BLVR Consensus Essentials

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Bronchoscopic Lung Volume Reduction with Endobronchial Valves: A Consensus Statement on Practical Aspects of Patient Selection and Periprocedural Management

This consensus statement provides practical guidance for clinicians performing bronchoscopic lung volume reduction (BLVR) with endobronchial valves. It summarizes expert agreement on patient selection, procedural strategy, and post-procedural follow-up, where published evidence is limited or practice varies. Recommendations were developed using a structured Delphi process.

Key Recommendations

Summary of Expert Consensus (Wahidi et al., 2025)

1 Pre-Procedure: Patient and Target Lobe Selection

Clinical evaluation

- ✓ **Use multidisciplinary review** when expertise in COPD, LVRS, or transplantation is available.
- ✓ **Proceed cautiously if ≥4 L/min supplemental oxygen is required** at rest.
- ✗ **Avoid BLVR when $PaCO_2$ remains >55 mmHg** despite optimal therapy and nocturnal ventilation.
- ✓ **Evaluate heart failure and pulmonary hypertension** carefully; avoid BLVR in decompensated heart failure or severe pulmonary hypertension.
- ✓ **Alpha-1 antitrypsin deficiency is not a contraindication.**
- ✓ **BMI alone is not an exclusion criterion**, but caution is warranted at extremes (<18 or >40).
- ✓ **Do not exclude patients based solely on perceived pneumothorax risk.**

Target lobe selection

- ✓ BLVR may be considered in patients with heterogeneous or homogeneous centrilobular or panlobular emphysema; avoid routine BLVR in predominantly paraseptal emphysema or with giant bullae.
- ✗ Avoid valve placement in lungs with prior ipsilateral lobectomy or pleurodesis; however, valve placement may still be considered after contralateral lobectomy or pleurodesis, after prior ipsilateral sub-lobar resection, or following a sternotomy.
- ✓ Use quantitative CT to evaluate emphysema destruction, fissure integrity, and lobe volumes. According to the consensus panel, potential targets include lobes with ≥50% destruction at –910 HU or ≥20% at –950 HU, and fissure integrity ≥80%.
- ✓ Consider perfusion testing when several lobes appear suitable or when emphysema is homogeneous.
- ✗ Avoid treating a lung that is globally healthier or more perfused than the contralateral lung.
- ✓ Prioritize lobes with the greatest emphysema destruction, lowest perfusion, intact fissures, appropriate lobe volume, and absence of significant bullae, infection, or indeterminate nodules.

2 Procedure

- Perform direct physiological assessment of collateral ventilation (e.g., balloon occlusion):
  - Required for all right-sided BLVR procedures.
  - Required for left-sided procedures when fissure integrity is <95%.
- Hospital admission for a minimum of three nights is recommended after BLVR. Providers are responsible for determining the medical necessity, appropriate site of service, and duration of stay.

3 Post-Procedure Management

- Evaluate clinical status, functional improvement, and imaging at: **4-6 weeks**, **3-6 months**, and **12 months**.
- **If subtotal atelectasis without clinical improvement by 3 months:** perform chest CT and consider bronchoscopy for valve revision or removal.
- **If complete atelectasis without clinical improvement by 3 months:** perform PFTs, chest CT, cardiac evaluation, and additional testing guided by clinical assessment.
- **If initial clinical improvement is followed by loss of benefit:** perform chest CT and revision bronchoscopy to evaluate valve position, granulation tissue, malfunction, or infection.
- **If supplemental oxygen needs increase peri-procedurally:** assess for pneumothorax, pneumonia, or pulmonary embolism.

Reference

Wahidi MM, Lentz RJ, Criner GJ, Gompelmann D, Ing AJ, Kapp CM, Li S, Sciurba FC, Shah PL, Slebos D-J, Strange C, Herth FJ.

Bronchoscopic Lung Volume Reduction with Endobronchial Valves: A Consensus Statement on Practical Aspects of Patient Selection and Periprocedural Management. Respiration. 2025; DOI: 10.1159/000548437.

ALWAYS FOLLOW THE DIRECTIONS FOR USE

Important Safety Information
The Zephyr® Endobronchial Valve is an implantable bronchial valve intended to control airflow in order to improve lung functions in patients with hyperinflation associated with severe emphysema with little to no collateral ventilation, and/or to reduce air leaks. The Zephyr Valve is contraindicated for: Patients for whom bronchoscopic procedures are contraindicated; Evidence of active pulmonary infection; Patients with known allergies to Nitinol (nickel-titanium) or its constituent metals (nickel or titanium); Patients with known allergies to silicone; Patients who have not quit smoking. Use is restricted to a trained physician. Prior to use, please reference the Zephyr Endobronchial System Instructions for more information on indications, contraindications, warnings, all precautions, and adverse events.

The Chartis® Pulmonary Assessment System is indicated for use by bronchoscopists during a diagnostic bronchoscopy in adult patients with Chronic Obstructive Pulmonary Disease (COPD) and emphysema in a bronchoscopy suite. The system, composed of the Chartis Catheter and Chartis Console, is designed to measure pressure and flow in order to calculate resistance to airflow and quantify collateral ventilation in isolated lung compartments. The Chartis Catheter is used through the working channel of a bronchoscope and connects to the Chartis Console. The Chartis Console is capital equipment that is reusable and displays the patient information. The Chartis System is contraindicated in the presence of active infection or major bleeding diathesis. There are no known interfering substances. Use is restricted to a trained physician. Prior to use, please reference the Chartis System Instructions for Use/ User Manual for more information on indications, contraindications, warnings, all precautions, and adverse events.

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