

Medical Policy



Title: Balloon Dilation of the Eustachian Tube

Professional

Original Effective Date: June 3, 2021
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Populations	Interventions	Comparators	Outcomes
Individuals: <ul style="list-style-type: none"> With chronic eustachian tube dilatory dysfunction despite medical management 	Interventions of interest are: <ul style="list-style-type: none"> Balloon dilation of the eustachian tube 	Comparators of interest are: <ul style="list-style-type: none"> Continued medical management Mechanical pressure equalization device Tympanostomy Eustachian tuboplasty other than balloon dilation 	Relevant outcomes include: <ul style="list-style-type: none"> Symptoms Change in disease status Quality of life Treatment-related morbidity

DESCRIPTION

Eustachian tube dysfunction (ETD) occurs when the functional valve of the eustachian tube fails to open and/or close properly. This failure is frequently due to inflammation and can cause symptoms such as muffled hearing, ear fullness, tinnitus, and vertigo. Chronic obstructive ETD

can lead to hearing loss, otitis media, tympanic membrane perforation, and cholesteatomas. Balloon dilation of the eustachian tube (BDET) is a procedure intended to improve patency by inflating a balloon in the cartilaginous part of the eustachian tube to cause local dilation.

OBJECTIVE

The objective of this evidence review is to determine whether balloon dilation of the eustachian tube improves the net health outcome in patients with chronic obstructive eustachian tube dysfunction.

BACKGROUND

Eustachian Tube Function and Dysfunction

The eustachian tube connects the middle ear space to the nasopharynx. It ventilates the middle ear space to equalize pressure across the tympanic membrane, clears mucociliary secretions, and protects the middle ear from infection and reflux of nasopharyngeal contents.¹ Normally, the tube is closed or collapsed and opens during swallowing, sneezing or yawning. Eustachian tube dysfunction (ETD) occurs when the functional valve of the eustachian tube fails to open and/or close properly. This failure may be due to inflammation or anatomic abnormalities. Symptoms of chronic obstructive ETD can include aural fullness, aural pressure, hearing loss, and otalgia. In milder cases, ETD may only be apparent in situations of barochallenge (inability to equalize with rapid barometric pressure changes), with otherwise normal function in stable ambient conditions.²

Diagnosis

Because the symptoms of ETD are nonspecific, clinical practice guidelines emphasize the importance of ruling out other causes of ETD with a comprehensive diagnostic assessment that includes patient-report questionnaires, history and physical exam, tympanometry, nasal endoscopy, and audiometry to establish a diagnosis.²

Medical and Surgical Management of Eustachian Tube Dysfunction

Medical management of ETD is directed by the underlying etiology. Treatment of identified underlying conditions, such as systemic decongestants, antihistamines, or nasal steroid sprays for allergic rhinitis; behavioral modifications and/or proton pump inhibitors for laryngopharyngeal reflux; or treatment of mass lesions, may be useful in resolving ETD.

Patients who continue to have symptoms following medical management may be treated with surgery such as myringotomy with the placement of tympanostomy tubes or eustachian tuboplasty. These procedures create an alternative route for ventilation of the middle ear space but do not address the functional problem at the eustachian tube. There is limited evidence and no randomized controlled trials (RCTs) supporting use of these surgical techniques for this indication.³ Additionally, surgery may be associated with adverse events such as infection, perforation, and otorrhea. Tympanostomy tube placement may be a repeat procedure for the life of the patient, and the risk of complications from tympanostomy tubes increases with increasing numbers of tube placements and duration of tube placement.

Balloon Dilation of the Eustachian Tube

Balloon dilation is a tuboplasty procedure intended to improve the patency of the cartilaginous eustachian tube to cause local dilation. During the procedure, a saline-filled balloon catheter is introduced into the eustachian tube through the nose using a minimally invasive trans nasal endoscopic method. Pressure is maintained for 2 minutes or less, after which the balloon is emptied and removed. The procedure is usually performed under general anesthesia.^{4,5}

Balloon dilation of the eustachian tube can be done as a stand alone procedure or in conjunction with other procedures such as adenoidectomy, intranasal surgery (e.g. septoplasty, turbinate procedures or sinus surgery), surgery for obstructive sleep apnea or sleep disturbed breathing, and myringotomy with or without tympanostomy tube placement. This evidence review addresses balloon dilation of the eustachian tube as a stand alone procedure.

REGULATORY STATUS

Table 1. Devices Cleared by the U.S. Food and Drug Administration

Device	Manufacturer	Date Cleared	510(k) No.	Indication
Acclarent Aera Eustachian Tube Balloon Dilation System	Acclarent, Inc.	01/16/2018	K171761	Eustachian tube dilation
Xpress ENT Dilation System	Entellus Medical, Inc.	04/05/2017	K163509	Eustachian tube dilation

In September 2016, the AERA® (Acclarent) was granted a de novo 510(k) classification by the U.S. Food and Drug Administration (FDA) (class II, FDA product code: PNZ). The new classification applies to this device and substantially equivalent devices of this generic type. The AERA® is cleared for dilating the eustachian tube in patients ages 22 and older with persistent ETD.

In December 2016, the XprESS™ ENT Dilation System (Entellus Medical, Plymouth, MN) was cleared for marketing by the FDA through the 510(k) process (K163509). The FDA determined this device was substantially equivalent to existing devices for use in ETD. The predicate devices are XprESS™ Multi-Sinus Dilation System (K152434) and AERA® Eustachian Tube Balloon Dilation System.

POLICY

- I. Balloon dilation of the eustachian tube for treatment of chronic obstructive eustachian tube dysfunction may be considered **medically necessary** under the following conditions:
 - A. Adults (age 22 years and older) with symptoms of obstructive eustachian tube dysfunction (aural fullness, aural pressure, otalgia, and/or hearing loss) for 12 months or longer in one or both ears that significantly affects quality of life or functional health status
 1. Aural fullness and pressure must be present (see Policy Guidelines)

AND

2. The patient has undergone a comprehensive diagnostic assessment; including patient-reported questionnaires, history and physical exam, tympanometry if the tympanic membrane is intact, nasal endoscopy, and comprehensive audiometry, with the following findings:
 - a. Abnormal tympanogram (Type B or C)
 - b. Abnormal tympanic membrane (retracted membrane, effusion, perforation, or any other abnormality identified on exam)

AND

3. Failure to respond to appropriate medical management of potential co-occurring conditions, if any, such as allergic rhinitis, rhinosinusitis, and laryngopharyngeal reflux, including 4-6 weeks of a nasal steroid spray, if indicated

AND

- B. Other causes of aural fullness such as temporomandibular joint disorders, extrinsic obstruction of the eustachian tube, superior semicircular canal dehiscence, and endolymphatic hydrops have been ruled out.

AND

- C. If the patient had a history of tympanostomy tube placement, symptoms of obstructive eustachian tube dysfunction should have improved while tubes were patent

AND

- D. The patient does not have patulous eustachian tube dysfunction or another contraindication to the procedure (see Policy Guidelines)

AND

- E. The patient's eustachian tube dysfunction has been shown to be reversible (see Policy Guidelines)

AND

- F. Symptoms are continuous rather than episodic (e.g., symptoms occur only in response to barochallenge such as pressure changes while flying)

AND

- G. The patient has not had a previous BDET procedure

- II. Balloon dilation of the eustachian tube is considered **experimental / investigational** if the above criteria are not met.

POLICY GUIDELINES

Symptoms of obstructive eustachian tube dysfunction may include aural fullness, aural pressure, otalgia, and hearing loss. Nearly all patients will have aural fullness and aural pressure. Many patients will have otalgia, but hearing loss may not be present in all patients (e.g., patients with Type C tympanograms).

Contraindications to Balloon Dilation of the Eustachian Tube

- The following patients should not be considered for balloon dilation of the eustachian tube:
 - Patients with patulous eustachian tube dysfunction

- A diagnosis of patulous ETD is suggested by symptoms of autophony of voice, audible respirations, pulsatile tinnitus, and/or aural fullness.
- Patients with extrinsic reversible or irreversible causes of eustachian tube dysfunction including but not limited to:
 - craniofacial syndromes, including cleft palate spectrum
 - neoplasms causing extrinsic obstruction of the eustachian tube
 - history of radiation therapy to the nasopharynx
 - enlarged adenoid pads
 - nasopharyngeal mass
 - neuromuscular disorders that lead to hypotonia/ineffective eustachian tube dynamic opening
 - systemic mucosal or autoimmune inflammatory disease affecting the mucosa of the nasopharynx and eustachian tube (e.g. Samter's triad, Wegener's disease, mucosal pemphigus) that is ongoing/active (i.e. not in remission)
- Patients with aural fullness but normal exam and tympanogram
- Patients with chronic and severe atelectatic ears

Reversibility of Eustachian Tube Dysfunction

Reversibility of Eustachian Tube dysfunction can be demonstrated by several means, including any of the following:

- The patient states that they are able to relieve the pressure by performing a Valsalva maneuver to "pop" their ears
- Performing a Valsalva maneuver produces temporary improvement of the patient's tympanogram to Type A tympanogram
- Performing a Valsalva maneuver causes the member's middle ear to aerate, which is indicated by the provider visualizing lateral movement of the tympanic membrane on otoscopy

Balloon Dilation of the Eustachian Tube Used in Combination with Other Procedures

- Patients undergoing BDET concurrent with sinus ostial dilation should meet the same diagnostic criteria for BDET as those undergoing BDET alone.
- Patients with a middle ear effusion at the time of BDET may benefit from concurrent myringotomy with or without tympanostomy tube placement

RATIONALE

This evidence review has been updated regularly with searches of the PubMed database. The most recent literature search was conducted through August 3, 2021.

Evidence reviews assess the clinical evidence to determine whether the use of technology improves the net health outcome. Broadly defined, health outcomes are the length of life, quality of life, and ability to function, including benefits and harms. Every clinical condition has specific outcomes that are important to patients and managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of technology, 2 domains are examined: the relevance, and quality and credibility. To be

relevant, studies must represent 1 or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. Randomized controlled trials are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

BALLOON DILATION FOR CHRONIC OBSTRUCTIVE EUSTACHIAN TUBE DYSFUNCTION

Clinical Context and Therapy Purpose

The purpose of balloon dilation of the eustachian tube (BDET) is to provide a treatment option that is an alternative to or an improvement on existing therapies in patients with chronic obstructive eustachian tube dysfunction (ETD) despite medical management.

The question addressed in this evidence review is: Does BDET improve the net health outcome in patients with chronic obstructive ETD?

The following PICO was used to select literature to inform this review.

Populations

The relevant population of interest is individuals with chronic obstructive ETD despite medical management.

Eustachian tube dysfunction occurs when the functional valve of the eustachian tube fails to open and/or close properly, frequently due to inflammation. Symptoms may include ear fullness, recurrent barochallenge (difficulty clearing the ears with changes in ambient pressure), hearing loss, otalgia, and tinnitus.

Interventions

The therapy being considered is BDET.

Balloon dilation of the eustachian tube is a procedure intended to improve the patency by inflating a balloon in the cartilaginous part of the eustachian tube to cause local dilation. During the procedure, a saline-filled balloon catheter is introduced into the eustachian tube through the nose using a minimally invasive transnasal endoscopic method. Pressure is maintained for 2 minutes or less after which the balloon is emptied and removed. The procedure is usually performed under general anesthesia.

Comparators

Medical management of ETD is directed by the underlying etiology: treatment of viral or bacterial rhinosinusitis; systemic decongestants, antihistamines, or nasal steroid sprays for allergic rhinitis; behavioral modifications and/or proton pump inhibitors for laryngopharyngeal reflux; and treatment of mass lesions. Treating underlying conditions, if identified, may be useful in resolving ETD. Patients who continue to have symptoms following medical management may be treated with surgery such as myringotomy with the placement of tympanostomy tubes, methods of eustachian tube dilation other than balloon dilation, or mechanical pressure equalization devices.

Outcomes

The general outcomes of interest are symptoms, change in disease status, quality of life, and treatment-related morbidity. Specific outcome measures are described in Table 2. Initial follow up examinations are typically done at 4 to 6 weeks to judge early efficacy. Follow-up should be at least 1 year to appropriately establish a clinically meaningful improvement.

Table 2. Outcome Assessment of Chronic Obstructive Eustachian Tube Dysfunction

Outcome Measure	Description	MCID, if known
Eustachian Tube Dysfunction Questionnaire (ETDQ-7)	Validated, standardized, 7-item patient-reported questionnaire to assess symptom severity associated with ETD. Pressure, pain, feeling clogged, cold/sinusitis problems, crackling/popping, ringing, and muffled hearing. Patients rate the severity of 7 symptoms on a scale ranging from 1 (no problem) to 7 (severe problem). Dividing the total score by 7 yields the mean item score. A total score of ≥ 14.5 and mean item score of ≥ 2.1 indicate ETD Scores in the range of 1 to 2 indicate no to mild symptoms, 3 to 5 moderate symptoms, and 6 to 7 severe symptoms.	0.5 point improvement Normalization is defined as a mean item score < 2.1 or a total score < 14.5
Valsava maneuver	Patient breathes out while closing the nose and mouth to direct air to the eustachian tube and help them open. Modified: gentle nose blow with simultaneous swallow	Positive (ability to perform the maneuver when needed) Negative (unable to perform the maneuver)
Tympanometry	Measures the mobility of the tympanic membrane and graphically displays results in tympanograms. Tympanograms are classified by the height and location of the tympanometric peak. Type A indicates normal middle ear and eustachian tube function; type B indicates poor tympanic membrane mobility ("flat" tympanogram), and type C indicates the presence of negative middle ear pressure.	Type A (normal)
Otосcopy findings	Visual examination of the tympanic membrane using an otoscope. Classifies tympanic membrane as abnormal (retracted membrane, effusion, perforation, or any other abnormality identified on exam) or normal	Normal tympanic membrane

ETD: eustachian tube dysfunction; MCID: minimal clinically important difference.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies.
- To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought.
- Studies with duplicative or overlapping populations were excluded.

REVIEW OF EVIDENCE

Systematic Reviews

Froehlich et al (2020) conducted a systematic review and meta-analysis of balloon dilation for ETD (Tables 3 and 4).⁶ Twelve studies were included in the meta-analysis, including 3 RCTs, 5 prospective observational studies, and 4 case series. One RCT (Liang et al 2016) that compared balloon dilation to tympanic paracentesis reported tympanometry and otoscopy scores but not symptoms. The other 2 RCTs compared balloon dilation plus medical management to medical management alone and used the ETDQ-7 to measure symptoms. Table 3 summarizes results at 6 weeks. Pooled analyses showed improvements in subjective and objective measures including ETDQ-7 scores, tympanograms, otoscopy exams, and ability to perform a Valsalva maneuver. Improvements appeared to be maintained in studies with longer-term follow up (3 to 12 months).

Several earlier systematic reviews of observational studies have been published. Case series included in these reviews consistently reported that patients experienced improvement when comparing symptoms before and after balloon dilation. The studies varied in the type of medical management used to treat ETD before and after balloon dilation.

Table 3. Systematic Review Characteristics

Study	Search End Date	Included Studies	Participants	N (range)	Study Designs	Duration
Froehlich et al (2020) ⁶ .	January 2019	35 total, 12 included in quantitative meta-analysis	Adults with ETD	448 patients (2 to 202) 445 ears (2 to 234)	3 RCTs, 5 prospective observational, 4 case series	6 weeks to 12 months

ETD: eustachian tube dysfunction; RCTs: randomized controlled trials.

Table 4. Systematic Review Results

Study	ETDQ-7 Normalization (Proportion with score <2.1)	ETDQ-7 Mean Score	Valsalva Maneuver (Proportion able to perform)	Tympanometry Normalization (Proportion with Type A) ¹	Tympanometry Improvement (Proportion with change from Type B to Type A or from Type C to Type B) ¹	Otосcopy Findings (Proportion with a normal finding)
N studies/patients Study designs	2/245 RCTs	3/2261 RCT, 1 prospective observational, 1 case series	6/436 ears RCTs	12/606 ears RCTs, prospective observational, case series	4/287 ears	7/252 ears
Baseline% (95% CI)	NA	NR	13.2% (0.7 to 37.5)	13.9% (1.5 to 35.6)	NA	22.1% (2.0 to 55.0)
6 weeks % (95% CI)	53.5% (47.0, 59.8)	NR	71.2% (58.8 to 82.1)	58.9% (40.4 to 76.2)	53.0% (29.1 to 76.2)	53.8% (31.1 to 75.7)
Pooled Difference Pre-Post (95% CI):	NA	-2.13 (-3.02 to -1.24); p.0004	58.0% (52.0 to 63.3); p<.001	45.0% (39.9 to 49.8); p<.0001	NA	31.7% (22.5 to 40.4), p<.0001
I ² (p value)	NR	87% (.0004)	NR	NR	NR	NR

¹Type A indicates normal middle ear and ET function; type B indicates poor tympanic membrane mobility ("flat" tympanogram), and type C indicates the presence of negative middle ear pressure. CI: confidence interval; ETDQ-7: 7-item Eustachian Tube Dysfunction Questionnaire; N: sample size; NA: not applicable; NR: not reported; RCT: randomized controlled trial.

Randomized Controlled Trials

Two randomized controlled trials have evaluated BDET for obstructive ETD (Tables 5 to 7).^{7,8} Both compared BDET plus medical management to medical management alone for 6 weeks. Following the 6-week follow-up period, patients who were randomized to medical management alone could elect to receive BDET and were followed up to 52 weeks in an extension phase.

The balloon catheter used in Poe et al (2017) was a custom-designed eustachian tube balloon catheter (ETBC) (Acclarent). Eligible patients had persistent patient-reported symptoms of ETD (ETDQ-7 mean item score ≥ 2.1) and abnormal tympanometry (type B or type C), and failed medical management including either a minimum of 4 weeks of daily use of an intranasal steroid spray or a minimum of 1 course of an oral steroid.⁷ Each investigator was required to perform 3 successful balloon dilation procedures in nonrandomized "lead-in" patients who were then followed for durability and safety outcomes. Randomization and analyses were performed at the

person-level whether or not the patient had unilateral or bilateral ETD. The primary efficacy outcome (normalization of tympanometry) was assessed by both site investigators and a blinded, independent evaluator; discrepancies were resolved by a second independent evaluator. For bilaterally treated patients, both ears had to be rated as normalized for that patient to be considered normalized for the primary outcome.

Anand et al (2019) reported 52-week data on 128 patients who received a ETBC, including those randomized to the intervention and those who crossed over following the 6-week randomized phase.⁹ Of 128 patients with normalized tympanogram at 6 weeks, 71 remained normalized at 52 weeks and 71 of 124 had normalized scores on the ETDQ. Some ears failed to normalize at earlier visits but converted at subsequent follow-up visits. Overall, 119 of 187 (63.6%) ears had type A tympanograms at 52 weeks, either remaining normal throughout the study or converting to normal. There were no device- or procedure-related serious adverse events during the 52-week follow-up period.

Meyer et al (2018) conducted a RCT evaluating BDET versus continued medical therapy for treating 60 participants with persistent ETD. The primary efficacy outcomes were symptoms as measured by the ETDQ-7 score and the primary safety outcome was rate of complications.⁸ Mean (standard deviation) change in overall ETDQ-7 score at 6 weeks was 2.9 (1.4) for balloon dilation compared with 0.6 (1.0) for medical management: balloon dilation was superior to medical management ($p < .0001$). No complications were reported in either study arm. Among participants with abnormal baseline assessments, improvements in tympanogram type ($p < .006$) and tympanic membrane position ($p < .001$) were significantly better for balloon dilation than control. Improvements in the ETDQ-7 scores were maintained through 12 months after balloon dilation. Cutler et al (2019) reported longer-term follow-up data from this trial.¹⁰ Of 58 patients from the original study who were eligible for the extension study, 47 were enrolled (81.0%) The mean follow-up time was 29.4 months post-procedure (range 18 to 42 months). Changes from baseline at the end of the longer-term follow-up period were similar to improvements observed at 1 year on outcome measures including the ETDQ-7, normalized tympanogram, ability to perform the Valsalva maneuver, and patients' satisfaction with the outcome of the procedure. One patient underwent a revision eustachian tube dilation after 362 days, performed concurrently with balloon dilation for recurrent sinus disease. No other surgeries or adverse events were reported.

Study limitations are summarized in Tables 8 and 9. Limitations included a lack of blinding, which could bias reports of patient-reported symptoms, and short (6-week) comparative follow-up period.

Table 5. Randomized Controlled Trials of Balloon Dilation of the Eustachian Tube: Study Characteristics

Study name (NCT Number)Publications	Countries	Dates	Key Eligibility Criteria	Outcome Measures and Duration of Follow-up	Intervention	Comparator
The Study of Safety and Efficacy for the Eustachian Tube Balloon Catheter (NCT02087150)Poe et al (2017) ⁷ ;NCT02087150 ⁹ .	U.S., 21 sites	2014 - 2016	<p>Inclusion: 22 years or older, persistent ETD, failure of medical management, positive diagnosis of ETD</p> <p>Exclusion:</p> <ul style="list-style-type: none"> • Anatomy that requires an adjunctive surgical procedure • Concomitant nasal or sinus procedures planned on the same day as surgical procedure • Concomitant ear procedures planned on the same day as surgical procedure • History of major surgery of the head or neck within 4 months prior to surgery • History of patulous eustachian tube • History of fluctuating sensorineural hearing loss • Active acute otitis media 	<p>Primary: Tympanogram normalization (Type A) in all indicated ears at 6 weeks.</p> <p>Secondary: Improvement of 0.5 points on ETDQ-7 at 6 weeks.</p> <p>Exploratory : Tympanogram normalization (Type A) at 12, 24, and 52 weeks ETDQ-7 Improvement at 12, 24, 52 weeks Work and activity impairment at 6, 12, 24, 52 weeks</p>	<p>BDET plus medical management (daily nasal steroid spray for 6 weeks)</p> <p>162 patients (234 ears)</p>	<p>Medical management alone (daily nasal steroid spray for 6 weeks)</p> <p>80 patients (117 ears)</p>

Study name (NCT Number)Publications	Countries	Dates	Key Eligibility Criteria	Outcome Measures and Duration of Follow-up	Intervention	Comparator
			<ul style="list-style-type: none"> • Tympanic membrane perforation • Tympanosclerosis • Acute upper respiratory infection • Temporomandibular joint disorder • Cleft palate • Craniofacial syndrome • Cystic fibrosis • Ciliary dysmotility syndrome • Systemic mucosal or immunodeficiency disease • Intolerance of medication for ETD • Prior intervention of eustachian tube 			
XprESS Eustachian Tube Dilatation StudyNCT02391584 Meyer et al (2018) ^{8,10} .	U.S., 5 sites	2015 - 2017	<p>Inclusion: 18 years or older, diagnosed with symptoms of chronic ETD for at least 12 months, ETDQ-7 score ≥ 3.0, record of failed medical management</p> <p>Exclusion:</p> <ul style="list-style-type: none"> • Require concomitant procedures at the time of the study enrollment or procedure 	<p>Primary: Mean change in overall ETDQ-7 at 6 weeks, complication rate through 6 months post-procedure</p> <p>Secondary: technical success</p>	BDET <ul style="list-style-type: none"> • 31 patients 	Continued medical management <ul style="list-style-type: none"> • 29 patients

Study name (NCT Number)Publications	Countries	Dates	Key Eligibility Criteria	Outcome Measures and Duration of Follow-up	Intervention	Comparator
			<ul style="list-style-type: none"> • Have patulous eustachian tube • Have ear tubes in place or perforation of the tympanic membrane • Have evidence of internal carotid artery dehiscence • Be pregnant at the time of enrollment • Be currently participating in other drug or device studies 	rate, revision rate at 12 months, mean change in ETDQ-7 at 3 months, 6 months and 12 months		

BDET: balloon dilation of the eustachian tube; ETDQ-7: Eustachian Tube Dysfunction Questionnaire; ETD: eustachian tube dysfunction; NCT: National Clinical Trial.

Table 6. Randomized Controlled Trials of Balloon Dilation of the Eustachian Tube: Results at 6 Weeks

Study name (NCT Number) Publications	ETDQ-7 Normalization (Score <2.1)	ETDQ-7 Mean Change	Valsalva Maneuver Positive	Normalized Tympanogram (Type A)	Otосcopy Results (Tympanic Membrane position normal)	Adverse Events
The Study of Safety and Efficacy for the Eustachian Tube Balloon Catheter (NCT02087150)Po e et al (2017) ⁷ ;NCT02087150						
BDET plus medical management	77/137 (56.2%)		32.8% increase in number of ears	72/139 (51.8%)	Not assessed	4 serious adverse events No device- or procedure-related

Study name (NCT Number) Publications	ETDQ-7 Normalization (Score <2.1)	ETDQ-7 Mean Change	Valsalva Maneuver Positive	Normalized Tympanogram (Type A)	Otосcopy Results (Tympanic Membrane position normal)	Adverse Events
						serious adverse events
Medical management alone	6/71 (8.5%)		3.1% increase in number of ears	10/72 (13.9%)		1 serious adverse event No medication-related serious adverse events
p value	<.001		<.001	<.0001		
XprESS Eustachian Tube Dilation Study NCT02391584 Meyer et al (2018) ⁸						
BDET plus medical management		-2.9 (1.4)	8/17 (47.1%)	8/14 (57.1%)	10/15 (66.7%)	No complications
Medical management alone		-0.6 (1.0)	2/14 (1.3%)	1/10 (10.0%)	0/12 (0.0%)	No complications
p value		<.0001	.068	.006	.001	

BDET: balloon dilation of the eustachian tube; ETDQ-7: Eustachian Tube Dysfunction Questionnaire; NCT: National Clinical Trial.

Table 7. Randomized Controlled Trials of Balloon Dilatation of Eustachian Tube- Uncontrolled Extension Phase Results (52 weeks)

Study name (NCT Number)Publications	ETDQ-7 Normalization (Score <2.1) at 52 Weeks	ETDQ-7 Mean Change	Valsalva Maneuver Positive at 52 Weeks	Normalized Tympanogram (Type A) at 52 weeks	Otology Results (Tympanic Membrane position normal)	Adverse Events
The Study of Safety and Efficacy for the Eustachian Tube Balloon Catheter (NCT02087150) ⁹ .						
Number analyzed	124		230 (Ears)	128 (187 ears)		219
BDET plus medical management	71/124 (57.3%)		Ears: 185/230 (80,4%)	Patients: 71/128 (55.5%) Ears: 119/187 (63.6%)	Not assessed	No device- or procedure-related serious adverse events Two occurrences of patulous eustachian tube, both described as mild.
XprESS Eustachian Tube Dilatation StudyNCT02391584Meyer et al (2018) ^{8,10} .						
N		49	47	80	49	49
BDET plus medical management		2.1 (SD reported in graph only)	31/47 (66.0%)	70/80 (87.5%)	42/49 (85.7%)	No complications

BDET: balloon dilatation of the eustachian tube; ETDQ-7: Eustachian Tube Dysfunction Questionnaire; NCT: National Clinical Trial.

Table 8. Randomized Controlled Trials: Study Relevance Limitations

Study	Population	Intervention	Comparator	Outcomes	Follow-Up
Poe et al (2017) ⁷ .				1. Limited information on harms provided in the primary publication vs. FDA dossier	1. Only 6 weeks of comparative data; longer follow-up of BDET to 52 weeks in subset of patients.
Meyer et al (2018) ⁸ .	1. Study enrollment criteria did not require abnormal middle ear functional assessments	2.			1. Comparative outcomes limited to 6 weeks; longer follow-up of BDET in subset of patients.

BDET: balloon dilation of the eustachian tube; FDA: Food and Drug Administration.

The study limitations stated in this table are those notable in the current review; this is not a comprehensive gaps assessment.

^a Population key: 1. Intended use population unclear; 2. Clinical context is unclear; 3. Study population is unclear; 4. Study population not representative of intended use.

^b Intervention key: 1. Not clearly defined; 2. Version used unclear; 3. Delivery not similar intensity as comparator; 4. Not the intervention of interest.

^c Comparator key: 1. Not clearly defined; 2. Not standard or optimal; 3. Delivery not similar intensity as intervention; 4. Not delivered effectively.

^d Outcomes key: 1. Key health outcomes not addressed; 2. Physiologic measures, not validated surrogates; 3. No CONSORT reporting of harms; 4. Not establish and validated measurements; 5. Clinical significant difference not prespecified; 6. Clinical significant difference not supported.

^e Follow-Up key: 1. Not sufficient duration for benefit; 2. Not sufficient duration for harms.

Table 9. Randomized Controlled Trials: Study Design and Conduct Limitations

Study	Allocation	Blinding	Selective Reporting	Follow-Up	Power	Statistical
Poe et al (2017) ⁷ .		1. Blinding of patients not possible; may bias patient-reported measures	2.			1. Treatment effects and CIs not reported.
Meyer et al (2018) ⁸ .		1. Blinding of patients not	2.			

Study	Allocation	Blinding	Selective Reporting	Follow-Up	Power	Statistical
		possible; may bias patient- reported measures				

CI: confidence interval.

The study limitations stated in this table are those notable in the current review; this is not a comprehensive gaps assessment.

^a Allocation key: 1. Participants not randomly allocated; 2. Allocation not concealed; 3. Allocation concealment unclear; 4. Inadequate control for selection bias.

^b Blinding key: 1. Not blinded to treatment assignment; 2. Not blinded outcome assessment; 3. Outcome assessed by treating physician.

^c Selective Reporting key: 1. Not registered; 2. Evidence of selective reporting; 3. Evidence of selective publication.

^d Data Completeness key: 1. High loss to follow-up or missing data; 2. Inadequate handling of missing data; 3. High number of crossovers; 4. Inadequate handling of crossovers; 5. Inappropriate exclusions; 6. Not intent to treat analysis (per protocol for noninferiority trials).

^e Power key: 1. Power calculations not reported; 2. Power not calculated for primary outcome; 3. Power not based on clinically important difference.

^f Statistical key: 1. Analysis is not appropriate for outcome type: (a) continuous; (b) binary; (c) time to event; 2. Analysis is not appropriate for multiple observations per patient; 3. Confidence intervals and/or p values not reported; 4. Comparative treatment effects not calculated.

Summary of Evidence

For individuals who have chronic obstructive ETD despite medical management who receive balloon dilation of the eustachian tube, the evidence includes RCTs, prospective observational studies, case series, and systematic reviews of these studies. Relevant outcomes are symptoms, change in disease status, quality of life, and treatment-related morbidity. Two 6-week RCTs found more improvement with balloon dilation plus medical management than medical management alone on patient-reported symptoms, ability to perform a Valsalva maneuver, proportion of patients with normalized tympanograms, and otoscopy findings. Durability of these effects was demonstrated at 52 weeks in the uncontrolled extension phase of both RCTs. No serious device- or procedure-related adverse events were reported through 52 weeks of follow-up. Multiple observational studies and case series have reported that patients experienced improvement when comparing symptoms before and after balloon dilation. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

SUPPLEMENTAL INFORMATION

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the evidence review conclusions.

Clinical Input from Physician Specialty Societies and Academic Medical Centers

While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process, through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted.

2020 Input

Clinical input was sought to help determine whether the use of balloon dilation of the eustachian tube (BDET) for individuals with chronic obstructive eustachian tube dysfunction (ETD) despite medical management would provide a clinically meaningful improvement in net health outcome and whether the use is consistent with generally accepted medical practice. In response to requests, clinical input was received from 4 respondents, including 1 specialty society-level response including physicians with academic medical center affiliation and 3 physician-level responses affiliated with an academic medical center, identified by BCBSA.

For individuals who have obstructive ETD who receive BDET, clinical input supports this use provides a clinically meaningful improvement in net health outcome and indicates this use is consistent with generally accepted medical practice in a subgroup of appropriately selected patients using the following criteria:

- Obstructive ETD for 3 months or longer in 1 or both ears that significantly affects quality of life or functional health status;
- The patient has undergone a comprehensive diagnostic assessment; including history and physical exam, tympanometry if the tympanic membrane is intact, nasopharyngoscopy, and comprehensive audiometry; and
- Failure to respond to appropriate medical management of potential co-occurring conditions, if any, such as allergic rhinitis, rhinosinusitis, and laryngopharyngeal reflux, including 4 to 6 weeks of a nasal steroid spray, if indicated.

Further details from clinical input are included in the Appendix.

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in 'Supplemental Information' if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

American Academy of Otolaryngology-Head and Neck Surgery Foundation

In 2019, the American Academy of Otolaryngology published a clinical consensus statement on BDET.² The target population was defined as adults ≥ 18 years who are candidates for BDET because of obstructive ETD in 1 or both ears for 3 months or longer that significantly affects quality of life or functional health status. The expert panel concluded:

- BDET is an option for treatment of patients with obstructive ETD.
- The diagnosis of obstructive ETD should not be made without a comprehensive and multifaceted assessment, including otoscopy, audiometry, and nasal endoscopy.
- BDET is contraindicated for patients diagnosed as having a patulous ETD
- Further study will be needed to refine patient selection and outcome assessment.

The authors emphasized the importance of identifying other potentially treatable causes of ETD, including allergic rhinitis, rhinosinusitis, and laryngopharyngeal reflux, and noted that medical management of these disorders is indicated prior to offering BDET. They also noted that potential risks of BDET that are relevant to patient counseling include bleeding, scarring, infection, development of patulous ETD, and/or the need for additional procedures.

National Institute for Health and Care Excellence

In 2019, the National Institute for Health and Care Excellence (NICE) published updated guidance on BDET.¹¹ The guidance was based on a rapid review of the evidence,¹² and stated, "Evidence on the safety and efficacy of balloon dilation for eustachian tube dysfunction is adequate to support the use of this procedure provided that standard arrangements are in place for clinical governance, consent and audit." NICE standard arrangements recommendations mean that there is enough evidence for doctors to consider the procedure as an option.

The guidance also noted:

- The procedure was not effective in all patients, and there was little evidence on the benefit of repeat procedures.
- The procedure is only indicated for chronic ETD refractory to medical treatment.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Ongoing and Unpublished Clinical Trials

Some currently ongoing and unpublished trials that might influence this review are listed in Table 10.

Table 10. Unpublished Clinical Trials

NCT No.	Trial Name	Planned Enrollment	Completion Date
<i>Ongoing</i>			
NCT03886740	Tympanostomy Tubes Versus Eustachian Tube Dilation	32	Aug 2021
<i>Unpublished</i>			
NCT03499015	Balloon Dilation of the Eustachian Tube in Children: a Randomized Side-controlled Clinical Trial	50	Oct 2020 (recruitment status unknown; last update Nov 2018)
NCT04136977 ^a	XprESS Eustachian Tube Balloon Dilation Registry	169	Aug 2020 (completed; results submitted July 21, 2021, but quality control review process not yet concluded)

NCT: national clinical trial.

^a Denotes industry-sponsored or cosponsored trial.

CODING

The following codes for treatment and procedures applicable to this policy are included below for informational purposes. This may not be a comprehensive list of procedure codes applicable to this policy.

Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement. 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.

The code(s) listed below are medically necessary ONLY if the procedure is performed according to the "Policy" section of this document.

CPT/HCPCS

C9745	Nasal endoscopy, surgical; balloon dilation of eustachian tube
69705	Surgical nasopharyngoscopy with dilation of eustachian tube unilateral
69706	Surgical nasopharyngoscopy with dilation of eustachian tube bilateral
69799	Unlisted procedure, middle ear

ICD-10 DIAGNOSES CODES

H65.00	Acute Serous Otitis Media, Unspecified Ear
H65.01	Acute Serous Otitis Media, Right Ear
H65.02	Acute Serous Otitis Media, Left Ear
H65.03	Acute Serous Otitis Media, Bilateral
H65.04	Acute Serous Otitis Media, Recurrent, Right Ear
H65.05	Acute Serous Otitis Media, Recurrent, Left Ear
H65.06	Acute Serous Otitis Media, Recurrent, Bilateral
H65.07	Acute Serous Otitis Media, Recurrent, Unspecified Ear
H65.111	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Right Ear
H65.112	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Left Ear
H65.113	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Bilateral
H65.114	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Recurrent, Right Ear
H65.115	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Recurrent, Left Ear
H65.116	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Recurrent, Bilateral
H65.117	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Recurrent, Unspecified Ear
H65.119	Acute And Subacute Allergic Otitis Media (Mucoid) (Sanguinous) (Serous), Unspecified Ear
H65.191	Other Acute Nonsuppurative Otitis Media, Right Ear
H65.192	Other Acute Nonsuppurative Otitis Media, Left Ear
H65.193	Other Acute Nonsuppurative Otitis Media, Bilateral
H65.194	Other Acute Nonsuppurative Otitis Media, Recurrent, Right Ear
H65.195	Other Acute Nonsuppurative Otitis Media, Recurrent, Left Ear
H65.196	Other Acute Nonsuppurative Otitis Media, Recurrent, Bilateral
H65.197	Other Acute Nonsuppurative Otitis Media Recurrent, Unspecified Ear
H65.199	Other Acute Nonsuppurative Otitis Media, Unspecified Ear
H65.20	Chronic Serous Otitis Media, Unspecified Ear
H65.21	Chronic Serous Otitis Media, Right Ear
H65.22	Chronic Serous Otitis Media, Left Ear

- H65.23 Chronic Serous Otitis Media, Bilateral
- H65.30 Chronic Mucoïd Otitis Media, Unspecified Ear
- H65.31 Chronic Mucoïd Otitis Media, Right Ear
- H65.32 Chronic Mucoïd Otitis Media, Left Ear
- H65.33 Chronic Mucoïd Otitis Media, Bilateral
- H65.411 Chronic Allergic Otitis Media, Right Ear
- H65.412 Chronic Allergic Otitis Media, Left Ear
- H65.413 Chronic Allergic Otitis Media, Bilateral
- H65.419 Chronic Allergic Otitis Media, Unspecified Ear
- H65.491 Other Chronic Nonsuppurative Otitis Media, Right Ear
- H65.492 Other Chronic Nonsuppurative Otitis Media, Left Ear
- H65.493 Other Chronic Nonsuppurative Otitis Media, Bilateral
- H65.499 Other Chronic Nonsuppurative Otitis Media, Unspecified Ear
- H65.90 Unspecified Nonsuppurative Otitis Media, Unspecified Ear
- H65.91 Unspecified Nonsuppurative Otitis Media, Right Ear
- H65.92 Unspecified Nonsuppurative Otitis Media, Left Ear
- H65.93 Unspecified Nonsuppurative Otitis Media, Bilateral
- H66.001 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Right Ear
- H66.002 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Left Ear
- H66.003 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Bilateral
- H66.004 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Recurrent, Right Ear
- H66.005 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Recurrent, Left Ear
- H66.006 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Recurrent, Bilateral
- H66.007 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Recurrent, Unspecified Ear
- H66.009 Acute Suppurative Otitis Media Without Spontaneous Rupture Of Ear Drum, Unspecified Ear
- H66.011 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Right Ear
- H66.012 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Left Ear
- H66.013 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Bilateral
- H66.014 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Recurrent, Right Ear
- H66.015 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Recurrent, Left Ear
- H66.016 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Recurrent, Bilateral
- H66.017 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Recurrent, Unspecified Ear
- H66.019 Acute Suppurative Otitis Media With Spontaneous Rupture Of Ear Drum, Unspecified Ear
- H66.10 Chronic Tubotympanic Suppurative Otitis Media, Unspecified
- H66.11 Chronic Tubotympanic Suppurative Otitis Media, Right Ear
- H66.12 Chronic Tubotympanic Suppurative Otitis Media, Left Ear
- H66.13 Chronic Tubotympanic Suppurative Otitis Media, Bilateral
- H66.20 Chronic Atticoantral Suppurative Otitis Media, Unspecified Ear
- H66.21 Chronic Atticoantral Suppurative Otitis Media, Right Ear
- H66.22 Chronic Atticoantral Suppurative Otitis Media, Left Ear
- H66.23 Chronic Atticoantral Suppurative Otitis Media, Bilateral
- H66.3X1 Other Chronic Suppurative Otitis Media, Right Ear
- H66.3X2 Other Chronic Suppurative Otitis Media, Left Ear
- H66.3X3 Other Chronic Suppurative Otitis Media, Bilateral
- H66.3X9 Other Chronic Suppurative Otitis Media, Unspecified Ear
- H66.40 Suppurative Otitis Media, Unspecified, Unspecified Ear

- H66.41 Suppurative Otitis Media, Unspecified, Right Ear
- H66.42 Suppurative Otitis Media, Unspecified, Left Ear
- H66.43 Suppurative Otitis Media, Unspecified, Bilateral
- H66.90 Otitis Media, Unspecified, Unspecified Ear
- H66.91 Otitis Media, Unspecified, Right Ear
- H66.92 Otitis Media, Unspecified, Left Ear
- H66.93 Otitis Media, Unspecified, Bilateral
- H67.1 Otitis Media In Diseases Classified Elsewhere, Right Ear
- H67.2 Otitis Media In Diseases Classified Elsewhere, Left Ear
- H67.3 Otitis Media In Diseases Classified Elsewhere, Bilateral
- H67.9 Otitis Media In Diseases Classified Elsewhere, Unspecified Ear
- H68.001 Unspecified Eustachian Salpingitis, Right Ear
- H68.002 Unspecified Eustachian Salpingitis, Left Ear
- H68.003 Unspecified Eustachian Salpingitis, Bilateral
- H68.009 Unspecified Eustachian Salpingitis, Unspecified Ear
- H68.011 Acute Eustachian Salpingitis, Right Ear
- H68.012 Acute Eustachian Salpingitis, Left Ear
- H68.013 Acute Eustachian Salpingitis, Bilateral
- H68.019 Acute Eustachian Salpingitis, Unspecified Ear
- H68.021 Chronic Eustachian Salpingitis, Right Ear
- H68.022 Chronic Eustachian Salpingitis, Left Ear
- H68.023 Chronic Eustachian Salpingitis, Bilateral
- H68.029 Chronic Eustachian Salpingitis, Unspecified Ear
- H69.80 Other Specified Disorders Of Eustachian Tube, Unspecified Ear
- H69.81 Other Specified Disorders Of Eustachian Tube, Right Ear
- H69.82 Other Specified Disorders Of Eustachian Tube, Left Ear
- H69.83 Other Specified Disorders Of Eustachian Tube, Bilateral
- H69.90 Unspecified Eustachian Tube Disorder, Unspecified Ear
- H69.91 Unspecified Eustachian Tube Disorder, Right Ear
- H69.92 Unspecified Eustachian Tube Disorder, Left Ear
- H69.93 Unspecified Eustachian Tube Disorder, Bilateral
- H71.00 Cholesteatoma Of Attic, Unspecified Ear
- H71.01 Cholesteatoma Of Attic, Right Ear
- H71.02 Cholesteatoma Of Attic, Left Ear
- H71.03 Cholesteatoma Of Attic, Bilateral
- H71.10 Cholesteatoma Of Tympanum, Unspecified Ear
- H71.11 Cholesteatoma Of Tympanum, Right Ear
- H71.12 Cholesteatoma Of Tympanum, Left Ear
- H71.13 Cholesteatoma Of Tympanum, Bilateral
- H71.20 Cholesteatoma Of Mastoid, Unspecified Ear
- H71.21 Cholesteatoma Of Mastoid, Right Ear
- H71.22 Cholesteatoma Of Mastoid, Left Ear
- H71.23 Cholesteatoma Of Mastoid, Bilateral
- H71.30 Diffuse Cholesteatosis, Unspecified Ear
- H71.31 Diffuse Cholesteatosis, Right Ear
- H71.32 Diffuse Cholesteatosis, Left Ear
- H71.33 Diffuse Cholesteatosis, Bilateral
- H71.90 Unspecified Cholesteatoma, Unspecified Ear
- H71.91 Unspecified Cholesteatoma, Right Ear
- H71.92 Unspecified Cholesteatoma, Left Ear

- H71.93 Unspecified Cholesteatoma, Bilateral
- H72.00 Central Perforation Of Tympanic Membrane, Unspecified Ear
- H72.01 Central Perforation Of Tympanic Membrane, Right Ear
- H72.02 Central Perforation Of Tympanic Membrane, Left Ear
- H72.03 Central Perforation Of Tympanic Membrane, Bilateral
- H72.10 Attic Perforation Of Tympanic Membrane, Unspecified Ear
- H72.11 Attic Perforation Of Tympanic Membrane, Right Ear
- H72.12 Attic Perforation Of Tympanic Membrane, Left Ear
- H72.13 Attic Perforation Of Tympanic Membrane, Bilateral
- H72.2X1 Other Marginal Perforations Of Tympanic Membrane, Right Ear
- H72.2X2 Other Marginal Perforations Of Tympanic Membrane, Left Ear
- H72.2X3 Other Marginal Perforations Of Tympanic Membrane, Bilateral
- H72.2X9 Other Marginal Perforations Of Tympanic Membrane, Unspecified Ear
- H72.811 Multiple Perforations Of Tympanic Membrane, Right Ear
- H72.812 Multiple Perforations Of Tympanic Membrane, Left Ear
- H72.813 Multiple Perforations Of Tympanic Membrane, Bilateral
- H72.819 Multiple Perforations Of Tympanic Membrane, Unspecified Ear
- H72.821 Total Perforations Of Tympanic Membrane, Right Ear
- H72.822 Total Perforations Of Tympanic Membrane, Left Ear
- H72.823 Total Perforations Of Tympanic Membrane, Bilateral
- H72.829 Total Perforations Of Tympanic Membrane, Unspecified Ear
- H72.90 Unspecified Perforation Of Tympanic Membrane, Unspecified Ear
- H72.91 Unspecified Perforation Of Tympanic Membrane, Right Ear
- H72.92 Unspecified Perforation Of Tympanic Membrane, Left Ear
- H72.93 Unspecified Perforation Of Tympanic Membrane, Bilateral
- H81.311 Aural Vertigo, Right Ear
- H81.312 Aural Vertigo, Left Ear
- H81.313 Aural Vertigo, Bilateral
- H81.319 Aural Vertigo, Unspecified Ear
- H81.391 Other Peripheral Vertigo, Right Ear
- H81.392 Other Peripheral Vertigo, Left Ear
- H81.393 Other Peripheral Vertigo, Bilateral
- H81.399 Other Peripheral Vertigo, Unspecified Ear
- H81.4 Vertigo Of Central Origin
- H81.41 Vertigo Of Central Origin, Right Ear
- H81.42 Vertigo Of Central Origin, Left Ear
- H81.43 Vertigo Of Central Origin, Bilateral
- H81.49 Vertigo Of Central Origin, Unspecified Ear
- H90.0 Conductive Hearing Loss, Bilateral
- H90.11 Conductive Hearing Loss, Unilateral, Right Ear, With Unrestricted Hearing On The Contralateral Side
- H90.12 Conductive Hearing Loss, Unilateral, Left Ear, With Unrestricted Hearing On The Contralateral Side
- H90.2 Conductive Hearing Loss, Unspecified
- H90.3 Sensorineural Hearing Loss, Bilateral
- H90.41 Sensorineural Hearing Loss, Unilateral, Right Ear, With Unrestricted Hearing On The Contralateral Side
- H90.42 Sensorineural Hearing Loss, Unilateral, Left Ear, With Unrestricted Hearing On The Contralateral Side
- H90.5 Unspecified Sensorineural Hearing Loss

- H90.6 Mixed Conductive And Sensorineural Hearing Loss, Bilateral
- H90.71 Mixed Conductive And Sensorineural Hearing Loss, Unilateral, Right Ear, With Unrestricted Hearing On The Contralateral Side
- H90.72 Mixed Conductive And Sensorineural Hearing Loss, Unilateral, Left Ear, With Unrestricted Hearing On The Contralateral Side
- H90.8 Mixed Conductive And Sensorineural Hearing Loss, Unspecified
- H90.A11 Conductive Hearing Loss, Unilateral, Right Ear With Restricted Hearing On The Contralateral Side
- H90.A12 Conductive Hearing Loss, Unilateral, Left Ear With Restricted Hearing On The Contralateral Side
- H90.A21 Sensorineural Hearing Loss, Unilateral, Right Ear, With Restricted Hearing On The Contralateral Side
- H90.A22 Sensorineural Hearing Loss, Unilateral, Left Ear, With Restricted Hearing On The Contralateral Side
- H90.A31 Mixed Conductive And Sensorineural Hearing Loss, Unilateral, Right Ear With Restricted Hearing On The Contralateral Side
- H90.A32 Mixed Conductive And Sensorineural Hearing Loss, Unilateral, Left Ear With Restricted Hearing On The Contralateral Side
- H91.01 Ototoxic Hearing Loss, Right Ear
- H91.02 Ototoxic Hearing Loss, Left Ear
- H91.03 Ototoxic Hearing Loss, Bilateral
- H91.09 Ototoxic Hearing Loss, Unspecified Ear
- H91.10 Presbycusis, Unspecified Ear
- H91.11 Presbycusis, Right Ear
- H91.12 Presbycusis, Left Ear
- H91.13 Presbycusis, Bilateral
- H91.20 Sudden Idiopathic Hearing Loss, Unspecified Ear
- H91.21 Sudden Idiopathic Hearing Loss, Right Ear
- H91.22 Sudden Idiopathic Hearing Loss, Left Ear
- H91.23 Sudden Idiopathic Hearing Loss, Bilateral
- H91.3 Deaf Nonspeaking, Not Elsewhere Classified
- H91.8X1 Other Specified Hearing Loss, Right Ear
- H91.8X2 Other Specified Hearing Loss, Left Ear
- H91.8X3 Other Specified Hearing Loss, Bilateral
- H91.8X9 Other Specified Hearing Loss, Unspecified Ear
- H91.90 Unspecified Hearing Loss, Unspecified Ear
- H91.91 Unspecified Hearing Loss, Right Ear
- H91.92 Unspecified Hearing Loss, Left Ear
- H91.93 Unspecified Hearing Loss, Bilateral
- J30.0 Vasomotor Rhinitis
- J30.1 Allergic Rhinitis Due To Pollen
- J30.2 Other Seasonal Allergic Rhinitis
- J30.5 Allergic Rhinitis Due To Food
- J30.81 Allergic Rhinitis Due To Animal (Cat) (Dog) Hair And Dander
- J30.89 Other Allergic Rhinitis
- J30.9 Allergic Rhinitis, Unspecified
- J31.0 Chronic Rhinitis
- J31.1 Chronic Nasopharyngitis
- J31.2 Chronic Pharyngitis

REVISIONS

06-03-2021	Policy added to the bcbsks.com web site.
11-5-2021	Updated Description Section
	Updated Rationale Section
	Updated Reference Section

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