Establishing a Tinnitus Clinic in Your Practice

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**Purpose:** While tinnitus is very common among the hearing impaired population, specific treatment for tinnitus is not provided in most clinics. This article provides a plan for establishing a tinnitus treatment program that can be implemented in stages at most audiology clinics.

**Method:** Preparation for establishing a tinnitus clinic includes having an overall plan regarding the type and degree of tinnitus management. Assessment involves a measurement of tinnitus and of the reaction a patient has to the tinnitus, including the use of handicap questionnaires. Management typically involves some form of counseling and sound therapy. Four problematic areas in tinnitus management are thoughts and emotions, hearing and communication, sleep, and concentration.

**Conclusions:** Licensed audiologists generally have the essential training necessary to provide counseling and sound therapy to treat tinnitus patients. We introduce 3 levels of treatment implementation, depending on whether the patient is curious, concerned, or distressed. Follow-up and referrals might be necessary in more severe cases. Finally, the development of a tinnitus clinic centers around establishing a need for individual treatment, creating a treatment plan, estimating the need for additional staff and resources, reimbursement options, and assessing the effectiveness of the program.

**Key Words:** tinnitus, tinnitus clinic, Tinnitus Activities Treatment

Tinnitus patients seeking help often have great difficulty finding professional service. There are several counseling and sound therapy treatment options available, and we believe more audiologists should be providing these services. In this article, we review several important considerations for the establishment of an audiology tinnitus clinic.

While the choice of a philosophy and specific tinnitus management protocol is obviously important, for many clinicians the general logistics of initiating such a program may seem daunting. To some extent, this is exacerbated by many articles written on tinnitus management that focus on regimented protocols. These articles give the impression that mastery of these techniques is beyond the scope of many audiologists, at least without extensive training. In this article, we will address some of the pragmatic aspects of establishing a tinnitus clinic. Other authors have championed particular treatments and have focused on details of these treatments. In fact, there seem to be so many options for counseling and sound therapy that the choice of which to use can be confusing and problematic (e.g., Bartnik & Skarzynski, 2006; Coles & Hallam, 1987; P. Davis, 1995; Gold, Formby, & Gray, 2000; Hallam, 1989; Hazell, 1987; J. A. Henry, Zaugg, & Schechter, 2005a, 2005b; J. L. Henry & Wilson, 2001; P. Jastreboff, 2000; P. J. Jastreboff & Hazell, 2004; Lindberg, Scott, Melin, & Lyttkens, 1988; Tyler, 2006; Tyler & Erlandsson, 2003; Tyler, Stouffer, & Schum, 1989; Vernon & Meikle, 2000). Our goal is less to champion a specific tinnitus management protocol than to demystify tinnitus treatment and encourage clinicians to expand their role in this important area of service. In this article, we focus on the critical elements that we believe can lead to a successful tinnitus clinic. While we draw from local experience, we will try to be general and encourage the application of this information to whatever strategy the clinician feels confident with. We also provide information on appropriate referrals for difficult cases and on establishing a business plan, as this should aid in determining cost concerns and resource needs.

**Should an Audiologist Provide Counseling?**

Many professionals are concerned that counseling should only be done by a psychologist or other mental health professional. Certainly, audiologists should not be treating depression or anxiety. However, audiologists are trained in
counseling fundamentals and know about hearing loss and its consequences, including the psychological, social, and emotional aspects. Audiologists not as well versed in tinnitus can learn from courses, articles, and books (e.g., J. L. Henry & Wilson, 2001). Flasher and Fogel (2004), in their counseling book written for speech pathologists and audiologists, specifically address the question of what counseling speech pathologists and audiologists should be doing. They state that we “should not identify ourselves as counselors…. We are not psychologists or counselors, but we study, understand and use concepts of psychology and counseling” (pp. 5–6). Flasher and Fogel note that we are trained to assist a person “managing, adjusting to, or coping” (p. 5).

We know psychologists who provide counseling to individuals who are hearing impaired. These patients are often not clinically depressed or anxious; they just need some guidance in understanding their reactions and the reactions of others to their hearing loss, and often they need directions in communication. These services provided by psychologists can overlap with the same services provided by audiologists fitting hearing aids or providing aural rehabilitation. When these services are provided by a psychologist, they can be helpful as well. We believe there is room for this overlap, in both directions.

In fact, most audiologists already provide counseling, even if some do not consider it part of their primary role. Providing more counseling within the area of hearing loss and hearing habilitation is a natural extension of our profession. Among the fundamental counseling skills that most audiologists acquire are the following (after Flasher & Fogel, 2004; Gladding, 2000; Riley, 2002):

- ability to listen
- patience
- ability to encourage the patient
- emotional insightfulness
- self-awareness
- ability to laugh at the bittersweet aspects of life
- positive self-esteem
- emotional stability
- ability to talk candidly about depression, anxiety, and other psychological issues

Audiologists possess an excellent educational base to provide tinnitus management based on their knowledge of hearing and hearing loss, hearing measurement, and habilitation of hearing loss. Tinnitus management, which includes “counseling regarding the causes, sources, and audiologic significance of tinnitus” and “counseling to promote adaptive coping behaviors and stress reduction” (American Speech-Language-Hearing Association, 2006, p. 36), is included in the scope of practice for audiologists endorsed by professional organizations (American Speech-Language-Hearing Association, 2004).

Some writers advocating tinnitus management protocols emphasize the importance of specialized training in and rigid adherence to their protocols. They seem to imply that audiologists are generally ill-equipped to provide tinnitus treatment. This has not been our experience. While some knowledge of the neurophysiology and psychology of tinnitus is necessary, audiologists are trained in general counseling, and most aspects of tinnitus management are well within the grasp of a good number of clinical audiologists. Regular conferences are available to learn more about tinnitus (we have provided one each year for the past 14 years). While we understand that many audiologists might wish they had more training in tinnitus, we believe that they have more training than psychologists do about tinnitus and hearing loss.

Cognitive-behavioral therapy for tinnitus might have been first promoted by the audiologist Robert Sweetow (1984, 2000). In their excellent book for professionals, J. L. Henry and Wilson (2001) encourage audiologists to adopt their cognitive-behavioral therapy designed for tinnitus patients: “Audiologists may find that they can apply this approach to many of their tinnitus patients” (pp. xv–xvi), and “[f]or audiologists … who wish to adopt this intervention … the book will be of benefit to patients who seek relief from their tinnitus” (p. xvi). We agree that the book is very helpful. They suggest that their second book (J. L. Henry & Wilson, 2002), designed as a self-help book for patients, “might also be used as an adjunct to treatment offered by … an audiologist” (p. xiii). Again, we agree with the authors and have recommended their book and worked through the exercises outlined in the text with many of our tinnitus patients. Another more-recent self-help book is also available (Tyler, 2008).

**How Can I Measure Tinnitus?**

It is possible to measure the characteristics of tinnitus itself, as well as the handicapping consequences of the tinnitus.

**Audiologic Measurement of Tinnitus**

Measuring the psychoacoustic aspects of tinnitus is helpful to

- confirm to the patient that the tinnitus is a real phenomenon;
- monitor changes in the magnitude of the tinnitus;
- provide insight into the possible mechanism;
- aid in the fitting of a noise generator if results warrant.

The physical measurement of tinnitus is warranted if the objectives above are important to the treatment plan. The pitch and loudness of tinnitus can be measured by matching the tinnitus to a pure tone. The level of broadband noise required for complete or partial masking can be measured in the ipsilateral or contralateral ear, and the loudness discomfort levels may be established at this time. More details on the psychoacoustic measurement of tinnitus are found in Tyler (2000) and in J. A. Henry (2004).

**Assessing Tinnitus Handicap**

Several questionnaires are available to quantify the handicapping nature of tinnitus (for reviews, see Noble, 1998; Tyler, 1993). We prefer the Tinnitus Handicap Questionnaire.
(Kuk, Tyler, Russell, & Jordan, 1990) and the Tinnitus Reaction Questionnaire (Wilson, Henry, Bowen, & Haralambous, 1991). In addition, the author’s preference is to use questionnaires with a 100-point scale, which provides better resolution (Tyler, Coelho, & Noble, 2006). These can be used before and after treatment to monitor progress. To help understand the individual problems perceived by a patient, we often use the Tinnitus Problems Questionnaire (Tyler & Baker, 1983). This questionnaire asks patients to make a list of the problems that they associate with their tinnitus. This often provides a good starting point for counseling. We also administer the Iowa Tinnitus Activities Questionnaire (see Appendix) to verify the patient’s priorities for the four target areas (thoughts and emotions, hearing and communication, sleep, and concentration), since these are the focus of our tinnitus treatment protocol, termed Tinnitus Activities Treatment. Other questionnaires are available for assessing anxiety (Spielberger & Gorsuch, 1983), depression (Beck, Steer, & Brown, 1996), and sleep (Buyse, Reynolds, Monk, Berman, & Kupfer, 1989), which can be helpful for more severe cases. These measurements can also be used as an assessment plan for evaluating the effectiveness of the tinnitus program. This assessment can serve as a follow-up tool for patient status as well as to document benefits to service payers.

What Treatments Can an Audiologist Offer Tinnitus Patients?

There are many approaches for the audologic management of the tinnitus patient (for a review, see Tyler, 2006). Broadly speaking, audiologists can provide counseling and sound therapy. Sound therapy includes the provision of hearing aids. The amount and type of counseling will likely depend on the interest and education of the particular audiologist.

Counseling

Counseling is the most widely employed tinnitus management strategy, since in some form it is used by almost all clinicians. Counseling ranges from providing general information on tinnitus to more formal counseling on the neurophysiological and psychological models of tinnitus as well as on strategies for coping with tinnitus. In addition, counseling may include providing specific guidance on modifying perceptions or lifestyles to cope. Reviews of specific options for counseling are widely available (J. L. Henry & Wilson, 2001; M. M. Jastreboff, 1999; Sweetow, 1986; Tyler, 2006; Wilson & Henry, 2000; Wilson, Henry, Andersson, Hallam, & Lindberg, 1998).

Patient Expectation Nurturing

Given that there is presently no “cure” for tinnitus and that some patients have little support, we believe that “patient expectation nurturing” is critical (Tyler, Haskell, Preece, & Bergan, 2001). The following basic guidelines are helpful, whatever counseling is employed:

- Provide a clear therapy plan.
- Be sympathetic.
- Show that you sincerely care.
- Provide reasonable hope.

Implying a negative prognosis at the outset of treatment predicts failure. It is important to sustain hope without providing false expectations.

Sound Therapy

Sound therapy is the use of external sound to provide relief from tinnitus. In application, it ranges from turning on a radio or fan to the use of ear-level devices for masking tinnitus. There are a few different ways of categorizing sound therapy.

Sound therapy can attempt to completely mask or partially mask the tinnitus. Complete masking renders the tinnitus inaudible. Partial masking results in a perceptual change in tinnitus, as the tinnitus is reduced in prominence and the masker is not as intense as in total masking. Broadband noise, music, and environmental sounds can be used with partial masking. More information on specific sound therapy protocols can be found in Bartnik and Skarzynski (2006), Bentler and Tyler (1987), P. B. Davis (2006), Folmer, Martin, Shi, and Edelfsen (2006), Hazell (1987), Tyler (2006), and Tyler and Bentler (1987).

Hearing Aids

Because many patients with tinnitus also have hearing loss, a good percentage will benefit from hearing aids. Hearing aids improve communication and therefore often reduce stress, which can help with the tinnitus. Additionally, hearing aids can produce or amplify low-level noise, which can decrease the prominence of tinnitus and may be beneficial for many patients. The mechanisms by which hearing aids may provide benefit, strategies for optimizing these benefits, and information on success rates are provided by Searchfield (2006).

Wearable Sound Generators

The terms sound generator and tinnitus masker are used to cover a broad spectrum of devices including those that produce broadband noise, music, relaxing everyday sounds (e.g., waterfalls), or other specialized recordings (see P. B. Davis, 2006). Ear-level noise generators are available in behind-the-ear and in-the-ear styles from a few hearing aid manufacturers. They may be stand-alone devices or incorporated into a conventional hearing aid (combination units). In the past, there was an attempt to tune the noise bandwidth to the region of perceived tinnitus, but the use of a broadband noise is usually more effective and more comfortable to listen to. This facilitates the fitting of sound generators because only the intensity is adjusted. High output levels are to be avoided as the tinnitus or hearing loss could be made worse. Speech perception could also be decreased with high noise levels. In some situations, the setting of the noise level is left up to the patient. In such cases, the patient is counseled to use the lowest ... masker level that provides
adequate relief” (Bentler & Tyler, 1987, p. 30) or to set it for “a low level background sound against which the loudness of the tinnitus is reduced” (Coles & Hallam, 1987, p. 994).

Some tinnitus management strategies embrace a particular masking level. For example, some advocate the so-called “mixing point,” where the tinnitus is always audible but only fractionally above the masking noise (see Bartnick & Skarzynski, 2006). Whether to fit monaural or binaural devices should be determined on an individual basis. Some find that monaural fittings, even contralateral to the perceived tinnitus, can be effective.

Other wearable devices include portable MP3 players, tape players, and CD players. They are low cost, and many patients already own them. These devices are adaptable to any masking or partial masking strategy by providing suitable recorded noise. Alternatively, a variety of soothing music and everyday or synthetic sounds may be used.

Nonwearable Sound Generators

A variety of nonwearable noise-generating devices are also available for specific applications. Many patients find their tinnitus is only problematic in quiet surroundings, such as while reading or when going to sleep. In addition to the classic radio approach, there are tabletop machines and CDs that produce a variety of soothing sounds. Air conditioners, fans, and air purifiers are often effective, but their levels are less easy to control. There are many options for patients, and the trick is to find an effective, nondistracting sound with pleasant or positive associations for each individual.

The Use of Environmental Sounds and Music

Music can be used to partially mask tinnitus. It has the potential advantage of being a more acceptable stimulus for some. However, it needs to be chosen for the individual, because it also can be distracting. One application of music as a form of tinnitus management has been advocated by P. Davis (1995) in a protocol he calls “acoustic desensitization.” Using a proprietary device that allows spectral shaping, music is modified based on the patient’s hearing levels. Progressing from shaped music mixed with noise to shaped music alone, the device is worn for varying periods with the eventual goal of habituation and elimination of the device. In addition, specific counseling is a component of the protocol. See P. B. Davis (2006) for information on this approach.

Different Severities of Tinnitus Requiring Different Treatment Levels

No two patients experience their tinnitus in the same way, and it is important to discover each patient’s special problems and needs. However, it has been our experience that treatment strategies generally fall into one of three categories based on the degree of treatment necessary. The first group is not particularly distressed but may have questions about their tinnitus. We call these curious tinnitus patients. Often, providing some basic information, presented in 10 min or less, is sufficient to resolve their questions. The second group is more concerned about their tinnitus; hence, we call them concerned tinnitus patients. They require more time to express themselves and to discuss their specific situation and problems. Sometimes we find that more than one visit is necessary. We provide more detailed information on the physiological and psychological components of tinnitus and develop some self-directed management strategies. Finally, the third group presents with more serious problems associated with their tinnitus; we call them distressed tinnitus patients. In this case, we develop a more specific follow-up plan that includes formal assessment and a systematic outline for treatment (see Table 1).

The curious tinnitus patient is typically seen as part of an initial clinic visit. This can be done by the audiologist who performs the audologic evaluation or by clinicians who are the local tinnitus specialists and see tinnitus patients after the initial assessment. While there is no hard-and-fast rule, if it takes more than about 10 min to address the patient’s concerns, he or she should be considered (and perhaps rescheduled) as a concerned tinnitus patient. The third category,

| Table 1. Three levels of tinnitus patients and proposed treatment (adapted from Tyler & Erlendsson, 2003). |
|----------------|-------------------------------------------------|
| Patient | Overall goal |
| Curious | Initial contact |
| Concerned | Preliminary counseling |
| Distressed | Tinnitus assessment and treatment |
| Focus areas | |
| Curious | Listen to the patient
Provide hearing aid referral if necessary
Provide general information about the background and treatment of tinnitus
Determine if further treatment or referral is needed |
| Concerned | Listen to the patient
Provide more detail about tinnitus models and treatment
Assess individual needs
Provide plan for self-treatment
Determine if further treatment or referral is needed |
| Distressed | Listen to the patient
Assess tinnitus handicap using established instruments
Measure psychoacoustic characteristics of tinnitus
Assess psychological well-being and determine if referral is needed
Provide information about treatments
Assess treatment plan options and decide on treatment(s) |

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the distressed tinnitus patient, should be seen by a tinnitus specialist, who may see the patient for several visits.

The Curious Tinnitus Patient—Basic Information

Basic information occurs at the patient’s initial visit and addresses the four areas of focus listed above. The first objective is always listen to the patient. Rather than structure this visit to our protocol, many patients have specific areas of interest or concern. It is time-effective and supportive to address these areas first instead of adhering to a specific outline. Often, this results in the objectives being addressed out of sequence and minimizes the time spent on topics less important to the patient. We tend to limit this session to around 10 to 15 min, which usually exhausts the amount of information a patient is likely to absorb in this initial visit. Sometimes having a brochure available to give to the patient is helpful (e.g., Tyler, Chang, Gehringer, & Gogel, 2008).

An audiometric evaluation and an otology referral (if warranted) precede the initial tinnitus referral. If audiometric testing suggests a hearing aid is appropriate, or a recommendation has been made by a referring audiologist, we review the results and reinforce the positive aspects of amplification on tinnitus management.

In the absence of specific questions from the patient, the clinician may begin with a brief review of the auditory system and possible mechanisms of tinnitus. The clinician discusses the distinction between the neurophysiological components and psychological aspects of tinnitus, stressing that it is a real phenomenon, not imagined. The goal is to reduce any anxiety a patient may have about his or her tinnitus, so the clinician reinforces how one can have some control over tinnitus instead of having a negative emotional reaction to it. Consistent with our belief in patient expectation nurturing, the clinician needs to be honest about “cures” but optimistic about tinnitus management and coping strategies.

Finally, the clinician reviews various tinnitus management options available locally and elsewhere and discusses some self-directed approaches the patient can use to manage his or her tinnitus. Often, basic information is sufficient to demystify tinnitus and relieve the individual’s anxiety. The option for return visits at the patient’s discretion is left open. For some patients, it is clear that further visits are required, but for most patients in this group, this appointment is sufficient. In cases where the patient wants to come back, the clinician should schedule the return visit and provide some additional information for review. The patient is encouraged to reflect on his or her major concerns and to return with some written questions or issues. More details on the components of the three level program used here are available in Tyler and Erlendsson (2003).

The Concerned Tinnitus Patient—Preliminary Counseling

When the patient returns for a follow-up visit, the first step again is to listen to him or her. Successful and unsuccessful outcomes from suggestions developed at the first visit are discussed, and issues the patient has reflected upon since that time are discussed.

At this point, we administer the Iowa Tinnitus Activities Questionnaire (see Appendix). These 20 questions help us determine the degree of significance the patient assigns to each of our four principal problem areas. Using this information, we tailor a session to the patient’s needs. As a rule, we end up providing a more detailed description of the neurophysiology and psychology of tinnitus, focusing on their relation to the patient’s specific hearing loss and situation. The distinction between the tinnitus itself and the patient’s reaction to the tinnitus is discussed in more detail. Understanding these issues helps many patients gain a sense of control over their tinnitus.

General tinnitus treatment options, summarized here in Table 2 (from Tyler & Erlendsson, 2003), are discussed in some length at this point. The relative pros and cons of each are discussed. It is important for the clinician to try to provide an objective review of all major tinnitus treatment options, and to discuss the presence or absence of evidence-based research in support of each option. Many patients have already heard of some forms of tinnitus management, especially alternative treatments. Engage the patient in discussion at this point to assess his or her reaction to or interest in each treatment option.

Finally, we develop a problems list and a plan for self-treatment that addresses the patient’s individual concerns. Aspects of a general treatment plan generally include:

- awareness of problems;
- awareness of environmental factors;
- possible solutions;
- plan to implement solutions.

It is usually evident to the patient and clinician whether further treatment is necessary. However, that option is always left open to patients, and they are given information about possible tinnitus treatments and advised to go home and think about whether they wish to schedule a follow-up.

Table 2. A summary of current treatment categories for tinnitus (adapted from Tyler & Erlendsson, 2003).

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Information</th>
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| 1. Counseling | Tinnitus information  
                   Coping strategies  
                   Relaxation therapy |
| 2. Hearing aids | Improve communication  
                   Amplify low-level background noise resulting in distraction, masking, and habituation |
| 3. Sound therapy | Masking, partial or total, to reduce the loudness of tinnitus  
                   Divert attention from tinnitus  
                   Facilitate habituation |
| 4. Medications | Generally palliative  
                   Help with sleeping  
                   Help to relax  
                   Help anxiety or depression |
visit. After reflection, many patients find that this level of treatment has provided them with sufficient tools to begin to cope with their tinnitus on their own.

**The Distressed Tinnitus Patient—Tinnitus Assessment and Treatment**

Distressed patients require a more comprehensive treatment plan that involves several visits. This begins with a more detailed analysis of the individual needs of the patients. In Tinnitus Activities Treatment, we focus on four primary areas: thoughts and emotions, hearing and communication, sleep, and concentration. Attention to these areas shapes our treatment at all levels, but for the distressed patients, these areas form the basis for a structured treatment plan. Occasionally, a distressed tinnitus patient presents with physical or psychosocial problems that are beyond the scope of tinnitus treatment alone. It is important to recognize these patients and refer them on to the appropriate professional, as outlined below (Noble & Tyler, 2007).

At this level of intervention, the treatment plan becomes more directed. As always, the first step is to listen to the patient. Often, the discussion and education in the first two sessions will have brought focus to the patient’s primary concerns. Using this information, the treatment plan is developed based on the four problem areas.

**Tinnitus Activities Treatment**

Our overall philosophy on tinnitus management is patient-oriented, directed toward treating the whole patient. We sit down with the patients and develop a problems list and a tinnitus treatment plan based on their completed questionnaires. Our treatment plan tends to follow our problems list, and generally involves participation in most, if not all, of the “modules” as shown in Figure 1. As a rule, each visit is 1 hr in length, so some modules take two visits, though this is flexible. Our program is activity-oriented, and at the end of each visit the patient is provided “homework” to complete and return at the next visit. Each follow-up visit begins with a review of the previous visit’s assignment. (More details on Tinnitus Activities Treatment can be found in Tyler, Gehringer, et al., 2006.)

Based on the patient’s problems list, the order of the modules is adjusted to suit individual needs, and not all patients need all modules. If a hearing aid or sound generator is indicated, but not already in use, the Sound Therapy module is moved up. This is also the case when such tools as the Beck Depression Inventory are administered, and other referrals can be initiated if we are concerned about coexisting conditions.

**Sound Therapy**

In our program, the Sound Therapy module is when tinnitus measurements are made (if necessary) as an adjunct to masking and other sound therapies. Hearing aid evaluations are included for patients with an aidable hearing loss, and counseling on hearing aids and sound generators for special applications is provided. Depending on the situation, this may involve two 1-hr sessions.

**Thoughts and Emotions**

Tinnitus patients, like most people, often experience problems in many aspects of their lives. We try to take this into account by:

- providing information about hearing, hearing loss, tinnitus and attention;
- discussing ways to make tinnitus less important;
- changing lifestyle to manage stressors better.

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**Figure 1. Flowchart depicting the suggested problem-based tinnitus treatment modules.**

![Flowchart]

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It is important to help patients recognize the difference between the tinnitus itself and their reaction to it (the basis of cognitive-behavioral therapies; e.g., Lindberg et al., 1988; McKenna, 1998; Sweetow, 1986; Wilson & Henry, 2000; Wilson, Henry, & Nicholas, 1993). This allows patients to focus on an aspect of their tinnitus that they can change. The provision of information on tinnitus and related issues serves to:

- help patients realize they are not alone;
- remove the fear of the unknown;
- assist them in developing realistic expectations.

We place considerable emphasis on these particular coping strategies, so most patients are enrolled in this module for two 1-hr sessions. We have had good results using pictures to facilitate understanding of abstract concepts addressed in our therapy sessions (see Tyler, Gehringer, et al., 2006). These pictures are available for anyone’s use and can be found at www.uihealthcare.com/depts/med/otolaryngology/clinics/tinnitus/index.html.

**Hearing and Communication**

Tinnitus and hearing loss often occur together, but the patients cannot “hear” their hearing loss, so they project their communication problems on the tinnitus. Reviewing the patient’s hearing loss and its impact on communication may redirect some of the anxiety to an area where treatment is more obvious. In addition to providing hearing aid information, a review of assertive communication versus passive and aggressive communication styles (e.g., Tye-Murray, 1998) is useful.

We make the distinction between hearing loss and tinnitus as barriers to communication. Aids to improving communication such as physical placement, elimination of acoustic and visual distractions, and assertive communication skills are discussed. Most audiologists already have experience with these concepts. This generally involves no more than 1 hr.

**Sleep**

Sleep disturbance is one of the most commonly reported problem areas for tinnitus patients (McKenna, 2000; McKenna & Daniel, 2006; Tyler & Baker, 1983). Understanding normal sleep patterns is the first step in gaining control over the problem. Other factors include:

- exploring issues that can affect sleep (e.g., stress, environmental noise, room temperature);
- arranging the bedroom to promote sleep (e.g., comfortable bedding, remove distracting items from room);
- avoiding alcohol, smoking, and eating before bedtime;
- using sound to distract from tinnitus (e.g., noise generators, soft radio music);
- learning relaxation exercises (e.g., visual imagery, progressive relaxation).

This module is optional based on the individual problems list and involves no more than 1 hr. McKenna and Daniel (2006) have a comprehensive set of suggestions to help tinnitus patients with sleep difficulties.

**Concentration**

Concentration skills vary across individuals. Everyone knows someone who can read while listening to loud music or someone else who cannot stand to have any distractions while studying. These are individual traits that can, to some extent, be developed by practice. Reactions to tinnitus are largely controlled by the degree of attention the tinnitus receives. In addition to information, exercises in “attention control” (after J. L. Henry & Wilson, 2001, p. 79) give patients practice switching attention from one engaging task or stimulus to another. This is another example of giving patients control over their tinnitus. We devote 1 hr to counseling and directed exercises for concentration. Figure 2 is an example of one picture-based counseling aid used for concentration. Exercises that require attention refocusing have proved very helpful and can be practiced at home. See J. L. Henry and Wilson (2001, 2002) for details of this strategy.

**Review**

The review session can be used as a final exam and graduation exercise for our patients. We review all topics covered and develop a self-directed plan for implementing these skills in everyday situations. Final concerns and questions are addressed. A follow-up plan is developed including the evaluation forms and follow-up questionnaires we send out for long-term monitoring.

**Follow-Up Visits**

It is appropriate to have some follow-up plan when the tinnitus treatment is over. Some patients may require regular follow-up visits over several months. Others might appreciate an annual review. Tinnitus might also get worse for some in

![Figure 2. An example of the picture-based counseling aid used for the Concentration module.](image-url)
stressful situations that negatively influence the patient’s ability to cope or maintain a healthy outlook on his or her tinnitus. Sometimes sending questionnaires by mail or a prearranged phone call can help determine individual needs. It is suggested that the clinician offer the option for a patient to return should he or she see the need.

Individual or Group Sessions

Counseling may be conducted in individual or group settings. Newman and Sandridge (2006) provide a good overview of the relative advantages of group and individual sessions. Some of the advantages of group counseling include the following:

- Some patients feel more comfortable in a group setting.
- Some patients will be more likely to accept treatment if it begins in a group setting.
- Cost effectiveness can be greater than in an individual setting.
- Possibility exists to include spouses, parents, and children of the patient.
- Patients can appreciate that related problems are shared by many with tinnitus.

Group counseling can be the solution for some patients and the intake point for patients who need individual sessions. Some patients will benefit from both individual and group sessions. However, there may be patients who do not feel comfortable in group sessions, and for them it is appropriate to begin with individual sessions.

When Should I Refer and to Whom?

An important part of any tinnitus management program is recognizing when the patient exhibits physical or psychological symptoms that warrant a referral (Noble & Tyler, 2007). Occasionally, tinnitus patients will present with conditions that audiologists are not equipped to handle. Conditions that are outside the scope of practice for audiologists include depression, anxiety disorders, and suicidal ideation (Flasher & Fogel, 2004). These patients may still need counseling focused on their tinnitus, but may also require additional treatment from others. In these situations, the clinician needs to identify and make appropriate referrals when these cases arise. In many cases, psychiatrists and psychologists will welcome collaboration with an audiologist versed in tinnitus management and in turn will likely make referrals to the audiologist.

PsYcHiatRIST and/or Psychologist

Patients who experience tinnitus are more likely to experience other psychiatric disorders; however, Zoger, Svedlund, and Holgers (2001) point out that the psychiatric disorder predates the tinnitus about 93% of the time. Generalized anxiety disorder and depression are the most common comorbidity in this population (Marciano et al., 2003). For this reason, it is important that audiologists recognize their symptoms.

Clinically, a diagnosis of depression would occur if a person has a depressed mood or loss of interest or pleasure for at least 2 weeks, occurring most of the day or nearly daily (American Psychiatric Association, 2000). In addition, four of the following must be present:

- significant weight loss or gain
- insomnia/hypersonomnia
- psychomotor retardation/agitation
- fatigue or loss of energy
- feelings of worthlessness/guilt
- impaired concentration/indecisiveness
- recurrent thoughts of death or suicide

In questionable cases, a screening tool for depression can be used, such as the abbreviated version of the Beck Depression Inventory (Beck & Beck, 1972) that is used by many other tinnitus clinics. Referral to a psychiatrist or psychologist is warranted for any patient found to exhibit depression who is not currently under care.

Generalized anxiety disorder is another disorder that some patients with tinnitus also experience. Generalized anxiety disorder is characterized by excessive anxiety and worry that an individual is unable to control and can cause significant distress or impairment in functioning. In order for a diagnosis of generalized anxiety disorder to be made, the symptoms must occur more days than not for at least 6 months, along with three or more of the following (American Psychiatric Association, 2000):

- restlessness or feeling keyed up or on edge
- being easily fatigued
- difficulty concentrating or mind going blank
- irritability
- muscle tension
- sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep)

For any patient that mentions suicide, we strongly suggest that he or she seek help from a psychiatrist or psychologist. We always ask such patients whether they have really thought about harming themselves, and there is a need to maintain a high level of suspicion in some cases. If their response is positive, then we are more assertive in the referral. For clinicians working in a hospital, there is always the availability of walking a patient to the most appropriate clinic or emergency room. Patients who describe a plan for harming themselves are at a greater risk. A reference for
professionals working with this population is Kutzer and Chehlin (2007).

Psychiatrists are able to prescribe medications for more severe cases, and medications have been shown to be highly effective for depression and many other psychiatric problems. Generally, it is very helpful to establish a close working relationship with psychiatrists and psychologists. Their knowledge about tinnitus and hearing loss will usually be limited, but those that are interested usually welcome a presentation from you about tinnitus, along with an article or reference to read on the topic.

Reimbursement

The prevalence of problematic tinnitus in the population ranges from about 0.5% to 10%, depending on the definition used (see A. Davis & Refaie, 2000, for a review). Like hearing loss, the prevalence increases with age. Estimates of tinnitus patients in otology clinics are around 30%–80% (Fowler, 1944; Sproeldin, 1987). Sproeldin provided estimates for different etiologies, including about 70% of patients with noise-induced hearing loss, 70% of patients with presbycusis, and 50% of patients with sudden hearing loss.

What constitutes an adequate patient base to warrant developing a tinnitus management program will depend on local circumstances, including patients available for the service, time available for staff, who is paying for the service, and alternative resources available. Although 10 to 15 min of counseling for curious patients can be provided by all audiologists, for patients with more serious tinnitus, more involved treatments and audiologists committed to tinnitus treatment are needed.

Reimbursement options vary by work environment. Insurance will cover some services, and patients can be billed directly. Additionally, tinnitus patients often require standard hearing tests and the purchase of hearing aids. Third-party reimbursement for tinnitus treatment is possible but presently limited.

In some settings and reimbursement plans, audiologists cannot yet bill for providing treatment. The diagnostic code for tinnitus is “388.30 Tinnitus unspecified, covering constant and intermittent tinnitus of unknown etiology.” The Current Procedural Terminology (CPT) code 92625 that can be reimbursed is for the assessment of tinnitus, which includes pitch, loudness matching, and masking. Depending on the types of additional services provided, other CPT codes may apply, such as hearing aid evaluation for wearable sound generators. Hearing diagnostic tests and hearing aids help many tinnitus patients, and audiologists can be reimbursed for their provision of hearing aids. Clinicians need to work closely with their individual billing authorities to determine appropriate avenues for reimbursement.

It is also appropriate to require direct patient reimbursement for services, especially if the patient would like counseling regarding tinnitus. As with other audiologic services, this could include a per-service fee, or the bundling of several services (including limited follow-up) under one fee. In addition, some patients may be reimbursed for these services through their flexible spending account plans. A combination of individual and third-party payment options may be considered.

Conclusions

It is our opinion that some level of tinnitus management can be provided in any audiologic setting and that any audiologist, with a little self-directed education, can become competent in tinnitus management. Furthermore, providing tinnitus management limited to the first of our treatment levels will provide significant benefit to a large number of tinnitus patients. Indeed, starting with such an approach may well provide the impetus and database necessary to convince the clinician and administration that an expansion of services is warranted.

Many clinics, including this one, develop their own tinnitus treatment protocol based on integrating what they consider to be the best aspects of several approaches. Readers are encouraged to consider the same approach as their experience with tinnitus treatment and future research reveal new insights. Regardless of the tinnitus management strategy employed, professionals need to remain current on research in the area to maintain an appropriate evidence-based practice, as championed by Cox (2005), to ensure that their program reflects efficacious treatment strategies as verified by current clinical research.

References


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Iowa Tinnitus Activities Questionnaire

Please indicate your agreement with each statement on a scale from 0 (completely disagree) to 100 (completely agree).

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>0–100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>My tinnitus is annoying.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>My tinnitus masks some speech sounds.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>When there are lots of things happening at once, my tinnitus interferes with my ability to attend to the most important thing.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>My emotional peace is one of the worst effects of my tinnitus.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>I have difficulty getting to sleep at night because of my tinnitus.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>The effects of tinnitus on my hearing are worse than the effects of my hearing loss.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I feel like my tinnitus makes it difficult for me to concentrate on some tasks.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>I am depressed because of my tinnitus.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>My tinnitus, not my hearing loss, interferes with my appreciation of music and songs.</td>
<td></td>
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<tr>
<td>10.</td>
<td>I am anxious because of my tinnitus.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>I have difficulty focusing my attention on some important tasks because of tinnitus.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>I just wish my tinnitus would go away. It is so frustrating.</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>The difficulty I have sleeping is one of the worst effects of my tinnitus.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>In addition to my hearing loss, my tinnitus interferes with my understanding of speech.</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>My inability to think about something undisturbed is one of the worst effects of my tinnitus.</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>I am tired during the day because my tinnitus has disrupted my sleep.</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>One of the worst things about my tinnitus is its effect on my speech understanding, over and above any effect of my hearing loss.</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I lie awake at night because of my tinnitus.</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>I have trouble concentrating while I am reading in a quiet room because of tinnitus.</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>When I wake up in the night, my tinnitus makes it difficult to get back to sleep.</td>
<td></td>
</tr>
</tbody>
</table>

Iowa Tinnitus Intake Questionnaire

1. What is your gender? (circle one) 
   Female 
   Male 

2. What is your age? 
   ___ years

Please respond to the next 3 statements using a scale from 0 to 100. (0 = strongly disagree; 100 = strongly agree)

3. Many everyday sounds are unbearably loud to me. 

   _____ (0–100)

Please list sounds that are unbearably loud to you.

4. Sounds that others believe are moderately loud are too loud to me. 

   _____ (0–100)

Please list sounds that are too loud to you.

5. I hear very soft sounds that others with normal hearing do not hear.

   _____ (0–100)

6. Where is your tinnitus? (Please choose only ONE answer.)

   a. Left ear
   b. Right ear
   c. Both ears, equally
   d. Both ears, but worse in left ear
   e. Both ears, but worse in right ear
   f. In the head, but no exact place.
   g. More in the right side of head
   h. More in the left side of head
   i. Outside of head
   j. Middle of head

If you hear more than one sound or a different sound in each ear, answer the following questions with regard to the one most annoying sound.

7. Describe the most prominent PITCH of your tinnitus by circling ONE of the numbers below: Number 1 is like a VERY LOW pitched fog horn, and Number 10 is like a VERY HIGH pitched whistle.

   PITCH
   1  2  3  4  5  6  7  8  9  10
   (VERY LOW)  (VERY HIGH)

8. Does the PITCH of the tinnitus vary from day to day? 

   a. No 
   b. Yes

9. Describe the LOUDNESS of your tinnitus using a scale from 0 to 100. (0 = VERY FAINT; 100 = VERY LOUD) 

   _____ (0–100)

10. Does the LOUDNESS of the tinnitus vary from day to day? 

    a. No 
    b. Yes

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Iowa Tinnitus Intake Questionnaire

11. Which of all these qualities BEST describes your tinnitus? (Please circle only ONE.)
   a. Buzzing
   b. Clanging
   c. Clicking
   d. Crackling
   e. Cricket-like
   f. Hissing
   g. Humming
   h. Musical note
   i. Popping
   j. Pounding
   k. Pulsing
   l. Ringing
   m. Roaring
   n. Rushing
   o. Steam whistle
   p. Throbbing
   q. Whistling
   r. Whooshing
   OTHER, PLEASE SPECIFY: ____________________________

12. During the time you are awake, what percentage of the time is your tinnitus present? For example, 100% would indicate that your tinnitus was present all the time, and 25% would indicate that your tinnitus was present ¼ of the time.
   _________% (Please write in a single number between 1 and 100.)

13. On the average, how many days per month are you bothered by your tinnitus? _______ days

14. How many months or years have you had tinnitus? _______ mos./years

15. When you have your tinnitus, which of the following makes it WORSE?
   a. Alcohol
   b. Being in a noisy place
   c. Being in a quiet place
   d. Changing head position
   e. Coffee/tea
   f. Constipation
   g. During your menstrual period
   h. Drugs/medicine
   i. When you first wake up in the morning
   j. Having just recently been in a noisy place
   k. Having just recently worn a hearing aid
   l. While you are wearing a hearing aid
   m. When you are tired from doing physical work
   n. Shooting guns, rifles, etc.
   o. Smoking
   p. Sudden physical activity
   q. When you are excited
   r. Relaxation
   s. Lack of sleep
   t. Emotional or mental stress
   u. Food (please specify) ____________________________
   v. Nothing makes it worse
   w. Not sure
   OTHER, PLEASE SPECIFY ____________________________

16. Which of the following REDUCES your tinnitus?
   a. Alcohol
   b. Being in a noisy place
   c. Being in a quiet place
   d. Changing head position
   e. Coffee/tea
   f. Constipation
   g. During your menstrual period
   h. Drugs/medicine
   i. When you first wake up in the morning
   j. Having just recently been in a noisy place
   k. Having just recently worn a hearing aid
   l. While you are wearing a hearing aid
   m. When you are tired from doing physical work
   n. Shooting guns, rifles, etc.
   o. Smoking
   p. Sudden physical activity
   q. When you are excited
   r. Relaxation
   s. Lack of sleep
   t. Emotional or mental stress
   u. Food (please specify) ____________________________
   v. Nothing makes it better
   w. Not sure
   OTHER, PLEASE SPECIFY ____________________________

17. Does any head and neck movement, or having your arms/hands or head touched, affect your tinnitus? Describe the effect, if any.
   a. No
   b. Yes

18. Does the presence of loud noise make your tinnitus worse?
   a. No
   b. Yes

19. What do you think originally caused your tinnitus? Select ONE only.
   a. Accidental (please specify) ____________________________
   b. Alcohol
   c. Drugs/medicine
   d. Food (please specify) ____________________________
   e. Hearing loss
   f. Illness (please specify) ____________________________
   g. Noise
   h. Smoking
   i. Surgery
   j. OTHER (please specify) ____________________________
   k. I have no idea.

20. In which ear do you wear hearing aids?
   a. Left
   b. Right
   c. Both
   d. None

21. Do you have any legal action or compensation claim pending in relation to your tinnitus, or are you planning legal action?
   a. No
   b. Yes