

Lung Volume Reduction Surgery

Offering New Hope for Patients with Emphysema





Mark E. Ginsburg, M.D.
Thoracic Surgery

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OVER 14 MILLION PEOPLE IN THE UNITED STATES HAVE BEEN DIAGNOSED WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD). IN 2002, THE COST OF CARING FOR PATIENTS WITH COPD WAS OVER 32 BILLION DOLLARS. IT IS CURRENTLY THE FOURTH LEADING CAUSE OF DEATH IN THE UNITED STATES, AND THE ONLY MAJOR DISEASE THAT CONTINUES TO INCREASE IN MORTALITY. TODAY, COPD IS THE FIFTH LEADING CAUSE OF DEATH IN THE WORLD; IN 2020, IT IS EXPECTED TO BE THE THIRD LEADING CAUSE OF DEATH IN THE WORLD.

BECAUSE OF MEDICAL ADVANCEMENTS, THE OUTLOOK FOR PATIENTS WITH COPD HAS IMPROVED DRAMATICALLY. THERE ARE A VARIETY OF TREATMENT OPTIONS FOR THESE PATIENTS, INCLUDING NEW MEDICATIONS, OXYGEN AND PULMONARY REHABILITATION. MOST PATIENTS WITH COPD HAVE A COMBINATION OF CHRONIC BRONCHITIS AND EMPHYSEMA, BUT THE PURER THE EMPHYSEMA THE LESS LIKELY IT IS THAT STANDARD MEDICAL OPTIONS WILL BE EFFECTIVE.

Lung Volume Reduction Surgery

NETT Trial

NewYork-Presbyterian Hospital was one of 17 clinical research centers in the country chosen by the National Institutes of Health and the U.S. Centers for Medicare and Medicaid Services to participate in the NETT trial. It was the only surgical site chosen in the tri-state area. The trial included over 1,128 patients with severe emphysema who successfully completed a pulmonary rehabilitation program

This five-year randomized study compared medical treatment to lung volume reduction surgery in patients with severe emphysema. The results of the trial demonstrated that patients treated with LVRS experienced improved quality of life following the surgery. It also showed a marked increase in exercise capacity and survival rates in selected patient groups.

In addition, the NETT trial helped establish criteria to identify which patients would most likely benefit from the procedure. The NETT trial demonstrated that the distribution of emphysema in a patient, along with the patient's exercise capacity, determines whether or not they will benefit from LVRS. Patients who were selected as candidates for the trial were divided into the following four groups:

Lung volume reduction surgery (LVRS) offers new hope for patients with emphysema. The National Emphysema Treatment Trial (NETT), the largest study ever conducted in patients with advanced emphysema, determined LVRS to be effective in selected patients with advanced emphysema. LVRS is an exciting surgical innovation and presents an opportunity for advanced emphysema patients to experience a better life.

LVRS is a procedure that removes portions of the most diseased areas of the lung. In a typical LVRS procedure, a surgeon removes about 30% of the lung from each side. The goal is to enable the remaining lung tissue to function more effectively, resulting in an increase in the patient's ability to exercise, a decrease in shortness of breath, and an overall improvement in quality of life.

LVRS can be performed in one of two ways. It can be performed as a median sternotomy, in which an incision is made through the breastbone, enabling the surgeon to expose both lungs at once and remove damaged portions from both sides. The procedure can also be performed as a bilateral video-assisted thoracoscopy, in which two to three incisions are made between the ribs, allowing for a videoscope to be inserted so the surgeon can view the lungs. The surgeon then inserts instruments in the other incisions to cut away the most damaged areas of the lung.



1
upper lobe
predominant
emphysema
and low exercise
capacity*

2
upper lobe
predominant
emphysema with
high exercise
capacity

3
non upper lobe
predominant
emphysema with
low exercise
capacity

4
non upper lobe
predominant
emphysema with
high exercise
capacity

* <40 Watts for males; <25 Watts for females

Patients in Group 1 were found to have survival benefit, quality of life benefit, as well as exercise benefit with LVRS compared to medical management. Patients in Groups 2 and 3 improved in functional status and quality of life, with no survival benefit. Group 4 patients were found to have a higher mortality with LVRS than with medical management.

Following publication of the study results, the U.S. Centers for Medicare and Medicaid Services announced that Medicare would provide reimbursement for LVRS in those patients likely to benefit. Due to its participation in the study and vast experience with the procedure, NewYork-Presbyterian Hospital was named one of a select group of hospitals that received certification from Medicare for lung volume reduction surgery.

CANDIDATE CRITERIA



Patient Evaluation and Selection

Patients who are interested in lung volume reduction surgery are sent a questionnaire and letter requesting their physician's name and contact information. The letter explains the process for patients who wish to be evaluated as candidates for LVRS at the Center for Chest Disease. It also requests that patients send recent test results and medical records to initiate the evaluation. Patients are requested to provide the following materials:

- 1 Completed questionnaire
- 2 Recent chest x-ray
- 3 Recent pulmonary function tests
- 4 Current medical records
- 5 Insurance information

Once the multidisciplinary team at the Center for Chest Disease has had a chance to review the materials, a clinical nurse coordinator will contact the patient to schedule an initial evaluation. The patient will be asked to visit the Center for two days.



On the first day, a work-up involving testing will be performed. The pulmonologist and surgeon will review the tests and meet with the patient the second day to conduct a thorough assessment of the patient's condition and make a determination as to whether the patient is a candidate for LVRS, and what other treatment options are available.

Pulmonary Rehabilitation Program

Potential LVRS candidates are required to enter a pulmonary rehabilitation program on an outpatient basis for six to ten weeks. This rehabilitation program follows the standardized protocol developed by the Center for Chest Disease at NewYork-Presbyterian Hospital and other NETT centers.

Each patient will select from a network of hospitals that have rehabilitation programs, including the comprehensive program at NewYork-Presbyterian Hospital. Patients undergoing pulmonary rehabilitation will be given exercises designed to increase strength and endurance, and these exercises will slowly be increased over time. Patients will also be educated about their disease, learn about breathing techniques, medications, proper eating habits and relaxation.

The levels of exercise will be ordered by a doctor and based on each patient's exercise evaluation conducted during the lung reduction evaluation. Continuous chest physiotherapy and early, progressive physical therapy are the primary mechanisms known to increase the benefits of LVRS. The rehabilitation team will adjust each patient's exercise sessions according to the patient's progress, and the patient will receive instruction on the amount and type of exercise that should be completed at the rehabilitation center and at home.

Throughout the rehabilitation process, the multidisciplinary team closely monitors each patient and includes all of the information obtained during rehabilitation in the final decision about whether to proceed with surgery.

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...newer experimental options
may still provide hope for a
better life... a new clinical trial is
investigating bronchoscopic
lung volume reduction...

Other Treatment Options

Patients who do not qualify for lung volume reduction surgery are provided with other options for treatment. An alternative surgical option for the treatment of advanced emphysema is lung transplantation. Patients who are candidates for this procedure are referred to the NewYork-Presbyterian Transplant Institute. The Lung Transplant Program at NewYork-Presbyterian Hospital is one of the most active and successful in the country, and has led the way to improvements in care that have increased long-term survival rates for patients with emphysema.

If the patient does not fit the requirements for either procedure, newer experimental options may still provide hope for a better life. For instance, a new clinical trial is investigating bronchoscopic lung volume reduction, a minimally invasive technique that reduces lung volume with a bronchoscope. Other clinical trials available through the Center for Chest Disease are looking at new medications that may be effective in treating COPD.

Patient Referrals

If you wish to refer a patient to the Center for Chest Disease, please contact 212-305-1158. The clinical nurse coordinator will send the patient a letter and questionnaire to be completed and sent into the Center for Chest Disease. Any inquiries can be directed to the address on the left.

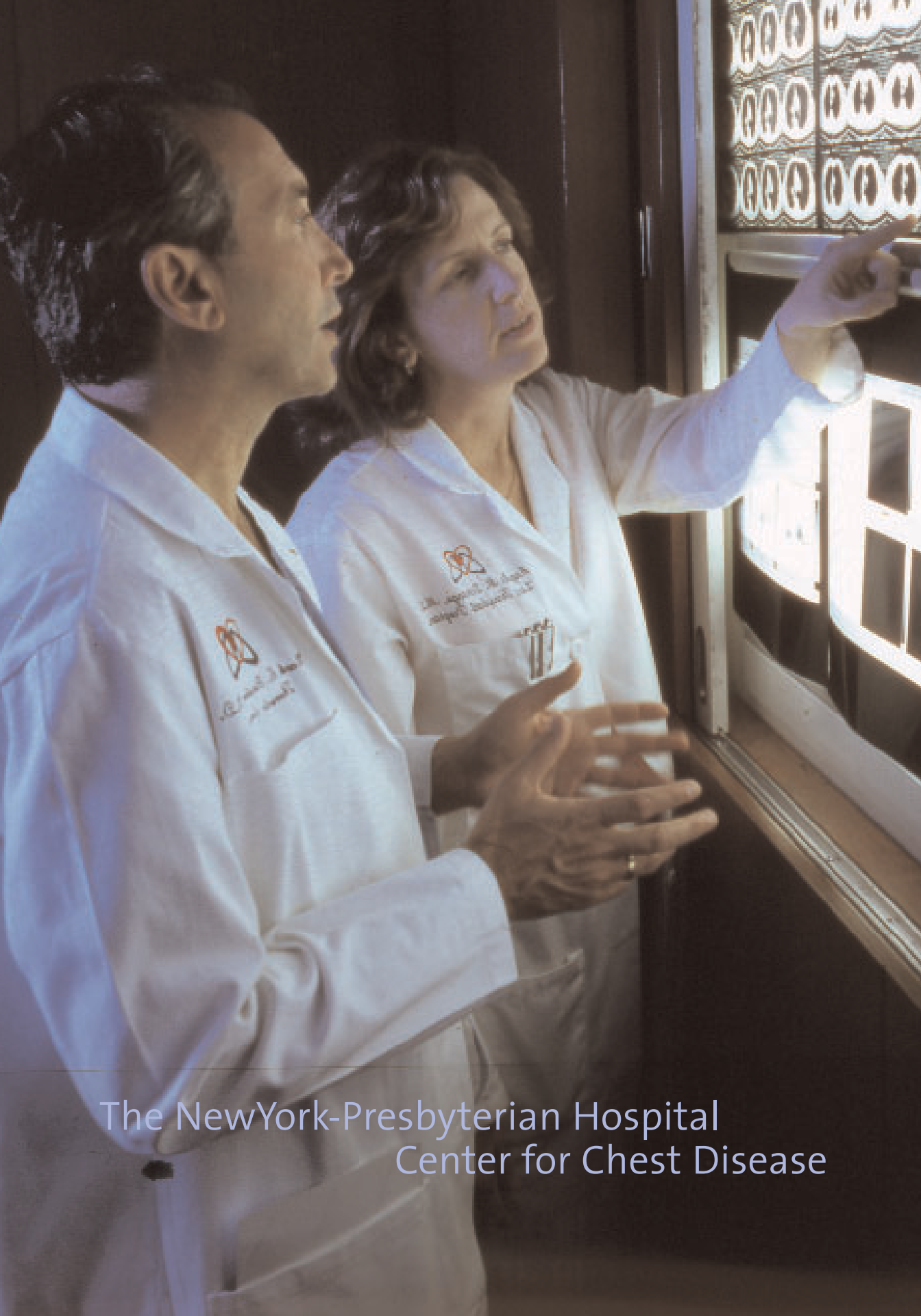
THE CENTER FOR CHEST DISEASE
NewYork-Presbyterian Hospital/
Columbia University Medical Center
Vanderbilt Clinic, VC3-365
622 West 168th Street
New York, NY 10032

INFORMATION FOR PHYSICIANS



The referring physician (or primary physician for the patient, if self-referred) is kept informed throughout the entire process, with full reports about evaluation and medical options considered appropriate for each patient. The pulmonologist and surgeon at the Center for Chest Disease send a consult note to the patient's physician with results from all tests performed on the first two days.

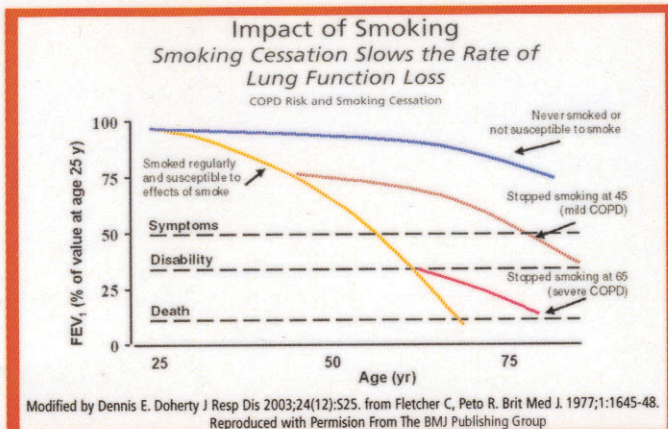
Once pulmonary rehabilitation has been completed, the patient again will visit with the pulmonologist and surgeon at the Center for Chest Disease. Following this visit, the physicians will send a letter summarizing the results of the rehabilitation and final recommendations.



The New York-Presbyterian Hospital
Center for Chest Disease

NewYork-Presbyterian Healthcare System

THE COPD POCKET CONSULTANT



Consider a COPD Diagnosis

- **Chronic Cough:**
Present intermittently or every day. Often present throughout the day; seldom only nocturnal
- **Chronic sputum production:**
Any pattern of chronic sputum production may indicate COPD
- **Age > 40**
- **Dyspnea** that is:
Progressive (worsens over time)
Persistent (present every day)
Worse on exercise
Worse during respiratory infections.
- **History of exposure to risk factors:**
Tobacco smoke
Occupational dusts and chemicals
Smoke from home cooking and heating fuel

DO SPIROMETRY to DIAGNOSE COPD

The NewYork-Presbyterian Hospital Center for Chest Disease includes an interdisciplinary team of physicians and specially trained nurses who have broad experience in the evaluation and treatment of emphysema. The team is comprised of specialists in pulmonary medicine, thoracic surgery, radiology, rehabilitation medicine, transplantation, sleep disorders, nutrition, cardiology, psychiatry, bone metabolism, complementary care, and exercise physiology. Because of its broad range of clinical expertise, the Center for Chest Disease is regarded as the primary treatment center for LVRS in the New York metropolitan area.