By performing groundbreaking research and applying new technologies to clinical care, the Center for Lung Science and Health helps those suffering from lung problems breathe easier.
Our vision

20,000. That’s how many breaths the average person takes in a single day. But lung diseases such as cystic fibrosis, lung cancer, and chronic obstructive pulmonary disease (COPD) can make each breath difficult to take. In America alone, more than 38 million people are affected by lung diseases and related disorders. More than a quarter of all emergency room visits are linked to asthma attacks. Lung problems don’t just take a toll on those who are experiencing them. They also impose an enormous burden on our healthcare system.

The University of Minnesota’s Center for Lung Science and Health uses cutting-edge research and clinical care to help bring relief to those who need it most. We have won national awards for our transplant work. We’re studying key biomarkers that will help us improve the lives of people with COPD. And we’re finding new therapies for sleep apnea, an extremely common disorder.

We are ready to pursue more ambitious goals to increase the scope of our clinical care and expand promising areas of research. With your help, we’ll advance four critical areas that can transform the lives of millions.

More second chances for those with serious lung diseases

Our lung transplant program—one of the most active and successful in the nation—is doing more transplants than ever before. However, there are only enough donors to perform 3,000 transplants nationwide—not nearly enough to satisfy the needs of all the individuals with advanced lung disease and lung failure. Therefore, we are also doing research that can help make lung transplants obsolete, by learning to use a patient’s own cells to create a new lung.

We are doing other critical work as well. University researchers have pinpointed promising treatments for pneumonia and acute respiratory distress syndrome (ARDS), conditions that lead to millions of critical care unit admissions and thousands of deaths each year. Our researchers are finding ways to minimize the harmful effects of tissue-damaging cells called neutrophils, and testing brand-new stem cell treatments.

Our ambitious programming transforms patients’ lives now, and will have an even bigger effect down the road.

Better approaches for lung cancer and scarring

Lung cancer kills more people in the country than breast, prostate, and liver cancer combined. Worse, the number of deaths from lung cancer is rising in non-smokers and women. Meanwhile, pulmonary fibrosis, a deadly and swiftly moving disease that results in scarring of the lung tissue, affects hundreds of thousands of Americans.

We are making strides to improve these grim statistics. Our researchers have developed a urine screening test that may help
detect lung cancer earlier, when treatment is most effective. We’re studying how healthy lung cells change to find new ways to combat the disease. And we’re ready to start the world’s first clinical trials of cell therapies for pulmonary fibrosis.

Our work extends beyond biology and into public health: we’re also developing powerful new ways to help people stop smoking—and prevent non-smokers from starting.

**We’re opening airways**

Diseases of the breathing tubes, or airways, are among the most common lung problems. Cystic fibrosis is the most common life-threatening genetic disease, and COPD affects more than 20 million people. We’re doing critical research to improve patient lives with these devastating conditions.

For example, researchers at the University are now studying how specific blood and urine chemicals can serve as the proverbial “canary in the coal mine” to help us predict flare-ups in COPD, which can be fatal. And for cystic fibrosis patients, we’re developing new types of antibiotics to treat common infections.

**We help everyone take deep, clean breaths**

Our lungs are fragile, and they are constantly assaulted, through air pollution, secondhand smoke, and dangerous chemicals. Sleep apnea—breathing pauses during sleep—affects up to 18 million Americans, and its effects, from heart problems to high blood pressure, can be devastating.

We’re working on many new initiatives, from new sleep-breathing disorder therapies to technology that measures pollution exposure for individuals. These projects can bring relief to those who need it most.

**Investments needed to advance this work**

There is great potential for increasing our understanding about lung diseases and related conditions while developing new therapies and treatments. University investments combined with philanthropic gifts in the following areas will help to significantly advance our work.

**Research support.** Our researchers lead the world in improving transplant outcomes, better understanding of cystic fibrosis, and using regenerative medicine to create new, healthy lungs from a person’s own cells. These medical breakthroughs impact countless individuals. Philanthropic funds will make it possible to expand our research in pursuing new discoveries and exploring new therapies.

**Faculty recruitment.** Our goal is to recruit the best and brightest faculty to broaden the expertise of our research team at every level, foster the development of younger faculty, and increase opportunities for bringing new treatments to clinical testing. Funding to make
strategic additions to the team will help us build a powerful group and move forward with our research.

**Training the next generation.** Increased funding for our fellowship program will make it possible to enroll more young researchers who will become the next generation of pulmonary leaders. Gifts will also ensure that our medical students and residents have access to the latest technological advances, faculty mentoring, and hands-on learning in a variety of settings.

**Your help can transform the lives of millions**

Our researchers have achieved remarkable results from their work. With your help, we can advance this work even farther in finding treatments and cures for lung diseases and disorders. Private funding will help us build a stronger foundation with the right experts, the right connections and the right technology, nurture promising new research, and continue to train the next generation of pulmonary leaders.

The lung transplant that saved a family

Jamie Hammer has spent a lifetime dealing with the complications of her cystic fibrosis diagnosis, from 50-pill-a-day regimens to daily IV treatments. But when an average cold spiraled out of control in 2010, she was admitted to the hospital. Soon she was attached to a ventilator to keep her breathing. Only a lung transplant could save her life.

The situation seemed hopeless. That December, friends and family, including her husband and young daughter, said their goodbyes. But just in time, new lungs became available. Days before Christmas, she underwent a dramatic double-lung transplant surgery performed by University of Minnesota surgeons Rosemary Kelly and Sara Shumway.

The transplant could not have gone better: Hammer has had no complications since the transplant. “It’s unbelievable just waking up and breathing and feeling good,” she says. “I’m still going through the ‘wow’ factor.”

Success stories like Hammer’s are part of the reason that the University was one of just three sites in the nation to receive the coveted “Lung Transplant Excellence Award” given by the independent rating agency HealthGrades.

Learn more about opportunities to support lung research and care by contacting Sara Shaw of the University of Minnesota Foundation at sbshaw@umn.edu or 612-625-3253.