

# 3

## Overview of PTM



In this chapter, we provide an overview of progressive tinnitus management (PTM). We start by describing basic principles that undergird the PTM protocol. We then provide summaries of each of the different levels of PTM, followed by case studies that exemplify the individualized nature of providing hierarchical services with PTM.

### Basic Premises for PTM

#### Manage Reactions to Tinnitus

Chronic tinnitus (as distinct from somatosounds) reflects malfunction somewhere within the auditory system. The phantom perception of sound is a symptom of the malfunction. Normally, the malfunction cannot be corrected and intervention cannot permanently reduce the loudness/intensity of the symptom. Considering that reducing the loudness of tinnitus normally is not an option, the next best thing is to help patients live more comfortably with their tinnitus. The focus of PTM is to teach patients how to *manage their reactions* to tinnitus,

which can make a meaningful difference in quality of life.

What do we mean by “manage reactions” to tinnitus? Note that we avoid the word “treatment,” which might be interpreted by patients to mean that a circumscribed course of treatment will permanently quiet or eliminate their tinnitus. Such an outcome typically is what patients want, and they often are not interested in receiving clinical services if those services will not cure their tinnitus. Patients need to be informed that although tinnitus cannot be cured they can learn to manage their reactions to it, thereby improving their quality of life.

Any reference to “managing tinnitus” really means “managing *reactions* to tinnitus.” “Managing tinnitus” might be misinterpreted to mean “managing the sound of tinnitus” or “doing something to make the tinnitus quieter.” Because we cannot change tinnitus itself, tinnitus management should be interpreted to mean making lifestyle adjustments to reduce any reactions to tinnitus. “Reactions” pertains to any negative effects of tinnitus on quality of life, such as sleep disturbance, concentration difficulties, or any negative emotions that are associated with tinnitus.

By learning to self-manage their reactions to tinnitus, patients are empowered by gaining the ability to know how to address any situation in which their tinnitus is bothersome or intrusive. Patients need varying levels of support and guidance from providers before becoming self-sufficient in this process. Thus, there is a level of participation required of patients—they are expected to be engaged in the “collaborative self-management” process (J. A. Henry, Zaugg, Myers, Kendall, et al., 2009) until they are able to independently manage their reactions to tinnitus (see Chapter 7).

Intervention with PTM specifically involves activities designed to reduce reactions to tinnitus (no attempt is made to alter the tinnitus sound). In addition, patients with tinnitus are taught basic concepts of hearing conservation. Learning these concepts is universally important and is particularly necessary for anyone who experiences tinnitus to minimize the potential for exacerbation of the tinnitus symptom.

### Clinical Services Should Be Progressive

As mentioned in Chapter 1, epidemiologic studies reveal that chronic tinnitus is experienced by about 10 to 15% of all adults (H. J. Hoffman & Reed, 2004). However, the condition is “clinically significant” for only about 20% of those who experience tinnitus (A. Davis & Refaie, 2000; P. J. Jastreboff & Hazell, 1998).

Tinnitus that is “clinically significant” indicates that the tinnitus causes functional impairment to such a degree that clinical intervention is warranted. Although difficult to define, some criterion level of functional impairment would categorize an individual as requiring clinical intervention. Determining this criterion level must be based on the person’s perception of the need for intervention. As a general guide, tinnitus is likely to be clinically significant if the person agrees with each of the following statements:

- The tinnitus disrupts at least one important life activity.
- The degree of disruption is “more than trivial.”

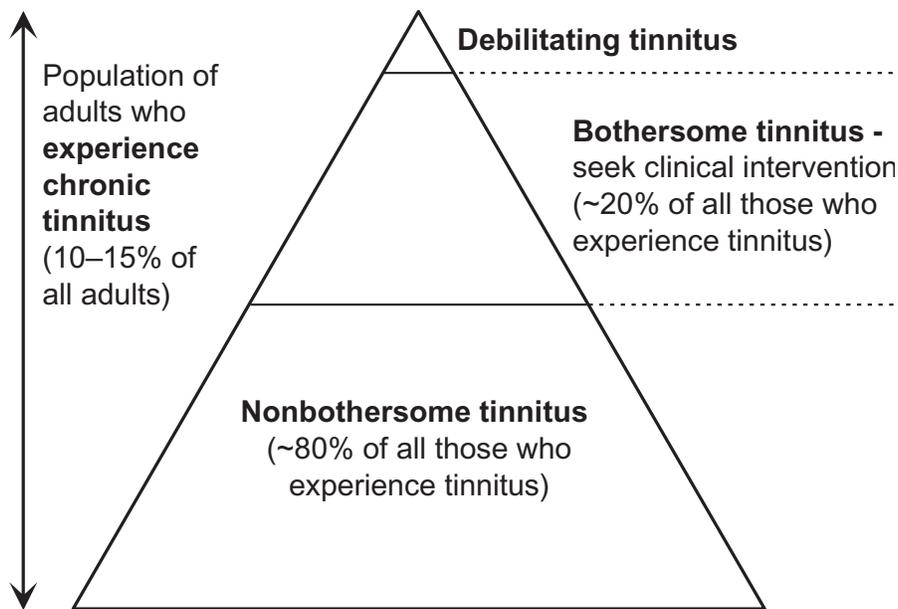
- The disruption causes a noticeable reduction in quality of life.
- The benefit from intervention would outweigh the cost and effort (i.e., “the effort would be worth it”).

The “tinnitus pyramid” (Figure 3–1) depicts how individuals who experience tinnitus are distributed with respect to how the tinnitus impacts their lives (Dobie, 2004b). The pyramid shows that the majority of these people either are not bothered by it or they require only some basic education. Approaching the top of the pyramid are people who have progressively more severe problems caused by tinnitus. The top contains the relatively few patients who are “debilitated” by their tinnitus.

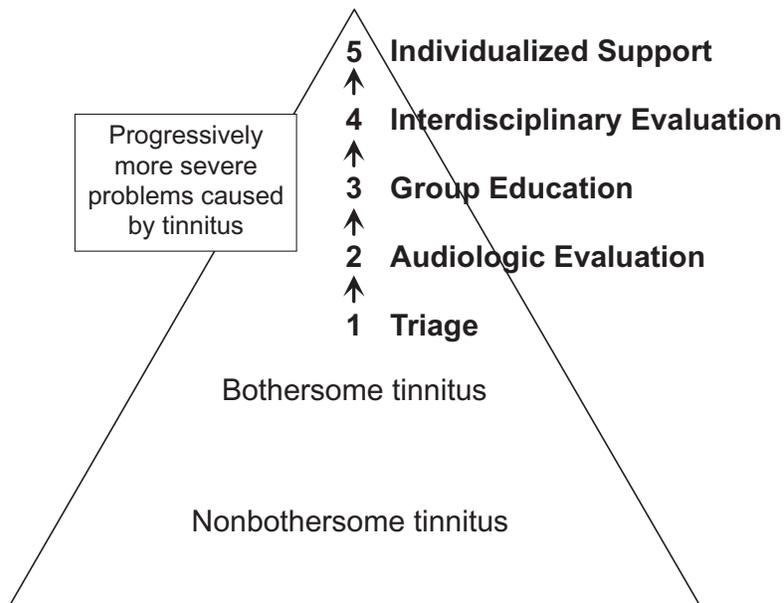
Most patients do not require extensive (or expensive) clinical intervention to learn how to manage their reactions to tinnitus. We therefore developed a hierarchical approach to efficiently provide clinical services to patients having diverse levels of need. Figure 3–2 shows the five levels of PTM, which are described in detail as the primary focus of this book.

The observation that the majority of individuals who experience tinnitus do not require intervention has been supported by numerous subject-recruitment efforts for controlled studies conducted at the Portland VA Medical Center (under the auspices of the National Center for Rehabilitative Auditory Research, NCRAR) to evaluate methods of tinnitus intervention (see Chapter 2). For each study, we are contacted by large numbers of individuals who are interested in participating. However, just *experiencing* tinnitus is not justification for receiving therapy that is designed to address *reactions* to tinnitus. As explained in Chapter 2, we had to develop screening methodology to determine *if* a person requires intervention. Furthermore, individuals who do require intervention have different levels of need, ranging from brief counseling to individualized, ongoing therapy—thus the rationale for *progressive* clinical services.

The overall goal of the hierarchical approach used with PTM is to minimize the impact of tinnitus on patients’ lives as efficiently as possible. The model is designed to be maximally efficient to have the least impact on clinical resources, while still addressing the needs of all patients who complain of tinnitus.



**Figure 3-1.** The Tinnitus Pyramid (Dobie, 2004b). The concept depicted here is that the pyramid contains the entire population of people who experience chronic tinnitus. The majority of these people (in the lower part of the pyramid) are not particularly bothered by their tinnitus. Many of these people only want assurance that their tinnitus does not reflect some serious medical condition (those in the middle of the pyramid). Relatively few have tinnitus that requires some degree of clinical intervention (toward the top of the pyramid). A very small fraction has “debilitating” tinnitus (in the top of the pyramid).



**Figure 3-2.** Five levels of progressive tinnitus management (PTM) superimposed on the Tinnitus Pyramid (see Figure 3-1). Each higher level reflects a greater intensity of clinical services, and patients progress only to the level needed.

## Use an Interdisciplinary Approach

The initial evaluation for a patient who complains of tinnitus usually can be conducted by an audiologist and in many cases the audiology assessment (with the possibility of fitting hearing aids) is the only service needed. However, many patients require referral for additional evaluations, and some patients require tinnitus-specific intervention. Because of the multiple dimensions of problematic tinnitus, clinical services are optimized by using an interdisciplinary approach.

Clinical evaluations help determine the range and types of services needed to manage the full scope of medical, rehabilitation, and psychosocial aspects of tinnitus. Members of the tinnitus management team administer a variety of assessment instruments and then, for difficult cases, meet as a group to integrate results into a plan of care tailored to the individual needs of the patient. The scope of care depends on the severity of perceived tinnitus and medical and psychological issues. Intervention for tinnitus typically requires audiology and mental health services but may involve medical and prosthetic services.

### **Audiologist**

Audiologists are essential for providing clinical services for tinnitus (J. A. Henry, Zaugg, et al., 2005a). Although audiologists can independently perform all aspects of clinical services for many patients, it is vital that they refer patients to other health care professionals as the presenting symptoms warrant. Audiologists must be aware of certain tinnitus-specific symptoms that indicate the need for medical evaluation services. Audiologists also must be aware of symptoms consistent with medical and psychological conditions. Optimally, audiologists who provide tinnitus services should work with an interdisciplinary tinnitus team.

### **Physician Ear Specialist**

Ideally, every patient complaining of tinnitus would receive a complete head and neck examination from an otolaryngologist, otologist, or neuro-otologist who

is knowledgeable about the multiple causes and presentations of tinnitus. However, this is not practical or realistic in many cases. Guidelines are provided in Chapters 4, 5, and 8 for determining when a medical evaluation is necessary. For example, pulsatile tinnitus often has an identifiable site, for which there are many potential causes. All patients who present with pulsatile tinnitus should receive a medical evaluation—primarily to rule out pathology (e.g., glomus tumor) that requires medical intervention.

### **Mental Health Professional**

Some patients with tinnitus present with behaviors that indicate the need for an evaluation by a psychiatrist, psychologist, or other licensed mental health professional. Most mental/emotional disorders are not so obvious and require special evaluations to establish their existence and significance. A relatively high proportion of patients concerned about tinnitus suffer from depression and/or anxiety (Dobie, 2003; Halford & Anderson, 1991; Kirsch, Blanchard, & Parnes, 1989). Patients suspected of having these problems should be referred for evaluation by a mental health professional. Patients also should be referred immediately to a mental health professional if they report suicidal or violent thoughts, or if they report bizarre symptoms such as “hearing voices.”

Tinnitus can be associated with post-traumatic stress disorder (PTSD). PTSD is a constellation of mental, emotional, and physical symptoms that can follow the experience of a traumatic event. Although commonly associated with military veterans, PTSD affects all strata of the population and all manner of psychological trauma. Untreated PTSD can impede rehabilitation efforts, including the clinical management of tinnitus. Failure to properly refer patients for possible PTSD, depression, and/or chronic anxiety reduces the likelihood of achieving the desired outcomes from tinnitus intervention.

Sleep disturbance is the nonauditory problem most frequently reported by patients with tinnitus (Erlandsson, 2000; Jakes, Hallam, Chambers, & Hinchcliffe, 1985; Meikle & Walsh, 1984; Tyler & Baker, 1983). Patients who report sleep problems also tend to have the most severe tinnitus. Sleep problems

may be mitigated by teaching sleep-management techniques that are included in both the psychologic and audiologic portions of the PTM counseling (and in the PTM self-help workbook). If these efforts are not successful, then the patient may need referral to a sleep disorders specialist, physician, or mental health professional.

### **Prosthetics**

Some aspects of PTM incorporate instruments including hearing aids, ear-level noise generators (“maskers”) and combination instruments (combined hearing aid and masker), as well as wearable and tabletop devices that are used for sound therapy purposes. Involvement of prosthetics and sensory aids staff (at VA, military, and some other hospitals and clinics) ensures that appropriate technology will be available to patients with tinnitus.

### **Start with Audiologic Assessment**

Patients complaining of tinnitus need an audiologic assessment for two basic reasons. First, they must be evaluated to determine if referral to a physician is warranted. Second, tinnitus usually is associated with some degree of hearing loss (Axelsson & Ringdahl, 1989; A. Davis & Refaie, 2000; J. L. Henry & P. H. Wilson, 2001; Vernon, 1998). Our research has revealed that the great majority of patients who complain of tinnitus also complain of hearing problems (J. A. Henry, Loois, et al., 2007). An audiologic examination should be the clinical starting point for all patients who complain of tinnitus, unless urgent medical services are required.

In addition to the audiology testing, a brief assessment should be performed to determine if intervention specific to tinnitus is warranted. Patients with tinnitus commonly (and erroneously) attribute hearing problems to tinnitus (Coles, 1995; Dobie, 2004b; Zaugg et al., 2002). It therefore is critical to determine how much of the patient’s complaint is due to a hearing problem and how much is due specifically to the tinnitus. PTM utilizes a brief questionnaire (Tinnitus and Hearing Survey—see Chapter 5) to help make this determination.

### **Focus on Patient Education as Intervention**

Clinical intervention with PTM relies on a structured program of patient education. The education consists primarily of teaching patients how to use sound and coping techniques to manage their reactions to tinnitus. More specifically, patients learn how to develop and implement individualized plans for using therapeutic sound and apply principles of cognitive-behavioral therapy (CBT) to manage their tinnitus. Success in achieving these goals depends largely upon patients acquiring confidence in applying the self-management strategies. Breaking the process of learning how to manage tinnitus into small achievable tasks helps to ensure that patients experience initial success. This approach is in accordance with the self-efficacy theory (Bandura, 1977). Research has demonstrated that self-efficacy is a good predictor of motivation and behavior. In general, the experience of success increases self-efficacy while experiencing failure reduces self-efficacy.

Unique aspects of intervention with PTM include: (a) its emphasis on collaborative management by patient and clinician, leading to self-management by the patient; (b) development and use of sound-based therapy that is customized to address patients’ individual needs; (c) application of evidence-based principles of patient education and health literacy; (d) use of multiple modalities to provide education within different levels of PTM; and (e) inclusion of essential components of CBT to teach coping skills (J. A. Henry, Zaugg, Myers, Kendall, et al., 2009).

PTM education is provided to patients at Levels 2, 3, and 5, but in a different format at each of these levels. Going from lower to higher levels the education becomes increasingly more personalized. At Level 2, patients can receive the self-management workbook (although it is recommended to give the workbook to patients at the start of Level 3 intervention). The workbook contains step-by-step instructions for patients to learn the self-management techniques on their own. All patients with tinnitus-specific problems are advised to participate in the workshops that comprise Level 3 Group Education. At Level 5, the education is provided in a one-on-one format.

### **The Audiologist's Role as Patient Educator**

Patient education is the most important aspect of providing intervention with PTM. Thus, one of the audiologist's primary roles in this program is that of patient educator. Training received by audiologists generally does not include theories and concepts of patient education for achieving changes in behavior. We previously have published a description of the principles of education used with PTM (J. A. Henry, Zaugg, Myers, Kendall, et al., 2009). The information in that article can help audiologists better understand their role as patient educator and maximize their effectiveness in implementing the educational components of PTM.

### **Address the Problem of Low Health Literacy**

Nearly one third of English-speaking adults in the United States have low health literacy (Gazmararian et al., 1999; Nielsen-Bohlman, Panzer, & Kinzig, 2004; Williams et al., 1995). Those with low health literacy have an incomplete understanding of their health problems, and are more likely to report poor health, have more hospitalizations and higher health care costs, as well as suffer worse health outcomes overall (Baker, Parker, Williams, Clark, & Nurss, 1997; Howard, Gazmararian, & Parker, 2005; Weiss, Hart, McGee, & D'Estelle, 1992; Weiss & Palmer, 2004). Tinnitus disproportionately affects the populations most likely to have low health literacy: older adults and low-income individuals (S. C. Brown, 1990; Doak, Doak, & Root, 1996; Heller, 2003; H. J. Hoffman & Reed, 2004; Sindhusake, Mitchell, et al., 2003).

Even literate persons may have difficulty understanding health information, so training clinicians to communicate in ways that reach low-literate patients is good for all patients (Mayeaux et al., 1996). There is general consensus among health literacy and communication experts that the seven strategies we have described previously (J. A. Henry, Zaugg, Myers, Kendall, et al., 2009) can help improve provider-patient communication (Doak et al., 1996; Williams, Davis, Parker, & Weiss, 2002). These strategies are incorporated into the PTM

educational and counseling materials and should be adopted during all interactions with patients.

### **Refer Patients Appropriately**

Because tinnitus can be a multidimensional problem, a team approach is the ideal. The team approach, however, currently is seen in very few clinics. Therefore, it is vitally important that patients are referred as appropriate to other health care professionals. Ideally, PTM services will be a joint effort between audiology and psychology, with inclusion of otolaryngology, psychiatry, and other disciplines as needed. Mental health professionals who receive tinnitus referrals should have expertise in providing psychological interventions for patients with chronic health conditions and at least be familiar with the nature of tinnitus within the context of comorbid psychological problems.

## **Five Levels of PTM**

### **Synopsis**

The PTM Flowchart (Appendix A) shows the five hierarchical levels of clinical services with PTM. The hierarchy of services starts with Level 1 Triage at the bottom of the flowchart. Level 1 Triage provides guidelines for all clinics where patients with tinnitus are likely to be encountered. Level 1 Triage on the flowchart includes a large rectangular text box that describes the criteria for referring patients who complain of tinnitus. Depending on the patient's symptoms and other diagnostic factors, there are four possible referrals (as indicated by the four columns in the text box): (1) Refer to audiology; (2) Refer to ENT (i.e., refer to otolaryngology) for a nonurgent appointment; (3) Refer to emergency care or ENT for an urgent appointment that will take place on the same day the symptoms are reported; (4) Refer to mental health or emergency care for further assessment of concerning mental health symptoms.

Level 2 of PTM is the Audiologic Evaluation, during which it is determined whether or

not the patient will participate in Level 3 Group Education. During the Level 2 evaluation, patients also are screened for severely reduced tolerance to sound (hyperacusis). If they fail the screening, then they should participate in the sound tolerance evaluation and management (STEM) protocol, as indicated on the figure. The STEM protocol should resolve the hyperacusis problem, at which time the patient should be evaluated to determine if further tinnitus services are needed. If so, then the patient is advised to participate in Level 3 Group Education (shown on the flowchart by the arrow leading from the STEM box to Level 3).

Patients who need clinical services beyond Level 3 can schedule an appointment for a Level 4 Interdisciplinary Evaluation. The Level 4 evaluation (ideally performed by an audiologist and a psychologist) will be used to determine if Level 5 Individualized Support is warranted.

## Level 1 Triage

**Level 1** is the **triage** level for referring patients at the initial clinic point-of-contact.

“Tinnitus triage guidelines” were developed for nonaudiologist health care providers who encounter patients complaining of tinnitus. Patients complain of tinnitus in many different clinical settings. Health care providers often do not know how to refer these patients appropriately—or whether to refer them at all. The tinnitus triage guidelines can be used to help guide referral practices for clinicians encountering patients reporting tinnitus. The guidelines are consistent with accepted clinical practices (Harrop-Griffiths, Katon, Dobie, Sakai, & Russo, 1987; J. A. Henry, Zaugg, et al., 2005a; J. L. Henry & P. H. Wilson, 2001; Wackym & Friedland, 2004).

## Level 2 Audiologic Evaluation

**Level 2** is the **audiologic evaluation**, which includes a brief assessment of the impact of tinnitus on the patient’s life.

The primary objective of the Level 2 Audiologic Evaluation is to assess the potential need for a medical examination and/or audiologic intervention (audiologic intervention can include intervention for hearing loss, tinnitus, and/or reduced sound tolerance). Sometimes it also is appropriate to screen for mental health conditions that can interfere with successful self-management of reactions to tinnitus. Screening methodology is available, but not required, at this level to determine if a patient should be referred for a mental health assessment. When indicated, brief questionnaires can be administered to assess the potential need for referral to a mental health clinic. Patients’ primary care providers should be notified when their patients report feeling sad, isolated, agitated, or anxious. This information should be documented in the medical record along with behavioral observations such as crying or angry outbursts.

The Level 2 evaluation always includes a standard audiologic evaluation and brief written questionnaires to assess the relative impact of hearing problems and tinnitus problems. Patients who require amplification are fitted with hearing aids, which often can result in satisfactory reduction in reactions to tinnitus with minimal education and support specific to tinnitus (J. A. Henry, Zaugg, Myers, & Schechter, 2008c; J. A. Henry, Zaugg, et al., 2005b; Searchfield, 2005). Patients who report any degree of a tinnitus problem following these basic services are advised to attend Level 3 Group Education.

Patients who report a severe problem with reduced sound tolerance are scheduled for STEM, which then becomes the focus of clinical management. (STEM is described fully in Chapter 6, and a brief summary is provided below.)

## Patient Self-Help Workbook

The **self-help workbook** provides a description of key information that is covered during Level 3 Group Education.

A special workbook (*How to Manage Your Tinnitus: A Step-by-Step Workbook*) (J. A. Henry et al., 2010a) has been developed that provides patients with the

core PTM counseling information that is offered both in Level 3 Group Education and Level 5 Individualized Support. The workbook provides detailed information and instructions for developing individualized action plans to self-manage reactions to tinnitus using therapeutic sound and coping techniques. Videos and a sound demonstration CD are included in the workbook to supplement the written material.

Although the workbook is designed to be used by patients to learn the different self-help techniques, it has been our experience that many patients have difficulty benefiting from the workbook without at least some guidance and support from a clinician. Indeed, some patients can receive full benefit from using the workbook without additional intervention. However, patients are more likely to benefit from the workbook if it is provided in the context of a group with guided activities led by a clinician. We recommend providing the workbook to patients when they attend their first Level 3 workshop—for reasons that are explained in Chapter 5.

### Sound Tolerance Evaluation and Management (STEM)

**STEM provides adjunct procedures to evaluate and treat a severe sound tolerance problem.**

During the Level 2 Audiologic Evaluation, patients are screened for a sound tolerance problem (hyperacusis and/or misophonia) using the Tinnitus and Hearing Survey (see Chapter 5). The survey includes two questions specific to reduced sound tolerance, which generally are adequate to determine if the patient has a severe problem with reduced sound tolerance. These patients are considered special cases and their progress through PTM is temporarily suspended while they undergo STEM. Some patients also may express a strong desire to simply concentrate on addressing sound tolerance problems rather than tinnitus. These patients should have the option of attending the STEM program.

The STEM protocol starts with an assessment of the problem, which relies mainly upon a special sound tolerance interview (see Chapter

6). Testing for loudness discomfort levels can be performed, but is not required. If treatment for reduced sound tolerance is needed, then the use of ear-level devices (noise generators or combination instruments) is a consideration. Special procedures have been developed to evaluate patients for these devices. The STEM protocol continues for as long as reduced sound tolerance is a significant problem for the patient. Once the sound tolerance problem is under control, then it is determined whether the patient should continue to receive tinnitus-specific clinical services. If so, then the patient normally is advised to participate in Level 3 Group Education.

### Level 3 Group Education

**Level 3 provides group education workshops for patients who require tinnitus-specific intervention.**

Level 3 Group Education is for patients who have attended the Level 2 Audiologic Evaluation and feel that they need additional clinical services to learn how to manage their reactions to tinnitus. Level 3 is the first level within PTM for which patients receive focused intervention for a tinnitus problem. The group education is presented as classroom-style sessions of PTM counseling that are facilitated by the use of PowerPoint presentations. (Note that the PowerPoint files for these presentations are provided on a CD that is attached to the back of this handbook.) As mentioned above, patients should receive a copy of the self-help workbook at the start of the first session. The normal intervention within Level 3 is for patients to attend two sessions facilitated by an audiologist, combined with three sessions facilitated by a psychologist or other mental health provider.

In general, there are several advantages to a group education format (Mensing & Norris, 2003; S. R. Wilson, 1997): (a) Group sessions are both cost-effective and time-efficient. Education and support can be provided to more patients in less time, maximizing available resources; (b) When education is the primary intervention modality, group educational intervention can be equally or more effective than providing the education on an individual

basis because of the group-interaction dynamic; (c) Patients often are more motivated to attend group rather than individual sessions because of the encouragement and support that they receive from each other; and (d) Patients who participate in groups tend to form a sense of camaraderie that further motivates them to attend the sessions.

Recent evidence supports the use of group education as a basic form of tinnitus intervention. Group education has been shown to be effective as part of a hierarchical tinnitus management program at a major tinnitus clinic (C. W. Newman & Sandridge, 2005; Sandridge & C. W. Newman, 2005). In addition, we completed a randomized clinical trial (see Chapter 2) evaluating group education for tinnitus in almost 300 patients that showed significantly more reduction in tinnitus severity for patients in the education group as compared to two control groups (J. A. Henry, Loois, et al., 2007).

PTM group education has been carefully developed to assist patients in directly addressing those life situations when their tinnitus is problematic. The counseling focuses on facilitating self-efficacy and was developed using well-documented principles of patient education and health literacy (J. A. Henry, Zaugg, Myers, Kendall, et al., 2009). PTM counseling thus does not just educate patients *about* tinnitus—it is designed to teach patients *how to self-manage their reactions to tinnitus*. These patients are empowered to make informed decisions about self-management, protecting their ears, and further tinnitus intervention options.

During the first session with the audiologist, the principles of using sound to manage reactions to tinnitus are explained, and participants use the PTM Sound Plan Worksheet (J. A. Henry, Zaugg, Myers, & Kendall, 2009; J. A. Henry et al., 2010a) to develop an individualized “sound plan” to use to manage their most bothersome tinnitus situation. They are instructed to use the sound plan until the next session with the audiologist (approximately two weeks later), at which time they discuss their experiences using the plan and its effectiveness. The audiologist facilitates the discussion and addresses any questions or concerns. Further information about managing reactions to tinnitus is then presented, and the participants revise their sound plan based on the discussion and new information. By the end of the second session with the audiolo-

gist, the participants should have learned how to develop, implement, evaluate, and revise a sound plan to manage their most bothersome tinnitus situation. They are encouraged to use the Sound Plan Worksheet on an ongoing basis to write additional sound plans to address other bothersome tinnitus situations. Additional group sessions with the audiologist can be scheduled if needed.

The group education sessions led by a psychologist focus on teaching three cognitive-behavioral therapy (CBT) coping techniques: relaxation, cognitive restructuring (“changing thoughts”), and attention diversion (“planning pleasant activities”). During the first of three sessions with the psychologist, the principles of CBT are explained, and participants use the PTM Changing Thoughts and Feelings Worksheet (J. A. Henry et al., 2010a). The provision of CBT for chronic problems other than tinnitus often involves six to eight sessions (J. L. Henry & P. H. Wilson, 2001). For PTM, only certain components of CBT are taught to minimize the number of group sessions and because other components of CBT, such as education about tinnitus, are provided elsewhere during Level 3 and Level 5.

Patients should have the option of attending additional sessions if further CBT counseling is needed. These additional sessions normally are offered to patients following, and depending on the results of, the Level 4 Interdisciplinary Evaluation. During Level 5 Individualized Support, all CBT modules including psychoeducation, prevention, and planning for relapse and flare-ups are presented in detail according to results of the Level 4 Interdisciplinary Evaluation.

#### Level 4 Interdisciplinary Evaluation

**Level 4** involves **in-depth evaluation** of patients who require services beyond Level 3 Group Education.

Patients who are unable to satisfactorily manage their reactions to tinnitus following completion of PTM Levels 2 and 3 require a full evaluation to determine their needs for further intervention. Such an in-depth evaluation is not warranted for the great majority of patients who are able to self-manage

reactions to tinnitus with the information and support provided in Levels 2 and 3.

The Level 4 Interdisciplinary Evaluation should include assessments by both an audiologist and a psychologist (or other mental health provider). The audiologist should discuss use of devices and determine if individualized support from an audiologist is warranted. The psychologist's assessment should include screening for psychological conditions that may need to be addressed and a determination if individualized support from a psychologist is warranted. Thus, two appointments normally are required at this level—one with an audiologist and one with a psychologist. Ideally, after both evaluations the audiologist, psychologist, and patient will come to agreement concerning if and how Level 5 intervention should be conducted.

The audiologic tinnitus assessment includes written questionnaires, a structured interview, and, optionally, a psychoacoustic assessment of tinnitus perceptual characteristics. The questionnaires and interview are the key to determining how the tinnitus impacts the patient's life and if individualized support from an audiologist is indicated. Special procedures have been developed for selecting sound-generating devices for tinnitus management using therapeutic sound, including ear-level noise generators and combination instruments, and personal listening devices. The audiology portion of the Level 4 evaluation is used to determine if Level 5 Individualized Support from an audiologist is needed. However, patients who are fitted with ear-level noise generators or combination instruments must progress to Level 5 to ensure proper utilization of the devices.

Screening for symptoms of mental health disorders is considered a requirement at Level 4 if the patient is not already receiving mental health services. Such screenings would include inquiries about depressive and anxious symptomatology, sleep problems, and significant life stressors that may be contributing to one's inability to cope. It is best for the mental health evaluation to be performed by a psychologist or other mental health care provider who is qualified to conduct diagnostic evaluations. If assessment by a mental health care provider is not possible, basic screening for these symptoms can be conducted by any clinician

who has been properly trained to use screening tools and who has resources for responding to the outcomes of these screeners. In instances where audiologists (or other nonmental health care providers) are performing screening for referral to mental health, collaborations with primary care are essential to allow for immediate referrals and follow-up as warranted based on mental health screeners. Medical centers and outpatient clinics vary in the types and availability of mental health clinicians. When appropriate mental health care providers are unavailable, collaboration with primary care is necessary to ensure patients receive the best care available at that site.

It should be mentioned that these Level 4 evaluations should take into account patients' impressions about the education they received from the Level 3 classes. It is important to know how useful the information was to patients to focus on building skills that are most likely to provide benefit. Taking this patient-centered approach can help patients feel that they are part of the decision-making process, and increases the likelihood that intervention will be successful.

### Level 5 Individualized Support

**Level 5** is the provision of **one-on-one support** for patients who require longer-term intervention from an audiologist and/or a psychologist.

Level 5 Individualized Support involves repeated appointments with an audiologist and/or a mental health provider (typically a psychologist) who provide one-on-one individualized support to the patient. If ear-level devices are involved in the management program, then appointments with an audiologist are essential to ensure that the devices are working properly and that the patient is using the devices in a manner that is optimal for tinnitus management. Any psychologist providing Level 5 Individualized Support should have experience or adequate training in providing CBT. This foundation is essential to provide effective care.

The audiologic counseling information is essentially the same as what was covered during Level 3 Group Education. However, for Level 5, the

audiologist uses a book to facilitate the counseling (*Progressive Tinnitus Management: Counseling Guide*) (J. A. Henry, Zaugg, Myers, & Kendall, 2010b). The book is laid flat on a table between clinician and patient, and works like a flip chart to guide both the audiologist and the patient through the counseling protocol. Patients should attend at least two Level 5 appointments, but they can attend as many as needed. The typical schedule includes appointments at 1, 2, 4, and 6 months following the Level 4 Interdisciplinary Evaluation.

The psychological counseling at Level 5 involves a review of the techniques taught during Level 3 Group Education (and included in the self-help workbook) and an individualized examination of the patient's unique achievements and challenges so far during PTM. Patients learn more about setting and achieving goals via behavioral modification by tracking their progress using clearly defined measures of change. For example, if a patient is having difficulty managing stress, charting stress on a 1-to-10-scale can be effective for quantifying the patient's response to stress and observing change as a result of modifications in behavior. During Level 5, patients learn how to accept their individual strengths and weaknesses while gaining a sense of control in the event that change is realistic and obtainable.

During Level 5 the audiologist and psychologist should collaborate with each other and with the patient to determine what is necessary to provide adequate benefit to the patient. Occasional appointments with both providers may be helpful for clarifying the goals of the interventions and emphasizing a team approach to providing tinnitus care. Options for the patient beyond six months of Level 5 include ongoing psychological symptom management (if warranted), further audiologic intervention (counseling and/or use of ear-level instruments), or other forms of tinnitus intervention that can be provided by an audiologist (tinnitus masking, tinnitus retraining therapy, or neuromonics tinnitus treatment). Some patients may require psychiatric management to address persistent or more serious mental health symptoms that may become evident at any level of PTM. If a psychologist is collaborating then that clinician should make such a referral to psychiatry or the primary care provider.

## Conclusion

The five levels of PTM provide a logical, sequential means of working collaboratively with patients to best determine their needs and to provide only the level of care that is needed. It is a basic philosophy of PTM that educating the patient is the most important concern. Thus, patients receive only basic audiology services and self-help education through Level 3. Included in that education is a thorough explanation of the different ways that sound can be used to manage reactions to tinnitus. And, as part of that explanation, patients are taught how sound is used with other sound-based methods of tinnitus management (e.g., tinnitus retraining therapy). Patients should have this understanding before potentially committing to an additional clinical protocol that may be expensive and time-consuming. An important reason why fitting ear-level noise generators or combination instruments is not advocated until Level 4 is that patients need to be fully informed before making such decisions.

Additionally, there continues to be great stigma associated with psychological interventions. Audiologists must be on the frontlines educating patients about the use of psychological interventions for health conditions. Audiologists can help patients with tinnitus feel less concerned about this stigma if they explain the goals of CBT. CBT has been effective in helping patients deal with chronic pain (patients who receive CBT for pain even report decreased levels of pain) (B. M. Hoffman, Papas, Chatkoff, & Kerns, 2007). The analogy between pain and tinnitus is especially useful in introducing the goals of psychological management for tinnitus. Patients should be reassured that clinicians do not think tinnitus is a psychological disorder nor do we think it is "in their heads." It may be important for some patients to hear that clinicians believe their tinnitus is real and very disturbing to them as a validation of their concerns and distress upon introducing the psychologist's role.

If a patient reaches Level 5, then one-on-one support is needed for the patient to better understand the concepts and receive help in trying to learn how to self-manage reactions to tinnitus.

(This is a skill patients likely will need for the rest of their lives so it is important that they fully grasp the concepts.) Furthermore, tinnitus is a dynamic symptom that may change dramatically over the course of the patient's lifetime. If none of the efforts expended through Level 5 works for the patient, then the logical next step is to attempt to modify the procedures, or to try other forms of therapy. As a result of participating in PTM, patients become fully educated about the different uses of sound, and are in a position to make informed decisions about committing to another form of therapy.

PTM is a program that is efficient for audiologists and psychologists and is designed to work in the best interest of patients to help them learn how to self-manage their reactions to tinnitus without getting involved in expensive therapy. If a clinician is committed to one of these other methods, then the framework of PTM can be helpful to more systematically make decisions about the need for a high level of intervention. The interdisciplinary approach of PTM can be modified based on a particular clinic's resources and staffing. Some clinics employ health psychologists or clinical psychologists who specialize in auditory disorders, and who may be especially adept at responding to the psychological needs of patients with tinnitus. Other clinics do not have such clinical resources.

The PTM model is designed for implementation at any clinic that desires to optimize resourcefulness, cost efficiency, and expedience in working with patients who complain of tinnitus. Use of these recommendations should lead to more widespread and consistent tinnitus assessment and intervention by clinicians. Each level of PTM is described in detail in this book.

### Case Studies

The following case studies illustrate the PTM approach employed for three patients (Sam, Betty, and Joe). These are somewhat random examples, but they illustrate the range of problems reported by patients and the adaptive nature of PTM to address individual needs.

### Case Study: Sam

- **Level 1:** Sam was referred to audiology by primary care for tinnitus and hearing loss complaints.
- **Level 2:** Audiologic evaluation revealed a high frequency sensorineural hearing loss bilaterally. Sam was advised and agreed to be fitted with hearing aids. The brief tinnitus assessment revealed clinically significant tinnitus. Sam's primary care provider and a mental health provider were immediately notified due to his statement "I'm not sure how much I can go on living with this tinnitus."
- **Level 3:** Sam attended group education sessions with the audiologist and psychologist and reported that the education was not enough—he was still very troubled by his tinnitus and wanted more assistance.
- **Level 4:** Sam returned for an interdisciplinary evaluation. The hearing aids were returned for credit and combination instruments were ordered. He and the psychologist agreed that further psychological intervention had potential to be helpful.
- **Level 5:** Sam received individualized ongoing intervention with an audiologist to optimize the use of his combination instruments and to more fully understand the PTM techniques. He met individually with a psychologist to optimize the use of coping techniques based on CBT.

### Case Study: Betty

- **Level 1:** Betty was referred to audiology by primary care due to a report of intermittent tinnitus bilaterally.
- **Level 2:** Audiologic evaluation revealed that Betty had normal hearing bilaterally. Assessment of impact of tinnitus revealed that Betty was mildly impacted by her tinnitus. Betty was counseled regarding the test results and her tinnitus. She

was invited to attend Level 3 Group Education.

- **Level 3:** Betty participated in the group education workshops conducted by an audiologist. She obtained the information needed to self-manage her reactions to tinnitus by optimizing her lifestyle and using low level sounds in her environment when the tinnitus was bothersome. She deferred instruction on CBT education or further referral and will contact the clinic if changes or problems are noted.

### Case Study: Joe

- **Level 1:** Joe was referred to audiology by his psychologist due to reports that he “dislikes” hearing sound and has very bothersome tinnitus. He stopped socializing last year and avoids all activities that involve moderate levels of sound. The psychologist has been treating him for PTSD.
- **Level 2:** Audiologic evaluation revealed that Joe had moderate hearing loss in his left ear but normal hearing in his right ear. (Referral to otolaryngology and subsequent imaging with MRI indicated no lesions or malformations.) The brief assessment of tinnitus and sound tolerance revealed that Joe was severely impacted by both of these conditions. Because of his severe sound tolerance problem, Joe was advised to participate in the STEM program (see Chapter 6).
- **STEM:** The evaluation determined that Joe’s sound tolerance problem

involved hyperacusis, misophonia, and phonophobia. Treatment therefore required counseling and support by both an audiologist and a psychologist. In addition, he was fitted with a combination instrument in his left ear and a noise generator in the right ear, and sound was added very gradually via these devices and in his environment. His sound tolerance recovered over a six-month period to the degree that tinnitus became the primary problem. He was advised to attend Level 3 Group Education.

- **Level 3:** Joe participated in all of the group education workshops conducted by both the audiologist and psychologist. Joe learned from the audiologist how to use sound to decrease his awareness of tinnitus and to continue increasing his tolerance to sound. During the CBT workshops he learned the importance of staying active to distract himself from his tinnitus. He became less isolated and began meeting with friends again. The referring psychologist learned about tinnitus from the PTM team and incorporated skills taught during PTM into his PTSD treatment. Joe continues to receive regular follow up from his psychologist. It was decided to not schedule him for a Level 4 Interdisciplinary Evaluation from the audiologist. However, the psychologist and audiologist will consult in approximately 3 months to determine if a Level 4 evaluation is warranted.

