

# Principles and application of educational counseling used in progressive audiologic tinnitus management

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## Abstract

Exposure to loud sounds is a common cause and exacerbator of tinnitus – a troubling auditory symptom that affects millions of people worldwide. Clinical research at the National Center for Rehabilitative Auditory Research has resulted in a clinical model of tinnitus management referred to as Progressive Audiologic Tinnitus Management (PATM). The model involves five hierarchical levels of management: Triage, Audiologic Evaluation, Group Education, Tinnitus Evaluation, and Individualized Management. Counseling by audiologists and, as needed, mental health providers, is a key component of PATM. This style of counseling focuses less on didactic informational counseling; instead, counseling is used for facilitating patients' learning to adjust to the disturbing auditory symptom by successfully employing tools from two powerful skillsets for self-management of chronic tinnitus – the therapeutic uses of sound and techniques from cognitive-behavioral psychology. This article provides an overview of the methods of counseling used with PATM and provides details concerning the overarching principles of collaborative adult learning that are believed to be most important in facilitating self-management by patients who complain of tinnitus.

*Keywords: Auditory, counseling, education, health literacy, hearing disorders, intervention, psychology, rehabilitation*

## Introduction

Approximately 10–15% of all adults experience tinnitus, *i.e.*, noise in their ears or head generated internally generated.<sup>[1]</sup> Tinnitus also occurs often in children.<sup>[2,3]</sup> A common cause of tinnitus is exposure to loud sound,<sup>[4]</sup> including loud music.<sup>[5-7]</sup> Of those people who experience tinnitus, approximately 20% experience it as a 'clinically significant' problem. For the purposes of this article, clinical significance is defined as a problem for which, based on the patient's perception, some degree of clinical intervention would be appropriate.

A further concern sometimes overlooked is that exposure to loud sounds can exacerbate existing tinnitus,<sup>[8,9]</sup> *i.e.*, the person may notice an increase in the perceived loudness of the tinnitus sensation. When this occurs, a nonbothersome tinnitus may become clinically significant, or an already clinically significant tinnitus may be escalated to a higher degree of severity. Tinnitus usually is associated with some degree of hearing loss.<sup>[10,11]</sup> When exposed to loud sounds, people thus could face the risk of both further reduced hearing acuity and an enhanced tinnitus percept – deleterious changes

that often are permanent. The problem of tinnitus and noise exposure has been described previously,<sup>[4]</sup> so we focus here on interventions to help people who experience clinically significant tinnitus.

Intervention for tinnitus is provided by practitioners in many healthcare disciplines, including alternative and complementary medicine. Most commonly, otolaryngologists, psychologists, and audiologists are directly involved in various interventions for tinnitus. Otolaryngologists (and otologists) conduct medical examinations and prescribe medications or perform surgery as indicated for tinnitus. Ongoing management of tinnitus is facilitated by psychologists and audiologists. Psychologists may use cognitive-behavioral therapy (CBT).<sup>[12]</sup> Audiologists use a variety of sound-based methods, including tinnitus masking (TM),<sup>[13]</sup> tinnitus retraining therapy (TRT),<sup>[14]</sup> neuromonics tinnitus treatment (NTT),<sup>[15]</sup> and progressive audiologic tinnitus management (PATM).<sup>[16]</sup>

Although a plethora of methods are offered as 'treatment' for tinnitus, research evidence does not support any method as unequivocally providing benefit. Indeed, many treatments for

tinnitus offer nothing more than nonspecific effects resulting mainly from expectations for a treatment's effectiveness.<sup>[17,18]</sup> It is typical for patients to expect healthcare professionals to provide medical treatment that will give them lasting relief. This expectation is consistent with the 'biomedical model' of medicine, which is how the developed world typically views clinical treatments. The biomedical model is based on the efforts of science, technology, and research to find cures for disease. In its strictest sense, the model is reductionist and ignores the role of psychological and social factors. Although the model is effective in diagnosing and treating many diseases, it is not an appropriate model for helping people learn how to manage chronic health conditions, including tinnitus, long-term. Tinnitus is a symptom that is almost wholly defined by subjective auditory perceptions and their potential to cause psychological disturbances. The tinnitus intervention model we present here is, by contrast, 'biopsychosocial' as detailed by the World Health Organization<sup>[19]</sup> in its international classification of function, disability, and health. Such a model thus fosters health, instead of only fighting disease, by attention to psychological, social, environmental, and biological factors that impede individuals' full participation in their chosen life activities.

We have described a clinical method of tinnitus management referred to as PATM.<sup>[16,20]</sup> The method is 'progressive' in that a hierarchical approach is used to provide clinical services only to the degree needed by the patient. Patients requiring clinical intervention for tinnitus vary widely with respect to the symptom's impact on their daily functioning. These patients have a broad spectrum of clinical needs, ranging from basic education about tinnitus to long-term individualized therapy. PATM is structured to efficiently address this range of needs.

There are five levels of management with PATM. Level 1 is the Triage that provides guidelines to properly refer patients who present with the complaint of tinnitus. The majority of patients have their needs met by receiving the Level 2 Audiologic Evaluation (including hearing aids if necessary) and Level 3 Group Education. Often, management of hearing problems at Level 2 addresses any problems that were attributed to the tinnitus. If tinnitus-specific intervention is needed, then the Level 3 Group Education provides patients with key self-management strategies. Relatively few patients require the Level 4 Tinnitus Evaluation, which relies mainly on an in-depth interview to determine if individualized management is needed. If so, then a plan for Level 5 Individualized Management is formulated and implemented.

PATM involves specific assessment procedures as well as a unique intervention strategy. The assessment procedures have been described in detail.<sup>[20,21]</sup> The purpose of the present article is to describe the intervention protocol. The unique aspects of intervention with PATM are: (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; and (d) use of multiple modalities to provide education within different stages of PATM. In addition, components of CBT currently are being added to the intervention protocol. Each of these unique aspects of PATM will now be described.

### Collaborative-management and Self-management

Chronic tinnitus usually is a permanent condition. In most cases, tinnitus cannot be quietened, but it can be managed. Depending on how tinnitus affects a person, it may need to be managed for a lifetime. When referring to intervention for chronic tinnitus, we do not use the word 'treatment', which might imply that a finite 'course of treatment' will quiet a patient's tinnitus. Instead we use the word 'management' to more correctly reflect the need for ongoing attention to tinnitus. Different strategies often are needed to manage tinnitus in different situations. Patients need to learn these strategies so that they can self-manage their tinnitus in any life experience disrupted by the symptom. This learning should take place with a compassionate and knowledgeable clinician.

The PATM approach to self-management is modeled closely after clinical methodologies that currently are used to manage chronic pain.<sup>[22]</sup> It increasingly is recognized that patients' ability to manage their chronic pain depends much more on their own efforts and expectations than upon any treatment received. In the past, treatment for urgent pain relief was the sole emphasis, often through the use of opioid drugs or invasive surgeries. Recognizing that chronic pain requires an approach quite different from treating acute pain, these biomedical solutions increasingly are supplanted by educational approaches that focus on supporting long-term rehabilitation. Patients are more closely involved in the decision-making process and consequently they are more committed to participating in the collaborative management process. There is thus 'a shift of responsibility from the healthcare professional to the individual for the day-to-day management of their condition'<sup>[23]</sup>. This shift is accomplished by working with patients to help them: (a) understand their condition; (b) actively participate in decision making; (c) develop and follow a management plan; (d) self-manage the impact of the condition on daily functioning; and (e) monitor success of management efforts and revise the management plan as needed. In that the clinician and patient maintain a therapeutic relationship, with contacts occurring either on an 'as needed' or periodic basis (*i.e.*, regular follow-ups), we may usefully term the approach 'collaborative self-management'.

## PATM Educational Counseling Protocol

### Educating patients to use therapeutic sound

The use of therapeutic sound for tinnitus management is well supported by research.<sup>[16]</sup> Clinical evidence for sound-based methods of tinnitus management has been reported for TM,<sup>[24-27]</sup> TRT,<sup>[28-31]</sup> and NTT.<sup>[15]</sup> Importantly, in some cases, simply using hearing aids to manage a hearing problem can simultaneously result in sufficient amelioration of a tinnitus problem.<sup>[27,32-36]</sup> We have completed two prospective clinical trials that involved the use of hearing aids, ear-level noise generators, or combination instruments (hearing aid plus noise generator) for most of the subjects.<sup>[37,38]</sup> All cohorts, regardless of the specific intervention involved, showed significant improvement (to varying degrees). Folmer and Carroll<sup>[27]</sup> evaluated long-term outcomes in patients who attended a comprehensive tinnitus management clinic. Three groups of 50 patients each were evaluated who: (a) used ear-level noise generators; (b) used hearing aids; and (c) did not use ear-level noise generators or hearing aids. Significant improvement was observed for all patients. However, patients who used ear-level devices (hearing aids or noise generators) experienced significantly better outcomes than patients who did not use devices.

Many studies, including those cited above, provide strong support for the use of therapeutic sound to manage tinnitus. These studies have not, however, revealed the superiority of any one method. With PATM, the focus of patient education is to provide patients with the knowledge and skills to use sound in adaptive ways to manage their tinnitus in any life situation disrupted by tinnitus. This is accomplished by supporting patients in learning about the different ways that sound can be used for tinnitus management and developing and implementing custom sound-based management plans that address patients' unique needs.

The PATM educational counseling is provided during Level 3 Group Education and Level 5 Individualized Management. Patients first are taught the three uses of sound for tinnitus management<sup>[16]</sup>: (1) 'Soothing sound' is used to provide an immediate sense of relief from the stress or tension that is caused by tinnitus. (2) 'Background sound' is used to reduce contrast between tinnitus and the acoustic environment (thereby making it easier for the tinnitus to go unnoticed). (3) 'Interesting sound' is used to actively divert attention away from the tinnitus. As shown by the tinnitus-management sound grid [Figure 1], for each of these three uses of sound, three types of sound can be used (resulting in nine possible combinations): (1) 'Environmental sound' includes any nature sound (sounds of animals, weather, moving water, etc.) or man-made sound (e.g., electric fans and appliances, broad-band masking noise, synthesized sounds). (2) 'Music' of all styles can be used, including music with and without lyrics. (3) Speech of all varieties is appropriate, including

lectures, sermons, talk radio, guided imagery, crowd noise, one-on-one conversation, etc.

Patients need to understand the different uses and types of sound to manage tinnitus so that they can use the *sound plan worksheet* (Appendix A) to develop an action plan to manage their 'most bothersome tinnitus situation'. The objective is for patients to develop a plan using the *worksheet*, carry out the plan for about one to two weeks, evaluate the effectiveness of the plan, and then modify the plan to improve its effectiveness. It is critical to maximize the likelihood that the initial plan will be implemented. Patients therefore are instructed to identify (using the tinnitus problem checklist – appendix B) the situation in which their tinnitus bothers them the most and to create a sound plan to manage just that particular situation using sounds and sound devices that are easily accessible. In this way, patients are empowered to create a sound plan that can be implemented with minimal effort, ideally using sound-producing devices they already own (radios, fans, etc.) to address their most bothersome tinnitus situation. After patients have gained experience and confidence with the process and the concepts, additional bothersome tinnitus situations can be addressed and more complicated and sophisticated technology can be incorporated. Patients are encouraged to use the *worksheet* on a regular basis to refine and improve their sound plans.

The development of a specific plan to address one problem situation involves four small, manageable tasks that are likely to be done successfully (1–4 on the *sound plan worksheet* – Appendix A): (1) identify a situation in which the tinnitus is particularly bothersome; (2) determine which general strategy (or strategies) for using sound will be tried to help that situation; (3) determine a specific sound that will be used for each strategy; and (4) determine a specific device for presenting each sound. The plan is implemented for one week and then evaluated for its effectiveness (5 on the worksheet).

A case example demonstrates how patients use the *worksheet*. Mr. Roberts' most bothersome situation was 'being annoyed by his tinnitus while working in his quiet office' (1). As a

Use of Sound	Type of Sound		
	Environmental	Music	Speech
Soothing	✓	✓	✓
Background	✓	✓	✓
Interesting	✓	✓	✓

**Figure 1: Tinnitus-Management Sound Grid.** For each of the three basic uses of sound (soothing, background, interesting,) for managing tinnitus, three types of sound can be applied (environmental, music, speech). The therapeutic use of sound with PATM can involve all nine combinations of uses and types of sound.

general strategy (2), he thought that using background sound might be helpful. The type of sound he would try would be constant fan noise (3) from a small fan in his office (4). He tried this plan for one week and determined that the plan was 'a little' helpful (5). He then revised his plan by adding soothing sound (2). He liked sounds of nature and decided to listen to beach sounds (3) using a CD and CD player that he already owned (4). After trying a combination of fan noise and sounds of nature for one week, he indicated that the plan helped him 'a lot' (5). Mr. Roberts' initial sound plan demonstrated limited success. Based on that experience, he revised his plan and the new plan worked well for him. He experienced success using the *worksheet* to address one particular problem situation, and he now uses the *worksheet* as needed to develop plans to address other problem situations.

### Self-management workbook

The PATM Level 2 Audiologic Evaluation involves primarily the assessment of auditory function and self-perceived hearing and tinnitus handicap. Hearing aids may be ordered if the patient is a hearing-aid candidate. Education about hearing loss and tinnitus is provided as warranted. A self-management workbook is discussed and provided to patients with problematic tinnitus (*How to Manage Your Tinnitus: A Step-by-Step Workbook*).<sup>[39]</sup> The *sound plan worksheet* (Appendix A) and *tinnitus problem checklist* (Appendix B) described previously are located in the workbook along with instructions on how to use sound to manage tinnitus. Patients are invited to attend the group education classes (Level 3) if further tinnitus-specific intervention is needed.

### Level 3 Group Education

Level 3 Group Education normally involves two sessions that are separated by about two weeks. A powerpoint presentation (*Managing Your Tinnitus: What to Do and How to Do it*) is given during each session. A separate presentation is used for each workshop. An audiologist makes the presentations, facilitates discussion, and addresses any questions or concerns. Additional workshops are scheduled if needed.

During the first session the principles of using sound to manage tinnitus are explained, and group participants use the *sound plan worksheet* (Appendix A) to develop individualized 'sound plans' to use to manage their most bothersome tinnitus situation. Completing the *worksheet* is the goal for each participant. Participants are asked to return for a follow-up session approximately two weeks later. Their 'homework' is to implement the sound plan that they developed during the first session. They should bring their *worksheet* developed at the first session to the second session.

The objectives of the second session are to: (1) discuss participants' experiences using the sound plan and *sound plan worksheet* from the first session; (2) engage in collaborative problem solving; and (3) develop an improved sound plan

for each participant. In addition, some new information is covered that was not presented at the first session, including: (1) Various devices capable of producing sound that might be unfamiliar to the participants are explained. (2) Ideas for using sound at night are presented. (3) Different sound-based methods of tinnitus management are explained. (4) Participants are told about various lifestyle factors that can affect tinnitus and hearing. The second session is a continuation of the first, and it is important for participants to attend both sessions. Any participant who does not attend the second session should have the opportunity to receive follow-up by telephone.

### Level 5 Individualized Management

Relatively few patients who complete Level 3 Group Education require further intervention. Those who do can schedule an appointment to receive the Level 4 Tinnitus Evaluation, during which a comprehensive assessment is made to evaluate the patient's potential need for further clinical services. If further help for tinnitus is required, then the patient can receive Level 5 Individualized Management, which normally requires up to 6 months of repeated appointments.

Counseling that is provided during Level 5 involves essentially the same educational protocol that is presented during Level 3 Group Education. The main difference at Level 5 is the one-on-one setting that facilitates direct interaction between patient and clinician. Some patients do better by receiving ongoing individualized attention from a caring and knowledgeable clinician. Some patients also need the opportunity to resolve any questions or concerns about their tinnitus in a one-on-one setting where they can express feelings and concerns that they might not have been comfortable discussing in a group setting.

A patient counseling guide (*Progressive Audiologic Tinnitus Management: Counseling Guide*) is used during the Level 5 appointments. The *counseling guide* is used like a flip chart, but laid flat on a table between clinician and patient. When the book is open, one side faces the clinician and the other side faces the patient. The clinician's pages contain bulleted talking points, and the patient's pages show simplified bulleted points and illustrative graphics. The counseling guide corresponds with the Level 3 powerpoint presentations (*Managing Your Tinnitus: What to Do and How to Do it*).

### Incorporation of cognitive-behavioral therapy to PATM protocol

Intervention with PATM focuses on assisting patients in learning how to self-manage their tinnitus using therapeutic sound in adaptive ways. Some patients, however, require psychological intervention to alter maladaptive reactions to tinnitus and to aid in coping with tinnitus. Psychological intervention is particularly important for

tinnitus patients who also experience posttraumatic stress disorder (PTSD), depression, anxiety, or other mental health problems. Psychological intervention can be an important component of an overall approach to managing tinnitus for all patients.

CBT has been used successfully to manage pain, depression, anxiety, and sleep disorders and has previously been applied to the management of tinnitus.<sup>[40]</sup> Numerous studies have been conducted to evaluate the effectiveness of CBT as intervention for tinnitus, and a meta-analysis of psychological interventions for tinnitus revealed that CBT had greater efficacy in reducing annoyance relative to the other psychological methods that were evaluated.<sup>[41]</sup> For these reasons, CBT (which is also sometimes called ‘cognitive therapy’) is the psychological method of choice for use with PATM.

Beck<sup>[42]</sup> has described 10 basic principles of CBT. One principle particularly relevant to PATM is “cognitive therapy is educative, aims to teach the patient to be her/his own therapist, and emphasizes relapse preventions” . Although PATM was not originally designed to incorporate this mode of psychotherapy,<sup>[16]</sup> the flexible, multidisciplinary approach of PATM lends itself well to ongoing evolution. Specifically, CBT is a mode of psychotherapy that fits well within PATM because CBT is inherently flexible and educates patients factually as well as psychologically. Therefore, CBT within the PATM framework will be focused to target specific thoughts and core beliefs that are unconstructive and negative appraisals of situations while providing tools for implementing more adaptive behavioral modifications.<sup>[42]</sup> The main goal when offering CBT for tinnitus patients is to help patients develop ways to modify behaviors and cognitions in reaction to tinnitus, which then lead to more positive emotional outcomes.<sup>[12]</sup> Furthermore, patients learn adaptive coping skills that facilitate tinnitus self-management.

The psychological intervention, CBT is an adjunct to the sound-based PATM counseling that addresses emotional difficulties by teaching patients to attend to their core beliefs and habitual thoughts or ‘self-talk’.<sup>[12]</sup> Upon adding CBT to PATM counseling, special attention will be paid to identifying, evaluating, and responding to thoughts that precede irritability, anger, tension, anxiety, depressed mood, or feelings of helplessness. Patients will learn healthy attitudes and constructive approaches to stress since negative attitudes and appraisals of situations often lead to negative emotions, which are immediately applied to individuals’ unique problems and concerns. Patients will learn the 12 basic types of negative appraisals: (1) overgeneralization, (2) all-or-none thinking, (3) filtering or selective abstraction, (4) mind-reading, (5) magnification or catastrophization, (6) minimization, (7) personalization, (8) jumping to conclusions or arbitrary inference, (9) emotional reasoning, (10) ‘should’ statements, (11) labeling, and (12) blaming. Patients will

be taught to systematically examine their thoughts and behaviors and modify them so as to create a different, more desirable emotional reaction. Worksheets will be assigned as ‘homework’ to enable patients to apply their new skills to personal experiences.

Teaching relaxation techniques is another method of addressing patients’ emotional response to stress. When patients learn to control behavior in reaction to tinnitus, they learn that their emotional response to tinnitus also may be altered. Furthermore, stress is known to exacerbate tinnitus, thus coping with stress may reduce the severity of tinnitus. Techniques such as progressive muscle relaxation (PMR),<sup>[43]</sup> controlled breathing, and imagery are basic relaxation techniques patients may use to reduce tension. Patients learn to attend to muscle groups during PMR, diverting their attention from tinnitus to other areas of the body. Controlled breathing encourages attention to the mechanisms of the lungs and sounds of breathing, which releases tension and diverts attention from tinnitus. Imagery is useful in identifying sensory experiences of our minds and as a way to recall past emotions and cognitions.<sup>[42]</sup> Imagery also is useful as a relaxation technique when a pleasant or neutral image is envisioned during distress.<sup>[12]</sup> These techniques also will require practice assigned as ‘homework’ between sessions.

Handouts about healthy attitudes, stress management, and basic instructions for learning controlled breathing will be developed to provide to patients during the Level 2 Audiologic Evaluation. This information also will be added to the workbook that is provided to patients at Level 2.<sup>[39]</sup> Later, if the patient progresses to Level 3 Group Education, then group CBT will be offered. Group CBT, as opposed to individual CBT sessions, is efficient and allows patients to apply skills to a variety of situations and to develop social support for which to model or from which to imitate positive behaviors. Although the administration of CBT for tinnitus management may optimally be performed by a psychologist or other mental health provider, relatively few mental health professionals have expertise in providing CBT for tinnitus.<sup>[40]</sup> Fortunately, it is acceptable for audiologists or clinicians from other disciplines to administer CBT, provided they receive the proper training from a CBT expert.<sup>[12,40,44]</sup>

While six to ten sessions of CBT are typical in many clinical settings, the actual number of CBT sessions is flexible and depends on the purpose of the therapy. One controlled study has shown that a condensed version of CBT can be conducted in two sessions with no differences in disability reduction relative to a group that attended 11 sessions.<sup>[45]</sup> For cost-effectiveness considerations, and since tinnitus education and distraction skills already are provided during the existing PATM counseling, we plan to develop a two-session CBT for tinnitus protocol to

include in the Level 3 Group Education. The current two-session group education therefore will be expanded to four sessions to incorporate CBT. The first two sessions will continue to focus on sound therapy, although some CBT will be added to these sessions. The two new sessions will focus on CBT, with a secondary emphasis on using sound. Following development, the abbreviated CBT protocol will be evaluated to determine its effectiveness. Changes will be made to the protocol as necessary to optimize overall outcomes.

If patients continue to have difficulties managing their tinnitus and progress to Level 5 Individualized Management, then individual sessions of CBT can provide more in-depth therapy to reinforce and apply the skills of CBT for tinnitus. The PATM patient counseling guide that is used during Level 5 will include a section to facilitate CBT intervention in a one-on-one setting.

### **Using Principles of Patient Education with PATM Counseling**

PATM relies on a structured program of patient education. Some definitions are in order prior to our discussion of this important topic. Lorig,<sup>[46]</sup> who has years of experience developing successful patient education interventions for persons with chronic illnesses, defines ‘patients’ as “people who have defined health problems” and who are “receiving medical care for a condition”. She states “patient education is any set of planned, educational activities designed to improve patients’ health behaviors, health status, or both.” Lorig notes the difference between patient education and patient teaching. In some cases it is necessary to increase knowledge (patient teaching) in order to change a behavior.<sup>[46]</sup> However, increasing knowledge does not necessarily result in changed behavior. For example, smokers know that smoking is dangerous to their health but they continue to smoke. There are many of these kinds of examples, and it often is a challenge for clinicians to support their patients in a way that will result in the patient changing behaviors that create undue health risks.<sup>[47]</sup> On the other hand, patients can have good health behaviors with minimal knowledge. Patient education is designed to give patients the support they need to initiate behaviors that result in improved health and thus improved quality of life.

Lorig<sup>[46]</sup> further states, “the purposes of patient education are to maintain and improve health and, in some cases, to slow deterioration. These purposes are met through changes in behaviors, mental attitudes, or both.” As we discussed earlier, the current trend in medical care is for patients to self-manage their health and ongoing healthcare. Patient education therefore must focus on building the patient’s self-management skills. This includes building his or her confidence in applying those skills on a daily basis.

The primary purpose of patient education in PATM is to support patients in developing effective self-management skills.

### **The audiologist’s role as patient educator**

A patient can progress through up to five hierarchical levels of PATM. At the lower levels (2 and 3) many patients learn how to self-manage their tinnitus and do not need or want to progress to the higher levels (4 and 5). Beginning at Level 2 and continuing through Level 5, patient education is the most important aspect of PATM. 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. The information in this article will help audiologists to better understand their role as patient educator and maximize their effectiveness in implementing the educational components of PATM.

### **The mental health provider’s role as patient educator**

Mental health providers who work on a PATM team should have been specifically trained in CBT by experienced CBT practitioners. Similar to audiologists, mental health providers serve to educate patients about tinnitus, although their focus will be more on psychological responses to tinnitus. However, the mental health provider’s face-to-face role as PATM educator will not begin until Level 3 of PATM. Therefore, the mental health provider should work closely with his/her audiologist teammate to learn anything about an individual patient that might be helpful in addressing the patient’s concerns during the group CBT sessions. The mental health provider can assist in reinforcing skills being taught by the audiologists and help patients by using terminology and facts consistent with those provided by the audiologists. The mental health provider also will have his/her own set of CBT concepts and skills to impart to patients, and will conduct in-class exercises, assign out-of-class homework, and debrief with patients about how homework played out in their daily life. As already noted, audiologists and other healthcare professionals can perform CBT if they receive proper training.

### **Theories of Patient Education Relevant to PATM**

Some theories related to facilitating changes in health behavior are particularly relevant to PATM. These theories provide support for the educational tools and activities that are used with PATM. Theories relevant to PATM include:

- Adult learning theory – Andragogy
- Health belief model
- Self-efficacy theory
- Locus of control theory

We will now discuss each of these theories and how they apply to PATM counseling.

### Adult learning theory – Andragogy

Adults learn differently than children. Knowles<sup>[48]</sup> named his adult learning theory andragogy, a word used in Europe before he brought it to the United States, to mean the art and science of helping adults learn. He noted many of the assumptions of teaching methods used on adults were borrowed from pedagogy – the teaching of children. Knowles popularized a different set of assumptions that form the foundation of his adult learning theory:

- As the adult matures, his or her self concept moves from that of a dependent to a self-directed learner.
- Adults accumulate vast experience that becomes an increasing resource for learning.
- Adults' readiness to learn becomes oriented increasingly to the developmental tasks of their social roles.
- Adults' time perspective shifts from one of postponed application of knowledge to immediacy of application.
- Adults' orientation toward learning shifts from subject centeredness to problem centeredness.

### Andragogy applied to PATM

- With PATM, the education is designed to teach patients how to independently develop plans to manage their unique tinnitus-problem situations.
- PATM patient education materials provide suggestions for immediate application of management strategies.
- PATM incorporates patient education materials for self-directed learning and management. At the Level 2 Audiologic Evaluation, patients receive the workbook.<sup>[39]</sup> With the addition of CBT, patients also will receive basic information about health attitudes and instructions on how to use controlled breathing for relaxation to take home and use on their own. It is up to them to read the materials, complete worksheets, and self-administer a management plan.
- At PATM Level 3 Group Education, patients are in a supportive environment where the goal is 'immediacy of application' (an individualized plan is written out during the workshop).
- At Level 3, the group's focus primarily is 'problem centered' rather than 'topic centered' (*i.e.*, patients complete forms that identify when their tinnitus is most bothersome, and a plan is developed to address the described problem, rather than discussing topics that pertain generally to tinnitus but may not have direct application).

### Health belief model

The health belief model helps to explain why patients may or may not accept preventive health practices (such as hearing conservation) or the adoption of new health behaviors (such as self-managing problematic tinnitus). This theory proposes that patients will respond best to messages about health promotion or disease prevention when they believe that:

- They are at risk of developing (or worsening of) a specific condition.
- The risk is serious and the consequences of developing the

condition are unwanted.

- The risk will be reduced by a specific behavior change.
- Barriers to the behavior change can be overcome and managed.<sup>[49]</sup>

This model is based on six key concepts:<sup>[50]</sup> (1) perceived susceptibility; (2) perceived severity; (3) perceived benefits; (4) perceived barriers; (5) cues to action; and (6) self-efficacy. These key concepts influence how the patient will respond to health advice. The concepts were developed with respect to managing and/or preventing diseases. Although tinnitus is a symptom and not a disease, most of the key concepts of the model pertain to tinnitus management. One of the concepts (perceived susceptibility) has only partial relevance to tinnitus management, and another concept (perceived severity) does not relate at all. We now will discuss each of these two concepts for clarification. The remaining four concepts are summarized in Table 1 that shows how each concept relates to the PATM sound-based counseling protocol.

**Perceived susceptibility:** Patients must believe they are susceptible to a disease (perceived susceptibility) before they will engage in an advised action to prevent developing or worsening of the disease. When asking patients to use sound to manage tinnitus (which is the primary focus of PATM), perceived susceptibility is irrelevant because using sound to manage tinnitus has no impact on susceptibility. Perceived susceptibility is relevant to PATM only with respect to preventing exacerbation of tinnitus through the use of ear protection or avoiding loud sound.

**Perceived severity:** The key concept of 'perceived severity' refers to beliefs about the seriousness of a disease and its consequences. Normally, awareness of the seriousness of a disease is a factor in motivating patients to comply with healthcare recommendations. It therefore is appropriate to inform patients that their disease is serious. With tinnitus, however, this kind of reasoning is inappropriate. Tinnitus is a symptom, not a disease. Tinnitus is 'serious' only when patients believe it to be serious. And, in fact, the belief that tinnitus is serious can contribute to the tinnitus remaining a problem for the patient. Patients therefore should not receive information that would increase their perception of the severity of their tinnitus, unlike what normally would be appropriate when addressing diseases.

Knowing what aspects of the health behavior model concepts the patient accepts or rejects can help guide interactions with the patient. For example, if the patient is aware of the risk (continued stress/anxiety of unmanaged tinnitus and/or hearing loss), but feels that the behavior change is overwhelming or unachievable, teaching efforts can focus on helping the patient overcome the perceived barriers (*e.g.*, ensuring that a patient who expresses difficulty understanding the educational material provided at Level 2 comes to Level 3 Group Education where the material will be described in detail, and there will be a provider available to answer questions).



**Table 1: Key concepts of the Health Belief Model<sup>[50]</sup> and their application to the PATM sound-based counseling protocol**

Key concept	Definition	Definition in relation to using sound to manage tinnitus with PATM	Application of concept to PATM sound-based counseling
Perceived benefits	A belief in the efficacy of the advised action to reduce risk or seriousness of impact	A belief in the efficacy of applying PATM concepts to reduce the impact of tinnitus	Patients must have the expectation that the new behaviors (primarily using sound to manage tinnitus) will be beneficial. Ensure that patient understands the expected benefits of participating in PATM. Examples of people using sound to manage tinnitus that a wide variety of patients can relate to are provided to increase confidence that participating in PATM would be helpful.
Perceived barriers	Beliefs about the tangible and psychological costs of the advised behavior	Beliefs about the tangible and psychological costs of participating in the PATM program and carrying out the recommended actions	Patients must feel that benefits of participating in PATM outweigh the costs (e.g., filling out worksheets, coming to appointments, arranging to use sound to manage tinnitus, etc.) All levels of PATM include opportunities for the provider and patient to discuss perceived barriers to participating in PATM. The provider's role is to reassure and offer support and assistance as needed. Sometimes, support to overcoming barriers can be offered in the form of progressing to the next higher level of PATM.
Cues to action	Strategies to activate 'readiness'	Strategies to motivate patients to participate in PATM	Each level of PATM includes strategies to motivate patients to participate in PATM. Different strategies are used at each level to meet the varying needs of patients. Different PATM strategies include group education, one-on-one counseling, and the use of educational materials, worksheets, and surveys.
Self-efficacy	Self-confidence in ability to perform an action	Self-confidence in ability to develop tinnitus management plans and implement the plans in daily life	An advantage of PATM is that a wide variety of support mechanisms are made available to patients. Patients can progress through the different levels as needed. Each level provides different opportunities for patients to build self-confidence in managing their tinnitus. The goal is for patients to learn how to independently manage their tinnitus—primarily by knowing how to use sound in effective ways.

### Self-efficacy theory

Self-efficacy and locus of control are among the many personal control constructs that have received enormous attention from psychologists over the years.<sup>[51]</sup> Much of the research on personal control has focused on the relationship between control beliefs (perceived control) and health outcomes. While other control constructs have shown a positive relationship with successful management of tinnitus,<sup>[52]</sup> self-efficacy and locus of control have received the most interest from audiologists and we focus here on those two schools of thought and clinical practice.

Self-efficacy refers to how confident the patient is about his or her abilities based on feelings of self-confidence and control.<sup>[53]</sup> Tendencies to perform a given behavior are influenced by:

- Expectation of outcome (Is it worth it?)
- Expectation of self-efficacy (Can I do it?)

The self-efficacy theory is important to consider in administering PATM because research has demonstrated that self-efficacy is a good predictor of motivation and behavior. Motivation is highest when the patient is dissatisfied with the current conditions, but motivation alone is seldom enough to promote changes in behavior. It is important that the patient believes that he or she can do what the management plan requires, and that the effort will be worth it. The clinician can enhance self-efficacy by using teaching techniques such as skills mastery and modeling.<sup>[54]</sup>

**Skills mastery:** Self-efficacy is enhanced most effectively

through the mastering of skills.<sup>[55]</sup> In general, the experience of success increases self-efficacy while experiencing failure reduces self-efficacy. Repeatedly experiencing failure during an initial course of events can be particularly detrimental to the development of self-efficacy. Repeated successes, on the other hand, result in a strong sense of self-efficacy, and subsequent failures are unlikely to diminish the ensuing self-confidence. Gonzales, Goepfinger, and Lorig<sup>[56]</sup> stated,

“Skills mastery is generally achieved first by breaking skills into very small, manageable tasks and then by ascertaining that each small task is successfully completed... One of the best ways to foster mastery is to have clients set goals for themselves in a particular area or for a specific behavior; this can be written in the form of a contract with oneself. These goals provide direction and incentive for action or change. To increase its effectiveness, the goal setting or contract should be client driven. The goal should be clear and specific, describing the behavior as well as the amount of effort needed to accomplish it successfully.”

In addition, regular feedback concerning progress should be provided to patients. For example, patients are not judged or scolded when they do not complete their ‘homework’ for the week. Rather, efforts to understand barriers to completing the homework are explored and future behaviors are emphasized. Successful completion of homework is rewarded by reflections and observations of behavioral change as a result of homework and positive verbal feedback from the provider.



**Self-efficacy theory applied to PATM:** Self-efficacy theory has particular relevance to PATM. The goal of PATM is for patients to develop and implement individualized plans for using sound (and, in the future, cognitive restructuring) to manage their tinnitus. Success in achieving this goal depends largely upon patients acquiring confidence in applying the self-management strategies.

Use of the *sound plan worksheet* (Appendix A) addresses the need for developing skills mastery. The *worksheet* facilitates development of individualized plans for tinnitus management. Development of each sound plan involves four small, manageable tasks that are likely to be done successfully: (1) identify a situation in which the tinnitus is particularly bothersome; (2) determine which general strategy for using sound will help that situation; (3) determine a specific sound that will be used; (4) determine a specific device for presenting the sound. Initial use of the *worksheet* facilitates skills mastery by focusing on assisting patients in developing a sound plan that can be implemented with minimal effort and usually at no cost to address a situation in which the tinnitus is particularly bothersome.

Modeling is another technique for increasing self-efficacy that is incorporated into PATM. At Level 3 Group Education, patients develop plans for using sound to manage their tinnitus in a group setting with others who are developing their own plans (thereby modeling the behavior to each other). Group members can brainstorm and share ideas for managing tinnitus using sound. Modeling also is incorporated into PATM through the use of examples of people using sound to manage tinnitus.

To build self-esteem that is the basis of self-efficacy, patients should be recognized and rewarded for successfully accomplishing tasks. For example, patients can be told “Great job! You came up with a great plan for managing your tinnitus at night.”

Use of the PATM *restructuring thoughts worksheet* (Appendix C) will address the need for developing skills mastery by facilitating development of individualized plans of restructuring thoughts for tinnitus management. Development of thought restructuring includes examining one situation at a time systematically: (1) identify a situation in which the tinnitus is particularly bothersome; (2) identify the emotion associated with this situation; (3) recall the automatic thought associated with this situation; (4) examine evidence to support this automatic thought; (5) examine evidence against this automatic thought; and (6) create a new thought that is positive and facilitates coping.<sup>[12]</sup>

### **Locus of control theory**

The locus of control theory describes generalized beliefs by people regarding how much they have control over their life (internal locus of control) as compared to control coming

from outside persons or forces (external locus of control).<sup>[57]</sup> This theory received further development and was specifically applied to health outcomes.<sup>[58]</sup> Research<sup>[59,60]</sup> has shown that people who believe they are in charge of their own health status and lives (Internal Health Locus of Control) are more likely to make necessary changes than those who believe their health is in the doctor’s hands (Powerful Others Health Locus of Control). A somewhat weaker relationship has been shown to exist between beliefs in doctors’ ability to provide solutions for disease and short-term adherence to treatment plans. Beliefs in the power of fate, luck, or chance (Chance Health Locus of Control) has the weakest relationship with positive health behaviors and outcomes.

**Locus of control theory applied to PATM:** According to research on health locus of control, patients who believe they are in charge of their own health status are more likely to make the necessary changes to manage a health condition than people who believe their health is primarily in their provider’s hands or is a function of fate, luck, or chance. But multidimensional locus of control scales, including those for health locus of control, are not either/or instruments. Thus, when, as in PATM, the provider and patient work collaboratively, there will be experiential elements of both internal health locus of control and powerful other health locus of control that can potentiate positive treatment effects. The initial level of intervention with PATM is the collaborative process of enabling patients to use the *sound plan worksheet* (Appendix A) to develop their own management plans. (The *restructuring thoughts worksheet* – Appendix C – also will be used in conjunction with CBT.) Supporting patients in their efforts to develop and implement a tinnitus management plan ultimately puts the patient in charge of managing the condition, not the provider, and not fate.

PATM was designed to help develop an internal locus of control at every level of management. Most patients do not, at the outset of their tinnitus management process, feel that they have control over their tinnitus. Clinicians’ awareness of the locus of control theory can shape interactions with patients in ways that shift power for change from the clinician to the person who is going to live with tinnitus for possibly the rest of his or her life. A considerable body of evidence<sup>[59]</sup> confirms that patients’ beliefs about control for health can be modified. Some ways that can help patients to gain a sense of control include:<sup>[54]</sup>

- Reminding them of the abilities they already possess to take control over their tinnitus (“You already know how to operate numerous devices that produce sound. Each of these can be used for tinnitus management.”)
- Helping them improve their decision-making skills (assist them with the *sound plan worksheet*, *e.g.*, what type of device to use and when to use it)
- Encouraging them to use social support systems (*e.g.*, support groups, referral to mental health counseling)

when appropriate, and/or providing them with information where to obtain more information such as [www.ata.org](http://www.ata.org))

It is reasonable for patients to feel they have no control because they cannot control either the presence or the loudness of tinnitus. Distressed patients may think that the only kind of control that matters is control over the loudness. The clinician's job is to introduce the idea of a different kind of control – control of acoustic environment and control of thoughts about tinnitus. Controlling the environment and changing thoughts can lead to feeling better even if the tinnitus does not become quieter.

Following these steps can make it easier for the patient to initiate tinnitus self-management behaviors:

- Make sure the education you provide is understandable and well-matched with individual patient abilities and expectations.
- Use teaching strategies that are interactive (*e.g.*, patient and clinician, patient and family member; encourage your patients to ask questions).
- Demonstrate interest in how patients fit self-management needs into their daily life.

If the patient hasn't taken steps to self-manage problematic tinnitus after following the steps above:

- Ask the patient to explain. His or her view of why self-management is a problem is the one that counts.
- Don't propose an immediate solution; rather, help the patient learn problem-solving skills.
- Determine if the patient believes that self-management using the principles and methods that you have taught will help solve the problem. If not, assess his or her beliefs about the problem, and about PATM.
- Make sure the patient knows how to follow instructions and has a sufficient level of health literacy to comprehend the information.
- If the new health behavior is too complex for the patient, then simplify tasks and break them down into simpler steps as needed. Use the analogy that marathon runners start running only a few miles daily and work slowly to increase their distance.

### **Goal of PATM: Self-management**

We have discussed relevant theories and models for enhancing patient education. It is hoped that these theoretical underpinnings will guide the clinician to be an effective patient educator to meet the educational needs of patients to effectively self-manage their tinnitus, which is the goal of PATM. PATM provides the tools for audiologists to help their patients self-manage their tinnitus, Table 2.

### **Barriers to self-management**

There are several potential barriers to effective self-

management, including:

- Poor literacy standards
- Disability
- Low income
- Low confidence or low self-efficacy
- Stigma about receiving service from a mental health provider
- Nonsupportive family and friends
- Cognitive state and ability to learn
- Healthcare provider knowledge and confidence in delivery of information
- Low confidence in the intervention offered

The first stage within PATM that patients might experience barriers to self-management is after the Level 2 Audiologic Evaluation. During the evaluation, the clinician helps the patient determine if the tinnitus is a problem that requires management. If management is indicated, then the recommended protocol is for the patient to receive the take-home education workbook<sup>[39]</sup> and to enroll in the Level 3 Group Education workshops. If the patient agrees to attend the workshops, but does not show up, then it is important to contact the patient to determine why he or she did not come and if further assistance is needed. This kind of follow-up is essential at all levels of PATM to ensure that patients are not left on their own when they still need to be supported.

### **Planning and record keeping for patient self-management: Symptom action plans and monitoring diaries**

Symptom action plans (SAPs) and monitoring diaries are recommended in international guidelines for chronic disease management. SAPs normally are developed to assist patients in monitoring and responding appropriately to symptoms associated with a chronic disease. An action plan is created for each symptom and depending on the characteristics of the symptom (which are monitored by the patient), the patient produces behaviors according to the action plan. As an example, a randomized controlled study with patients who have chronic obstructive pulmonary disease (usual care control *vs* intervention group receiving a self-management booklet and written action plan) revealed that provision of an action plan and self-management booklet increased the utilization of self-management skills.<sup>[63]</sup>

### **Planning and record keeping for PATM: Sound plan worksheet and patient workbook**

PATM employs the use of a SAP/monitoring diary concept via the *sound plan worksheet* (Appendix A) that is provided in the patient take-home education workbook.<sup>[39]</sup> With tinnitus, we normally do not want patients to monitor the symptom because the intent is to reduce the amount of time thinking about it. However, we do want them to identify when their tinnitus is problematic and to develop action plans to deal with those situations. The *sound plan*

*worksheet* serves two purposes. First, it provides patients with the structure to develop specific action plans to use sound to manage their tinnitus. Second, it provides the means to monitor the efficacy of each action plan that is implemented.

### Teaching Tools for Patient Education

People have different preferred learning styles (visual, auditory, kinesthetic), and different teaching methods are available to address the different styles. PATM does not depend on a single teaching method, but uses a variety of teaching methods, including:

- One-to-one verbal instruction
- Group education
- Demonstrations and other interactive educational activities
- Handouts and workbook
- Videos/DVDs

### Teaching tools used with PATM

Specific teaching tools that are used with PATM include:

- Patient education handout on tinnitus (available on the internet at <http://vaww1.va.gov/audiospeech/>)
- Patient educational video on basic tinnitus management (*Ring in the Ears: What Can I do About it?*) available for computer download, or on DVD and VHS ([www.ncrar.research.va.gov](http://www.ncrar.research.va.gov))
- Patient take-home education workbook (*How to Manage Your Tinnitus: A Step-by-Step Workbook*) written at the sixth grade reading level<sup>[39]</sup>
- Two PATM powerpoint presentations (*Managing Your Tinnitus: What to Do and How to Do It* [sessions one and two]) for use at Level 3 Group Education (available from authors)
- Flipchart-style patient counseling book (*Progressive Audiologic Tinnitus Management: Counseling Guide*) for use during the Level 5 appointments (to be made available

as a commercial publication)

- (under development) Handout listing the 12 negative appraisals of situations with examples, the *restructuring thoughts worksheet*, and instructions for a relaxation technique (controlled breathing)

### Addressing the Problem of Low Health Literacy

Nearly one-third of English-speaking adults in the US have low health literacy.<sup>[64-66]</sup> 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 healthcare costs, as well as suffer worse health outcomes overall.<sup>[67-70]</sup> Tinnitus disproportionately affects the populations most likely to have low health literacy: older adults and low-income individuals.<sup>[1,71-74]</sup>

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.<sup>[75]</sup> There is general consensus among health literacy and communication experts that the seven strategies described in Appendix D can help to improve provider-patient communication.<sup>[71,76]</sup> These strategies are incorporated into the PATM educational and counseling materials and should be adopted during all interactions with patients.

### Conclusion

Because exposure to loud sounds is a common yet preventable cause of tinnitus,<sup>[4]</sup> hearing conservation efforts should always stress that loud sound not only contributes to hearing loss, but also can cause tinnitus. As noise continues to be an increasing concern in our society, so does tinnitus. Effective hearing conservation programs thus are essential to reduce the incidence of tinnitus. The current reality, however, is

**Table 2: Effective self-management program essential elements implemented by PATM**

Effective self-management program essential elements <sup>[61]</sup>	Explanation	Application to PATM
Collaborative problem definition	Providers and patients define the problem together.	The Tinnitus Handicap Inventory <sup>[62]</sup> , Tinnitus-Impact Screening Interview <sup>[38]</sup> , Tinnitus and Hearing Survey, and the Tinnitus Problem Checklist enable patients to define their tinnitus-related problems with their providers.
Targeting, goal setting, and planning	Programs should target the issues that are of greatest priority to the patient and health care provider, set realistic goals/expectations, and develop a personalized treatment plan. The process should be guided by a consideration of the patient's readiness to change and self-efficacy.	Intervention with PATM focuses on teaching patients how to use the <i>sound plan worksheet</i> (Appendix A) to develop individualized plans to manage the tinnitus problem situations that they identify as the most bothersome.
Self-management training and support services	Education on disease management, behavioral support programs, physical activity, and interventions that address emotional demands of having a chronic condition is relevant.	PATM includes instruction on tinnitus and hearing management and behavioral support. Successful tinnitus management using the principles of PATM reduces emotional reactions to tinnitus.
Active and sustained follow-up	Evidence shows that reliable follow-up at regular intervals, initiated by the provider, leads to better outcomes.	PATM includes active and sustained follow-up agreed upon by the provider and the patient.

that tinnitus is increasing as a problem on a worldwide basis. Basic research is underway in the attempt to find the ‘cure’ for tinnitus. In the meantime, effective methods exist to manage tinnitus. We have presented three key components to effective tinnitus management: counseling, stress reduction, and the use of therapeutic sound.

The effectiveness of intervention with PATM depends on the effectiveness of the counseling. It is essential that evidence-based methods of patient counseling are utilized. We have reviewed a variety of learning theories that have particular relevance to PATM. This review shows that PATM adheres to a number of principles that have been demonstrated to optimize effective patient learning of skills for self management of health.

We recognize that counseling for facilitating health behavior change presents challenges that can result in frustration for patients and clinicians alike.<sup>[47]</sup> Behavioral changes do not come easily, especially when the target behaviors and their underlying cognitions are longstanding, sometimes even lifelong habits. However, counseling with PATM is a patient-centered method that addresses the uniqueness of each patient and his or her particular tinnitus-problem profile. This patient-centered approach has been shown to greatly enhance individual motivation for making adaptive changes for improving health.<sup>[77]</sup> In PATM, patients participate in the process of defining the problem and identifying specific behavior changes for managing the problem. Each patient becomes an active participant in making decisions and ultimately is in charge of making lifestyle adjustments to mitigate his or her own tinnitus problem. Understanding that the PATM patient is an expert in his or her own life circumstances, problems, resources and abilities is the key that enables this collaborative tinnitus self-management approach to succeed.

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**Appendix A.**

**Sound Plan Worksheet**

1. Write down one bothersome tinnitus situation \_\_\_\_\_

2. Check one or more of the three ways to use sound to manage the situation	3. Write down the sounds that you will try	4. Write down the devices you will use	5. Use your sound plan over the next week. How helpful was each sound after using it for 1 week?	6. Comments When you find something that works well (or not so well) please comment. You do not need to wait 1 week to write your comments.
<input type="checkbox"/> Soothing sound 	_____	_____	Not at all    A little    Moderately    Very much    Extremely <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
<input type="checkbox"/> Background sound 	_____	_____	Not at all    A little    Moderately    Very much    Extremely <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____
<input type="checkbox"/> Interesting sound 	_____	_____	Not at all    A little    Moderately    Very much    Extremely <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	_____

**Appendix B.**

**Tinnitus Problem Checklist**

What are your most bothersome tinnitus situations?  
 Each answer should be entered on #1 of a separate Sound Plan Worksheet.

- My most bothersome tinnitus situation is:
 

<input type="checkbox"/> Falling asleep at night	<input type="checkbox"/> Relaxing in my recliner
<input type="checkbox"/> Staying asleep at night	<input type="checkbox"/> Napping during the day
<input type="checkbox"/> Waking up in the morning	<input type="checkbox"/> Planning activities
<input type="checkbox"/> Reading	<input type="checkbox"/> Driving
<input type="checkbox"/> Working at the computer	<input type="checkbox"/> Other _____
- My second most bothersome tinnitus situation is:
 

<input type="checkbox"/> Falling asleep at night	<input type="checkbox"/> Relaxing in my recliner
<input type="checkbox"/> Staying asleep at night	<input type="checkbox"/> Napping during the day
<input type="checkbox"/> Waking up in the morning	<input type="checkbox"/> Planning activities
<input type="checkbox"/> Reading	<input type="checkbox"/> Driving
<input type="checkbox"/> Working at the computer	<input type="checkbox"/> Other _____
- My third most bothersome tinnitus situation is:
 

<input type="checkbox"/> Falling asleep at night	<input type="checkbox"/> Relaxing in my recliner
<input type="checkbox"/> Staying asleep at night	<input type="checkbox"/> Napping during the day
<input type="checkbox"/> Waking up in the morning	<input type="checkbox"/> Planning activities
<input type="checkbox"/> Reading	<input type="checkbox"/> Driving
<input type="checkbox"/> Working at the computer	<input type="checkbox"/> Other _____

**Appendix C - CBT handout: Restructuring thoughts worksheet**

- Identify a situation in which your tinnitus is a problem.
- Write down the emotion you feel during this situation.
- What are the automatic thoughts that led to the emotion?
- List evidence for these thoughts.
- List evidence against these thoughts.
- Write down a positive coping thought you could have about the situation, and challenge your automatic thoughts.

1. Situation	2. Emotion	3. Automatic thought	4. Evidence for	5. Evidence against	6. Positive coping thought
I'm unable to fall asleep because I'm bothered by my tinnitus.	Frustrated and anxious	I'm going to have a terrible day tomorrow because I'm going to be tired.	In the past when I didn't get enough sleep I had a bad day.	Sometimes I don't get enough sleep and feel just fine.	Even if I don't get to sleep right away, I eventually will fall asleep and get enough rest to manage.

**Appendix D: Seven ways to improve communication with patients**

According to health literacy and communication experts the following strategies can help to improve provider-patient communication.<sup>[71,76]</sup> These strategies are incorporated into the PATM educational and counseling materials and should be adopted during all interactions with patients.

**1. Slowwwwww down, listen, and encourage questions**

- Use orienting statements, e.g., “The goal of this class is to develop an action plan for using sound to manage your tinnitus. Let me explain ...”
- Ask patients if they have any problems that were not addressed.
- Ask patients to explain their understanding of their tinnitus and/or hearing loss.
- Encourage patients to ask questions.
- Sit rather than stand.
- Listen. Listen. Listen.

When you spend more time with patients, communication is improved. Only a very small amount of extra time is needed to make a substantial difference.<sup>[76]</sup>

**2. Use plain, nonmedical language verbally and in writing**

**Verbally:** You should always use plain, nonmedical language when speaking to patients. Words that clinicians use in their day-to-day conversations with colleagues may be unfamiliar to the majority of nonmedically trained persons. A good approach is to explain ideas to patients in language that you might use when talking to a family member. This is sometimes called ‘living-room language’, ‘the language of the family’, or conversational language. The following table gives examples of plain-language alternatives to audiologic words. Conversational language creates opportunities for dialogue between you and your patient.



Medical term	Plain language
Cerumen	Ear wax
Tinnitus	Ringing in the ear
Referral	Send you to another doctor
Audiogram	Hearing test results
Vestibular	Balance system
Otalgia	Ear pain

**In writing:** Written materials that are easy for patients to read and understand are beneficial to all patients. Evidence indicates that all patients – not just those with limited literacy skills – prefer easy-to-read materials to more complex or comprehensive materials.<sup>[78]</sup> The basic principles for good, patient-friendly written materials involve attention to:

- The depth and detail of the content
- The complexity of the text itself
- The format in which the material is prepared
- Testing the materials on patients for their input

Effective patient materials focus on instructions for key behaviors that the patient must put into action – not lengthy and unnecessary background information about physiology and pathology.

### 3. Show or draw pictures to enhance patient understanding and recall

The expression “A picture is worth a thousand words” is particularly true when communicating with patients who may have trouble understanding medical concepts delivered in words. It has long been known that visual images are remembered better than letters and words.<sup>[71]</sup> That is why we often recall a person’s face but not a name, or the picture on a book’s cover but not the name or author of the book. The most effective pictures are simple ones. Illustrations should promote understanding and retention. Additional details should not be included if they are irrelevant to the patient’s health problem. Inclusion of irrelevant details distracts the patient and diminishes the effectiveness of the picture as a teaching tool.

### 4. Provide low health literacy materials with visual aids for patients to take home

To reinforce patient education that is provided in the clinical setting, low health literacy materials with visual aids should be given to patients to take home. Reviewing take-home materials can enhance recall. Again, all patients prefer easy-to-read materials to more complex or comprehensive materials.<sup>[78]</sup>

### 5. Limit the amount of information given at each visit – and repeat it

Another key to effective communication is to limit the amount of information provided to patients at each visit. This does not mean you should withhold important information. Rather, it means you should focus your communication on the one or two most important things a patient needs to know

at the time of the visit. The principle behind this approach is that advice is remembered better, and patients are more likely to act on that advice, when it is given in small pieces and is relevant to the patient’s current needs or situation.

- Limit the amount of information given
- Focus on one or two most important points
- Review and repeat

**Example for PATM:** With PATM, your first contact with a patient who complains of tinnitus normally will occur at the Level 2 Audiologic Evaluation. The most important message for patients at this stage is that help is available for their tinnitus and to protect their ears from loud sound. Information about anatomy and physiology of the ear, while potentially helpful to the patient, is not necessarily important at the first visit and does not need to be discussed at that time. After discussing key information with the patient, the information should be reviewed and repeated. The take-home workbook<sup>[39]</sup> provided to patients at Level 2 places the most helpful information at the beginning and contains additional information such as anatomy and physiology of the ear in the appendices. The workbook also helps enhance recall because it can be reviewed as often as warranted.

### 6. Use the teach-back method with all patients

Programs that teach clinicians to reach their low-literate patients are known to be successful when they incorporate ‘teach-back’ methods, *i.e.*, when patients are asked to repeat information back to the provider, as well as when they limit the number of teaching points and use visual aids.<sup>[79]</sup> The teach-back method has been shown to be one of the 11 most evidence-based practices to improve patient safety<sup>[80]</sup> and the ‘key element’ to ensure informed consent.<sup>[81]</sup> The concept behind the teach-back method is to explain the self-management process to patients, then assess their knowledge by asking them to teach it back to you.<sup>[71]</sup> You can then clarify if the patient doesn’t quite understand it all. This cycle can be repeated until there is a shared understanding.

#### Example for PATM

1. EXPLAIN: At the Level 2 Audiologic Evaluation, explain the effects of tinnitus versus the effects of hearing loss.
2. ASSESS: Ask your patient to demonstrate understanding:
  - a. “What will you tell your spouse about the effects of tinnitus?”
  - b. “I want to be sure I explained everything clearly, so can you please explain it back to me so I can be sure I did?”
3. CLARIFY: Re-teach the information in a different way if needed.
4. UNDERSTANDING: Re-assess understanding after re-teaching. Do not simply ask, “Do you understand?”

The teach-back method allows you to check for understanding and, if necessary, re-teach the information. This technique creates the opportunity for dialogue in which you provide



information, and then encourage the patient to respond and confirm understanding before adding any new information.

**7. Create a shame-free environment: Be respectful, caring, and sensitive**

Patients with limited literacy often are ashamed of this limitation and rarely speak of it. Even patients with well-developed literacy skills may feign understanding material to avoid seeming ‘stupid/ignorant’ or annoying to the clinician. To foster effective communication with patients, it is essential to create a shame-free environment in which patients feel comfortable asking questions about what they do not understand. This can be accomplished by telling patients “many people have difficulty reading and understanding the health information I give them, so please feel comfortable

asking questions if there’s something you don’t understand.” Make certain to follow up on this by answering any questions your patients may have.

*Invite family or friends to appointments:* Another strategy is to ask patients during the visit if they would like a family member or friend to be with them during discussions about diagnoses and options for clinical management. Patients with limited health literacy often seek the assistance of family or friends after visits with clinicians to interpret what their clinicians told them. Family or friends can be enlisted to help write down ideas with patients on homework assignments. By asking your patients in a routine, nonjudgmental way, you can help them feel comfortable about bringing others into the examination room to help at the time of the visit.

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