

Subject:	Minimally Invasive Treatment of the Posterior Nasal Nerve to Treat Rhinitis	Publish Date:	04/15/2026
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Description/Scope

This document addresses the use of minimally invasive techniques to inactivate the posterior nasal nerve (PNN) and thereby decrease the symptoms of chronic rhinorrhea or nasal congestion. Currently there are three devices on the market proposed for this procedure, the ClariFix[®] device (Stryker, Plymouth, MN) which is a cryotherapy tool, and two radiofrequency tools: the RhinAer[™] Stylus (Aerin Medical, Austin, TX) device and the Neuromark[®] system (Neurent Medical, Braintree, MA). There are studies underway evaluating laser ablation of the PNN, but there is no laser device approved by the U.S. Food and Drug Administration (FDA) at this time.

Note: For additional information regarding the treatment of rhinitis, please see:

- CG-SURG-117 Balloon Dilation of the Eustachian Tubes
- SURG.00079 Nasal Valve Repair

Note: For a high-level overview of this document, please see [“Summary for Members and Families”](#) below.

Position Statement

Investigational and Not Medically Necessary:

Minimally invasive treatment of the posterior nasal nerve, such as cryotherapy or radiofrequency therapy, to decrease the symptoms of allergic or nonallergic rhinitis is considered **investigational and not medically necessary** in all cases.

Summary for Members and Families

This document describes clinical studies and expert recommendations, and explains whether posterior nasal nerve (PNN) ablation is appropriate. The following summary does not replace the medical necessity criteria or other information in this document. The summary may not contain all of the relevant criteria or information. This summary is not medical advice. Please check with your healthcare provider for any advice about your health.

Key Information

PNN ablation is a newer procedure meant to treat chronic rhinitis, which causes ongoing nasal symptoms like a runny or stuffy nose. The goal is to reduce nerve activity in the nose using a device that applies cold (cryotherapy), heat (radiofrequency), or laser energy. Three types of devices are currently available: ClariFix (cryotherapy), RhinAer and Neuromark (radiofrequency). PNN ablation can be done in an office setting and is less invasive than traditional surgery. Some people may feel better after the treatment, but better studies are needed to know if these

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methods actually improve health long-term. Side effects have been reported, and serious risks like nosebleeds can occur.

What the Studies Show

Cryotherapy and radiofrequency treatments have shown short-term improvements in nasal symptoms based on symptom surveys. However, many studies lacked control groups or had issues like small sample sizes, high dropout rates, or short follow-up periods. Some studies showed benefits compared to sham (fake) treatments, but concerns remain due to self-reported outcomes and lack of standard medication tracking. Side effects have included nosebleeds, nasal dryness, headaches, and other issues, though most were not serious. A few people needed follow-up procedures for nosebleeds. Some long-term studies for radiofrequency showed lasting symptom relief, but these also had high dropout rates, making the results harder to trust.

Laser treatment for the same purpose has only been studied in small groups. The only published study lacked a control group, and no laser device has been approved by the U.S. Food and Drug Administration (FDA) for treating chronic rhinitis.

Is this clinically appropriate?

This treatment is not appropriate because it has not been proven to improve health. While studies show symptom relief, they have flaws such as small sample sizes, lack of control groups, and limited long-term data. Better studies are needed to know whether these treatments are safe and helpful. Unnecessary or unproven therapies can lead to treatment that does not help.

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Rationale

Summary

Chronic rhinitis is characterized by persistent inflammation or irritation of the nasal lining, runny nose, congestion, and post-nasal drip. Standard treatment approaches include allergen avoidance, antihistamines, nasal corticosteroids and decongestants, nasal irrigation, and allergy immunotherapy. Surgical approaches have been explored, including the most recent ablation of the PNN, which is intended to denervate the nasal passage and decrease rhinitis symptoms.

The published evidence regarding PNN ablation is currently limited. Some studies have demonstrated statistically significant short-term improvement in symptoms of chronic rhinitis, often measured through subjective scores like the Total Nasal Symptom Score (TNSS) or Reflective TNSS (rTNSS). The validity of these findings are undermined by serious methodological limitations, including small sample sizes, high attrition rates, lack of blinding, limited follow-up, and reliance on non-validated or self-reported symptom scales. Most studies lack a comparator or sham control group, and adverse events (AEs) such as epistaxis, nasal dryness, or new anatomical changes have been documented. Given that rhinitis is a very common condition, the affected population is large and well-suited to support higher-quality research. Systematic reviews have echoed concerns about bias and insufficient

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long-term data, emphasizing the need for further rigorous, large-scale randomized, controlled trials (RCTs) to establish both safety and clinical efficacy before the procedure can be considered standard medical treatment.

Discussion

PNN ablation is proposed as a therapy to improve symptoms of chronic rhinitis by reducing parasympathetic tone, secretions, and vasomotor activity. PNN ablation can be completed using surgical dissection or with thermal ablation using cryotherapy, radiofrequency, or laser energy.

In 2023, Balai assessed the effect of PNN treatment on the TNSS in a systematic review and meta-analysis. The review included 8 studies (n=463) that used minimally invasive techniques to treat chronic rhinitis: cryotherapy (n=6), radiofrequency therapy (n=1), or laser therapy (n=1). Six of these studies were non-randomized, unblinded, and uncontrolled studies for which the authors found a “serious” risk of bias for the reporting of the study’s subjective outcome measures. The analysis found limited evidence showing that cryotherapy or radiofrequency therapy of the PNN results in a higher response rate and greater TNSS improvement in the active treatment group compared to the sham treatment group. This conclusion was based on two RCTs. The authors note that the quality of current evidence is limited based primarily on a lack of a comparator group in most studies and the short-term follow-up periods.

Maddineni and associates (2025) retrospectively compared the effectiveness of two treatments for chronic rhinitis: surgical PNN neurectomy and in-office PNN ablation (using cryoablation or radiofrequency). The cohort included 55 individuals who had previously trialed ipratropium who were then treated with ablation (n=34), surgical neurectomy (n=26) or both procedures (n=9). Outcomes were measured using the 22-item Sinonasal Outcome Test (SNOT-22) questionnaire, particularly the rhinologic subdomain. Surgical neurectomy was associated with significant improvements in overall rhinologic symptoms and rhinorrhea, and it resulted in a greater reduction in sneezing compared to ablation. However, there was no statistically significant difference in total or subdomain SNOT-22 scores between the groups. Individuals who underwent neurectomy after a prior ablation showed no clear additional benefit. The authors concluded that while both interventions may be beneficial, neurectomy could offer greater symptom relief for select cases. Limitations included its retrospective design, a small sample size and the use of SNOT-22 scale compared to the TNSS scale. TNSS is generally used for measuring pure rhinitis severity, especially in clinical trials or interventions targeting nasal symptoms, TNSS is considered the better, more direct tool.

Cryotherapy

The ClariFix device was cleared by U.S. Food and Drug Administration (FDA) 510(k) on February 14, 2017, as a cryosurgical tool to treat adults with chronic rhinitis. The clearance was based on a study of 27 individuals and a review of related published literature regarding the use of cryosurgical ablation of tissue in the nasal passageways to treat rhinitis. While it is noted “there is paucity of studies concerning the vidian neurectomy by means of cryosurgery,” the FDA indicated that the safety profile and effectiveness results are comparable to the results published regarding cryosurgical ablation.

Hwang (2017) reported on a series of 27 adults with rhinorrhea with or without nasal congestion symptoms despite medical therapy of more than 3 months. Participants were treated with the ClariFix device in an office setting. The study included individuals with both allergic and nonallergic rhinitis. Individuals were evaluated using the TNSS

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and those with a minimum rhinorrhea and/or congestion subscore of 2 (moderate symptoms) were included. Treatment was completed in less than 20 minutes in all cases under topical or injected local anesthesia. TNSS mean scores decreased significantly at 7 days post-procedure compared to baseline (6.2 ± 0.5 vs. 4.3 ± 0.4 ; $p < 0.005$). At 90 days, the 27 individuals continued to report a decline in the TNSS mean score at 2.7 ± 0.4 ; $p < 0.001$. While the TNSS scores continued to decline at 180 days (2.3 ± 0.5) and 365 days (1.9 ± 0.3), 6 individuals (22%) were lost to follow-up at 180 days, and 12 individuals (44%) were lost to follow-up at 365 days. Individuals did report mild pain/discomfort, severe ear blockage and severe nasal dryness, all of which had improved or resolved at the 30-day follow-up. A moderate nosebleed, reported 27 days post-procedure, was managed by electrocautery of the bleeding site. The findings of this study were limited by its small size and the high rate of attrition during follow-up. In addition, as medication use was not tracked during the study, other factors for possible symptomatic improvement may have confounded the results.

In a prospective single arm study by Chang (2019), 98 adults with chronic, medically intractable rhinitis were treated with PNN cryoablation. Participation was limited to individuals with moderate or severe rhinorrhea symptoms, mild to severe symptoms of congestion and at least 4 out of 12 total score on the rTNSS. The primary clinical endpoint, the total rTNSS, was evaluated at baseline and at 30-, 90-, 180- and 270-days post-procedure. Following treatment, the total rTNSS scores were significantly improved over baseline at all post-procedure evaluations: baseline (6.1 ± 1.9), at 1 month (2.9 ± 1.9 , $p < 0.001$), 3 months (3.0 ± 2.3 , $p < 0.001$), 6 months (3.0 ± 2.1 , $p < 0.001$), and 9 months (3.0 ± 2.4 , $p < 0.001$). The authors defined the minimal clinically important difference (MCID) as a 30% reduction in baseline score and the 9 months results show a 51% reduction in symptoms. Following the procedure, 29 AEs related to the procedure or device were reported. The AEs included 2 instances of epistaxis requiring office cautery or suction cautery in the operating room. The AEs also included 2 cases of new ostia (1 uncinat process perforation and 1 maxillary sinus accessory os) and 1 case of nasal synechia. Other reported AEs were headaches, dry eyes, and sinus infections. Four participants (4%) were lost to follow-up at or before the final 270-day follow-up and 3 participants were excluded due to ipratropium use during the post procedure period (total dropout rate 7%).

Ow (2021) published additional post-procedure results (12-24 months) of the prospective single-arm study described above (Chang, 2019). Individuals were evaluated by office visit or phone regarding the change from baseline in the rTNSS. There were significantly improved total rTNSS scores at all timepoints between 12- and 24-month follow-ups. Participant satisfaction, as evaluated by the Rhinoconjunctivitis Quality of Life Questionnaire (RQLQ) showed significant improvement from baseline at 18 and 24 months. There were no additional serious AEs reported during the follow-up period. This follow-up study is limited by the significant drop-off, while 91 individuals participated in the 1-month follow-up, only 57 individuals completed the 24-month follow-up. The prospective, single arm and open-label study design presents a significant risk of uncontrolled bias. Randomized trials with a control or sham treatment arm evaluating outcomes are needed to evaluate the relative net health benefit of this treatment compared to standard treatment.

Cryotherapy has been used by others to ablate posterior nasal tissue. Kompelli and associates (2018) published a qualitative systemic review regarding cryotherapy for the treatment of chronic rhinitis. Only one study, Hwang, 2017 (described above), used a cryosurgical device to treat the PNN area. While the authors note that cryotherapy appears to be safe and efficacious, the past evidence includes only low quality, heterogeneous and outdated studies. The current studies use symptom scoring measures (TNSS or rTNSS) as a measure of efficacy within the treated population. These survey instruments have not been validated across a wide range of populations, limiting their general usefulness (Calderón, 2019).

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Yen (2020) evaluated cryoablation of the PNN at the inferior and middle meatus in 30 individuals with moderate to severe rhinorrhea and mild to severe nasal congestion for at least 3 months. The majority of previous studies were limited to applying cryoablation to the PNN at the middle meatus. While the participants reported significant symptom improvement at 3 months, the study was limited by the limited number of participants and follow-up and no control arm. This is representative of the body of evidence for this technology; larger studies with long-term follow-up are needed to better assess the safety and efficacy of this therapy.

The 3-month results of a prospective, multicenter, 1:1 randomized, sham-controlled, participant-blinded trial assessed whether cryotherapy of the PNN area is more effective than sham treatment to control the symptoms of chronic rhinitis (Del Signore, 2022). Adults with moderate or severe chronic rhinitis with a minimum baseline total rTNSS score of at least 4 (with a minimum score of 2 for rhinorrhea and 1 for nasal congestion) were eligible for the study. Participants were randomized to receive either active cryotherapy (n=64) or sham (n=63) treatment. At 90 days, 47/64 (73.4%) of the participants in the active treatment group and 23/63 (36.5%) of the participants in the sham treatment group reported a $\geq 30\%$ reduction of rTNSS from baseline. The mean rTNSS 90 days after the procedure improved significantly more in the active treatment group compared to the sham treatment group (8.0 ± 1.6 at baseline to 4.3 ± 2.4 at 90 days compared to 8.1 ± 1.9 at baseline to 6.3 ± 2.5 at 90 days; respectively). Non-serious transient AEs were reported in 35 participants (32 active, 3 sham) and primarily consisted of headache and pain. Extended follow-up on participants is underway to evaluate the durability of treatment.

In 2023, Young published a systematic review and single arm meta-analysis assessing the efficacy of cryoablation of the PNN to manage the symptoms of chronic rhinitis. The meta-analysis included five studies (n=247) with outcomes reported at 1 and 3 months post-procedure. These five studies were those by Hwang, Chang, Yen, Gerka Stuyt, and DelSignore described above. Young, et al. noted that cryoablation appeared to be effective in reducing chronic rhinitis symptoms. The pooled rTNSS mean difference from baseline to 1 month was -3.48 points (95% confidence interval [CI]: -3.73 to -3.23) and from baseline to 3 months was -3.50 (95% CI: -3.71 to -3.29). The RQLQ demonstrated a -1.53 -mean difference from baseline to 3 months across the three studies which reported this data. The meta-analysis shares the limitations described above for the constituent studies.

Desai and associates (2023) evaluated the efficacy and safety of intranasal cryotherapy to treat chronic rhinitis. The final analysis included eight studies with 472 participants. The studies demonstrated a significant improvement in the mean outcomes scores from baseline to the primary endpoint. All documented AEs were minor. There were several limitations noted by the authors. The analysis included one RCT and seven uncontrolled studies. Five of the uncontrolled studies were industry sponsored. Published study results were limited to mean values and variances, individual participant data was not available. The initial data shows clinically meaningful sustained reductions in nasal symptoms; however, citing the paucity of studies regarding this relatively new technology, the authors concluded that further studies, including RCTs are needed to further analyze the efficacy of cryotherapy.

Radiofrequency Ablation

On December 20, 2019, the RhinAer stylus received FDA clearance as a tool for use in the destruction of soft tissue in the nasal airway, including in posterior nasal nerve regions to treat chronic rhinitis. The procedure requires only local anesthesia and can be performed in the office. It uses low-power RF energy to disrupt PNN activity with the intent to improve chronic rhinitis symptoms.

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Stolovitzky and associates (2021) published an evaluation of the safety and efficacy of RF neurolysis of the PNN in the treatment of moderate to severe chronic rhinitis. Individuals were randomized to receive active treatment of the PNN area with a RF device (n=77) or with a sham device (n=39). The primary endpoint was the responder rate (at least a 30% improvement in rTNSS score from baseline) at 3 months. A significantly higher responder rate was reported in the active treatment arm compared to the sham arm 67.5% (95% CI, 55.9%-77.8%) vs. 41.0% (95% CI, 25.6%-57.9%) at 3 months. The rTNSS significantly improved over baseline (8.3; 95% CI: 7.9-8.7) at 3 months with an adjusted mean change of -3.6 (95% CI: -4.2 to -3.0). No serious AEs were reported. The study did not limit the use of prescribed medications but did track medication use. At 3-month follow-up 7 individuals (9.1%) in the active treatment arm and 5 individuals (12.8%) in the sham treatment group increased their use of medications during the follow-up. Individuals who increased their medication use were assigned to non-responder status, regardless of rTNSS scores.

At 3 months, participants were unblinded and individuals in the sham arm could cross-over to the treatment arm (n=27). Clinical outcomes at 12 months following active treatment and 6-month outcomes in the crossover arm were reported (Takashima, 2023). At 12 months post-procedure, the responder rate in the active group (n=67) was maintained (80.6%; 95% CI: 69.1%-89.2%). The rTNSS remained significantly improved over baseline (8.3; 95% CI: 7.9-8.7) at 12 months with an adjusted mean change of -4.8 (95% CI: -5.5 to -4.1). The clinical course following treatment in the crossover group was similar to the active treatment group. The responder rates at 3 and 6 months were 75.0% (95% CI, 53.3%- 90.2%) and 64.0% (95% CI, 42.5%-82.0%); respectively. There were no serious device or procedure related AEs reported within either of the treatment groups.

Extended follow-up results were reported at 2 years (Takashima, 2024) and 3 years (Stolovitzky, 2025). The studies included a combined cohort of 104 individuals from the original trial. Both analyses showed sustained, statistically and clinically significant reductions in the rTNSS. The mean rTNSS reduction at 2 years was reported as -5.3 points (64.6% improvement) and at 3 years was -4.7 points (57.3% improvement). The reduction in postnasal drip and cough was categorized as clinically meaningful. Additionally, quality of life significantly improved, with MiniRQLQ scores decreasing by -1.9 at 2 years and -1.8 at 3 years, and over 75% of individuals meeting MCID thresholds at both timepoints. At 2 and 3 years, 87.3% and 79.7% of participants (respectively) were classified as responders ($\geq 30\%$ rTNSS improvement). No new serious AEs were reported. The authors concluded that radiofrequency PNN ablation is a safe, effective, and minimally invasive alternative to surgical interventions, providing lasting symptom relief and reducing medication burden for individuals with CR. There were several limitations that may affect the interpretation of its long-term findings. There was significant attrition by the 3-year follow-up (59/104 [56.7%] individuals participated), raising concerns about potential bias despite sensitivity analyses. After the initial 3-month endpoint, the trial no longer maintained a blinded or controlled design, limiting the ability to isolate treatment effects from placebo or other influences. Medication use was not standardized, allowing individuals to start or stop treatments freely, which could confound symptom improvement results.

Ehmer and associates (2022b) reported on the results of a prospective, single-arm multicenter study which followed individuals with chronic rhinitis with a baseline of rTNSS of 6 or greater who underwent RF treatment to the PNN area (n=50). Participants were evaluated at 2-, 4-, 12-, 26- and 52-weeks post-procedure and 47 participants completed the study. The primary efficacy point was the change in rTNSS score from baseline through 12 weeks. The mean rTNSS score of 47 participants improved from 8.5 at baseline to 3.4 at 12 weeks. At 12 months, the mean rTNSS score was reported to be 3.6. An MCID, defined as an improvement of greater than 1 point was achieved in 93.9% of participants at 12 weeks and in 100% of participants at 52 weeks. There were no serious AEs reported. This early study contained some limitations, including a lack of blinding and a lack of control group.

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A total of 34 individuals completed a 24-month post-procedure clinical outcomes evaluation (Ehmer, 2022a). Participants completed an rTNSS questionnaire and scored postnasal drip and chronic cough symptoms on a 6-point scale (with 0 being no problem). At 24 months, the mean rTNSS remained significantly improved over baseline (-5.5; 95% CI: -6.4 to -4.6; $p < 0.001$; 65.5% improvement). A total of 97.1% (95% CI: 85.1%-99.5%) maintained a 1 point or greater improvement from baseline. While fewer individuals reported using oral medications and nasal breathing strips to manage symptoms at 24 months compared to baseline, the difference was not significant.

A prospective single-arm study reported on the 6-month outcomes of individuals who underwent radiofrequency neurolysis of the PNN to treat chronic rhinitis (Lee, 2022). Adults with moderate to severe chronic rhinitis, as evidenced by an rTNSS score of ≥ 6 were included ($n=126$). Treatment targeted tissue in the posterior middle meatus and superior portion of the posterior inferior turbinate. The adjusted mean rTNSS at baseline was 7.8. At 3 months post-procedure, there was a 53.8% improvement in rTNSS from baseline (mean change -4.2; 95% CI: -4.6 to -3.7). At 6 months post-procedure, there was a 62.8% improvement in rTNSS from baseline (mean change -4.9; 95% CI: -5.5 to -4.3). Participant symptom improvements were also reflected in the responder rate, Quality of Life (QOL) and RQLQ.

Lee (2024) reported on further outcomes of the study. At 2 years post-procedure, the rTNSS scores documented at 3 months were maintained, with an adjusted mean change from baseline -4.5 (95% CI, -5.0 to -3.9). Percentage of individuals classified as responders with an MCID of 30% or greater improvement was reported as 85.5% at 1 year (in 117 participants) and 80.0% at 2 years (in 105 individuals). The study was limited by a lack of a comparator group and considerable attrition (16%).

In a 3-year follow-up of the original cohort, 101 of 129 treated individuals (78%) completed long-term assessment (Lee, 2025). The participants reported improvements in nasal symptoms, cough, postnasal drip, and disease-specific quality of life persisting through 36 months after RFA of the PNN. Mean rTNSS scores remained approximately 58% lower than baseline (adjusted mean rTNSS 7.8 at baseline to 3.2 at 3 years, mean change of -4.5 points [95% CI -5.1 to -4.0; $p < 0.001$]). Approximately 81% of participants continued to meet responder criteria at 3 years. Interpretation of durability is limited by the single-arm, open-label design without a comparator or sham control, reliance on self-reported outcomes, and attrition over time, raising the possibility of reporting and selection bias if individuals with less favorable outcomes were less likely to participate in long-term follow-up.

A second device, the Neuromark system was cleared by the FDA in October of 2021. The approval was based on an unpublished, prospective, single-arm study of 11 individuals. The studies showed no serious AEs with a 6-month follow-up. The Neuromark system has multiple proximal and distal microablation points to maximize the area which can be treated. The expanded treatment area was developed based on the hypothesis that the lack of improvement in some individuals treated with other devices is the result of inadequate treatment due to natural anatomic variations. The device is described as:

The device comprises a two-stage design, where proximal and distal flexible leaflets conform to patient anatomy, maximizing access to nerve-rich areas on the lateral wall of the nasal cavity, and allowing more posterior placement than the other available devices (Reh, 2023).

Reh and associates (2023) reported on the safety and efficacy of the Neuromark system in a prospective, single-arm, multicenter study. Eligible participants ($n=36$) with chronic rhinitis symptoms of 6 months or longer with a

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total minimum VAS NSS of 10.0 (rhinorrhea minimum score of 5.0, rTNSS of 2.0 or more for runny nose) underwent bilateral posterior nasal nerve disruption in an office setting. Post-procedure assessment scores were reported up to 3 months. At 3 months post-procedure, there was a mean 53% and 55% improvement for rhinorrhea and congestion from baseline scores, respectively. The responder rate (reduction of rTNSS of 30% or greater from baseline) was 78% (28/36). There were no serious AEs reported during the study. The authors anticipate following up with participants for up to 12 months, however only 3-month results were available.

In a prospective, multicenter, single-blinded, randomized sham-controlled superiority trial, Takashima (2026) evaluated impedance-controlled multipoint radiofrequency PNN ablation using the Neuromark system as an in-office, non-medication intervention for adults with chronic rhinitis. A total of 132 participants were randomized 2:1 to active treatment or sham control, with the primary endpoint defined as a $\geq 30\%$ reduction in rTNSS at 90 days. The rTNSS responder rate was significantly higher in the active treatment arm compared with sham (73.3% vs. 35.0%, $p < 0.001$), with improvements across nasal symptom burden, nasal obstruction, quality of life, and depression outcomes. Improvements were achieved without changes in background rhinitis medication use. There was one reported procedure-related serious adverse event of epistaxis requiring observation. Study limitations include the single-blind design and follow-up limited to 90 days.

Yen (2025) evaluated the Neuromark system in a prospective, multicenter, single-arm study. PNN ablation was evaluated in 80 adults with chronic rhinitis and 2-year outcomes were reported with 94% of participants completing follow-up. The mean rTNSS improved by -4.3 points at 24 months. The responder rates, defined as at least a 30% reduction from baseline, were 80% at 12 months, 79% at 18 months, and 76% at 24 months. There were no serious device or procedure related adverse events during extended follow-up. Interpretation of these findings is limited by the absence of a randomized control or sham comparator and allowance for concomitant medication changes during follow-up which introduced potential bias and limit causal inference regarding treatment effect durability.

Studies evaluating RF devices have reported a low incidence of AEs. The FDA's Manufacturer and User Facility Device Experience (MAUDE) database for the RhinAer and Neuromark systems has 10 AEs through February 2, 2023. The majority of AEs were epistaxis (9/10) with 3 events requiring blood transfusions and 8 events requiring an operative intervention (Torabi, 2024). The epistaxis events occurred between day 5 and day 33. The authors hypothesize that "the sphenopalatine artery (SPA) or a branch is directly provoked or exposed, which can lead to delayed epistaxis".

Laser Ablation

Krespi (2020) conducted a small prospective study to evaluate the effectiveness of an endoscopic diode laser as a tool for PNN ablation. Individuals with chronic medically intractable rhinitis ($n=32$) underwent endoscopic laser ablation in an office or ambulatory surgical center. Individuals were followed for 90 days following treatment. Symptom severity and treatment outcomes were measured using the TNSS. The procedure was successfully performed in 31 of the participants. TNSS scores were significantly reduced after 90 days (mean $\pm$ Standard Deviation (SD): 6.0 ± 0.7 prior to ablation, 2.3 ± 0.4 at 90 days, $p < 0.001$). The authors reported no laser safety events or other post procedure complications. The value of this study is limited by multiple factors, including small size, no control arm, follow-up limited to 90 days, non-standardized concomitant use of medications, and the publication only of summarized data in the study.

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Currently, there are no laser devices which are FDA approved for ablation in the nasal area in the treatment of rhinitis. Adequately powered randomized controlled studies are needed to evaluate net health benefits from the use of laser ablation for the treatment of chronic rhinitis.

Background/Overview

Chronic rhinitis is categorized as allergic, nonallergic or mixed subtypes. Chronic nonallergic rhinitis includes several subtypes of rhinitis which are not associated with an allergic or infectious etiology. Approximately 60 million people in the United States, about 1 in 5 individuals, are afflicted with chronic rhinitis (Kompelli, 2018; Krespi, 2020). Nonallergic chronic rhinitis affects 20 to 30 million individuals in the United States and represents approximately 25% of rhinitis cases (Sur, 2018). Similar symptoms are present in all subtypes: nasal congestion or obstruction, postnasal drip, itching, redness, clear rhinorrhea, sneezing and watery eyes. However, the underlying pathophysiology of allergic and nonallergic rhinitis differs. Allergic rhinitis is caused by exposure to specific sensitivity triggers which results in the secretion of multiple proinflammatory mediators, manifesting as nasal obstruction and rhinorrhea (Gerka Stuyt, 2021). Nonallergic rhinitis is thought to result from nociceptor and autonomic nerve dysregulation (Gerka Stuyt, 2021; Sur, 2018). Initial treatment consists of avoidance of known triggers and pharmacologic management (Liu, 2010). Approximately 10% to 22% of individuals experience rhinitis that is refractory to medical management (Balai, 2023).

There are surgical alternatives for individuals with intractable symptoms. The vidian nerve is responsible for the majority of the parasympathetic innervation to the secretory nasal mucosa via the preganglionic parasympathetic fibers of the greater petrosal nerve, which synapses at the pterygopalatine ganglion. This results in postganglionic innervation to the nasal mucosa via the PNN. Vidian neurectomy has been reported as effective in treating rhinitis, although persistent dry eye symptoms have also been reported as a possible complication. Due to the potential side effects, vidian neurectomy is not commonly performed anymore. PNN surgical resection or neurectomy, selectively targets postganglionic parasympathetic fibers that are anatomically distal to the lacrimal innervation branch point, has also been effective to treat both allergic and nonallergic rhinitis while sparing lacrimal innervation (Hwang, 2017).

The PNN can be accessed at the middle and inferior meatus. Minimally invasive treatment using cryotherapy involves consecutive bilateral application of cold to the mucosa in the region of the PNN under endoscopic visualization. It can be performed under local anesthesia. Cryotherapy reduces parasympathetic tone and both secretory and vasoactive activity in the PNN area. The procedure may require periodic repeat sessions to maintain clinical benefit. Minimally invasive treatment may also use radiofrequency energy to disrupt the PNN activation process by destroying tissue in the PNN area while preserving surrounding tissue. There is no literature regarding whether repeat sessions might be required. Repeat sessions at some point may be required as peripheral regeneration takes place at a rate of 1-6 inches/month (Ehmer, 2022a).

Definitions

Allergic rhinitis: A group of symptoms affecting the nose, which occur when someone breathes in something they are allergic to, such as dust, dander, insect venom, or pollen. These symptoms include chronic sneezing, congestion or runny nose.

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Cryoablation: A minimally invasive procedure using a closed-probe, gas-based system. This procedure uses extremely cold temperatures to selectively destroy nerve endings to create a block that stops the conduction of symptoms, such as rhinorrhea or congestion.

Nonallergic rhinitis: The symptoms are similar to those of allergic rhinitis; however, the immune system is not involved. Formerly known as vasomotor rhinitis, no vascular basis for this condition has been established.

Reflective Total Nasal Symptom Score (RTNSS): An evaluation of the TNSS after a predefined period of time (such as one month). RTNSS is used to assess the degree of overall effectiveness after the predefined time period. This is in contrast to instantaneous TNSS, in which TNSS is evaluated at a specific time in therapy (such as immediately preceding the next dose of a medication).

Total Nasal Symptom Score (TNSS): A symptom severity scoring system, consisting of four individual subject-assessed symptom scores for rhinorrhea, nasal congestion, nasal itching, and sneezing, each evaluated using a scale of 0 = none, 1 = mild, 2 = moderate, or 3 = severe. The four individual scores are then added together for a maximum 12-point score which is based on the individual's perceived symptom severity over the preceding 12 hours.

Coding

The following codes for treatments and procedures applicable to this document are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services are Investigational and Not Medically Necessary:

When the code describes a procedure indicated in the Position Statement section as investigational and not medically necessary.

CPT

30999	Unlisted procedure, nose [when specified as minimally invasive treatment of the posterior nasal nerve using laser]
31242	Nasal/sinus endoscopy, surgical; with destruction by radiofrequency ablation, posterior nasal nerve
31243	Nasal/sinus endoscopy, surgical; with destruction by cryoablation, posterior nasal nerve Note: if code 30117 [Excision or destruction (eg, laser), intranasal lesion, internal approach] is used to describe minimally invasive treatment of the posterior nasal nerve, for example using cryotherapy, radiofrequency therapy or laser, the service is considered investigational and not medically necessary

ICD-10 Diagnosis

J30.0-J30.9	All diagnoses, including but not limited to the following: Vasomotor and allergic rhinitis
J31.0-J31.2	Chronic rhinitis, nasopharyngitis and pharyngitis
R09.81	Nasal congestion
R09.82	Postnasal drip

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ClariFix
RhinAer
Temperature-controlled radiofrequency (TCRF) neurolysis

The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

Document History

Status	Date	Action
Reviewed	02/19/2026	MPTAC review. Added “Summary for Members and Families” section. Revised Rationale, Background, References, and Websites sections.
Reviewed	08/07/2025	MPTAC review. Revised Rationale, Background, and References sections.
Reviewed	08/08/2024	MPTAC review. Updated Description, Rationale, Background, Definitions and References sections.
	04/01/2024	Updated Coding section to add note.
	12/28/2023	Updated Coding section with 01/01/2024 CPT and HCPCS changes; added 31242, 31243 and removed C9771 deleted as of 01/01/2024, also removed note related to use of code 30117 no longer applicable.
Reviewed	08/10/2023	MPTAC review. Updated Description, Rationale, Background and References sections.
Reviewed	08/11/2022	MPTAC review. Updated Rationale and References sections.
Revised	08/12/2021	MPTAC review. Removed “area” from the term “posterior nasal nerve area”. Updated Description, Rationale, Background and References sections.
	12/16/2020	Updated Coding section with 01/01/2021 HCPCS changes; added C9771.
New	08/13/2020	MPTAC review. Initial document development.

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