

THORACIC SURGERY

COMPASSIONATE CARE & INNOVATION

Diaphragmatic Pacing

Emphysema/COPD

Esophageal Cancer & Disorders

High-Risk Lung Assessment

Hyperhidrosis

Lung Cancer

Lung Transplantation

Myasthenia Gravis & Thymectomy

Mesothelioma

Pulmonary Hypertension



COLUMBIA UNIVERSITY
MEDICAL CENTER

 **NewYork-Presbyterian**



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COMMITMENT TO PERSONALIZED MEDICINE

Personalized medicine uses information about a person's genes, proteins, and cellular environment to prevent, diagnose, and treat disease. At NewYork-Presbyterian/Columbia University Medical Center, the advent of personalized medicine is changing how we treat patients by employing targeted treatment strategies based on a tumor's specific molecular characteristics.

Many tumors have unique pathologic and molecular characteristics that may warrant different treatment strategies. With these targeted therapies, our team can develop treatment strategies with greater specificity, and at the same time help patients avoid side effects from treatments that may be less-than-optimal for their tumor type.

The Columbia University Thoracic Oncology team is leading the nation in developing less invasive methods to diagnose and biopsy tissue for analysis prior to full treatment utilizing proteomic, gene expression, and chromosomal abnormality analyses. These tests also enable us to guide our patients toward clinical trials and new drugs that may be tailored to the patient and the genetic analysis of the tumor. Some presently open clinical trials can be searched on our Herbert Irving Comprehensive Cancer Center web page:

www.hiccc.columbia.edu/clinical-trials/

WELCOME

The General Thoracic Surgery Section of NewYork-Presbyterian/Columbia University Medical Center (NYP/Columbia) provides the most compassionate patient care while offering the most advanced surgeries and therapies for chest diseases. We successfully manage every condition from the extremely common to the very rare and life-threatening.

When you come to NYP/Columbia, you will be treated by a multidisciplinary team that considers every aspect of your diagnosis, treatment and rehabilitation, and its arsenal has all the latest medical and surgical techniques.

Our thoracic surgeons are world-class experts in the treatment of lung cancer, emphysema and lung failure, and NYP/Columbia continues to be one of the premier lung transplant centers in the New York metropolitan area.

Our advanced technology allows us to perform a high proportion of thoracic procedures using minimal access techniques. This translates into shorter hospital stays and faster recovery times.

You will also receive the benefits of 75 years of innovation during which we have developed new approaches to tuberculosis, lung cancer, chest wall deformities, myasthenia gravis, emphysema, complex tracheal surgery, and

end-stage lung disease. We have made significant progress with minimally invasive lung-preserving techniques to treat early cancers.

Today we lead the way in lung cancer screening for at-risk individuals, adding years to their lives with early intervention.

Our *Center for Acute Respiratory Failure* uses the latest lung bypass and artificial lung techniques to rescue patients whose lungs are rapidly shutting down.

In addition, our surgeons are discovering ways to restore lungs that are too damaged to be used for transplant. An evolving method of reviving donor lungs will greatly increase the pool of viable organs in the years ahead.

I invite you to learn more about our nationally recognized Center of Excellence, our full spectrum of capabilities and our highly dedicated team.



Joshua R. Sonett, MD

*Chief, Section of General Thoracic Surgery
Director, The Price Family Center for
Comprehensive Chest Care*

NewYork-Presbyterian/
Columbia University Medical Center

*Edwin C. and Anne K. Weiskopf Professor
of Surgery*

Columbia University College of
Physicians and Surgeons

PATIENT CARE

Interdisciplinary Patient Care Programs

Our interdisciplinary programs draw upon the full resources of NYP/Columbia to offer the most innovative therapies and treatments. Nationally renowned thoracic surgeons collaborate with pulmonologists, anesthesiologists, gastroenterologists, radiologists, oncologists, intensivists, specially trained nurses, and respiratory therapists to provide the most compassionate patient care and achieve the best possible outcomes.

The *Price Family Center for Comprehensive Chest Care* provides specialized state-of-the-art diagnosis and treatment for all aspects of pulmonary, chest, and esophageal diseases, treating over 5,000 patients each year. The *Interventional Bronchoscopy and Endobronchial Therapy Program* offers a full range of diagnostic and treatment options for patients with benign or malignant growths in the airway.

High Risk Lung Assessment

Each year hundreds of thousands of people are diagnosed with lung cancer, mesothelioma, emphysema and other serious lung diseases. We offer screening and evaluation for patients at high risk for developing these disorders.

CT Lung Cancer Screening Program

Lung cancer screening with low-dose computed tomography (CT) effectively detects lung cancer at an early stage when it has the best chances of being fully removed and cured. CT screening is far more effective at visualizing early, small tumors than chest X-ray, leading to significantly fewer deaths from lung cancer.



PROGRAMS

The *CT Lung Cancer Screening Program* offers high quality imaging with state-of-the-art low-dose CT equipment. Our program includes subspecialty-trained chest radiologists as well as Board-certified pulmonologists, oncologists, and thoracic surgeons. Our team provides seamless follow-up testing and treatment if any abnormalities are detected.



CT scan of the lungs

This painless, noninvasive test creates precise pictures of the structures in your chest including the lungs.

Screening should be performed for current or former smokers aged 55-74 who have at least a 30-pack-year smoking history or have quit within the past 15 years; people who have a strong family history of lung cancer, asbestos exposure, emphysema, or chronic obstructive pulmonary disease (COPD); and others who may be considered high risk by their physicians.

Patients who do not have a physician referral for CT lung screening should ask for a referral to our *Pulmonary Nodule Assessment Program* by calling 212.305.1544.

The Center for Acute Respiratory Failure

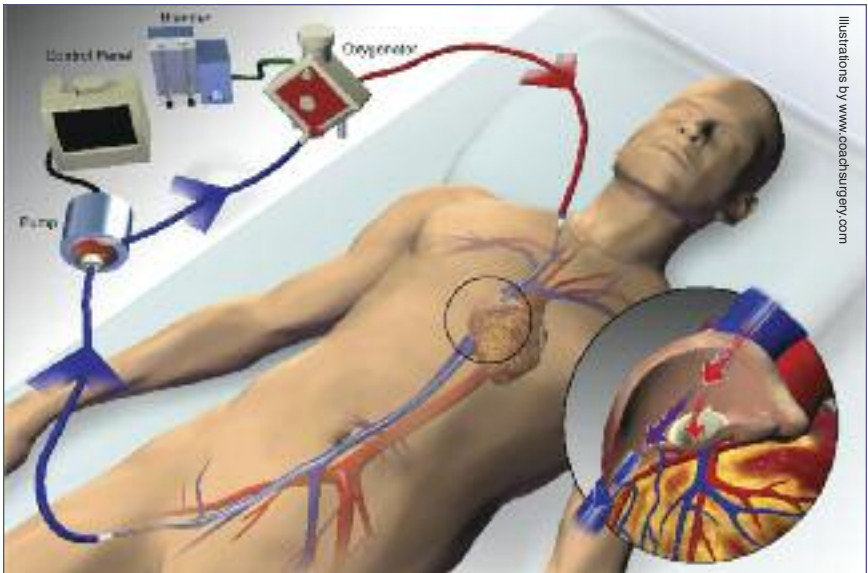
The *Center for Acute Respiratory Failure* provides the most advanced treatment for patients with acute respiratory failure. Within this center, the medical ECMO program is a pioneer in the use of extracorporeal membrane oxygenation (ECMO)—temporary support of the lungs using a bypass machine—to help those in crisis. In fact, our experts



recently described the innovative uses of ECMO in *The New England Journal of Medicine*.

ECMO is occasionally used as a bridge to lung transplantation, allowing us to liberate critically ill patients in respiratory failure from a ventilator until donor lungs become available. ECMO can also be used to transport and stabilize patients with ARDS (acute respiratory distress syndrome).

The Center is also one of the few in the world specializing in the treatment of chronic thromboembolic pulmonary hypertension (CTEPH), a condition where the pulmonary arteries are narrowed by



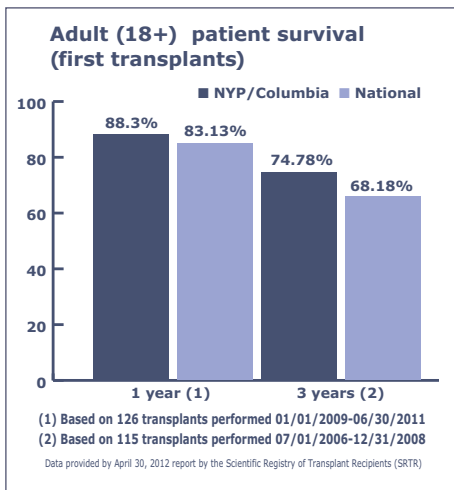
ECMO is an extracorporeal technique providing both cardiac and respiratory support, giving oxygen to patients whose heart and lungs are so severely diseased or damaged that they can no longer function.

EXCELLENCE

clots. Our surgeons are able to clear old clots from the vessels, providing significant symptom relief. Occasionally patients with life-threatening acute pulmonary embolus may require urgent pulmonary embolectomy.

The Center for Lung Disease and Transplantation

Recognized as a Medicare Approved Center of Excellence, NYP/Columbia continues to be the premier referral center in the northeast for lung transplantation. Our one and three year patient survival rates are well above the national average and are predominant over many of the other top-tier transplantation programs in the country.



Lung transplants may save the lives of patients with cystic fibrosis, emphysema and interstitial lung disease. Our faculty include thoracic surgeons, pulmonologists, immunologists, nurse coordinators, and others dedicated solely to the care of transplant patients.

In addition, we are developing new methods to replenish and repair lungs that previously had been considered unsuitable for transplant. This discovery has the potential to greatly increase the number of donor organs available in the future.

TREATMENT

Advanced Surgical Techniques

Electromagnetic Navigation Bronchoscopy™ and Interventional Bronchoscopy

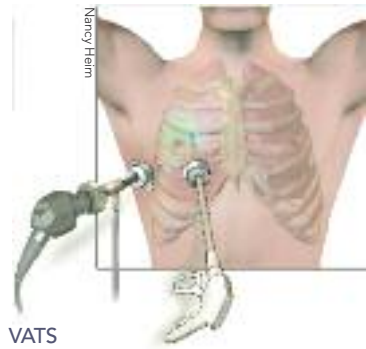
We are among the first to use a new imaging technique called SuperDimension Electromagnetic Navigation Bronchoscopy™ (ENB). ENB provides a computer-generated image of the lungs which allows us to perform transbronchial biopsies of small suspicious nodules. This procedure facilitates surgical removal if a nodule is malignant, and averts the need for surgery if it is benign.

Advanced Minimally Invasive and Robotic Surgery

Most thoracic procedures are accomplished using video-assisted thoracic surgery (VATS) or robotic surgery. Benefits of the minimally invasive approach include a reduced hospital stay with faster recovery and return to normal activities. As leaders in this field, our surgeons are developing new techniques by combining minimally invasive and robotic surgery.

Tracheal Surgery

Tracheal surgery is unusually complex because the blood supply to this portion of the body is limited, and the flow is often difficult to predict; therefore it is best performed by surgeons with special training and a great deal of experience. Our surgeons are known for their success with these difficult procedures and are nationally recognized for treating benign tracheal stenosis, a narrowing of the airway caused by inflammation from prolonged endotracheal intubation.



VATS

One incision permits access of the thoroscope for viewing. Forceps and a surgical stapling instrument are used to remove the affected tissue through two other incisions.

OPTIONS

Disease Management

Lung Cancer

Lung cancer is the leading cause of cancer death for both men and women in the U.S. with over 230,000 new cases of lung cancer diagnosed each year. It is also the most preventable form of cancer. Early screening (p. 5) has been shown to save lives, allowing us to detect and address malignancies before the patient experiences symptoms. When lung cancer is diagnosed at a more advanced stage, surgery in combination with chemotherapy or radiation may still achieve a cure. Our oncology program is investigating novel therapies to improve survival. Several of these clinical trials, involving advanced chemotherapy, radiotherapy and vaccines, are only available at NYP/Columbia.

Esophageal Cancer and Disorders

Our surgeons are expert in treating a wide range of esophageal disorders using laparoscopy and thoracoscopy for both benign and malignant diseases, including; GERD, achalasia, and giant paraesophageal hiatal hernia.



Mark E. Ginsburg, MD and Lyall Gorestein, MD perform a video-assisted thoracoscopic procedure (VATS).

SPECIALIZED

Disease Management (continued)

Working closely with our colleagues in interventional gastroenterology, we have developed a prevention program for patients with Barrett's esophagus, a pre-cancerous condition of the esophagus, using radiofrequency ablation (RFA). Early esophageal cancers can now be treated with endoscopic mucosal resection (EMR), saving the esophagus and avoiding major surgery. In patients with hiatal hernias, RFA is followed by laparoscopic Nissen fundoplication to eliminate gastroesophageal reflux and prevent recurrent Barrett's disease, thereby reducing the risk of developing esophageal cancer.

As the leading center in the U.S., our surgeons are pioneering new approaches to treating esophageal cancer such as minimally invasive esophagectomy (MIE). This technique allows for a more rapid recovery than traditional open surgery.

Patients with more advanced tumors undergo evaluation by our multidisciplinary team, which includes medical oncologists, radiation oncologists, and surgeons. Patients may undergo multimodality therapy including chemotherapy and radiation therapy followed by surgery.

Emphysema/Chronic Obstructive Pulmonary Disease (COPD)

The NYP/Columbia *Lung Volume Reduction Program* offers some of the most innovative approaches to advanced emphysema. Active since 1994, our team has garnered the most experience in the U.S. for this surgical procedure which removes severely damaged sections of the lung, allowing the remaining area to function better and making it easier for the patient to breathe. We are the only medical center in the tri-state area designated by the National Institute of Health as a Center of Excellence for lung volume re-



CARE

duction surgery (LVRS). NYP/Columbia participated in a landmark clinical trial showing that LVRS significantly improves survival and quality of life in carefully selected patients with emphysema. Our surgical results are excellent, with zero mortality in the past six years, and we continue to offer our patients access to clinical trials of new devices and treatment options.

Those who are not candidates for LVRS may be helped by endobronchial devices that redirect airflow to healthier segments of the lungs. NYP/Columbia is a leading center for the development of these devices that may soon give us the same results as lung volume reduction without surgery.

Myasthenia Gravis and Thymectomy

Myasthenia gravis (MG) is a degenerative disorder that affects muscles and nerves. For more than 50 years, NYP/Columbia has been internationally recognized for its exceptional ability to diagnose and treat this disease. The thymus, an immune system organ located under the breast bone, has been linked to the development of MG. NYP/Columbia is one of a few institutions to address MG by performing complete radical thymectomy—removal of the thymus—using video-assisted surgery. Because of the placement and small size of the incisions, this minimally invasive procedure gives the most cosmetically appealing results. Hospital stay is usually only one day and the patient may return to work and normal activity within a week.

A recently concluded clinical trial also confirms the effectiveness of thymectomy. After removing the thymus with a minimally invasive



Disease Management (continued)

procedure, symptoms abate in up to 70 percent of MG patients, and some experience a complete cure. These improvements may last for months to years after surgery. Our team approach to this condition has also resulted in dramatically improved treatment and a better staging system for these patients.

Diaphragmatic Pacing Program

Diaphragmatic pacing, or phrenic nerve pacing, entails implantation of a small device that stimulates the diaphragm to move and expand the lungs. It is indicated for select patients who are unable to breathe without the assistance of mechanical ventilation, including some patients with spinal cord injuries to the C1 or C2 vertebra, and some with respiratory disorders such as Ondine's curse (congenital central hypoventilation syndrome, or CCHS). Performed through a minimally invasive incision in the chest, diaphragmatic pacing significantly improves patients' quality of life by eliminating the need for mechanical ventilation. The *Thoracic Surgery Section* has offered diaphragmatic pacing to adults and children for 20 years, and is one of the world's highest volume centers for this therapy.

Mesothelioma

Mesothelioma is a rare form of cancer that develops in the protective lining of the lungs and is associated with exposure to asbestos. A multidisciplinary team at NYP/Columbia's renowned *Mesothelioma Center* has developed a unique approach to this disease, combining chemotherapy, surgery, and focused radiation therapy, allowing us to spare as much of the nearby healthy tissue as possible. Our approach, evaluated through a clinical trial, has

SUPPORT

proven effective in combating this malignancy. The National Cancer Institute and the National Institutes of Health have also designated the *Mesothelioma Center* at NYP/Columbia as a Center of Excellence and our researchers continue to study innovative approaches that help us manage this disease.

Cystic Fibrosis and Interstitial Lung Disease

NYP/Columbia is a leader in advancing techniques and patient selection criteria for lung transplantation in adults and children with cystic fibrosis (CF), a genetic disease that causes the build-up of thick, sticky mucus primarily in the lungs and digestive tract. We have the largest CF lung transplant program in the northeast, providing comprehensive, multidisciplinary care for these patients.

Patients with interstitial lung disease (ILD), a complex disease of many different pathological processes, may also benefit from lung transplantation, which can extend survival for patients with severe and irreversible airflow obstruction.



After transplant, CF patients like Tim Sweeney (left) may discover a new lease on life. To celebrate his recovery, Mr. Sweeney ran the New York City Marathon with his transplant surgeon, Dr. Joshua Sonett.



Disease Management (continued)

Pulmonary Hypertension

Pulmonary arterial hypertension (PAH) is a rapidly progressive condition that leads to breathlessness and right heart failure and is potentially lethal if left untreated. NYP/Columbia is home to one of the largest pulmonary hypertension centers in the world, where doctors use advanced medical and surgical therapies to treat this condition. In addition to FDA approved medications, clinical research trials enable us to treat patients with novel therapies. If patients fail to improve on medical therapy, they are evaluated by our lung transplant team for the only definitive cure for isolated PAH, lung transplantation. In cases where lung clots are the cause of the pulmonary hypertension, CTEPH, patients may be eligible to undergo surgery to remove the clots. This surgery is only performed in a few centers in the United States including NYP/Columbia. Medical and surgical teams work closely to assure the best possible outcomes for patients with all forms of pulmonary hypertension.

Hyperhidrosis

Many people suffer from some form of hyperhidrosis (excessive sweating). This condition may severely affect the patient's lifestyle and can be socially debilitating. Our surgeons are nationally known for a minimally invasive procedure called endoscopic thoracic sympathectomy (ETS), which completely eliminates the disorder. *The Center for Hyperhidrosis* at NYP/Columbia is well-established as a Center of Excellence. Our endoscopic technique is considered safe and is curative in 98 percent of patients.

Contact Us

For further information about our programs and procedures, please call 212.305.3408 or toll-free 1.855.CU.SURGE

More detailed information can be found on our website:
www.columbiathoracic.org

Physician Referrals: 1.855.CU.SURGE

The Price Family Center for Comprehensive Chest Care: 877.586.4212

CT Lung Screening: 212.326.8505

Lung Transplant Evaluation: 212.305.7771

Locations

Manhattan

New York-Presbyterian/Columbia University Medical Center

161 Fort Washington Avenue

Herbert Irving Pavilion, Suite 301

New York, NY 10032

212.305.3408

Rockland County

5A Medical Park Drive

Pomona, NY 10970

845.362.0075

Orange County

70 Hatfield Lane

Goshen, NY 10924

845.291.3656

Hospital Affiliations

Rockland County

Good Samaritan Hospital, Suffern, NY 10901

Nyack Hospital, Nyack, NY 10901

Orange County

Orange Regional Medical Center, Walkill, NY 10940

St. Luke's Cornwall Hospital, Newburgh, NY 12550

THORACIC SURGERY

Clinical Faculty

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Lung Transplant Program

Telephone: 212.305.7771

www.columbialungtransplant.org



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