



## Lung-Saving Procedures at the Center for Chest Disease of NewYork-Presbyterian Hospital/Columbia University Medical Center

To refer a patient, please call 212-305-1158

### LVRS: An underutilized therapy

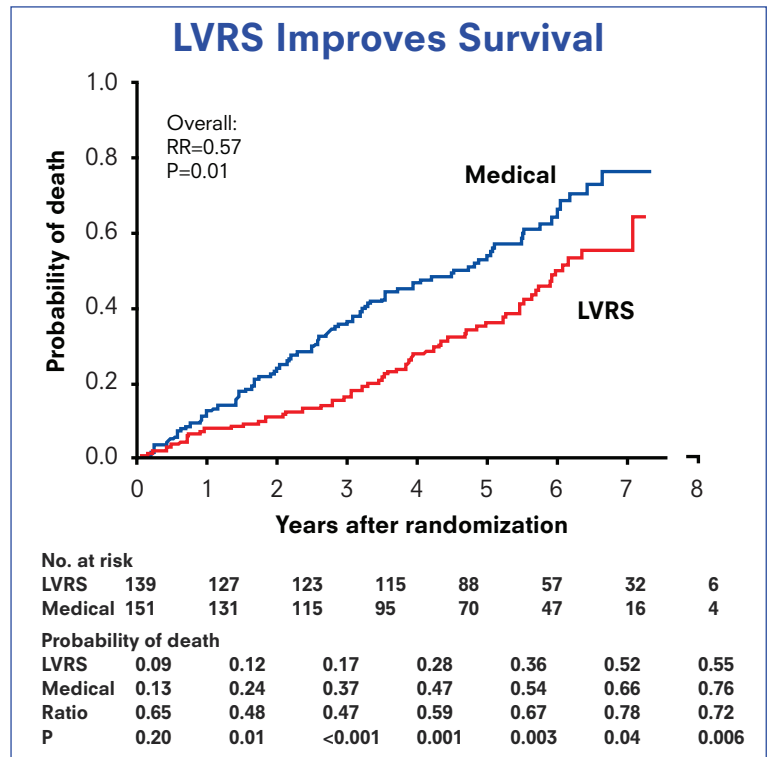
Estimates suggest that 20-30 million Americans suffer from chronic obstructive pulmonary disease (COPD). COPD is presently the fourth most common cause of death and is expected to reach third by 2020. Most people with COPD can be successfully managed with a combination of appropriate medical therapy and exercise. However, in those patients with the advanced emphysematous form of the disease maximal medical therapy may not be sufficient. Lung volume reduction surgery (LVRS) has been shown to significantly improve quality of life, increase exercise capacity and even improve survival in carefully selected patients. Despite this data, the procedures are significantly underutilized.

The cost of caring for COPD in the U.S. is now well over \$40 billion per year, 70% of which is related to exacerbations and especially exacerbation-related hospitalizations, each of which carries a 2.5-10% risk of mortality. Once hospitalized for an exacerbation, a patient has a 50% chance of being rehospitalized over next 6-18 months, often multiple times.

The most recent data\*\* suggest LVRS can decrease COPD exacerbation rate and related hospitalizations, with significant repercussions both in terms of patient well-being and cost.

### The Center for Chest Disease

- Is a major research and treatment center for lung volume reduction surgery and related airway procedures;
- Has been performing LVRS for over a decade;
- Has had no mortalities in the 90-day period post LVRS for over eight years in those patients meeting CMS approval criteria;
- Was prominently featured in a November 28, 2007 *New York Times* feature on COPD and LVRS;
- Has the experience to handle the complex patient, offering all available modalities, from LVRS, to airway stenting, to lung resection, to lung transplant.



Kaplan-Meier estimates of cumulative probability of death as a function of years after randomization to LVRS (red line) or medical treatment (blue line) for patients with upper-lobe-predominant disease and low baseline exercise capacity. Shown below the graph are the numbers of patients at risk, the Kaplan-Meier probabilities, the ratio of the probabilities (LVRS: Medical), and p value for the difference in these probabilities. \*



Madeline Gallagher, age 65, pre-op (left), and post-op (right), underwent LVRS at the Center for Chest Disease on October 17, 2007. Her treatment was featured in a November 28, 2007 *New York Times* feature on COPD and LVRS.



## Research

The Center for Chest Disease has participated in all studies leading up to CMS approval of LVRS (2003), as well as multiple follow-up studies.

- **1998-2003** National Emphysema Treatment Trial (NETT)
- **2004-2007** Endobronchial Valve for Emphysema Palliation Trial (VENT)
- **2006** Columbia data analysis of BODE index (body mass index, airflow obstruction, dyspnea, and exercise capacity) in patients with predominantly upper-lobe disease undergoing LVRS; study found that LVRS decreased BODE score in patients who received it
- **Trials currently underway:**
  - Multi-center NHLBI-funded “Genetic Epidemiology of COPD,” the largest study of its kind to date
  - Multi-center Bronchiectasis Consortium and Registry
  - Spiration, Inc. IBV Valve bronchoscopic lung reduction trial; closed in 2007; awaiting FDA approval
  - EASE (Exhale Airway Stents for Emphysema) trial of a bronchoscopic treatment creating extra-anatomic passages between the main airways and emphysematous pulmonary parenchyma to allow trapped air to escape

## COPD Treatments

### When should patients be referred?

We encourage all physicians to start early in having their patients with COPD evaluated for lung-saving procedures. Too often, patients we see are already too ill to be considered.

### Referral Process: Patient Evaluation

- Patient completes Center for Chest Disease COPD questionnaire.
- Center for Chest Disease requests medical information including history, pulmonary function, and X-ray studies.
- Center for Chest Disease determines whether the patient is a candidate for a two-day evaluation that includes a complete battery of tests and examination.

## LVRS Course of Treatment

LVRS is indicated for patients with severe bilateral emphysema and hyperinflation, with disease located predominantly in the upper lobes of the lung. Treatment is comprised of the following stages:

- Treatment commences with a six-week program of outpatient pulmonary rehabilitation, accompanied by intensive follow-up.
- Diagnostic tests are performed for heart function.
- Surgery is performed, utilizing video-assisted, minimally invasive techniques in nearly all cases.
- Patient undergoes pulmonary rehabilitation.

## Alternatives to LVRS

Patients who do not qualify for LVRS are provided with other options for treatment. We have participated in several trials of valve-based bronchoscopic lung reduction and have an ongoing trial of stenting for diffuse emphysema. Patients who are candidates for lung transplantation are referred to the NewYork-Presbyterian/Columbia University Medical Center Lung Transplant Program, one of the most active and successful in the country.

## Our Commitment to Communication

The Center for Chest Disease is committed to maintaining a steady flow of information to the referring physician:

- The pulmonologist and surgeon at the Center for Chest Disease send a consult note to the patient’s physician with results of all tests performed on the first two days.
- Once pulmonary rehabilitation has been completed, a letter summarizing the patient’s progress, together with final recommendations, is sent to the referring physician.

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\*Naunheim KS, et al. Long-term follow-up of patients receiving lung-volume-reduction surgery versus medical therapy for severe emphysema by the National Emphysema Treatment Trial Research Group. *Ann Thorac Surg.* 2006 Aug;82(2):431-43.

\*\* Washko GR, et al. The effect of lung volume reduction surgery on chronic obstructive pulmonary disease exacerbations. *Am J Respir Crit Care Med.* 2008 Jan 15;177(2):164-9.