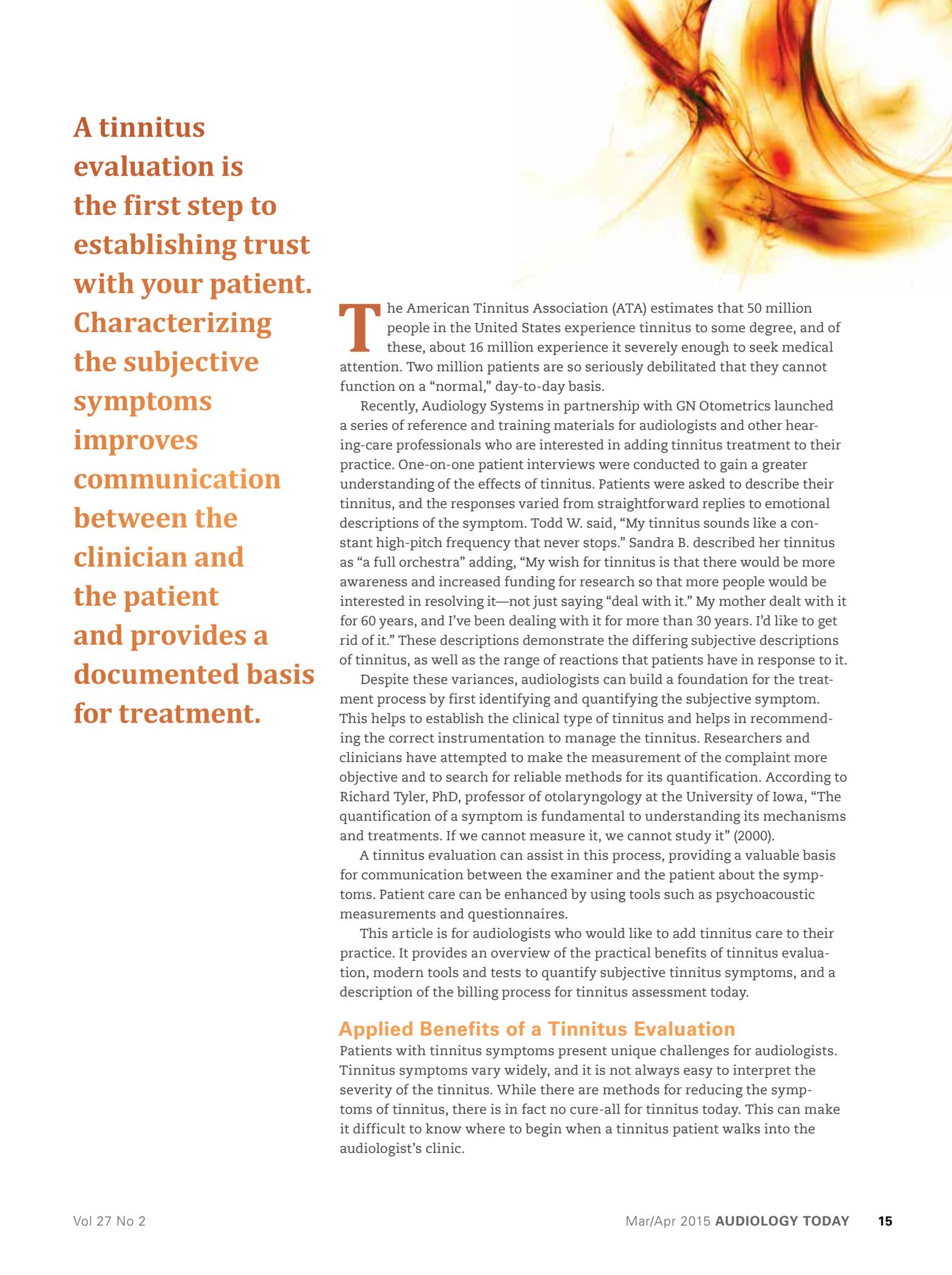


# TINNITUS PATIENT MANAGEMENT FOR TODAY'S AUDIOLOGISTS

BY CLÉMENT SANCHEZ AND WENDY SWITALSKI



**A tinnitus evaluation is the first step to establishing trust with your patient. Characterizing the subjective symptoms improves communication between the clinician and the patient and provides a documented basis for treatment.**

**T**he American Tinnitus Association (ATA) estimates that 50 million people in the United States experience tinnitus to some degree, and of these, about 16 million experience it severely enough to seek medical attention. Two million patients are so seriously debilitated that they cannot function on a “normal,” day-to-day basis.

Recently, Audiology Systems in partnership with GN Otometrics launched a series of reference and training materials for audiologists and other hearing-care professionals who are interested in adding tinnitus treatment to their practice. One-on-one patient interviews were conducted to gain a greater understanding of the effects of tinnitus. Patients were asked to describe their tinnitus, and the responses varied from straightforward replies to emotional descriptions of the symptom. Todd W. said, “My tinnitus sounds like a constant high-pitch frequency that never stops.” Sandra B. described her tinnitus as “a full orchestra” adding, “My wish for tinnitus is that there would be more awareness and increased funding for research so that more people would be interested in resolving it—not just saying “deal with it.” My mother dealt with it for 60 years, and I’ve been dealing with it for more than 30 years. I’d like to get rid of it.” These descriptions demonstrate the differing subjective descriptions of tinnitus, as well as the range of reactions that patients have in response to it.

Despite these variances, audiologists can build a foundation for the treatment process by first identifying and quantifying the subjective symptom. This helps to establish the clinical type of tinnitus and helps in recommending the correct instrumentation to manage the tinnitus. Researchers and clinicians have attempted to make the measurement of the complaint more objective and to search for reliable methods for its quantification. According to Richard Tyler, PhD, professor of otolaryngology at the University of Iowa, “The quantification of a symptom is fundamental to understanding its mechanisms and treatments. If we cannot measure it, we cannot study it” (2000).

A tinnitus evaluation can assist in this process, providing a valuable basis for communication between the examiner and the patient about the symptoms. Patient care can be enhanced by using tools such as psychoacoustic measurements and questionnaires.

This article is for audiologists who would like to add tinnitus care to their practice. It provides an overview of the practical benefits of tinnitus evaluation, modern tools and tests to quantify subjective tinnitus symptoms, and a description of the billing process for tinnitus assessment today.

### **Applied Benefits of a Tinnitus Evaluation**

Patients with tinnitus symptoms present unique challenges for audiologists. Tinnitus symptoms vary widely, and it is not always easy to interpret the severity of the tinnitus. While there are methods for reducing the symptoms of tinnitus, there is in fact no cure-all for tinnitus today. This can make it difficult to know where to begin when a tinnitus patient walks into the audiologist’s clinic.

A tinnitus assessment can be beneficial for both the patient and the clinician by providing:

- **Improved provider-patient communication.** An evaluation gives the clinician an objective picture of the tinnitus, replacing the patient's subjective description of the sound or sounds they hear. The "quality" of the tinnitus (ringing, clicking, hissing) may not always be diagnostically relevant, but it may at times help alert the clinician to vascular (rhythm, ocean roar) and/or middle ear (clicking) problems.
- **Tinnitus patient reassurance.** Some patients who experience tinnitus feel uncertain or isolated because it is subjective, and others cannot hear it. An assessment can reproduce a similar sound to demonstrate to the patient's family some of the characteristics of the tinnitus that the patient is experiencing. Measuring the tinnitus reassures the patient that the symptom is real.
- **Establishing a reference point.** Tinnitus assessment parameters help to determine whether the tinnitus has changed. The parameters also show if the treatment is effective by setting a reference point from the time of initial diagnostic evaluation throughout treatment and management.
- **Basis for treatment.** Because tinnitus patients react differently when listening to the same acoustical stimulus, an assessment can help determine whether the patient can benefit from certain types of treatment. Measurement of the maskability or the pitch matching can help the audiologist to set the level and spectrum of the stimulation used in the sound therapy.
- **Documentation.** Tinnitus assessment can be useful in situations that require documentation. For legal reasons, some points may need to be validated, including the presence of the tinnitus and the degree of impairment, disability, and/or handicap.



The MADSEN Astera<sup>2</sup> audiometer provides a dedicated tinnitus assessment module designed to help clinicians address increased claims for tinnitus and hearing-loss disability.

## Methods to Quantify Subjective Tinnitus Symptoms

Assessment and dialogue play a crucial role in managing tinnitus. With an assessment, the person with tinnitus can see the condition illustrated and quantified on an audiogram. The clinician can then use the audiogram as a starting point for dialogue, determining the need for a hearing aid or masking, and as a base line for further assessments.

Having insight into the psychoacoustic elements of the tinnitus and the effect it has on the patient's daily life is important when evaluating a patient with tinnitus symptoms. The purpose of psychophysical methods is to find reliable methods for assessing what the individual is experiencing perceptually. Today, the most popular is the method of paired comparisons, where the patient is asked to choose the closest tone among two different tones. Psychoacoustic effects elicited by acoustic stimuli that form the foundation for tinnitus evaluation include pitch matching, loudness matching, masking, and residual inhibition.

Another important component of the evaluation includes tinnitus questionnaires designed to assess the impact of the tinnitus on the patient's daily life. The information

can be used to guide treatment decisions and to monitor progress over time. Among the commonly used questionnaires are: Tinnitus Handicap Inventory (THI), Tinnitus Functional Index (TFI), and Tinnitus and Hearing Survey (THS). Below is a brief description of the components of psychoacoustic evaluation and tinnitus questionnaires:

- **Pitch matching.** The pitch is the psychoacoustic outcome that corresponds closest to the physical dimension of frequency, and is the most common measurement that attempts to quantify tinnitus for frequency. Pitch matching can be used as a reference point for discussion, and for selection and fitting of acoustical instrumentation. When pitch matching is performed, it should be supplemented with an Octave Confusion Test (OCT). Octave confusion can occur when an individual identifies a specific frequency as the pitch match of his tinnitus but, with further testing, the tinnitus is actually identified at one octave above the original pitch-match frequency. Generally, the pitch match does not fall into the

standard audiometric frequencies, so using smaller increments (i.e., 1/6 or 1/12 octave steps) may be needed. It is also important to measure a standard audiometric threshold at this frequency to use in loudness-matching testing.

- **Loudness Matching.** A two-alternative forced-choice method starting slightly below the absolute threshold is recommended for comparing the loudness of a presented stimulus to the tinnitus loudness. This method minimizes the effect of residual inhibition. Care should be exercised while working with loudness matching when working with patients with hyperacusis or recruitment. The test frequency used is the one identified previously during pitch matching.
- **Masking.** Maskability is evaluated for either positive or negative effects on the tinnitus. The results of this procedure can assist the audiologist or hearing-care professional in determining whether the patient is a candidate for sound generators to help control the

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tinnitus. Measuring the masking of tinnitus is often considered to be the most important part of the tinnitus evaluation. Noise and tones can be used during this measurement. The measurement of the masking can be done at the tinnitus pitch frequency only, through the whole tone audiometry frequency range, or both. The outcome of this subtest is the determination of maskability and the definition of the Minimum Masking Level (MML) at which the tone or noise provides a masking effect.

- **Residual Inhibition.** Forward masking, also termed residual inhibition by Vernon and Schleuning (1978), is defined as the temporary suppression and/or disappearance of tinnitus following a period of masking. The recommended measurement procedure is to present the masking sound used to determine maskability at a level corresponding to the MML + 10 dB. The stimulus is presented for 1 minute. The patient is then asked

- **Tinnitus Functional Index (TFI).** Introduced by Meikle et al in 2012, the TFI questionnaire also consists of 25 items and is used to determine the severity of the tinnitus, as well as define the negative impacts the patient is experiencing in response. The questions cover eight subscales that summarize the areas of intrusiveness, sense of control, cognitive effects, sleep disturbance, auditory difficulties, interference with relaxation, reduction in quality of life, and emotional distress. Patients respond to the items using a 10-point scale. An overall score that ranges from 0-100 is calculated along with subscale scores.
- **Tinnitus and Hearing Survey (THS).** The National Center for Rehabilitative Auditory Research (NCRAR) developed the THS to differentiate issues that are arising from tinnitus and those that are caused by hearing challenges. The THS consists of 10 items. Four of these relate to tinnitus-specific issues, four relate to common hearing problems, and the final two are inquiries about sound-tolerance issues. Patients answer using a five-point scale in response to a range of hearing and tinnitus challenges. Reviewing these results can be useful in counseling patients with co-existing hearing loss and tinnitus to define the boundaries of these issues.



## From psychoacoustics measurements to targeted questionnaires, tinnitus assessment helps clinicians to identify, quantify, and manage the tinnitus while establishing an open and constructive relationship with the patient.

to report the effect on the tinnitus, as well as how long it takes the tinnitus to return to previous levels.

- **Tinnitus Handicap Inventory (THI).** The THI, developed by Newman, Jacobson, and Spritzer (1996) is a frequently used questionnaire that defines a self-reported handicap to determine which patients require treatment. It can be applied to assess outcomes for various approaches. The THI questionnaire is composed of 25 items. The patient's answers can help the clinician determine the most appropriate intervention and identify those patients that may be in need of further medical and/or psychological evaluation.

### Instrumentation Needed

To perform these measurements, the audiologist needs a two-channel audiometer with pure tone, narrow band noise, and broadband noise stimuli. This audiometer should allow stimulating both unilaterally and bilaterally, in high frequencies (up to 20 kHz) as well as the capabilities for 1 Hz resolution, 1 dB step size, and Octave Confusion Test (OCT) calculation. Having an audiometer with a dedicated tinnitus evaluation module that includes psychoacoustic test capabilities (pitch, maskability, residual inhibition, etc.) as well as tinnitus questionnaires (THI, TFI, etc.) gives users a clearer picture of the patient's tinnitus and a better starting point for the tinnitus management strategy. Questionnaires are integrated and results are stored for comparison over time, making it easier to see if the tinnitus symptoms have increased or decreased and to make adjustments in treatment accordingly.

### Billing for Tinnitus Assessment

While there is limited insurance reimbursement for many of the aspects of tinnitus care (including consultation and treatments), there is a current procedural terminology (CPT) code for components of the tinnitus evaluation discussed above. CPT code 92625 (tinnitus assessment) specifically includes the components of pitch matching, loudness matching, and masking, performed for both ears.

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If testing is only completed for one ear, or only partially completed, a modifier of -52 is recommended.

### Conclusion

Assessment and dialogue is the key to successful tinnitus patient management. Audiologists are meeting more and more tinnitus patients in their practice every day. Fortunately, there are advanced tools and solutions for tinnitus management available. From psychoacoustics measurements to targeted questionnaires, tinnitus assessment helps clinicians to identify, quantify, and manage the tinnitus while establishing an open and constructive relationship with the patient.

A tinnitus evaluation can be the first step to establishing trust with your patient. Characterizing the subjective symptoms improves communication between the clinician and the patient and provides a documented basis for treatment. A tool such as the MADSEN Astera<sup>2</sup> is ideal for clinicians who want to help the tinnitus patient. It has a dedicated tinnitus module that enables the professional to assess the patient's tinnitus and the effect it has on daily life. Clinicians make the tinnitus assessment directly from

their audiometer. All the patient data and information is accessible from one place, making it easier to create a treatment plan and monitor the patient's tinnitus over time.

In 2014, Audiology Systems worked closely with GN Otometrics and the ATA to help hearing-care professionals who were interested in tinnitus care, including assessment. The company's goal as an organization is to improve the tinnitus assessment experience for both the patient and the audiologist. It will continue to advocate for tinnitus patient care in the future. 

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