issues such as transportation. There is no reimbursement for COPD education. The optimal goal that individuals become empowered in their care and lead healthier lives is not being realized because of system issues in the fragmented health care infrastructure of South Carolina.

Although there are multiple evidence-based guidelines for COPD care, strict adherence to guidelines will marginalize the patient-specific variables that improve individual outcomes. Unique phenotypes of COPD require special care. COPD phenotypes who may require more resources include frequent exacerbators, those with concurrent asthma, and those with low body mass index, among others. Identifying the correct phenotype can allow for more individualized treatment and prognosis. Examples of a targeted approach for

specific phenotypes may include anti-inflammatory medications for chronic bronchitis, Alpha-1 Antitrypsin augmentation for hereditary COPD caused by deficiency of alpha-1 antitrypsin, and lung volume reduction interventions for severe emphysema with hyperinflation.

Despite aggressive pharmacological interventions and lifestyle modifications (smoking cessation and pulmonary rehabilitation), patients continue to have poorly controlled dyspnea. Lung transplantation is used in select patients to extend their life and improve their quality of life. There are also potential new and emerging therapies that are in development for patients with advanced lung disease. Those include bronchoscopic volume reduction therapies with trials underway to have those interventions FDA approved.

## OBJECTIVES

1. *Promote patient and health care provider education of and adherence to guideline-based best practice treatment plans for COPD.*
2. *Educate providers and patients regarding different phenotypes of COPD.*
3. *Promote education for providers about the importance and availability of pulmonary rehabilitation programs in South Carolina.*
4. *Educate providers on clinical trials for the treatment of COPD.*
5. *Promote optimal pharmacotherapy prescribing, use and compliance to improve the well-being of patients with COPD.*
6. *Identify and communicate community resources relevant for the care of COPD patients.*
7. *Communicate and encourage use of new evidence-based therapies.*

## STRATEGIES

### **Objective 1—Promote patient and health care provider education of and adherence to guideline-based treatment plans for COPD.**

- 1.1 Develop and conduct educational programs targeting primary care and allied health providers regarding current COPD guidelines.
- 1.2 Educate relevant students enrolled in health degree programs regarding COPD guidelines.
- 1.3 Establish an expert panel to develop a consensus of statewide best practice treatment guidelines and distribute to relevant health care providers and learners.

- 1.4 Promote the use of individualized COPD Action Plans for each patient diagnosed with COPD.
- 1.5 Encourage health care providers to use staging of COPD severity that is based upon spirometry, frequency of exacerbations and frequency/severity of respiratory symptoms.
- 1.6 Identify common gaps between actual care and guideline-based care for COPD and communicate this data to health care providers.
- 1.7 Identify and communicate best practices for COPD in different settings.
- 1.8 Promote improved access to patient education materials to patients and health care providers.
- 1.9 Promote local and regional educational programs to encourage better collaboration between primary care providers and specialists.
- 1.10 Increase the use of health care providers to help COPD patients navigate available resources, especially when transitioning among multiple providers.
- 1.11 Help patients and families affected with COPD receive resources and education on the trajectory of the illness and prognosis of the disease.
- 1.12 Explore the potential for a state-specific website to provide patient and health care provider resources.

***Objective 2—Increase provider and patient awareness regarding different phenotypes of COPD.***

- 2.1 Educate health care providers and learners regarding COPD phenotypes, including the Asthma COPD overlap syndrome (ACOS), emphysema, chronic bronchitis and frequent exacerbator groups.

***Objective 3—Promote education for providers about the importance and availability of pulmonary rehabilitation.***

- 3.1 Educate health care providers on the importance of pulmonary rehabilitation and how it can improve the functional and mental status of COPD patients.
- 3.2 Encourage health care providers to refer patients to pulmonary rehabilitation throughout the state.
- 3.3 Educate payers about the cost benefits of pulmonary rehabilitation services.
- 3.4 Connect pulmonary rehabilitation providers with a patient's health care provider so individualized patient updates can be completed.
- 3.5 Educate providers about a web-based map of pulmonary rehabilitation facilities in South Carolina to assist in patient referrals.
- 3.6 Improve patient education about COPD, therapies, and end of life discussions and assist with navigating the health care system.



**Objective 4—Educate providers on results of key clinical trials for the treatment of COPD.**

- 4.1 Identify and communicate web-based resources to providers and patients such as the American Association of Respiratory Care RT web newsletter and US COPD Foundation monthly magazine (COPD Digest) that provide literature updates on COPD.
- 4.2 Expand live and web-based educational programs for SC health care providers regarding new drugs and devices for COPD.

**Objective 5—Promote optimal pharmacotherapy prescribing, use and compliance to improve the well-being of patients with COPD.**

- 5.1 Educate health care providers to assess phenotype and pathophysiologic characteristics of patients with a new diagnosis of COPD and prescribe therapies using this information, and that individual response and disease progression may further impact medication selection.
- 5.2 Educate providers that initial therapy for COPD and exacerbations should be selected in accordance with guidelines for most patients.
- 5.3 Disseminate guidelines and updated evidence to patients and providers through symposia or other means.

- 5.4 Routinely employ algorithms and order sets to optimize treatment of COPD that includes checklists for vaccinations
- 5.5 Address tobacco cessation at each encounter with the offer of smoking cessation pharmacotherapy and referral to evidence-based community resources.
- 5.6 Encourage patients to access clinical trial information if they qualify.
- 5.7 Provide patients access to educational materials so they are informed about goals of therapy, medication options and available resources.
- 5.8 Systematically evaluate each patient's access to medications, medication use, and regimen appropriateness based on current symptoms and risk, co-morbidities, cost, and perceived value.
- 5.9 Patients with advanced or refractory disease should be treated by a provider well-versed in treatments that confer a benefit to selected patients, e.g., long-term azithromycin or roflumilast for exacerbation reduction.
- 5.10 Use advances in care delivery, including tele-health, to promote better communication between acute care facilities with expert providers and the community.
- 5.11 Encourage health care providers, including community pharmacists, through education and, ideally, financial reimbursement to perform routine assessments of medication use.
- 5.12 Review treatment regimens upon initiation, every 72 hours, and upon discharge utilizing a multidisciplinary approach for hospital-based care.
- 5.13 Engage insurance companies to provide better access to medications with proven benefits in COPD.
- 5.14 Increase collaboration amongst health care systems to improve access to results of testing, treatment plans and medication response. Explore options for reimbursement from payers for COPD Disease Management Programs.

***Objective 6—Identify and communicate community resources relevant for the care of COPD patients.***

- 6.1 Establish a COPD Durable Medical Equipment Resource Group that will maintain a streamlined documentation, qualification and reimbursement guide for providers and patients.
- 6.2 Maintain and share a list of human services and community resources specific to COPD populations for at minimum each DHEC region of the state.

- 6.3 Community Outreach—Align resources or obtain funding to ensure widespread availability and functionality of COPD-sensitive community resources in the categories below:
- a. Tobacco cessation counseling (including access to SC Tobacco Quitline)
  - b. Pharmacist support (including Medication Assistance Programs, Wellvista, etc.)
  - c. COPD-focused health fairs
  - d. Support organizations (including ALA's Better Breathers, SC Society for Respiratory Care Patient Advocacy, Asthma Alliance)
  - e. Community Long Term Care resources (nursing assistants, care aides, etc.)
  - f. Transportation
  - g. Senior Services (through the Lieutenant Governor's Office, including Meals on Wheels)
  - h. Obtain funding (grants or insurer reimbursement) to incorporate the use of telemedicine in the management of COPD (Potential telemedicine applications include virtual visits or consults with pulmonary specialists and/or pharmacists)
  - i. Virtual visits or consults with pulmonary specialists or pharmacists for patients with limited access (homebound or in rural communities)
  - j. Remote monitoring of symptoms, FEV1, cough and equipment compliance to prevent exacerbations via earlier interventions
  - k. Use of mobile device applications for symptom management, medication management, nutrition and exercise goal setting, and progress tracking
  - l. Implementation of a Tele-health Pulmonary Rehabilitation Mode

***Objective 7—Communicate and encourage use of emerging/future therapies.***

- 7.1 Educate providers on the utility of lung transplantation in patients with end stage COPD and what type of patients should be referred.
- 7.2 Promote use of a central site where providers can review potential COPD clinical trials so patients can be appropriately referred for new therapies.
- 7.3 Utilize therapies with the main goal of reducing dyspnea and improve quality of life.
- 7.4 Expand COPD management programs to decrease hospitalizations and emergency department visits.

# Special Populations with COPD

## GOAL

Improve recognition and health outcomes for special populations of COPD patients.



## RATIONALE

COPD is a complex pulmonary disease with many factors contributing to its development and progression. There are subtypes of patients within the COPD population that are particularly unique and warrant additional considerations—termed special populations.

These include:

- disparate populations at high risk for being diagnosed (low socioeconomic status, living in a rural area)
- at high-risk for undiagnosed disease (African American males)
- patients with certain concurrent chronic diseases/conditions (asthma, obstructive sleep apnea, extremes in body mass index)
- patients with multiple co-morbidities (multi-morbidities)
- Alpha-1 Antitrypsin Deficiency.

Prevalence of COPD and household income are inversely correlated, largely due to substantially higher smoking rates, greater exposure to secondhand smoke often beginning early in life, occupational exposures, and higher rates of asthma that can lead to development of COPD. In South Carolina, the prevalence of COPD is four times higher in persons with less than a high school education (14 percent to 19 percent) than the college graduates (3 percent to 5 percent). Persons with a high-school or less education account for more than 50 percent of all COPD patients, but less than 20 percent of the general population. These patients are often challenged to be able to afford delivery of health care, even with health insurance subsidies.

Gender and race are also important determinants regarding the risk of developing COPD, as well as long-term outcomes. COPD has now become at least as prevalent in women as men. Women appear to be more likely affected by smoking tobacco than men. Race appears to influence mortality where the vast majority of COPD deaths in South Carolina are in Caucasian men and women; whereas in African Americans, other causes of tobacco-related diseases are more likely to be the principal cause of death (such as lung cancer).

A disparity in South Carolina related to race and gender appears among African American males. According to the 2012 SC BRFSS, this group makes up a disproportionate number of persons who are at high risk for undiagnosed COPD.

A diagnosis of COPD increases the number of co-morbidities, compared to the general population. Although co-morbidities are common in COPD due to the advanced age and suboptimal health behaviors such as smoking and nutrition, in this population, good data suggests that the presence of lung disease adds to the risk for these other diseases. The result is that more than 80 percent of patients with COPD have additional health conditions that complicate management. Some key co-morbidities in COPD include:

- Heart disease (both coronary artery disease and congestive heart failure)
- Arthritis
- Diabetes
- Obesity
- Depression

In South Carolina, more than one-third of COPD patients also report having asthma. This condition, known as asthma-COPD overlap syndrome, may in part be due to underdiagnosis of wheezing and dyspnea as COPD. However, good data suggests that this phenotype of COPD with prominent bronchodilator responsive symptoms has much worse outcomes than COPD without bronchodilator symptom reversibility. These patients often have more severe disease than either asthma or COPD alone and are frequent users of health care. Similarly, another co-morbidity, obstructive sleep apnea (OSA), is often present in COPD and if untreated is a substantial factor leading to worse outcomes. This is sometimes referred to as the COPD and OSA overlap syndrome. Lastly, many COPD patients have multiple chronic illnesses; if three or more co-morbidities are present, the term multi-morbidities is used. More than one-half of COPD patients have multi-morbidities and patients' health status is often worse and care is complex.

Among the 12,500 diagnosed COPD patients in South Carolina, there are those who have a genetic cause for their lung disease. Alpha-1 antitrypsin deficiency, or Alpha-1, is a genetic disorder that can cause lung disease in adults and lung/liver disease at any age. It is present in about 3 percent of diagnosed COPD cases. The Medical University of South Carolina is nationally-recognized in the investigation and management of this type of COPD. Early identification of this disease is key for the patient in order to receive optimal management as well as identify family members who are at risk, especially siblings,

children and grandchildren, in order to provide counseling on genetics and minimizing risk factors such as smoking and occupation. (See Patient Perspectives)

## **OBJECTIVES**

1. *Further identify, define and decrease disparities in COPD prevention, diagnosis and management in South Carolina.*
2. *Improve awareness of significant COPD co-morbidities to include implications on prevention, diagnosis, and management of the disease.*
3. *Target persons with or at risk for the asthma COPD overlap syndrome (ACOS) or COPD and obstructive sleep apnea combination to improve outcomes*

## STRATEGIES

### ***Objective 1—Further identify, define and decrease disparities in COPD prevention, diagnosis and management in South Carolina.***

- 1.1 Provide more comprehensive education for health care providers about the existence of disparities within COPD patient and at-risk populations.
- 1.2 Ensure health care providers are trained on how to collect and use race and ethnicity data as well as social determinants of health assessments to support population health efforts in communities.
- 1.3 Organize resources to allow for better education of the general public and at-risk groups about disparities in COPD populations.
- 1.4 Engage health care, human and social service providers in directing resources to COPD patients with high socio-economic needs.
- 1.5 Promote linkages to COPD management strategies that impact rural areas specifically (e.g. patient navigation and telemedicine).

### ***Objective 2—Improve awareness of significant COPD co-morbidities to include implications on prevention, diagnosis and management of the disease.***

- 2.1 Increase awareness among health care providers of the role of key co-morbidities in the COPD patient population, including the common conditions of heart disease, lung cancer, arthritis, diabetes, obesity, depression and obstructive sleep apnea syndrome.
- 2.2 Provide screening questionnaires to aid clinicians and patients in the recognition of depression.
- 2.3 Promote CMS guidelines for use of low-dose CT scans for lung cancer screening.

### ***Objective 3—Target persons with or at risk for the asthma COPD overlap syndrome (ACOS) or COPD and obstructive sleep apnea overlap syndrome to improve outcomes.***

- 3.1 Promote awareness and management strategies for asthma COPD overlap syndrome using published ACOS guidelines.
- 3.2 Increase awareness of COPD and obstructive sleep apnea overlap syndrome through health care provider education and provision of screening questionnaires to identify high-risk persons (e.g. STOPBang questionnaire).

# COPD Outcomes

## GOAL

Define, communicate and promote the use of appropriate outcomes measures for the prevention, recognition and management of COPD in South Carolina.



## RATIONALE

Outcomes measures for COPD include those for the individual patient, the health care provider, and health care organization as well as those at the public health level. Patient-centered outcomes are symptom-based outcomes that result when patients and health care providers collaborate in informed health care decisions. The ability to accomplish usual daily activities and having a good overall health status are some important patient-centered measures. These can be measured through various tools.

At the patient-doctor level, symptom-based questionnaires are available for COPD to assess outcomes and include the COPD Assessment Test (CAT) and modified Medical Research Council dyspnea scale (mMRC). These particular questionnaires also help to define the stage of disease severity as well as to monitor progress of the patient, they are recommended for use by the GOLD COPD Guidelines and are therefore important tools to measure outcomes in individual patients. Evidence indicates that symptom-based and other types of questionnaires should be used more often with patients in the domiciliary and institutional settings.

The National Institutes of Health recently defined biomarkers (Mannino 2015) as “a characteristic that is objectively measured and evaluated as an indicator of normal biologic processes, pathogenic processes, or pharmacologic responses to a therapeutic intervention.” Historically, the breathing test value FEV1 has been used as a principal measure (biomarker) to predict outcomes, stage disease severity and assess response to investigational drugs.

A COPD Foundation Biomarker Consortium has worked in this area and in 2015, the Food and Drug Administration adopted the use of fibrinogen in the blood as an additional surrogate marker for outcomes in COPD.

Quality care initiatives by major national health agencies now necessitate measurement of certain outcomes by health care providers, whether at the practice or institutional level. These include:

- The Health care Effectiveness Data and Information Set (HEDIS) by NCQA is a package of quality improvement measures regarding appropriate diagnosis and management of exacerbations.
- The Committee on Medicare and Medicaid Services (CMS) rules about tobacco interventions in all patients and 30-day hospital readmissions in certain conditions, including COPD.

Combined, these measures can affect the COPD patient at different points in their transitions across health care. As a consequence of the CMS regulations, this has led many hospitals to implement transition of care models and medical home strategies for COPD. Finally, all health care settings are now required to screen and document tobacco use and in certain instances, such as during hospitalization, are required to provide smoking cessation counseling. This is key for the prevention of COPD as well as dealing with high current smoking rates in COPD patients.

The CDC, state and local health agencies work to collect, disseminate, and monitor many diseases, including COPD. The CDC works with states to conduct large health surveys each year and currently one of the principal sources of COPD epidemiology is the Behavioral Risk Factor Surveillance System (BRFSS) health survey. The BRFSS is conducted each year in South Carolina in more than 10,000 adults and provides prevalence of numerous chronic diseases as well as sociodemographic and health characteristics. The SC BRFSS annual survey currently includes a COPD prevalence question and is described in the Awareness Section.

The CDC recently updated chronic disease indicators for COPD. These indicators are used by state and local health departments to help monitor outcomes of COPD in the United States.

These include:

- COPD prevalence
- proper immunizations
- emergency department visits (COPD as primary or secondary diagnosis)
- hospitalizations for COPD exacerbations (COPD as primary or secondary diagnosis)
- mortality (COPD as primary or secondary diagnosis)

## OBJECTIVES

1. *Use state and national health databases to help monitor disease prevalence and outcomes in South Carolina adults with COPD.*
2. *Encourage use and communication of current quality improvement measures regarding COPD.*
3. *Increase utilization of strategies that can be used to measure and monitor clinical outcomes in COPD patients.*

## STRATEGIES

**Objective 1**—*Use state and national health databases to help monitor disease prevalence and outcomes in South Carolina adults with COPD.*

- 1.1 Use and report COPD outcome measures reported by the CDC’s Chronic Disease Indicators, including mortality, hospitalizations, immunizations and prevalence in South Carolina.
- 1.2 Continue to use the annual SC BRFSS health survey to monitor the prevalence and characteristics of adults who report COPD.

**Objective 2**—*Encourage use and communication of current quality improvement measures regarding COPD.*

- 2.1 Increase health care providers’ and other’s awareness of quality improvement measures by regulatory organizations, including those by CMS, The Joint Commission and HEDIS.

**Objective 3**—*Increase utilization of strategies that can be used to measure and monitor clinical outcomes in COPD patients.*

- 3.1 Educate clinicians and provide resources to them regarding the use of disease staging and monitoring tools consistent with current GOLD Guidelines.
- 3.2 Include use of existing and new COPD biomarkers in educational programs to health care providers.
- 3.3 Incorporate COPD questions in Community Health Needs Assessment Surveys to help monitor and report the impact and prevalence of COPD at health care institutions in South Carolina.

# Resources

## General Smoking Cessation Resources in South Carolina

Statewide, Population-Based Quitline:

### **South Carolina Tobacco Quitline**

Patients can contact the Quitline for free help to quit or a fax or eReferral from a provider will prompt the Quitline to contact the smoker.

1-800-QUIT-NOW

[www.scdhec.gov/quitforkeeps/HelpYourPatientsQuit/](http://www.scdhec.gov/quitforkeeps/HelpYourPatientsQuit/)

Hospital-Based Smoking Cessation Programs:

### **SC Hospital Map**

[www.scdhec.gov/tobacco/TobaccoQuitline/OtherHelpfulTools/](http://www.scdhec.gov/tobacco/TobaccoQuitline/OtherHelpfulTools/)

Other Smoking Cessation resources:

<http://smokefree.gov/apps>

### **You Quit Two Quit**

For pregnant and postpartum women, mothers and families.

[www.youquittwoquit.com](http://www.youquittwoquit.com)

Community-Based Smoking Cessation Programs:

### **American Cancer Society**

[www.acsworkplacesolutions.com/quit tobacco.asp](http://www.acsworkplacesolutions.com/quit tobacco.asp)

### **American Lung Association**

[www.lung.org/stop-smoking](http://www.lung.org/stop-smoking)

### **Freedom From Smoking®**

The program is offered as an in-person group clinic, an online program available at [www.FFSonline.org](http://www.FFSonline.org) and a self-help manual.

Typically offered in the community by a trained FFS facilitator.

### **Freshstart®**

A group-based tobacco cessation support program offered by the American Cancer Society that is geared to help participants increase their motivation to quit, learn effective approaches for quitting and guide them in making a successful quit attempt. Typically offered at worksites by a trained Freshstart facilitator.

[www.acsworkplacesolutions.com/freshstart.asp](http://www.acsworkplacesolutions.com/freshstart.asp)

## COPD Resources For Patients and Health Care Providers in South Carolina\*

### **Alphanet**

A not-for-profit organization that offers support, education and advocacy for individuals with Alpha-1 Antitrypsin Deficiency.

[www.alphanet.org](http://www.alphanet.org)

### **Alpha-1 Foundation**

A not-for-profit organization with several programs that spread awareness and education for individuals with COPD, including Alpha-1 Clinical Resource Centers (CRC), the Alpha-1 Research Registry, other research programs and information on Alpha-1. [www.alpha1.org](http://www.alpha1.org)

### **American Academy of Family Physicians**

Health and drug information. [www.aafp.org](http://www.aafp.org)

### **American College of Chest Physicians**

Resources for health care providers and patients, including an extensive manual for COPD patients.

[www.chestnet.org](http://www.chestnet.org)

### **American Lung Association of the Southeast**

Here you can find a local ALA chapter in NC, SC or GA, flu clinic locator, help with treatment decisions for COPD and definitions for lung diseases.

[www.lung.org](http://www.lung.org)

### **American Thoracic Society**

Patient and health care professional education on COPD. Including [ATS/ERS Standards for the Diagnosis and Management of Patients with COPD](#). [www.thoracic.org](http://www.thoracic.org)

### **COPD-Alert Support and Advocacy Group**

Frontline Advice for COPD Patients, information on COPD and the NHLBI Learn More Breathe Better COPD Awareness Campaign.

[www.copd-alert.com](http://www.copd-alert.com)

### **The COPD Foundation**

This patient-friendly site provides COPD detection tools, a 360 Social Media Chatroom, and a wealth of COPD educational tools through the BFRG (the Big Fat Reference Guide). The COPD patient powered research network (PPRN) registry is housed here and individuals with COPD are encouraged to sign in and generate a password to access the full materials.

[www.copdfoundation.org](http://www.copdfoundation.org)

### **COPD-International**

COPD chat rooms, information, library for medical information and support for caregivers.

[www.copd-international.com](http://www.copd-international.com)

**Emphysema Foundation For Our Right To Survive**

Information and support for people with emphysema and COPD.

[www.emphysema.net](http://www.emphysema.net)

**The Global Initiative for Chronic Obstructive Lung Disease**

Works with health care professionals and public health officials around the world to raise COPD awareness and to improve prevention and treatment of this lung disease. Through the development of evidence-based guidelines for COPD management, and events such as the annual celebration of World COPD Day.

[www.goldcopd.org](http://www.goldcopd.org)

**Learn More Breathe Better® COPD Campaign**

Public awareness campaign of NHLBI that facilitates COPD events and other activities across the United States. [www.nhlbi.nih.gov/health/educational/COPD/LMBB-Campaign](http://www.nhlbi.nih.gov/health/educational/COPD/LMBB-Campaign)

**Medline Plus**

A service of the U.S. National Library of Medicine and the National Institutes of Health. Contains a medical encyclopedia, dictionary and information to help answer health questions.

[www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus)

**Medscape**

Web-based resource for diseases and treatments for patients and health care providers.

[www.medscape.com/pulmonarymedicine](http://www.medscape.com/pulmonarymedicine)

**National Heart, Lung, and Blood Institute**

Information and research related to the causes, prevention, diagnosis, and treatment of heart, blood vessel, lung and blood diseases, and sleep disorders for patients, the public, health professionals, and researchers. [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

**National Lung Health Education Program**

Contains several resources for patients and health care professionals on COPD. [www.nlhep.org](http://www.nlhep.org)

**Partnership for Prescription Assistance**

Helps identify resources and clinics where low-cost or free medications may be available.

[www.pparx.org/prescription\\_assistance\\_programs/free\\_clinic\\_finder](http://www.pparx.org/prescription_assistance_programs/free_clinic_finder)

**Pulmonary Rehabilitation Programs in SC**

[www.cardiorehab.weebly.com/south-carolina](http://www.cardiorehab.weebly.com/south-carolina)

**SC Asthma Alliance**

State based asthma alliance

[www.scasthmaalliance.org](http://www.scasthmaalliance.org)

### **US COPD Coalition**

The U.S. COPD Coalition (USCC) consists of patient organizations, health professional organizations, individuals and government agencies who promote the interests of individuals affected by COPD. [www.uscopdcoalition.org](http://www.uscopdcoalition.org)

### **Welvista**

Non-profit organization that assists with providing medications to the uninsured or underinsured in North Carolina. Has some medications available for the treatment of COPD. Targets persons less than 65 years old who do not have other forms of insurance with a household income less than 200 percent of the poverty level. [www.welvista.org](http://www.welvista.org)

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*Links can be accessed through electronic versions of this document*

*The COPD Foundation graciously provided many of the list/links. See more at:*

[www.copdfoundation.org/Learn-More/Other-Links/Organizations-Resources.aspx#sthash.DeKeMqo4.dpuf](http://www.copdfoundation.org/Learn-More/Other-Links/Organizations-Resources.aspx#sthash.DeKeMqo4.dpuf)



## Summary and Future Directions

COPD will continue to be the third leading cause of death in South Carolina for many years. The costs associated with COPD are staggering and the disease impacts the economic, social and cultural fabric of the state in impactful ways. The status quo in which every patient with COPD is left to find their own resources and navigate a complex health care landscape costs the state immeasurably. For some diseases, no care is the cheapest care. For COPD, a disease that progresses for more than a decade on average before death, no care leads to higher costs of emergency room and hospital utilization, worse patient outcomes and worse financial outcomes for the families affected. Furthermore, this is a disease of disparities in which those with less education and more rural sites of care have more disease and worse outcomes.

This strategic plan was generated by a cross-cultural and multidisciplinary group of individuals who hope that COPD has a brighter future in South Carolina. They have all volunteered their time to contribute to this document to share a vision in which South Carolina can be healthier and more prosperous.

Unfortunately, the vision cannot be actualized without resources that target COPD prevention, detection and treatment strategies. Implementation of any strategic plan is always more difficult than writing about what needs to be done. Public monies, grants from federal, private and foundation sources, community resources, telemedicine initiatives, and donations of time, energy and money from disease affected individuals are needed.

Therefore, what becomes most important as the next step from this document is an engaged leadership plan that might emerge from some of the members of this writing committee. The strategic plan calls for formation of a South Carolina COPD Coalition. What form this coalition takes will determine chartering characteristics and governance, funding and mission. New organizations often die a slow death when a mission is not adequately funded or a project is not sufficiently concrete. The goals elaborated in this strategic plan are necessarily broad and optimistic. However, the need for comprehensive health care reform to address severe chronic diseases like COPD has never been greater. Please help the state of South Carolina realize the vision of improved health regarding chronic lung disease.

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D H E C



PROMOTE PROTECT PROSPER

South Carolina Department of Health  
and Environmental Control