

Research Topics

[< Back To COPD](#)

COPD Research



IN THIS ARTICLE

- [NHLBI research that really made a difference](#)
- [Current research funded by the NHLBI](#)
- [COPD research labs at the NHLBI](#)
- [Related COPD programs](#)
- [Explore more NHLBI research on COPD](#)

As part of its broader commitment to research on lung diseases, the NHLBI leads and supports research and programs on chronic obstructive pulmonary disease (COPD) in the United States and around the world. Research supported by the NHLBI has shown that certain treatments and lifestyle changes, such as quitting smoking, can help people with COPD stay more active and slow the progression of COPD. Current studies look at the potential benefits of treating COPD in its earliest stages.

More on COPD




Patient information



Find a clinical trial

NHLBI research that really made a difference

- **COPD National Action Plan:** The NHLBI, with input from federal and nonfederal partners, developed a [COPD National Action Plan](#) to guide nationwide efforts to reduce the burden of COPD. The goals of the plan include improved diagnosis, prevention, and treatment; improved surveillance and analysis of COPD public health data; and enhanced research to better understand and control the disease.
- **Awareness and care guidelines:** In 1998, the NHLBI helped launch the [Global Initiative for Chronic Obstructive Lung Disease \(GOLD\)](#)  to promote worldwide COPD awareness. In 2001, the first GOLD workshop report provided the initial guidelines for the diagnosis and management of COPD. GOLD, which now operates independently from NHLBI, currently publishes annual reports to update these guidelines in line with new research findings. GOLD has also published educational materials for healthcare providers and for people who have COPD.
- **Lung volume reduction surgery:** The [National Emphysema Treatment Trial \(NETT\)](#) was the first multi-center trial to study whether a surgical procedure called lung volume reduction surgery (LVRS) is a safe and effective treatment for patients who have COPD with emphysema as its main component. Emphysema is a condition caused by damage to the walls between the air sacs in the lungs. The results showed that LVRS can help improve breathing and quality of life in people who have emphysema in the upper part of their lungs and who cannot get enough oxygen during physical activity. These results have helped doctors recommend the right treatment options for people who have COPD.

Current research funded by the NHLBI

Our [Division of Lung Diseases](#) and its [Airway Biology and Disease Branch](#) oversee much of the research on COPD we fund.

Research funding


Find [funding opportunities](#) and [program contacts](#) for COPD research.

Current research on genetics and COPD

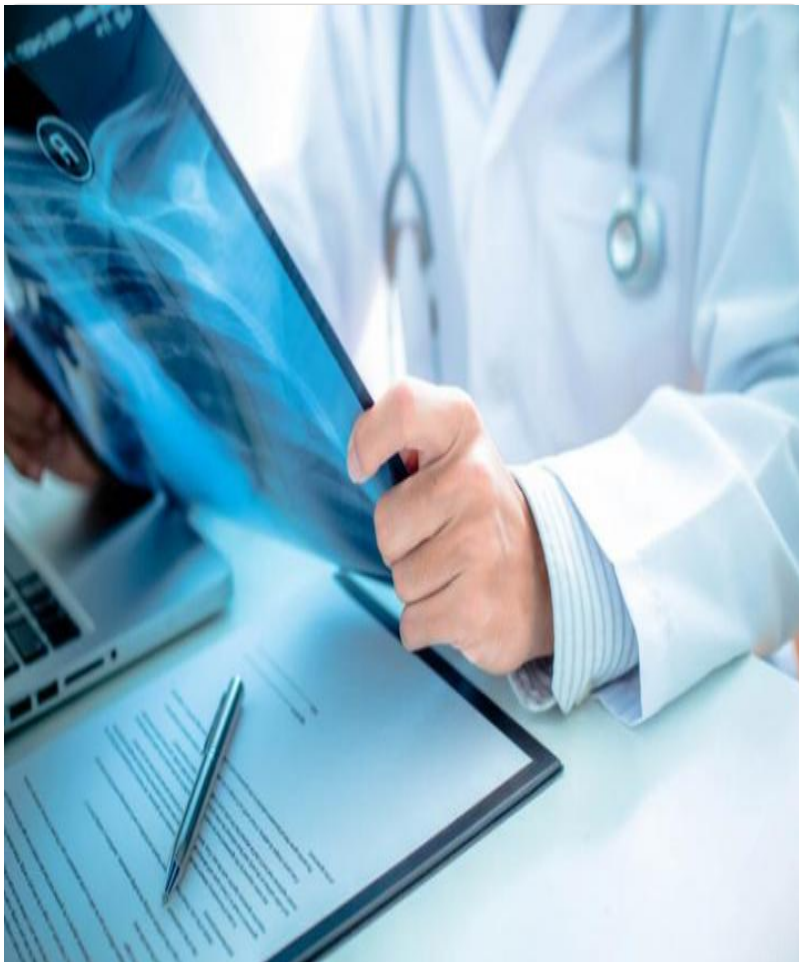
- **Genetics and COPD:** The [COPDGene® Study](#) looks at how a person's genetic background may influence their development of COPD. This study combines information from medical histories, lung function tests, and genetic testing in more than 10,000 participants to identify risk factors and to characterize how the disease worsens over time. The study also looks at how chest CT scans can help improve COPD diagnosis. Researchers use this information to classify different types of COPD and determine which treatment options are most likely to work for each patient. The COPDGene Study participates in the NHLBI's [Trans-Omics for Precision Medicine \(TOPMed\)](#) program, which makes the study's data available to other program investigators.
- **Risk factors for COPD:** The [Subpopulations and Intermediate Outcome Measures in COPD Study \(SPIROMICS II\)](#) uses information from lung tests, biological specimens, imaging, and genetic testing to help understand what raises a person's risk of COPD and how COPD develops. It also identifies new biomarkers to predict COPD symptoms and progression. Additional analyses investigate how [air pollution, inflammation, and infections can worsen COPD](#). SPIROMICS also participates in the TOPMed program.
- **Genetic therapies:** NHLBI-funded researchers are developing [new approaches to genetic therapies](#) that treat alpha-1 antitrypsin deficiency (AAT). AAT is a genetic condition that can raise the risk of COPD.

Find more NHLBI-funded studies on [genetics and COPD](#) at NIH RePORTER.

Current research on the early stages and development of COPD

- **Early detection:** The [SPIROMICS Study of Early COPD Progression \(SOURCE\)](#)  looks for the earliest signs of COPD. It uses questionnaires, breathing tests, imaging, and biospecimens to test different hypotheses about how people with a history of smoking develop lung obstruction, and why some people develop COPD and others do not.

- **Predictors of lung health:** The [Lung Health Cohort \(LHC\)](#) is a population-based cohort study of members of the millennial generation. Its goal is to characterize behavioral, environmental, and biological predictors of lung health in early adulthood.
- **Smoking and COPD:** The [MESA COPD Study](#) from Columbia University looks at how changes to the blood vessels of smokers' lungs may contribute to the loss of lung function in COPD. MESA COPD study is part of the NHLBI-sponsored Multi-Ethnic Study of Atherosclerosis medical research study.



NHLBI NEWS


Learn more about the association of genes with the risk of COPD: [New study offers insights on genetic indicators of COPD risk.](#)

Current research on health disparities

- **COPD in rural populations:** In 2019, the NHLBI established the [Risk Underlying Rural Areas Longitudinal Cohort Study \(RURAL\)](#) to address COPD and other diseases that may affect rural populations more than others. Researchers are examining how lifestyle and genetic, environmental, and socioeconomic factors affect a person's risk of serious heart and lung conditions. The study is recruiting about 4,000 participants in rural counties in Alabama, Kentucky, Louisiana, and Mississippi. Researchers use a mobile van with an examination unit and a CT scanner to reach participants.
- **African Americans and COPD:** NHLBI-funded researchers are conducting an in-depth [study of COPD in African Americans](#). This study uses data and samples collected as part of other NHLBI-funded long-term studies on COPD to identify new markers that determine a person's risk of COPD and to diagnose early COPD. The study's results will help improve the prevention, diagnosis, and treatment of this disease.

Find more NHLBI-funded studies on [COPD and health disparities](#) at NIH RePORTER.

Current research on diagnosis and treatment

- **Screening:** The [CAPTURE Study](#) validates a simple tool for COPD screening in primary care settings that will help to identify people with undiagnosed COPD. Researchers are confirming that a quick breathing test and a simple questionnaire can help reach patients who are likely to benefit from treatment for COPD.
- **New treatments:** The [Pulmonary Trials Cooperative](#)  brings together patients, researchers, and health care professionals from more than 50 institutions, with a common goal of developing new treatments for lung diseases. This program includes three clinical trials on COPD.

Find more NHLBI-funded studies on [COPD treatment](#) at NIH RePORTER.

NHLBI IN THE PRESS

Learn how NHLBI-supported researchers are using [soft-tissue biomarkers](#) detected during routine chest CT scans to reduce mortality in patients with COPD.

COPD research labs at the NHLBI

Research from the NHLBI [Laboratory of Asthma and Lung Inflammation](#) on the NIH campus is focused on developing new treatments for COPD.

Read more about these projects and ongoing [clinical trials](#).

Related COPD programs

- [Learn More Breathe Better®](#) is a national health education program for COPD, asthma, and other lung and respiratory diseases. The program raises awareness about COPD and supports the promotion, implementation, and adoption of evidence-based care. *Learn More Breathe Better®* has [tools and handouts](#) for patients, including tips for living better with COPD. Read about how NHLBI's *Learn More Breathe Better®* program [helps local communities ease the burden of COPD](#).
- The [Molecular Atlas of Lung Development Program \(LungMAP\)](#) maps the tissues, cells, genes, and molecules that make up the developing lung. The program advances lung research, in part through its web-based data resource, called BREATH, that allows users to access LungMAP data and findings. Nearly 100 research papers have been produced using LungMAP data, and the program's maps have helped scientists understand the complex processes that control the growth, structure, and function of the lungs.

Explore more NHLBI research on COPD

The sections above provide you with the highlights of NHLBI-supported research on COPD. You can explore the full list of NHLBI-funded studies on the [NIH RePORTER](#).

To find more studies:

- Type your search words into the **Quick Search** box and press enter.
- Check **Active Projects** if you want current research.
- Select the **Agencies** arrow, then the **NIH** arrow, then check **NHLBI**.

If you want to sort the projects by budget size – from the biggest to the smallest – click on the **FY Total Cost by IC** column heading.

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