

# Landscape of COPD in New Hampshire

 **Breathe**<sup>®</sup>  
NEW HAMPSHIRE  
Improving lung health since 1916

Issue Brief 2014

## About this Document

This Issue Brief is the second of its kind produced by Breathe New Hampshire (Breathe NH) that provides updated chronic obstructive pulmonary disease (COPD) specific data for New Hampshire. Breathe NH released the first COPD Issue Brief in August 2011, with funding support from the *COPD Learn More Breathe Better*<sup>®</sup> Campaign of the National Heart, Lung and Blood Institute (NHLBI). It presents new data collected and analyzed by the Office of Health Statistics and Data Management (HSDM) at the New Hampshire Department of Health and Human Services (DHHS.) This document is a resource for the health care and public health communities, advocacy groups and others interested in better understanding COPD and its local impact.

Limited data is available about the impact of COPD at the national and state level. This Brief adds to the existing collection of COPD-relevant data in the state and in the US, to further inform COPD prevention and management practices.

Breathe NH produced this document to bring much-needed attention to COPD, a leading cause of death and a significant public health burden in New Hampshire. COPD is largely a preventable disease and can be effectively managed using clinical guidelines and cost-effective public health strategies. We hope this Brief can be a reference for future COPD data collection, analysis, and program planning.

## About Breathe New Hampshire

Breathe NH has been serving the people of New Hampshire since 1916. Through education, advocacy, research, and partnerships, Breathe NH works to eliminate lung disease and improve the quality of life for those living with lung disease in New Hampshire. It is the only organization devoted solely to helping New Hampshire residents breathe better and live longer. Breathe NH is currently focused on addressing tobacco use and air quality issues to prevent lung disease, and reducing the impact of common chronic lung diseases including asthma, COPD and lung cancer.

## Background

COPD refers to a group of lung diseases, including emphysema and chronic bronchitis, that obstructs or limits airflow out of the lungs and causes breathing problems. It is the third leading cause of death in the US behind heart disease and cancer, and surpassed stroke as a leading killer in 2008.<sup>1</sup>

An estimated 15 million Americans have been diagnosed with COPD and more than 50% of adults living with low pulmonary function are unaware that they have it.<sup>2,3</sup> COPD is also a major driver of avoidable healthcare costs. In 2010, the US spent \$49.9 billion on COPD-related healthcare costs (\$29.5 billion on direct healthcare expenditures and \$20.4 billion on indirect costs).<sup>4</sup> Managing frequent exacerbations and hospitalizations are cost effective strategies that could have a favorable impact on overall healthcare costs.<sup>5</sup>

**COPD kills one person every four minutes in the US.**

## What Causes COPD?

In nearly all cases, COPD is caused by long-term inhalation of lung irritants that damage the lungs and the airways. In the United States, the most common irritant that causes COPD is cigarette smoke. Pipe, cigar, and other types of tobacco smoke can also cause COPD, especially if the smoke is inhaled directly or from secondhand smoke.

Breathing in secondhand smoke (smoke in the air from other people smoking), air pollutants, or chemical fumes or dust in the home and workplace environment can also contribute to COPD.

Rarely, a genetic condition called alpha-1 antitrypsin deficiency may play a role in causing COPD. People who have this condition have low levels of alpha-1 antitrypsin (AAT), a protein made in the liver. Having a low level of the AAT protein can lead to lung damage and COPD if a person with this condition is exposed to smoke or other lung irritants. COPD can worsen very quickly in smokers who have AAT deficiency.

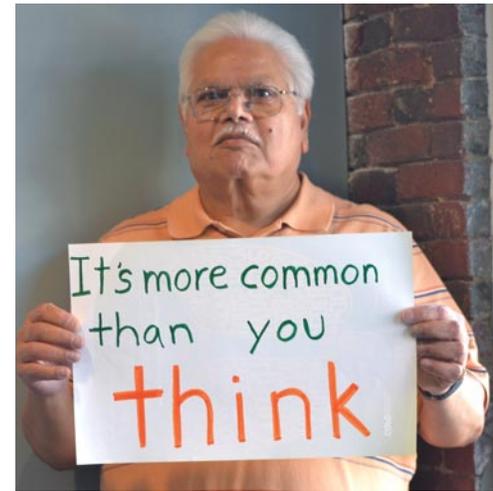
The reason that some smokers never develop COPD and that some never-smokers get COPD is not fully understood. According to the American Thoracic Society (ATS), family genes or heredity likely play a major role in the development of COPD.

### Symptoms

- Chronic cough
- Chronic sputum (phlegm) production
- Shortness of breath while doing daily activities
- Unable to take a deep breath
- Wheezing

### Prevention

- The most effective way to prevent COPD is to never start smoking or to quit. Healthcare providers are encouraged to discuss programs and products that can help patients quit smoking. For COPD patients that smoke, quitting smoking is the most important step they can take to slow disease progression.
- Reducing and eliminating exposure to tobacco smoke, home and workplace air pollutants, and avoiding respiratory infections are also essential strategies in preventing the development of COPD.



## Key Findings

- Approximately 1 in 15 of New Hampshire adults (6.5%) live with COPD and more remain undiagnosed. The rates are higher among women compared to men.
- There is wide variation in COPD prevalence within New Hampshire.
- In New Hampshire, only 35.4% of those with COPD were referred for pulmonary rehabilitation.
- COPD prevalence increased with age and was higher in groups with lower income and education levels.
- Among those with COPD, 30.1% were unable to work, 42.2% were current smokers and 44.7% had asthma.

“As with any chronic disease, early and correct diagnosis is important for several reasons. It is especially important to distinguish those folks with asthma, versus COPD, versus the 10–20% with overlap of both diseases. Treatment for these diseases uses many of the same medications, but order of use is very different and can lead to major complications if used inappropriately.”

– Albee Budnitz, MD, FACP, FCCP, Downtown Medical Associates, Nashua



## Diagnosis and Treatment

Early detection is critical in determining the progress of COPD and achieving better health outcomes for the patient. A simple test called spirometry is used to measure lung function and confirm diagnosis. Classification of the severity of COPD is based on post-bronchodilator spirometry.

While COPD has no cure yet, treatment is available to manage symptoms, to slow the progress of the disease, and to improve the patient's quality of life. The goals of effective COPD management include:

- Relieving symptoms
- Slowing the progress of the disease
- Improving exercise tolerance and ability to stay active
- Preventing and treating complications and exacerbations
- Improving overall health

Some options to treat and manage COPD include smoking cessation, medications, pulmonary rehabilitation, physical activity and oxygen supplementation. Treatments are added at greater degrees of severity.

## Impact of COPD in New Hampshire and Its Implications

In 2010 and 2011, questions were included in the Behavioral Risk Factor Surveillance Survey (BRFSS) conducted by the state of New Hampshire to help describe the prevalence and characteristics of COPD in New Hampshire. BRFSS is a state-based, random telephone survey of noninstitutionalized, adult population aged 18 years or older. State health departments administer the BRFSS annually to households with landlines and cellular telephones in collaboration with Centers for Disease Control and Prevention (CDC). Survey respondents were asked if they had ever been told by a doctor, nurse, or other health professional that they have COPD, emphysema or chronic bronchitis. Approximately 1 in 15 New Hampshire adults, or 6.5%, reported having COPD. This figure is consistent with COPD prevalence data from other states.

The following table shows the breakdown of COPD prevalence among New Hampshire adults by age, sex, employment status, education and income.<sup>6</sup>



Table 1. Percentage of New Hampshire adults with COPD, by selected characteristics

Characteristics	%	95% Confidence Interval (CI)
<b>Age Group (Years)</b>		
18–34	3.9	2.1–5.6
35–44	4.0	2.2–5.7
45–54	6.2	4.5–7.9
55–64	7.8	6.1–9.5
65 or older	11.7	10.0–13.4
<b>Sex</b>		
Male	5.5	4.4–6.6
Female	7.4	6.3–8.5
<b>Employment Status</b>		
Self-employed	2.8	1.3–4.2
Employed for wages	3.5	2.5–4.4
Out of work	8.9	5.0–12.7
Unable to work	30.1	23.9–36.4
<b>Education Level</b>		
Graduated from college or technical school	2.7	2.0–3.3
Attended college or technical school	6.4	5.0–7.8
High school diploma or GED	6.8	5.5–8.1
Did not graduate high school	17.6	12.5–22.8
<b>Income</b>		
\$75,000 or more	1.6	1.0–2.3
\$50,000–\$74,999	4.4	2.7–6.2
\$35,000–\$49,999	5.2	3.5–7.0
\$25,000–\$34,999	7.3	4.9–9.6
\$15,000–\$24,999	13.9	10.1–17.7
Less than \$15,000	18.6	14.2–23.0

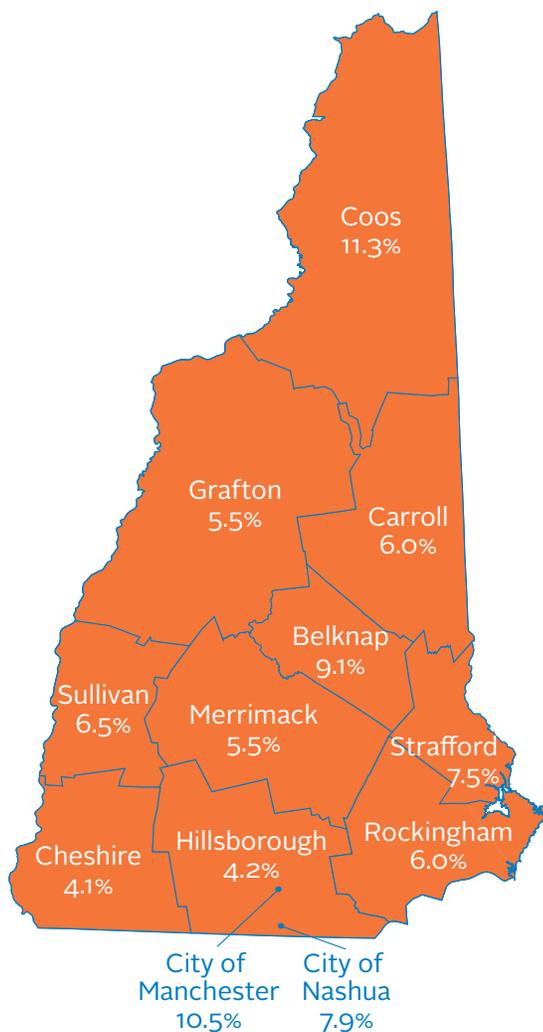
Source: 2011 NH BRFSS data weighted by HSDM<sup>6</sup>  
 95% CI represents the range of values that, with 95% certainty, includes the true value for the entire population.



Adult COPD prevalence data in New Hampshire is consistent with data from other states. COPD prevalence increased with age, from 3.9% among those aged 18–34 years to 11.7% among those aged 65 years or older. Women were more likely to report COPD than men (7.4% compared with 5.5%). Employment status was also related to a COPD diagnosis with prevalence highest among those who were unable to work (30.1%). COPD prevalence declined as educational levels increased. Respondents who did not graduate from high school reported a higher prevalence of COPD (17.6%) than those with a high school diploma (6.8%) or a college degree (2.7%). Reported COPD prevalence also decreased with increasing household income (Table 1). Among those with COPD, 42.2% were current smokers.

The prevalence of COPD in various New Hampshire counties is depicted in the figure below.

**Figure 1. Geographical distribution of COPD in New Hampshire**



As the county data indicate (Figure 1), there is a wide variation in COPD prevalence within New Hampshire, ranging from 4.1% in Cheshire County to 11.3% in Coos County. Some of the factors responsible for these differences could be related to tobacco use, exposure to occupational and home pollutants, diagnostic practices, or access to healthcare. However, further research is needed to determine the cause for this geographical variation in order to tailor specific interventions accordingly.

Source: 2011 NH BRFSS data weighted by HSDM<sup>6</sup>

HSDM calculates BRFSS weights based on the demographics of the City of Manchester, the City of Nashua, the remainder of Hillsborough County, the remaining nine New Hampshire counties, and the state's 14 public health regions. Results here are based on those weights.



### Impact of COPD on Quality of Life

Many people living with COPD find it difficult to perform simple day-to-day tasks such as walking, bathing, dressing, etc., thus their quality of life is greatly impacted. For persons with COPD, keeping active can be challenging because breathing takes much more energy and effort than normal.

**Table 2. Impact on quality of life for those with COPD compared to those without COPD**

Quality of Life Parameter	Told have COPD	No COPD
Fair or poor general health	58.9%	10.4%
Physical health not good 14 or more of past 30 days	44.2%	9.4%
Any limitations on activities	66.0%	21.5%

Source: 2011 NH BRFSS data weighted by HSDM<sup>6</sup>

### Comorbidities Associated with COPD

People with COPD often live with other diseases or comorbidities such as asthma, diabetes, congestive heart disease, or mental health diseases. It is recommended that healthcare providers actively identify these comorbidities in COPD patients since they often complicate the clinical management of the disease and can contribute to the overall severity of the disease.

Nearly half of those with COPD also report having asthma (44.7%). Although COPD and asthma are separate diseases, the symptoms overlap and can cause diagnostic confusion, leading to sub-optimal management. Research has shown that COPD is under-recognized by patients and under-diagnosed by physicians. An accurate diagnosis is critical to ensure the disease is staged and treated correctly.<sup>7</sup>

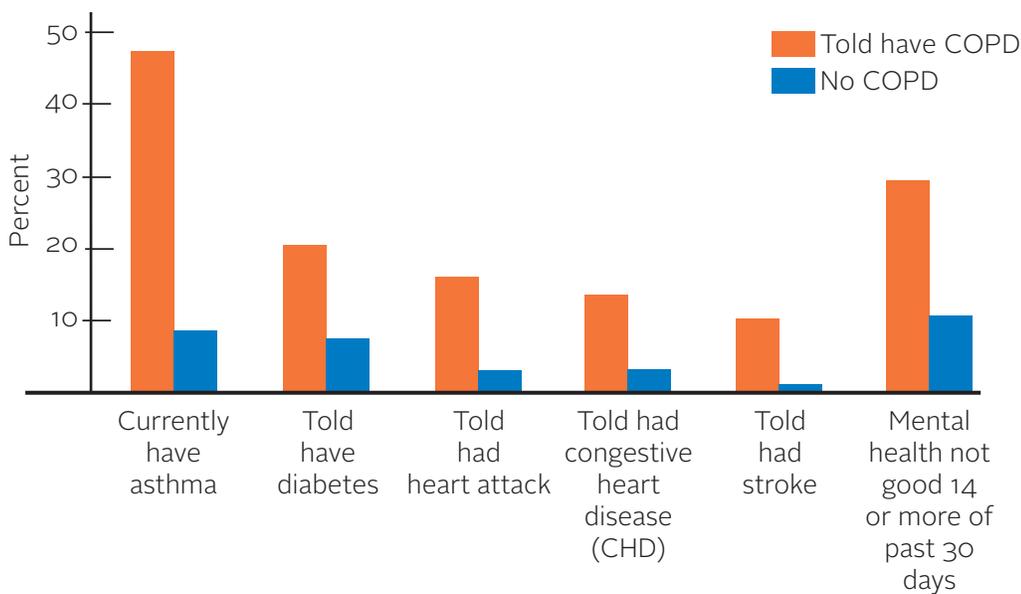
Research also shows that COPD patients have a higher prevalence of anxiety and depression, therefore, recognizing and treating the disease early can make a significant improvement in their quality of life.<sup>8</sup> Those with COPD are also at an increased risk of osteoporosis, as a systematic review in 2009 estimated the prevalence of osteoporosis to vary from 9–69%.<sup>9</sup> Therefore, it is suggested that future data surveillance efforts collect information about common comorbidities, such as osteoporosis, to provide a comprehensive understanding about COPD and its treatment.

“Living with COPD does have challenges, but if you take your medications, exercise, and have a positive attitude you can live a very full life.”

– Adelle, Concord Hospital COPD patient and volunteer



Figure 2. Prevalence of comorbidities among those with and without COPD



Source: 2011 NH BRFSS data weighted by HSDM<sup>6</sup>

### Access to Health Care

There was no significant difference found in healthcare coverage between those with and those without COPD; however, cost was a barrier in accessing care for those with COPD. Nearly one in three, or 29.1%, of those with COPD said they could not see a doctor because of cost, as compared to 13.9% of those without COPD. There is no data to suggest whether cost of medicines is a potential barrier to treatment of COPD in NH, and that could be an area for future research.

### Treatment and Management of COPD

According to the 2010 New Hampshire BRFSS data, only 35.4% of those diagnosed with COPD were referred for participation in a pulmonary rehabilitation program. Pulmonary rehabilitation is an effective individualized treatment program that teaches COPD management strategies to improve quality of life. However, as the data suggests, it is highly under-utilized. Therefore, all efforts must be undertaken to promote more referrals for pulmonary rehabilitation, keeping in mind the costs and availability of such a program for the patient. Reference to pulmonary rehabilitation is recommended for patients with moderate to very severe COPD.

## How Does New Hampshire Compare to Other New England States?

The table below shows the prevalence of COPD in various New England states as reported by the CDC. Due to both weighting procedures and age adjustment, New Hampshire data varies slightly from the CDC.

Table 3. Prevalence of COPD in New England states

State	%	95% CI
Connecticut	5.7	4.8–6.6
Maine	6.9	6.3–7.4
Massachusetts	5.4	5.0–5.9
New Hampshire	5.9	5.2–6.7
Rhode Island	5.9	5.2–6.6
Vermont	4.4	3.9–5.0

Source: 2011 United States BRFSS data age-adjusted by CDC<sup>2</sup>

## Best Practices for Diagnosis, Treatment and Management of COPD

An early diagnosis and appropriate treatment can immensely improve the quality of life for those living with COPD. Therefore, primary care physicians have a significant role in the diagnosis and management of COPD. It is recommended that all healthcare providers follow ACP (American College of Physicians) Clinical Practice Guidelines to ensure they are diagnosing and treating all COPD patients with the latest clinical information.<sup>10</sup> The goals of effectively managing COPD are to improve a patient's functional status and quality of life, relieve symptoms, and prevent the recurrence of exacerbations.

### Recommendations

While the data indicates 6.5% of New Hampshire adults are living with COPD, research suggests many more are not yet diagnosed. There is also considerable variation in COPD prevalence between the different counties within New Hampshire. More data is needed to understand the reasons for the differential rates, and the diverse needs of the population in order to target appropriate and effective interventions.

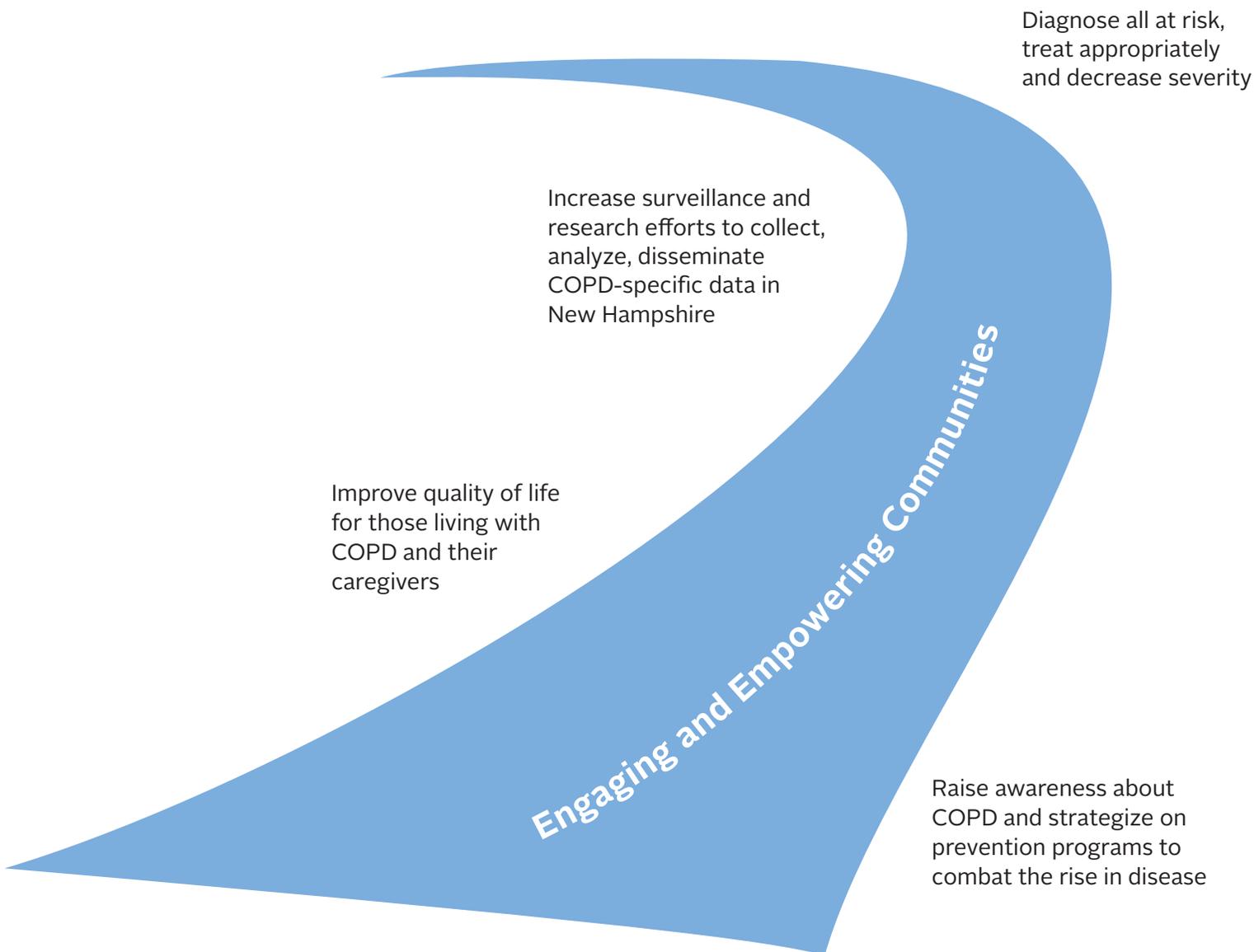
COPD places a huge burden on the population in terms of quality of life and utilization of economic resources thus it is important to have strategies in place to prevent and manage it effectively.

“After attending the full course of pulmonary rehabilitation, I was walking far without breathing difficulty, I had more energy, and I was happier overall. The things I learned in rehab have helped me to stay away from hospitalization.”

– Katherine Labrie, Laconia resident diagnosed with COPD at age 38. Co-leader, Breathe NH's Lung Health Awareness Team



## Improve Lung Health and Reduce Burden of COPD in New Hampshire



### Resources

For information about COPD resources in New Hampshire:

- Visit [www.breathenh.org](http://www.breathenh.org)
- Call 1-800-835-8647
- Email [info@breathenh.org](mailto:info@breathenh.org)

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**We wish to dedicate this Issue Brief to members of the Breathe NH Lung Health Awareness Team. These diverse and passionate volunteers continue to actively serve as a catalyst for COPD outreach efforts in our state.**

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Breathe New Hampshire is a Leadership Member in the Breathe Better Network, which is working to promote the National Heart, Lung and Blood Institute's *COPD Learn More Breathe Better*® Campaign in New Hampshire.

Breathe NH partners with a number of its independent lung health organizations across the country as part of the Breathe America Alliance.



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