



Medicare Part C Medical Coverage Policy

Lung Volume Reduction Surgery

Origination: February 23, 2005

Review Date: September 21, 2023

Next Review: September 2024

******This policy applies to all Blue Medicare HMO, Blue Medicare PPO, Blue Medicare Rx members, and members of any third-party Medicare plans supported by Blue Cross NC through administrative or operational services. ******

DESCRIPTION OF PROCEDURE

Lung volume reduction surgery (LVRS) or reduction pneumoplasty, also referred to as lung shaving or lung contouring, is performed on members with severe emphysema in order to allow the remaining compressed lung to expand, and thus, improve respiratory function

POLICY STATEMENT

Coverage will be provided for LVRS when it is determined to be medically necessary because the medical criteria and guidelines shown below are met.

BENEFIT APPLICATION

Please refer to the member's individual Evidence of Coverage (EOC) for benefit determination. Coverage will be approved according to the EOC limitations if the criteria are met.

Coverage decisions will be made in accordance with:

- The Centers for Medicare & Medicaid Services (CMS) National Coverage Determinations (NCDs);
- General coverage guidelines included in Original Medicare manuals unless superseded by operational policy letters or regulations; and
- Written coverage decisions of local Medicare carriers and intermediaries with jurisdiction for claims in the geographic area in which services are covered.

Benefit payments are subject to contractual obligations of the Plan. If there is a conflict between the general policy guidelines contained in the Medical Coverage Policy Manual and the terms of the member's particular Evidence of Coverage (EOC), the EOC always governs the determination of benefits.

CRITERIA REQUIRED FOR COVERAGE APPROVAL

1. Preauthorization by the Plan is required;

AND

2. Covered when **all** the following criteria are met:

<i>Assessment</i>	<i>Criteria</i>
History and Physical Examination	Consistent with emphysema BMI ≤ 31.1 kg/m ² (men) or ≤ 32.3 kg/m ² (women) Stable with ≤ 20 mg prednisone daily (or equivalent)
Radiographic	High Resolution Computer Tomography (HRCT) scan evidence of bilateral emphysema
Pulmonary Function (pre-rehabilitation)	Forced expiratory volume in one second (FEV ₁) $\leq 45\%$ predicted ($\geq 15\%$ predicted if age ≥ 70 years)
	Total lung capacity (TLC) $\geq 100\%$ predicted post-bronchodilator
	Residual volume (RV) $\geq 150\%$ predicted post-bronchodilator
Arterial Blood Gas (ABG) level (pre-rehabilitation)	PCO ₂ ≤ 60 mmHg
	PO ₂ ≥ 45 mmHg on room air
Cardiac Assessment	Approval for procedure by cardiologist if any of the following are present: unstable angina; left ventricular ejection fraction (LVEF) cannot be estimated from the echocardiogram; LVEF $< 45\%$; dobutamine-radionuclide cardiac scan indicates coronary artery disease or ventricular dysfunction; arrhythmia (> 5 premature ventricular contractions per minute, cardiac rhythm other than sinus, premature ventricular contractions on EKG at rest)
Surgical Assessment	Approval for surgery by pulmonary physician, thoracic surgeon, and anesthesiologist post-rehabilitation
Exercise	Post-pulmonary rehabilitation 6 min walk of ≥ 140 m; able to complete 3 min unloaded pedaling in exercise tolerance test (pre- and post-rehabilitation)
Consent	Signed consents for screening and rehabilitation
Smoking	Plasma cotinine level ≤ 13.7 ng/mL (or arterial carboxyhemoglobin $\leq 2.5\%$ if using nicotine products)
	Nonsmoking for 4 months prior to initial interview and throughout the evaluation process

Preoperative diagnostic and therapeutic program adherence	Must complete assessment for and program of preoperative services in preparation for surgery
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AND

3. The member must also have:

- Severe upper lobe predominant emphysema (as defined by radiologist assessment of upper lobe predominance on CT scan).

OR

- Severe non-upper lobe emphysema with low exercise capacity; (Exercise capacity is at or below 25 watts for women and 40 watts for men after completion of the preoperative therapeutic program in preparation for LVRS).

AND

4. The surgery must be preceded and followed by a program of diagnostic and therapeutic services designed to maximize the member’s potential to successfully undergo and recover from surgery. The program must include a 6 to 10-week series of at least 16, and no more than 20, preoperative sessions, each lasting a minimum of 2 hours. It must also include at least 6, and no more than 10, postoperative sessions, each lasting a minimum of 2 hours, within 8 to 9 weeks of the LVRS. The associated codes for the diagnostic service or pulmonary therapy are *G0302, G0303, G0304, and G0305*.

5. Effective for services performed on or after November 17, 2005, CMS determines that LVRS is reasonable and necessary when performed at facilities that are certified by the Joint Commission on Accreditation of Healthcare Organizations (Joint Commission) under the LVRS Disease Specific Care Certification Program (program standards and requirements as printed in the Joint Commission’s October 25, 2004, Disease Specific Care Certification Program packet); or (2) approved as Medicare lung or heart-lung transplantation hospitals.

A list of approved facilities and their approval dates will be listed and maintained on the CMS Web site at http://www.cms.gov/Medicare/Medicare-General-Information/MedicareApprovedFacilitie/04_lvrs.asp#TopOfPage.

Note: Medicare-covered LVRS approaches are limited to bilateral excision of a damaged lung with stapling performed via median sternotomy or video-assisted thoracoscopic surgery.

WHEN COVERAGE WILL NOT BE APPROVED

1. Member characteristics carry a high risk for perioperative morbidity and/or mortality;

2. The disease is unsuitable for LVRS;
3. Medical conditions or other circumstances make it unlikely that the member will be able to complete the preoperative and postoperative pulmonary diagnostic and therapeutic program required for surgery;
4. The member presents with FEV1 \leq 20% of the predicted value, and either homogeneous distribution of emphysema on CT scan, or carbon monoxide diffusing capacity of \leq 20% of predicted value;
5. The member satisfies the criteria outlined in criteria number 2 listed above and has severe non-upper lobe emphysema with high exercise capacity (See Definition section below).
6. All other indications for LVRS not otherwise specified.

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.

Applicable Codes: 32491, G0302, G0303, G0304, G0305

The Plan 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.

Definitions

High exercise capacity is defined as a maximal workload at the completion of the preoperative diagnostic and therapeutic program that is above 25w for women and 40w for men (under the measurement of conditions for cycle ergometry specified above).

References

1. Medicare National Coverage Determination (NCD) for Lung Volume Reduction Surgery (ID# 240.1); Effective date 3/2/06; Accessed 08/23/2023 via Internet site www.cms.gov/mcd/viewncd.

Policy Implementation/Update Information:

Revision Date:

November 30, 2006: No criteria changes made.

June 17, 2009: New online policy format; no criteria changes made.

March 2010: No CMS criteria changes, minor edits to be consistent with CMS criteria.

August 2012: No CMS criteria changes, codes added to policy.

June 18, 2014: CMS has not updated the facility list since May, 2012; Deleted facility requirement but must meet all other criteria; Deleted references to the National Emphysema Treatment Trial (NETT) as this trial has ended.

Revision Date: 4/18/18 Annual Review No CMS updates. Moved definition of High exercise capacity to definition section per committee recommendation.

Revision Date: 4/22/2020; Annual Review; No CMS Updates. Updated Description of Procedure section to make consistent with NCD.

Revision Date: 4/13/2022; Annual Review; No CMS Updates. Minor Revisions Only.

Revision Date: September 21, 2023; Annual Review; No CMS Updates. Verbiage added to reflect NCD.

Approval Dates:

Medical Coverage Policy Committee: September 21, 2023

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