

Corporate Medical Policy

Lung Volume Reduction Surgery

File Name:	lung_volume_reduction_surgery
Origination:	4/1996
Last CAP Review:	3/2012
Next CAP Review:	3/2013
Last Review:	3/2012

Description of Procedure or Service

Lung volume reduction surgery (LVRS) is proposed as a treatment option for patients with severe emphysema who have failed optimal medical management. The procedure involves the excision of diseased lung tissue and aims to reduce symptoms and improve quality of life.

Lung volume reduction is a surgical treatment for patients with severe emphysema involving the excision of peripheral emphysematous lung tissue, generally from both upper lobes. The precise mechanism of clinical improvement for patients undergoing lung reduction surgery has not been firmly established. However, it is believed that elastic recoil and diaphragmatic function are improved by reducing the volume of diseased lung. In addition to changes in chest wall and respiratory mechanics, the surgery is purported to correct ventilation perfusion mismatch and improve right ventricular filling.

Lung volume reduction surgery is intended to be palliative not curative. The procedure is designed to relieve dyspnea and improve functional capacity and quality of life. Patients continue to have severe emphysema, and most patients will show further progression of their disease over time. It is also hoped that LVRS may extend survival time.

*****Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.**

Policy

BCBSNC will provide coverage for lung volume reduction surgery when it is medically necessary because the medical criteria and guidelines shown below have been met.

Benefits Application

This medical policy relates only to the services or supplies described herein. Please refer to the Member's Benefit Booklet for availability of benefits. Member's benefits may vary according to benefit design; therefore member benefit language should be reviewed before applying the terms of this medical policy.

When Lung Volume Reduction Surgery is covered

Lung volume reduction surgery as a treatment for emphysema may be considered medically

Lung Volume Reduction Surgery

necessary in patients with emphysema who meet **ALL** of the following criteria:

- Predominantly upper lobe emphysema with hyperinflation and heterogeneity
- Forced expiratory volume in one second (FEV-1): 1) for patients who are younger than 70 years of age, the FEV must be no more than 45% of the predicted value; 2) for patients who are 70 years of age or older, the FEV-1 must be no more than 45% of the [redacted value and greater than or equal to 15% of the predicted value.
- Marked restriction in activities of daily living despite maximal medical therapy
- Age younger than 75 years
- Acceptable nutrition status, i.e., 70-130% of ideal body weight
- Ability to participate in a vigorous pulmonary rehabilitation program
- No coexisting major medical problems that would significantly increase operative risk.
- Willingness to undertake risk of morbidity and mortality associated with LVRS
- Abstinence from cigarette smoking for at least 4 months

When Lung Volume Reduction Surgery is not covered

Lung volume reduction surgery is considered investigational when the criteria listed above have not been met. BCBSNC does not cover investigational services.

Policy Guidelines

Findings from the National Emphysema Treatment Trial (NETT), a multicenter randomized, controlled trial, suggest that lung-volume reduction surgery is effective at reducing mortality and improving quality of life in selected patients with severe emphysema. In subgroup analysis, LVRS offered a survival advantage only in the group of patients not considered high-risk who had predominately upper lobe emphysema and low initial exercise capacity. Moreover, patients with upper lobe emphysema, regardless of initial exercise capacity, experienced significant improvement in exercise capacity and quality of life after lung volume reduction surgery. Other, smaller randomized controlled trials generally had similar findings though they tended to be underpowered for some outcomes and did not stratify by distribution of emphysema. For the subgroup of patients with predominately non-upper lobe emphysema, NETT did not find significant mortality advantages or symptom improvement with LVRS. Although NETT had positive findings for the study population as a whole, given the risks involved in surgery, additional data are needed to confirm the net health outcome in patients with non-upper lobe emphysema. Therefore, lung volume reduction surgery is considered medically necessary in patients with predominately upper lobe emphysema who are otherwise similar to NETT participants and investigational for other patients.

The following additional criteria, also from the NETT trial, may provide further information in determining whether a patient is a candidate for lung volume reduction surgery:

- PaO₂ on room air greater than or equal to 45 mm Hg (greater than or equal to 30 mm Hg at elevations of 5,000 feet or higher)
- PaCO₂ on room air less than or equal to 60 mm Hg (less than or equal to 55 mm Hg at elevations of

Lung Volume Reduction Surgery

- 5,000 feet or higher)
- Post-rehabilitation 6-minute walk of at least 140 m, and able to complete 3 min. unloaded pedaling in exercise tolerance test

Billing/Coding/Physician Documentation Information

This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at www.bcbsnc.com. They are listed in the Category Search on the Medical Policy search page.

Applicable service codes: 32491, G0302, G0303, G0304, G0305.

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

Scientific Background and Reference Sources

TEC Bulletin - 11/95

Health Technology Assessment; Lung-Volume Reduction Surgery for End-Stage Chronic Obstructive pulmonary Disease by the U.S. Department of Health and Human Services, 9/96

Technology News - 12/96

Utz JP, Hubmayr RD, DDeschamps C. Lung volume reduction surgery for emphysema: out on a limb without a NETT. *Mayo Clinic Proc.* 1998;73:552-556.

TEC assessment Volume 14, number 1. Issued May 1999

Medical Policy Reference Manual 7/16/99
Medical Policy Advisory Group - 12/2/1999

Specialty Matched Consultant Advisory Panel - 5/2001

Young J, Fry-Smith A, Hyde C. Lung volume reduction surgery (LVRS) for chronic obstructive pulmonary disease (COPD) with underlying severe emphysema. *Thorax.* 1999; 54:779-789.

Geddes D, Davies M, Koyama H, et al. Effect of lung-volume-reduction surgery in patients with severe emphysema. *New England Journal of Medicine.* 2000, July 27; 343(4):239-245.

ECRI Target Report #35. Published 2/21/2000.

Specialty Matched Consultant Advisory Panel - 5/2003

BCBSA Medical Policy Reference Manual [Electronic Version]. 7.01.71, 12/17/03.

BCBSA TEC Assessment [Electronic Version]. December 2003.

BCBSA Medical Policy Reference Manual [Electronic Version]. 7.01.71, 11/10/11

Specialty Matched Consultant Advisory Panel review 3/2012

Lung Volume Reduction Surgery

Policy Implementation/Update Information

- 4/96 Original policy issued
- 3/97 Policy changed to investigational
- 7/97 Removed code G0061 and added CPT 32491. Added Health Technology Assessment by the U.S. Department of Health and Human Services.
- 8/98 Reaffirm
- 7/99 Reformatted, Medical Term Definitions added.
- 12/99 Reaffirmed, Medical Policy Advisory Group
- 3/01 System change.
- 5/01 Specialty Matched Consultant Advisory Panel review (5/2001). Changed status from investigational to covered for certain indications. System changes.
- 5/03 Specialty Matched Consultant Advisory Panel review 5/2003. No change to policy criteria. Policy format change. Reaffirm.
- 4/04 Billing/Coding section updated for consistency.
- 4/7/05 Policy status changed to: "Active policy, no longer scheduled for routine literature review." Codes G0302, G0303, G0304, G0305 added to Billing/Coding section. SUR6450, Lung shaving, Lung contouring, and Reduction Pneumoplasty added as key words. References added.
- 6/22/10 Policy Number(s) removed (amw)
- 3/30/12 Specialty Matched Consultant Panel review 3/21/2012. Converting active archive policy back to active policy. Updated the policy for consistency with BCBSA. Extensive revisions to Description and Policy Guidelines sections. Added the following updated information to "When Covered criteria section: Predominantly upper lobe emphysema with hyperinflation and heterogeneity; Forced expiratory volume in one second (FEV-1): 1) for patients who are younger than 70 years of age, the FEV must be no more than 45% of the predicted value; 2) for patients who are 70 years of age or older, the FEV-1 must be no more than 45% pf the [redacted value and greater than or equal to 15% of the predicted value; Marked restriction in activities of daily living despite maximal medical therapy; Age younger than 75 years; Acceptable nutrition status, i.e., 70-130% of ideal body weight; Ability to participate in a vigorous pulmonary rehabilitation program; No coexisting major medical problems that would significantly increase operative risk; Willingness to undertake risk of morbidity and mortality associated with LVRS; Abstinence from cigarette smoking for at least 4 months. (lpr)

Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.

