Bronchial Thermoplasty for Severe Asthma

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Recent review date: 3/2026

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Policy contains: Alair, asthma, bronchial thermoplasty,

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Coverage policy

Bronchial thermoplasty is clinically proven and, therefore, may be medically necessary for severe asthma when all of the following criteria are met (American College of Chest Physicians, 2014; American Lung Association, 2026):

- The member has a confirmed diagnosis of severe asthma.
- Severe asthma persists despite adherence to appropriate pharmacologic and non-pharmacologic interventions, including high-dose inhaled corticosteroids and long-acting beta agonists, and having failed treatment with, or has contraindications to, biologics.
- Member does not have a comorbidity that could affect asthma control, including either:
    - Gastroesophageal reflux disease, postnasal drip, or obstructive sleep that is not well-controlled or adequately treated.
    - Smoking.
    - Vocal cord dysfunction.
    - Chronic sinus disease or frequent chest infections.
    - Other comorbidities that are not well-controlled.
- Medication adherence continues and proper inhaler technique are used and reinforced.
- Member is able to undergo bronchoscopy safely.
- Contraindications to bronchial thermoplasty are ruled out, including, but not limited to (Boston Scientific Corporation, 2013):
    - Implantable electronic device.

- Member is under 18 years of age.
- Member was previously treated with bronchial thermoplasty in the same area.
- Active respiratory infection.
- Asthma exacerbation or changing dose of systemic corticosteroids for asthma in the past 14 days,
- Known coagulopathy.

Limitations

No limitations were identified during the writing of this policy.

Alternative covered services

Beta agonists.
Inhaled corticosteroids.

Background

Asthma is a common chronic airway disorder characterized by periods of reversible airflow obstruction (Asthma and Allergy Foundation of America, 2025). Airflow may be obstructed by inflammation and bronchial muscle hyper-reactivity in response to certain exposures, such as exercise, infection, allergens (e.g., pollen), occupational agents (e.g., chemicals), and airborne irritants (e.g., environmental tobacco smoke). Symptoms may include wheezing, coughing, shortness of breath, and chest tightness. It is not clear how to prevent asthma from developing, and there is no cure.

Currently, approximately 28 million Americans have asthma, including 4.9 million children under age 18. Asthma rates have been rising for all ages, racial groups, and genders since the 1980s. In 2019, asthma accounted for 4.9 million doctor's office visits, and in 2020 asthma accounted for 94,560 hospital discharges, and 986,453 emergency department visits (Asthma and Allergy Foundation of America, 2025).

The means to controlling and preventing exacerbations in persons who have asthma depends on disease severity. Rapid-acting and long-acting inhaled beta 2 agonists, controller medications using daily inhaled glucocorticoids, and sustained-release theophylline, chromones, or leukotriene modifiers may be prescribed. Some patients with severe asthma do not achieve acceptable control despite maximal medical therapy (Golden, 2024).

Bronchial thermoplasty is an endoscopic procedure that applies radiofrequency energy through an expandable array of electrodes to ablate bronchial smooth muscle that constricts the airways during asthma attacks. It is intended for the treatment of severe, persistent asthma not well controlled by long-acting bronchodilators or glucocorticoids, in patients 18 years and older.

The U.S. Food and Drug Administration (2010) approved one device, the Alair™ Bronchial Thermoplasty System (Boston Scientific Corporation, Marlborough, Massachusetts) based on acceptable safety and efficacy data reported from the Asthma Intervention Research 2 (AIR2) Trial (Castro, 2010, 2011; Wechsler, 2013). It is intended for the treatment of severe, persistent asthma not well controlled by long-acting bronchodilators or glucocorticoids, in individuals 18 years and older. The procedure is performed by a pulmonologist, with the patient under moderate sedation or general anesthesia, in three treatment sessions targeting different segments of the lung, with a recovery period of at least three weeks between each session (Boston Scientific Corporation, 2026).

Findings

Guidelines

A number of guidelines from professional societies support the use of bronchial thermoplasty as an add-on treatment for patients with severe, persistent, poorly-controlled asthma despite maximal medical treatment (American College of Chest Physicians, 2014; American Lung Association, 2026; Cloutier, 2020). However, other sources caution that the evidence supporting use of this treatment is limited, and access should be restricted to research settings (Chung, 2014; Global Initiative for Asthma, 2025). Clinicians should carefully advise patients of potential risks and benefits before therapy begins.

The Global Initiative for Asthma (2025) recommends bronchial thermoplasty with registry enrollment in patients with severe asthma and either presence of low Type 2 inflammatory biomarkers or an inadequate response to Type 2-targeted therapy. The recommendations emphasized registry enrollment, as efficacy and long-term safety data are limited.

The European Respiratory Society/American Thoracic Society Task Force on severe asthma issued a strong recommendation that bronchial thermoplasty be performed in adults with severe asthma only participating in an Institutional Review Board registry or a clinical study, due to the low confidence in data in published studies (Chung, 2014).

The National Asthma Education and Prevention Program Coordinating Committee Working Group of the National Heart, Lung, and Blood Institute conditionally recommended against bronchial thermoplasty as part of standard asthma care, unless included as part of an ongoing research effort. However, bronchial thermoplasty may be considered in individuals aged 18 years and older with persistent asthma who place a low value on harms (i.e., short-term worsening of symptoms and unknown long-term side effects) and a high value on potential benefits (i.e., improvement in quality of life and a small reduction in number of exacerbations) (Cloutier, 2020).

Evidence review

The best available evidence of safety and relative effectiveness of bronchial thermoplasty is based on the results of several randomized controlled trials, including three with long-term outcome data exceeding five years. Bronchial thermoplasty is comparable, or at least non-inferior, to approved biologicals in terms of improvements in asthma control scores, exacerbation rates, lung function, and oral corticosteroid dose reduction. Risk of respiratory adverse events and associated hospitalization was highest during the treatment period but stabilizes over time.

A network meta-analysis of 29 randomized controlled trials (n = 15,547) indirectly compared bronchial thermoplasty to approved biological therapies for severe asthma. Three randomized controlled trials compared bronchial thermoplasty to controls or sham controls, and 26 compared biologics to placebo controls. Compared to the control group, participants treated with bronchial thermoplasty experienced fewer asthma exacerbations (risk ratio = 0.66, 95% confidence interval 0.45 to 0.98), and more significant improvements in the Asthma Control Questionnaire score (mean difference = −0.41 (95% confidence interval -0.63 to −0.20) and the Asthma Quality of Life Questionnaire score (mean difference = 0.54, 95% confidence interval 0.30 to 0.77). Other evidence suggests bronchial thermoplasty may be noninferior for the outcomes of exacerbation rate reduction, lung function improvement, and oral corticosteroid dose reduction (Fong, 2023).

Five-year outcomes from the open-label , observational, multicenter Post-FDA Approval Clinical Trial Evaluating Bronchial Thermoplasty in Severe Persistent Asthma (PAS2) study showed a statistically significant improvement in severe exacerbations, hospitalizations, emergency department visits, and corticosteroid exposure from baseline in adult patients with severe asthma who underwent bronchial thermoplasty (Chupp, 2022; n = 284, 227 completed the study).

The “Bronchial Thermoplasty 10+ Year Study” (BT10+) enrolled 192 (45%) of the 429 participants originally enrolled in the Asthma Intervention Research, AIR2, and Research in Severe Asthma randomized controlled trials. Baseline characteristics were similar between participants enrolled in BT10+ and those not enrolled. The

efficacy of bronchial thermoplasty observed at five year follow up was sustained for 10 years or longer, in terms of rates of severe exacerbations and hospital emergency department visits, with an acceptable safety profile (Chaudhuri, 2021; ClinicalTrials.gov identifier NCT03243292).

The "Unravelling Targets of Therapy in Bronchial Thermoplasty in Severe Asthma" (TASMA) trial randomized 40 patients with severe asthma to immediate or delayed bronchial thermoplasty treatment to assess the treatment effects on airway smooth muscle mass and to identify patient correlates of treatment response. Patients were assessed six months after treatment. Median airway smooth muscle mass significantly decreased by > 50% in the immediate treatment group (n = 17) versus no change in the delayed control group (n = 19) (*P* = .0004). As measures of treatment response, Asthma Control Questionnaire scores and Asthma Quality of Life questionnaire scores significantly improved in the immediate treatment group compared with the delayed treatment group (*P* = .006 and *P* = .04, respectively). There was no correlation between airway smooth muscle mass and changes in treatment response, but there were significant correlations between blood eosinophil counts and total Immunoglobulin E at baseline and bronchial thermoplasty response (Goorsenberg, 2021; ClinicalTrials.gov identifier NCT02225392).

In 2022, we updated the references.

In 2023, we updated the references. No policy changes are warranted.

In 2024, we updated the references. No policy changes are warranted.

In 2025, we revised the policy based on updated guidelines from the Global Initiative for Asthma.

In 2026, we updated the references and modified the list of contraindications in the coverage criteria based on manufacturer information.

References

On January 21, 2026, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were "asthma," "bronchial thermoplasty (MeSH)," and "bronchial thermoplasty." We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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Policy updates

3/2013: initial review date and clinical policy effective date: 10/2013

3/2020: Policy references updated. Coverage changed from investigational to medically necessary.

3/2021: Policy references updated.

3/2022: Policy references updated.

3/2023: Policy references updated.

3/2024: Policy references updated.

3/2025: Policy references updated.

3/2026: Policy references updated. Coverage modified.

Related codes

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy CCP.1058. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

Code	Code description
31660	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with bronchial thermoplasty, 1 lobe
31661	Bronchoscopy, rigid or flexible, including fluoroscopic guidance, when performed; with bronchial thermoplasty, 2 or more lobes