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You are responsible for submission of accurate claims. This reimbursement policy is intended to ensure that you are reimbursed based on the code or codes that correctly describe the health care services provided. UnitedHealthcare reimbursement policies use Current Procedural Terminology (CPT®), Centers for Medicare and Medicaid Services (CMS), or other coding guidelines. References to CPT or other sources are for definitional purposes only and do not imply any right to reimbursement.

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## Reimbursement Policy

### Lung Volume Reduction Surgery (Reduction Pneumoplasty) (NCD 240.1)

Electronic equivalent or its successor form. This policy applies to all products, all network and non-network physicians, and other health care professionals.

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### Summary

#### Overview

Lung volume reduction surgery (LVRS) or reduction pneumoplasty, also referred to as lung shaving or lung contouring, is performed on patients with severe emphysema in order to allow the remaining compressed lung to expand, and thus, improve respiratory function. Medicare-covered LVRS approaches are limited to bilateral excision of a damaged lung with stapling performed via median sternotomy or video-assisted thoracoscopic surgery.

### Reimbursement Guidelines

#### Nationally Covered Indications

Effective for services performed on or after January 1, 2004 Medicare will only consider LVRS reasonable and necessary when all of the following requirements are met (note varying dates for facility criteria in section 3. below):

1. The patient satisfies all the criteria outlined below:

   **Assessment Criteria**

   **History and physical examination:**
   - Consistent with emphysema
   - BMI, ≤31.1 kg/m² (men) or ≤ 32.3 kg/m² (women)
   - Stable with ≤ 20 mg prednisone (or equivalent) qd

   **Radiographic:**
   - High Resolution Computer Tomography (HRCT) scan evidence of bilateral emphysema

   **Pulmonary function (pre-rehabilitation):**
   - Forced expiratory volume in one second (FEV₁) ≤ 45% predicted ≥ 15% predicted if age ≥ 70 years
   - Total lung capacity (TLC) ≥ 100% predicted post-bronchodilator
   - Residual volume (RV) ≥ 150% predicted post-bronchodilator

   **Arterial blood gas level (pre-rehabilitation):**
   - PCO₂, ≤ 60 mm Hg (PCO₂, ≤ 55 mm Hg if 1-mile above sea level)
   - PO₂, ≥ 45 mm Hg on room air ( PO₂, ≥ 30 mm Hg if 1-mile above sea level)

   **Cardiac assessment:**
   - Approval for surgery 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-radiouclide cardiac scan indicates coronary artery disease or ventricular dysfunction; arrhythmia (>5
Lung Volume Reduction Surgery (Reduction Pneumoplasty) (NCD 240.1)

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-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 ≤ 2.5% if using nicotine products)
Nonsmoking for 4 months prior to initial interview and throughout evaluation for surgery

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

2. In addition, the patient must 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.

Patients with low exercise capacity are those whose maximal exercise capacity is at or below 25 watts for women and 40 watts (w) for men after completion of the preoperative therapeutic program in preparation for LVRS. Exercise capacity is measured by incremental, maximal, symptom-limited exercise with a cycle ergometer utilizing 5 or 10 watt/minute ramp on 30% oxygen after 3 minutes of unloaded pedaling.

3. Effective for services performed on or after November 17, 2005, CMS determines that LVRS is reasonable and necessary when performed at facilities that are:

(1) 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.

In addition, LVRS performed between January 1, 2004, and May 17, 2007, is reasonable and necessary when performed at facilities that: (1) were approved by the National Heart Lung and Blood Institute to participate in the National Emphysema Treatment Trial (NETT); or (2) are 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/MedicareApprovedFacilitie/04_lvrs.asp#TopOfPage.

The surgery must be preceded and followed by a program of diagnostic and therapeutic services consistent with those provided in the NETT and designed to maximize the patient’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. This program must be consistent with the care plan developed by the treating physician following performance of a comprehensive evaluation of the patient’s medical, psychosocial and nutritional needs, be consistent with the preoperative and postoperative services provided in the NETT, and arranged, monitored, and performed under the coordination of the facility where the surgery takes place.

Nationally Non-covered Indications

1. LVRS is not covered in any of the following clinical circumstances:
   a. Patient characteristics carry a high risk for perioperative morbidity and/or mortality;
   b. The disease is unsuitable for LVRS;
   c. Medical conditions or other circumstances make it likely that the patient will be unable to complete the preoperative and postoperative pulmonary diagnostic and therapeutic program required for surgery;
d. The patient presents with FEV1 ≤ 20% of predicted value, and either homogeneous distribution of emphysema on CT scan, or carbon monoxide diffusing capacity of ≤ 20% of predicted value (high-risk group identified October 2001 by the NETT); or

e. The patient satisfies the criteria outlined above in section B (1), and has severe, non-upper lobe emphysema with high exercise capacity. High exercise capacity is defined as a maximal workload at the completion of the preoperative diagnostic and therapeutic program that is above 25 w for women and 40 w for men (under the measurement conditions for cycle ergometry specified above).

2. All other indications for LVRS not otherwise specified remain noncovered.

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<thead>
<tr>
<th>CPT/HCPCS Codes</th>
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<tbody>
<tr>
<td>32491</td>
<td>Removal of lung, other than pneumonectomy; with resection-plication of emphysematous lung(s) (bullous or non-bullous) for lung volume reduction, sternal split or transthoracic approach, includes any pleural procedure, when performed</td>
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<tr>
<td>G0302</td>
<td>Preoperative pulmonary surgery services for preparation for LVRS, complete course of services, to include a minimum of 16 days of services</td>
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<td>G0303</td>
<td>Preoperative pulmonary surgery services for preparation for LVRS, 10 to 15 days of services</td>
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<td>G0304</td>
<td>Preoperative pulmonary surgery services for preparation for LVRS, 1 to 9 days of services</td>
</tr>
<tr>
<td>G0305</td>
<td>Post discharge pulmonary surgery services after LVRS, minimum of 6 days of services</td>
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## Lung Volume Reduction Surgery (Reduction Pneumoplasty) (NCD 240.1)

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### References Included (but not limited to):

- **CMS NCD**
  NCD 240.1 Lung Volume Reduction Surgery (Reduction Pneumoplasty)

- **CMS LCD(s)**
  Numerous LCDs

- **CMS Article**
  One Article

- **CMS Claims Processing Manual**
  Chapter 3; § 100.7 Lung Volume Reduction Surgery
  Chapter 4; § 310 Lung Volume Reduction Surgery

- **CMS Transmittals**
  Transmittal 768, Change Request 4149, Dated 12/02/2005 (Lung Volume Reduction Surgery)
  Transmittal 44, Change Request 4149, Dated 12/02/2005 (Lung Volume Reduction Surgery)
  Transmittal 3, Change Request 2688, Dated 11/04/2003 (Lung Volume Reduction Surgery)

- **UnitedHealthcare Medicare Advantage Coverage Summaries**
  Lung Volume Reduction Surgery (LVRS)

- **UnitedHealthcare Medical Policies**
  Omnibus Codes

### History

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<tr>
<th>Date</th>
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| 05/14/2014 | • Annual review  
               • No changes          |
| 04/10/2013 | Administrative updates        |
| 09/14/2011 | Administrative updates        |