

Level 4 Interdisciplinary Evaluation



Most patients can satisfactorily self-manage their reactions to tinnitus after participating in Level 3 Group Education. Patients who need more support and education than is available at Level 3 can progress to the Level 4 Interdisciplinary Evaluation, which normally includes evaluations by an audiologist and a mental health provider who is trained to conduct psychological assessments.

The main purpose of the Level 4 Interdisciplinary Evaluation is to determine if individualized clinical services are needed to address tinnitus-specific problems. If these services are needed, then patients progress to Level 5 Individualized Support. Level 5 involves primarily one-on-one counseling from an audiologist (using the counseling book *Progressive Tinnitus Management: Counseling Guide*; J. A. Henry et al., 2010b) and/or a mental health provider. The audiologic counseling information essentially is the same as what is covered during the Level 3 workshops. However, the individualized format of the Level 5 counseling allows more personalized interaction and support than can be provided during Level 3. Level 5 intervention offered by a mental health provider includes further enhancement of skills for coping with tinnitus (taught during Level 3) such as additional

relaxation techniques, attention control, and planning for “flare-ups.”

The audiologic assessment that is conducted as part of the Level 4 Interdisciplinary Evaluation involves conducting a structured interview and can include, as optional procedures, a tinnitus psychoacoustic assessment and/or evaluation for use of sound therapy devices. Administration of the Tinnitus and Hearing Survey (see Appendix D) in conjunction with the Tinnitus Interview (Appendix R) is the primary means of determining if one-on-one individualized support is appropriate. If so, then the audiologist and patient begin to formulate a management plan. Special procedures are used to evaluate and select ear-level devices for tinnitus management, including hearing aids, noise/sound generators, and combination instruments.

Mental Health Assessment

Systematic progression through the different levels of PTM effectively ensures that patients reaching the Level 4 Interdisciplinary Evaluation have a

severe tinnitus problem that warrants an in-depth evaluation to determine if individualized support is appropriate. Due to the severity of their distress from tinnitus, these patients also are more likely to have comorbid mental health conditions or sleep disorders that would require an interdisciplinary approach to intervention. Screening for mental health conditions and sleep disorders therefore is conducted routinely by a mental health provider as part of the Level 4 evaluation (unless the patient was recently evaluated/diagnosed by a mental health professional and currently is receiving care accordingly).

If a mental health provider is included in the facility's "tinnitus team," then that individual should conduct the mental health assessment. Full assessment of mental health symptoms should be conducted by someone qualified to do such an evaluation such as a psychologist or psychiatrist. If a mental health provider is not part of the team, then the patient should be referred to primary care for a mental health assessment (or referred as dictated by the facility's referral procedures). Finally, as discussed next, a nonmental health provider can conduct mental health screening in certain situations. However, those situations should be rare, as timely and collaborative mental health services are available within most health care organizations.

Mental Health Screening by Nonmental Health Clinicians

It is best for mental health screening to be performed by a psychologist or other mental health care provider who is familiar with the effects of hearing loss and tinnitus. If such a provider is unavailable, then 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 their outcomes. In instances where audiologists (or other nonmental health care providers) are performing screening for referral to mental health, collaborations with mental health are essential to allow for immediate referrals and follow-up as warranted. Hospitals and outpatient clinics vary in the types and availability of mental health clinicians. When appropriate mental health care providers are

unavailable, primary care providers often can be helpful as many have training and experience with screening for sleep and mental health problems.

Nonmental health clinicians must be cautious in dealing with any issues related to anxiety, depression, stress disorders, suicidality or suicidal thoughts, risky behavior, and so forth, because this is not their area of expertise. These clinicians must use the mental health screening tools only to aid in making appropriate referrals, and cannot provide diagnostic interpretation of test scores. Some patients may feel uncomfortable with these types of questions, or that the questioning is inappropriate and intrusive. Therefore, it is important to ask for permission to explore these issues, for example, "If you don't mind, I would like to ask you some questions about your mood and things that can affect your mood. Sometimes ringing in the ears is made worse when other conditions are present at the same time."

Before formally screening for mental health conditions, it is helpful to start with the patient's medical records and scan for comorbid conditions that previously have been identified. After reviewing the chart, there are several options for identifying a need for referral to a different discipline. Simple mental health screeners can be useful in determining if a referral to a mental health clinician is warranted. Screening instruments are available to screen for anxiety, depression, and PTSD—the mental health conditions that have been observed to co-occur most commonly in patients who complain of bothersome tinnitus. Each medical facility has its preferred mental health screening tools and protocols. It is best to contact a mental health clinician or primary care physician at your site in advance to learn which screening tools are recommended for use by audiologists. Some sites prefer to funnel all mental health screenings into one service where an intake appointment is made to determine the needs of all referred patients. In some settings, health services are centralized to primary care providers (PCPs). Thus, it might be necessary to refer a patient to a PCP when there is any suspicion of a mental health or sleep disorder. The PCP then assesses the appropriateness of referral to a mental health or sleep clinic. At many sites audiologists must take the lead in educating other professionals about PTM and the interdisciplinary nature of this methodology.

A basic mental health screening battery can be completed in about 10 to 15 minutes. The results can assist in determining the potential need to involve other disciplines in the patient's clinical management. Further assessment of these conditions is performed by a mental health provider as indicated by results of the screening tests.

Anxiety and Depression

Screening for anxiety and depression can be performed using the Hospital Anxiety and Depression Scale (HADS—Appendix S) (Zigmond & Snaith, 1983). This self-screening questionnaire consists of 14 questions—seven for anxiety and seven for depression. Patients should be instructed to complete this self-screening questionnaire by responding *spontaneously* to each item. The HADS has been used extensively in primary care settings (Wilkinson & Barczak, 1988).

Post-Traumatic Stress Disorder

The Primary Care PTSD screening tool (PC-PTSD) (Prins et al., 2004) is available to detect possible PTSD, and to initiate appropriate referral (Appendix T). The PC-PTSD was designed for use in primary care and other medical settings and currently is used widely to screen for PTSD in military veterans. The four-item instrument enables rapid screening with high sensitivity but low specificity. The PC-PTSD is effective for capturing patients who require further evaluation for possible PTSD (although patients can have active symptoms and screen negative).

Other Mental Health Conditions

The disorder-specific screening tools that are recommended (HADS and PC-PTSD) address mental health disorders that have been observed commonly to co-occur with tinnitus. Use of these tools, however, does not adequately address the range of other mental health problems that can exist in these patients (see Chapter 5). Another approach to screening for mental health problems is to use a symptom checklist, which often is included as

part of general intake questionnaires in medical clinics. Use of a symptom checklist might reduce a patient's perceived stigma of mental health problems. Systematic screening using screening tools or checklists can be helpful, but is not necessary to justify referring a patient to a provider of a different discipline. The reason for referral often is simply that the clinician perceives that there are problems outside his or her field of expertise.

Sleep Disorders

As discussed in Chapter 5, sleep disorders are the most common problem reported by patients seeking clinical services for tinnitus, especially those with the most severe tinnitus problem. A brief questionnaire is available to screen patients for sleep disorders: the Epworth Sleepiness Scale (ESS—Appendix U) (Johns, 1991). The ESS is the most widely used standardized tool for assessing "sleepiness." Completing the ESS provides an index score that can be compared to normative data. A score of 10 or more on the ESS suggests that the patient is not getting adequate sleep (for any reason), and may need to be referred to a physician for an evaluation.

In addition to insomnia, there are many other categories of sleep disorders. These include difficulty initiating and maintaining sleep, and sleep-phase disorders. These disorders usually are behaviorally based, responsive to behavioral interventions, and do not necessarily require specialty care (although sleep-phase disorders are best evaluated by a sleep clinic).

More serious categories of sleep disorder include sleep apneas and sleep-disordered breathing, REM behavior disorders, and narcolepsy. These can be serious medical conditions (especially sleep-disordered breathing, which can increase the risk of stroke) that warrant medical treatment with medications or other devices. Screening for sleep apneas/sleep-disordered breathing usually includes questions about snoring, morning headaches, waking with gasping or choking, and asking if a bed partner notices any of these things. People with sleep apnea often spend sufficient time sleeping but still do not feel rested in the morning. Sleep apneas and sleep-disordered breathing, REM

behavior disorders, and narcolepsy generally are very pronounced and are conditions that usually are not related to tinnitus. Tinnitus-related insomnia generally does not necessitate referral to a sleep clinic unless the patient also reports symptoms of sleep-disordered breathing (snoring, morning headaches, etc.).

If a sleep disorder is due primarily to the patient reacting to tinnitus when attempting to sleep, then implementing the strategies offered by PTM may be sufficient to restore normal sleep patterns (see Chapter 5—Managing Sleep Disorder). Therapeutic sound can be highly effective in the sleep environment. Patients should learn the different combinations of using sound to optimize the potential for therapeutic sound to be helpful. These patients also may benefit from learning basic information about sleep hygiene such as limiting daytime napping, keeping a regular sleep schedule, and other behaviors that encourage sleep. In the PTM self-help workbook (J. A. Henry et al., 2010a) Appendix I provides three pages of “tips for getting better sleep.”

Re-Administer Written Questionnaires at Level 4

Every patient who attends the Level 4 Interdisciplinary Evaluation should have completed all testing that normally is done at the Level 2 Audiologic Evaluation. At the Level 2 appointment, patients completed the Tinnitus and Hearing Survey (see Appendix D), Tinnitus Handicap Inventory (see Appendix F), and Hearing Handicap Inventory (see Appendix G). Patients should complete each of these written questionnaires again at the Level 4 appointment with the audiologist. Readministering these questionnaires enables a comparison of responses between the Level 2 and Level 4 appointments, which can reveal any longitudinal changes in a patient’s self-perception of hearing and/or tinnitus handicap. The information obtained from the written questionnaires comprises an important component of the Level 4 evaluation. The structured interview would be incomplete without this information.

Administer the Tinnitus Interview

Although the use of written tinnitus questionnaires is advocated for all tinnitus patients, these questionnaires are insufficient for patients who reach Level 4. A supplemental tinnitus-specific interview (Tinnitus Interview—see Appendix R), which facilitates face-to-face structured dialogue with the patient, is necessary to capture the information needed to make decisions for clinical services at this level and helps to build rapport between patient and clinician. The patient’s responses to the Tinnitus and Hearing Survey (THS) in conjunction with the Tinnitus Interview are the most important components of the audiologic portion of the Level 4 Interdisciplinary Evaluation. The interview offers a uniform format for asking questions and for recording responses. It should be completed in about 45 minutes, although its time of administration can vary considerably depending mostly on the extent of the patient’s problems.

The Tinnitus Interview is designed to supplement the THS during Level 4—it is not a stand-alone interview. Results of the THS should first be reviewed with the patient, after which the interview can be administered if appropriate. Reviewing the THS results provides both the patient and clinician with a good understanding of the patient’s current perception of problems with tinnitus, hearing, and loudness tolerance. This discussion gives the clinician opportunity to explain to the patient the types of intervention available for each of these auditory problems.

If it is confirmed that the patient has a tinnitus-specific problem and is interested in tinnitus-specific intervention, then the next step is to conduct the Tinnitus Interview. It should be noted that the Tinnitus Interview does not cover information that most likely was discussed during the case history performed during the Level 2 Audiologic Evaluation. The case history normally would obtain a description of the tinnitus (loudness, pitch, timbre, perceived location, symmetry/asymmetry, constancy versus intermittency, and so on) and the circumstances of its onset. It may be helpful to review the case history before administering the Tinnitus Interview. However, it is important not to focus on what the tinnitus sounds like since the purpose of

intervention is to assist the patient in learning how to manage reactions to tinnitus—not to attempt to change the sound of the tinnitus.

Question 1: Does the loudness of your tinnitus change on its own?

Tinnitus loudness may seem to change due to:

- Exposure to certain sounds
- Eating certain foods
- Being under extreme stress
- Being sleep deprived
- New medications or changes in dosage
- Changes in daily acoustic environment.

The patient's answer to this question should not reflect these types of events. The purpose of the question is to determine whether the tinnitus fluctuates in loudness *on its own*, and if so, how often. "On its own" thus refers to naturally occurring changes in tinnitus loudness, that is, there is no external factor that precipitates the change.

Spontaneous changes in loudness can be associated with the tinnitus being more or less bothersome, that is, when the tinnitus is louder it tends to be more intrusive and annoying; when it is softer it might not be noticed as much. With PTM, patients are taught how to manage situations when their tinnitus is bothersome. With spontaneous changes in tinnitus loudness, these bothersome situations might be contingent on the loudness of the tinnitus.

Question 2: Do sounds ever change the loudness of your tinnitus? What kinds of sounds make your tinnitus louder? When sound makes your tinnitus louder, how long does the change last?

Patients occasionally report that exposure to certain sounds causes an increase in the loudness of their tinnitus (P. J. Jastreboff & Hazell, 2004). Dangerously loud sounds would be expected to cause this effect. One of the response options is "very loud sounds." If this is the patient's response, then exacerbation of tinnitus by sound most likely

would be a normal effect and the patient should be counseled regarding hearing conservation. The intent of the question, however, is whether sounds at nondamaging levels cause the tinnitus to increase in loudness. If this is experienced, then the effect usually lasts minutes or hours. Of most concern is whether the effect lasts until at least the next day.

It may be helpful for patients who experience a prolonged tinnitus-exacerbation effect due to sound to carry earplugs so as to remain prepared for unavoidable situations that could trigger the exacerbation. Custom-fit high-fidelity/musicians earplugs usually are considered comfortable and they minimize distortion of sound. Patients must be cautioned, however, to *avoid overuse* of earplugs that could further increase their sensitivity to sound (Formby et al., 2002). Patients who experience prolonged exacerbation of tinnitus from sound also may require intervention for hyperacusis (see Chapter 6).

Question 3: How does your tinnitus affect you (not including trouble hearing or understanding speech)?

This question supplements the questions from Section A of the THS, which mentions specific life situations that commonly are affected by tinnitus. It is important to ask this open-ended question so that patients identify, without any prompting, the most bothersome aspects of their tinnitus. As always, it is important to ensure that patients do not confuse their tinnitus complaints with "trouble hearing or understanding speech." A patient's answer to Question 3 should indicate the primary complaint(s) that will be targeted by the intervention.

Question 4: Please tell me about everything you tried for your tinnitus prior to PTM. For each effort, what were you hoping would happen, and what actually did happen?

This question includes a note to the clinician, which helps to clarify the intent of asking the question:

Clinician: Sometimes a pattern will emerge showing that the patient has made repeated (unsuccessful) attempts to make the tinnitus quieter, resulting in frustration and distress. If this is the case, try to ensure that the patient begins to see this pattern more clearly.

The discussion elicited by this question is useful to both the clinician and patient as they identify everything the patient has attempted for tinnitus management and the effectiveness of each effort. In the process, it may become evident that the patient made repeated attempts to *quiet* the tinnitus and that each unsuccessful effort compounded the distress. The clinician should help the patient recognize if this has been the pattern of previous attempts to manage tinnitus. If so, then the clinician should clarify that the goal of intervention with PTM never is to change the tinnitus, and to explain the rationale for this approach. Throughout the course of PTM a patient might unintentionally slip back into the pattern of trying to change the tinnitus; if the clinician understands the patient's history of attempts to change the tinnitus and the results of those attempts, then the clinician can gently remind the patient of that unsatisfactory history.

Question 5: Please tell me about the sounds you have used to manage your reactions to tinnitus since starting PTM. For each sound you tried, what were you hoping would happen, and what actually did happen?

As for Question 4, this question includes a note to the clinician to clarify the question's intent:

Clinician: if the patient has the Sound Plan Worksheets that were used during Level 3, these can be used to guide this interaction. It also is important to reinforce the idea that with PTM the goal is not to change the tinnitus, but rather to change how one feels.

The intent of this question is to determine the patient's impressions regarding his or her experiences using therapeutic sound with PTM. It is helpful if any Sound Plan Worksheets (see Appendix N)

used by the patient are available for discussion. The clinician should note any misunderstandings or unrealistic expectations regarding the use of sound and reinstruct the patient as necessary to ensure that expectations are realistic. It also is helpful for the clinician to identify any successes experienced by the patient so that they can be pointed out and built upon if the patient continues with PTM.

Question 6: If we decide to move ahead with one-on-one support, then we will be making plans for using sound to manage your reactions to tinnitus. It will be helpful to have a list of sound-producing devices that you have available to you. Which of the following devices do you own?

As for Questions 4 and 5, a note to the clinician is included to clarify the question's intent:

Clinician: For each type of device listed below that the patient owns, provide additional details. For instance, if patients report they own a radio, ask: how many radios, if any of them are portable, and if not portable where it is located. For each device the patient owns, ask how it currently is being used relative to tinnitus management.

Patients sometimes overlook sources of sound that they already own that can be used to manage their reactions to tinnitus. Answering this question creates a fairly detailed list of all of these resources available to the patient. The list can be referred to whenever a Sound Plan Worksheet is created or modified. All of the items on the list should be those that the patient already owns or has access to. Creating this list also can lead to discussion concerning other types of sound-producing devices that might be helpful for future sound plans.

**Psychoacoustic
Assessment of Tinnitus**

Psychoacoustic assessment of tinnitus generally is not recommended within the framework of PTM.

This may seem surprising, so the rationale for this recommendation is provided below.

A tinnitus psychoacoustic assessment typically includes tinnitus loudness and pitch matching, finding the minimum masking level (MML) using broadband noise (BBN), and testing for residual inhibition (RI). Tinnitus loudness and pitch matching involves procedures designed to identify a pure tone or band of noise that matches as closely as possible the pitch and loudness of the tinnitus. MML testing consists of finding the level of BBN required to completely cover, or mask the tinnitus. RI refers to the phenomenon that tinnitus can be temporarily reduced or terminated following certain acoustic stimulation.

When these tests are performed, patients are asked to attend closely to their tinnitus and to the effects of different sounds on the tinnitus. Asking patients to pay close attention to the sound of their tinnitus is at cross purposes with the therapeutic goals of PTM. With PTM, patients are required to attend to how they feel, rather than to the sound of their tinnitus. Making the transition to attending to how they feel and their *reactions* to tinnitus rather than to the sound of tinnitus is difficult for many patients, but very important. It is important because patients usually cannot satisfactorily change the sound of their tinnitus, but they usually can change how they feel. Furthermore, for PTM, results of tinnitus psychoacoustic testing generally are not helpful for diagnostic purposes, for guiding intervention, or for assessing outcomes of intervention.

An argument sometimes made for performing these tests is that results of pitch matching can be useful when adjusting the frequency output of an ear-level sound generator. The hope is that providing more sound in the frequency range corresponding with the tinnitus pitch will result in improved masking of tinnitus. Such efforts are irrelevant and possibly counterproductive with respect to using therapeutic sound with PTM. For example, sound from an ear-level sound generator would be used either as background sound or soothing sound (see Chapter 7). If used as background sound, then achieving masking is of no consequence—the purpose of background sound is to reduce contrast between tinnitus and a quiet

environment. If used as soothing sound, then the audiologist should adjust the frequency output of the sound generator to produce a soothing effect regardless of the effect on the tinnitus itself. Patients commonly report that some sounds are soothing or relaxing even if they have no effect on the tinnitus percept. Conversely, some patients report that sounds that mask their tinnitus are unacceptably loud, or are as unpleasant as the tinnitus itself. Therefore, for PTM, focusing on masking tinnitus by emphasizing sound in the frequency range that corresponds with the pitch match can hinder efforts to identify sounds that are soothing to the patient.

Another argument sometimes made is that results of MML testing can be useful in predicting which patients are likely to benefit from the use of ear-level noise/sound generators (alone or in combination with a hearing aid). The rationale behind this argument is that patients who require high levels of BBN to mask their tinnitus are more likely to require unacceptably high levels of sound from a sound generator to adequately mask their tinnitus. As explained above, masking tinnitus is not the goal of using sound with PTM. (Masking may occur, however, in the process of using sound for another therapeutic purpose.) With PTM, sound from an ear-level sound generator is used either as soothing sound or background sound—neither of which involves masking of tinnitus. Therefore, predicting that a patient is unlikely to benefit from the use of ear-level sound generators because of high MMLs may falsely lower expectations of benefit and could actually prevent a patient from discovering that using a sound generator can be helpful for providing soothing or background sound even if there is no effect on the sound of the tinnitus itself.

For these reasons tinnitus psychoacoustic testing is not recommended as part of the Level 4 Interdisciplinary Evaluation. However, PTM should be considered a framework within which flexibility is allowed (and even encouraged) to best meet the needs of individual clinical programs. Detailed instructions for tinnitus psychoacoustic testing have been published elsewhere (J. A. Henry, 2004; J. A. Henry, Zaugg, & Schechter, 2005a) for clinicians who wish to include it in their clinical protocol.

In-Clinic Trials of Ear-Level Instruments (optional procedures)

Patients who reach Level 4 have undergone a successive “filtering” process that provides reasonable assurance that their problem with tinnitus warrants individualized clinical attention. These patients generally require much more assistance than has been available to them up to this point. They also typically are motivated to try new strategies that might be helpful in managing their reactions to tinnitus.

At Level 4, all types of ear-level sound generators and combination instruments (and hearing aids) are viable options for intervention. (Please refer to the Flowchart for Assessment and Fitting of Ear-level Instruments—Appendix I). The normal protocol is to fit only hearing aids at Level 2. However, as noted in Chapter 5, new models of combination instruments provide full-feature hearing aids. These combination instruments can be fitted at Level 2, and, if so, then we would recommend that the noise generator portion be turned off until the patient has received the audiologic counseling that is provided at Level 3.

If results of the Tinnitus and Hearing Survey (see Appendix D), supplemented with the Tinnitus Interview (see Appendix R) suggest that a patient is a candidate for Level 5 Individualized Support from an audiologist, then—if the patient is amenable—it is appropriate to conduct in-clinic trials of ear-level instruments. It is important to perform *in-clinic* trials because it often is difficult to predict how a patient’s tinnitus (and reactions to tinnitus) will be affected by amplification, sound from an ear-level sound generator, or a combination of amplification plus sound generator. In-clinic trial use of ear-level instruments allows patients to make realistic, experience-based decisions about the potential effectiveness of the devices. It should be explained to patients that the purpose of the in-clinic trials is to evaluate the potential usefulness of the devices for ongoing management of reactions to tinnitus. Results of the trials are used to determine collaboratively if ear-level instruments

will be provided before beginning Level 5 Individualized Support.

Three Categories of Patients at Level 4

Categorizing patients with respect to their candidacy for hearing aids is essential prior to the Level 4 in-clinic trials of ear-level instruments. Different instruments are demonstrated depending on the patient’s category. Categories include: (a) obvious hearing aid candidate; (b) borderline hearing aid candidate; and (c) not a hearing aid candidate.

“Obvious hearing aid candidates” are patients who have hearing loss to such a degree that: (a) amplification would most likely ameliorate their communicative and other hearing problems; and (b) they are motivated to wear hearing aids. With PTM, hearing aids typically are fit at Level 2 (see Appendix I). Therefore, at Level 4, most obvious hearing aid candidates will already be wearing hearing aids.

“Borderline hearing aid candidates” typically report “occasional hearing problems.” These patients tend to have mild to moderate sloping high-frequency sensorineural hearing loss. To be considered a borderline hearing aid candidate, patients must be motivated to wear hearing aids (for management of tinnitus and/or to improve hearing).

Which Ear-Level Instruments Should Be Demonstrated for Each Patient Category?

For “obvious” and “borderline” hearing aid candidates, in-clinic trials with hearing aids and combination instruments are conducted. (If the patient already is a hearing aid user, then an in-clinic trial using the patient’s current hearing aids should be performed.) Borderline hearing aid candidates also should be evaluated for noise generators.

For patients who are not hearing aid candidates, normally only in-clinic trials with noise generators should be conducted. However, some patients with essentially normal hearing will benefit from hearing aids that are optimized for patients with tinnitus (described later).

Special Forms to Guide In-Clinic Trials of Ear-Level Instruments

A series of four forms has been developed for use as guides to selecting ear-level instruments at the Level 4 Interdisciplinary Evaluation. These forms include:

- Guide to Trial Use of Ear-Level Instruments (Appendix V)
- In-Clinic Trial Use of Hearing Aids (Appendix W)
- In-Clinic Trial Use of Combination Instruments (Appendix X)
- In-Clinic Trial Use of Noise Generators (Appendix Y)

The first form (Guide to Trial Use of Ear-Level Instruments—Appendix V) gives an overview of which ear-level instruments should be tried in the clinic for patients who are:

- Obvious hearing aid candidates
- Borderline hearing aid candidates
- Not hearing aid candidates.

This form also contains a guide to discussing with patients results of the trials and collaboratively making decisions regarding the use of ear-level instruments during Level 5 Individualized Support. The other forms (In-Clinic Trial Use of Hearing Aids—Appendix W; In-Clinic Trial Use of Combination Instruments—Appendix X; In-Clinic Trial Use of Noise Generators—Appendix Y) provide detailed instructions for conducting the in-clinic trials. These forms also are used to record patient responses to each trial performed.

Clinic Inventory of Trial Ear-Level Instruments

A variety of ear-level instruments should be available to conduct in-clinic trials with patients. Because of potential sanitization concerns, in-the-ear (ITE) instruments are not recommended—only behind-the-ear (BTE) instruments with temporary dispos-

able earmolds are used for in-clinic trial use. Certain supplies also should be on hand, such as temporary earmolds (in a variety of sizes with variable venting), vent plugs, and temporary feedback wraps.

Minimum Inventory of Ear-Level Instruments for In-Clinic Trial Use

The minimum inventory of ear-level instruments would be a single pair of BTE combination instruments (with disposable earmolds). If possible, the instruments should have an adjustable frequency response for both the amplifier and the noise generator. If trial instruments are limited to one set of BTE combination instruments, then these instruments can be used to demonstrate the potential benefit from:

Noise Generators Alone. BTE combination instruments can be used to demonstrate the benefit obtained from using ear-level noise generators (the hearing aid portion is turned off).

Hearing Aids Alone. BTE combination instruments can be used to demonstrate the benefit obtained from using hearing aids (the noise generator portion is turned off). The drawback is that the hearing aid portion of a combination instrument may be less flexible, less sophisticated, and have fewer features than a traditional hearing aid. Increasingly, new models of combination instruments do not sacrifice hearing aid features, so these potential drawbacks are becoming less of a concern.

Combined Noise Generator and Hearing Aid. BTE combination instruments can be used to demonstrate the potential benefit from the simultaneous use of a noise generator and hearing aid (both are turned on at the same time).

Ideal Inventory of Ear-Level Instruments for In-Clinic Trial Use

The ideal inventory of stock ear-level instruments would include noise generators, combination instruments, and hearing aids. There should be a pair of each type of device to allow binaural trial

fittings of each. If possible, more than one model/make of noise generator and combination instrument should be available to demonstrate the different choices. Hearing aids that serve a wide fitting range should be on hand.

Personal listening devices and stationary devices such as tabletop sound conditioners, pillow speakers, and MP3 players loaded with interesting, soothing, and background sounds also should be available for patients to try as alternative therapeutic uses of sound if ear-level instruments are not advised or desired.

Maintaining Continuity Between Level 3 Counseling and In-Clinic Trials

During the Level 3 Group Education workshops, patients learn about the three types of sound (soothing, background, interesting) that can be used to manage reactions to tinnitus (see Chapter 7). For the in-clinic trials to be most meaningful, patients need to be informed that the instruments can be used to provide an immediate sense of relief (soothing sound), to provide a background of sound to reduce the tinnitus/background contrast, and to improve access to interesting sound.

Need for Follow-Up If Patients Receive Ear-Level Instruments

Use of ear-level instruments for tinnitus requires ongoing support (Level 5 Individualized Support) from an audiologist, including continued development and assessment of strategies for using sound most effectively. This process is facilitated by using the Sound Plan Worksheet (see Appendix N), which should be reviewed at every appointment. Individualized support typically involves two to five visits over a period of up to 6 months. A patient who receives special ear-level devices during Level 4 should attend at least two Level 5 appointments.

Fitting Appointment

If ear-level instruments were ordered for the patient, then they are fitted prior to the initial Level 5

appointment. However, the fitting appointment can be combined with the initial Level 5 appointment (which makes for a very long appointment).

Summary of Ear-Level Instruments for PTM

Appropriate use of sound can be critically important for managing reactions to tinnitus. There are numerous options for using sound with ear-level instruments. Each option must be considered for the individual patient. A systematic approach is required to determine the best combination of instruments and sounds. The patient makes the final decision, and the clinician facilitates the decision making process and provides a selection of sounds and instruments.

Criteria for Patients to Progress to Level 5 Individualized Support

Following completion of the Level 4 Interdisciplinary Evaluation for a patient, ideally the psychologist, audiologist, and patient decide collaboratively if the patient will initiate Level 5 Individualized Support with the psychologist and/or audiologist. Patients must meet the following criteria to be considered for Level 5 Individualized Support:

- Levels 1 to 4 of PTM have not adequately addressed their tinnitus concerns.
- They have been evaluated and referred as appropriate for care in other clinics.
- They understand the nature of the PTM services available from the psychologist and audiologist (including device options and potential duration of intervention).
- They are motivated and capable of participating in the activities proposed by the psychologist and/or audiologist.

If Level 5 Individualized Support is initiated with both the psychologist and audiologist, it is best if the clinicians remain in regular contact regarding the patient's progress within each of the disciplines.