Clinical Practice Guideline: Tinnitus Executive Summary


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Clinical Practice Guideline: Tinnitus

Executive Summary

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Abstract

The American Academy of Otolaryngology—Head and Neck Surgery Foundation (AAO-HNSF) has published a supplement to this issue featuring the new Clinical Practice Guideline: Tinnitus. To assist in implementing the guideline recommendations, this article summarizes the rationale, purpose, and key action statements. The 13 recommendations developed address the evaluation of patients with tinnitus, including selection and timing of diagnostic testing and specialty referral to identify potential underlying treatable pathology. It will then focus on the evaluation and treatment of patients with persistent primary tinnitus, with recommendations to guide the evaluation and measurement of the impact of tinnitus and to determine the most appropriate interventions to improve symptoms and quality of life for tinnitus sufferers.

Keywords

Tinnitus, hearing loss, quality of life, sound therapy, hearing aids, amplification

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Tinnitus is the perception of sound without an external source. More than 50 million people in the United States have reported experiencing tinnitus, resulting in an estimated prevalence of 10% to 15% in adults.1 Around 20% of adults who experience tinnitus will require clinical intervention.2 Not a disease in and of itself, tinnitus is actually a symptom that can be associated with multiple causes and aggravating cofactors. Tinnitus is relatively common, but in rare cases it can be a symptom of serious disease such as vascular tumor or vestibular schwannoma (VS).

Tinnitus can be persistent, bothersome, and costly. The prevalence of tinnitus was estimated in the National Health Interview Survey conducted in the United States in 1994 by asking whether individuals experienced “ringing, roaring, or buzzing in the ears that lasted for at least three months.” Such tinnitus was present in 1.6% of adults aged 18 to 44 years, 4.6% of adults aged 45 to 64 years, and 9.0% of adults aged >60 years.3 In the Beaver Dam offspring study of more than 3000 adults between ages 21 and 84 years studied between 2005 and 2008, 10.6% reported tinnitus of at least moderate severity or causing difficulty falling asleep.4 Tinnitus can also have a large economic impact. For example, tinnitus was the most prevalent service-connected disability for US military veterans receiving compensation at the end of fiscal year 2012, resulting in nearly 1 million veterans receiving disability awards.5

Tinnitus can occur on one or both sides of the head and can be perceived as coming from within or outside the head. Tinnitus most often occurs in the setting of concomitant sensorineural hearing loss (SNHL), particularly among patients with bothersome tinnitus and no obvious ear pathology. The quality of tinnitus can also vary, with ringing, buzzing, clicking, pulsations, and other noises described by patients with tinnitus. In addition, the effects of tinnitus on health-related quality of life (QOL) vary widely, with most patients less severely affected but some experiencing anxiety, depression, and extreme life changes. Patients who have tinnitus accompanied by severe anxiety or depression require prompt identification and intervention, as suicide has been reported in patients with tinnitus6 who have coexisting psychiatric illness. Most tinnitus is subjective, perceived only by the patient. In
contrast, objective tinnitus can be perceived by others, is rare, and is not the focus of this guideline.

The focus of this guideline is tinnitus that is bothersome and persistent (lasting 6 months or longer), often with a negative impact on the patient’s QOL. The guideline development group (GDG) chose 6 months as the criterion to define persistent tinnitus, since this duration is used most often as an entry threshold in published research studies on tinnitus. Some studies have used tinnitus of 3 months’ duration for eligibility; it is possible that the recommendations of this clinical practice guideline (CPG) may be applicable to patients with tinnitus of shorter duration as well.

As noted in Table 1, tinnitus should be classified as either primary or secondary. In this guideline, the following definitions are used:

- **Primary tinnitus** is used to describe tinnitus that is idiopathic and may or may not be associated with SNHL. While there is currently no cure for primary tinnitus, a wide range of therapies have been used and studied in attempts to provide symptomatic relief. These therapies include education and counseling, auditory therapies that include hearing aids and specific forms of sound therapy, cognitive-behavioral therapy (CBT), medications, dietary changes and supplements, acupuncture, and transcranial magnetic stimulation.

- **Secondary tinnitus** is tinnitus that is associated with a specific underlying cause (other than SNHL) or an identifiable organic condition. It is a symptom of a range of auditory and nonauditory system disorders that include simple cerumen impaction of the external auditory canal, middle ear diseases such as otosclerosis or eustachian tube dysfunction, cochlear abnormalities such as Ménière’s disease, and auditory nerve pathology such as VS. Nonauditory system disorders that can cause tinnitus include vascular anomalies, myoclonus, and intracranial hypertension. Management of secondary tinnitus is targeted toward identification and treatment of the specific underlying condition and is not the focus of this guideline.

Despite the high prevalence of tinnitus and its potential significant impact on QOL, there are no evidence-based, multidisciplinary CPGs to assist clinicians with management. This guideline attempts to fill this void through actionable recommendations to improve the quality of care that patients with tinnitus receive, based on current best research evidence and multidisciplinary consensus. The guideline recommendations will assist clinicians in managing patients with primary tinnitus, emphasizing interventions and therapies deemed

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**Table 1. Abbreviations and Definitions of Common Terms.**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Tinnitus</td>
<td>The perception of sound when there is no external source of the sound</td>
</tr>
<tr>
<td>Primary tinnitus</td>
<td>Tinnitus that is idiopathic and may or may not be associated with SNHL</td>
</tr>
<tr>
<td>Secondary tinnitus</td>
<td>Tinnitus that is associated with a specific underlying cause (other than SNHL) or an identifiable organic condition</td>
</tr>
<tr>
<td>Recent onset tinnitus</td>
<td>Less than 6 months in duration (as reported by the patient)</td>
</tr>
<tr>
<td>Persistent tinnitus</td>
<td>6 months or longer in duration</td>
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<tr>
<td>Bothersome tinnitus</td>
<td>Distressed patient, impacted QOL and/or functional health status; patient is seeking active therapy and management strategies to alleviate tinnitus</td>
</tr>
<tr>
<td>Nonbothersome tinnitus</td>
<td>Tinnitus that does not have a significant impact on a patient’s QOL but may result in curiosity of the cause or concern about the natural history and how it might progress or change</td>
</tr>
</tbody>
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The term idiopathic is used here to indicate that a cause other than sensorineural hearing loss (SNHL) is not identifiable.

Quality of life (QOL) is the degree to which persons perceive themselves able to function physically, emotionally, mentally, and/or socially.
beneficial, and avoiding those that are time-consuming, costly, and ineffective.

**Purpose**

The purpose of this guideline is to provide evidence-based recommendations for clinicians managing patients with tinnitus. The target audience is any clinician, including nonphysicians, involved in managing these patients. Patients with tinnitus will often be evaluated by a variety of health care providers, including primary care clinicians, specialty physicians, and nonphysician providers such as audiologists and mental health professionals. The target patient population is limited to adults (18 years and older) with primary tinnitus that is persistent and bothersome.

Tinnitus is often a bothersome, potentially significant complaint of patients with identified causes of hearing loss such as Ménière’s disease, sudden SNHL, otosclerosis, and VS. Patients with these identifiable and other causative diagnoses of secondary tinnitus are excluded from this guideline, since they are often excluded from nearly all randomized controlled trials (RCTs) of tinnitus management, making it impossible to generalize trial results. However, the GDG placed emphasis on the need for thorough clinical evaluation to identify these potentially treatable and sometimes serious disorders. Clinicians should decide whether to apply these recommendations to patients with these conditions on an individualized basis. The guideline also excludes patients with pulsatile tinnitus, or tinnitus related to complex auditory hallucinations or hallucinations related to psychosis or epilepsy.

This is the first evidence-based clinical guideline developed for the evaluation and treatment of chronic tinnitus. This guideline provides clinicians with a logical framework to improve patient care and mitigate the personal and social impact of persistent, bothersome tinnitus. It discusses the evaluation of patients with tinnitus, including selection and timing of diagnostic testing and specialty referral to identify potential underlying treatable pathology. It then focuses on the evaluation and treatment of patients with persistent primary tinnitus, with recommendations to evaluate and measure its impact, as well as for determining the most appropriate interventions to improve symptoms and QOL for tinnitus sufferers.

In formulating this guideline, a broad range of topics were identified as quality improvement (QI) opportunities by the GDG. These topics fall into the 3 broad domains of assessment, intervention/management, and education. The group further prioritized these topics to determine the focus of the guideline.

**Methods**

This guideline was developed using an explicit and transparent a priori protocol for creating actionable statements based on supporting evidence and the associated balance of benefit and harm. Members of the GDG include pediatric and adult otolaryngologists, otologists/neurotologists, a geriatrician, a behavioral neuroscientist, a neurologist, an audiologist, a family physician, a radiologist, a psychiatrist, an internist, a psychoacoustician, an advanced nurse practitioner, a resident physician, and consumer advocates. For additional details on method, please refer to the complete text of the guideline. The 13 guideline recommendations are summarized in Table 2, with the corresponding action statements and profiles reproduced below. Supporting text and complete citations can be found in the guideline proper.

**Key Action Statements**

**STATEMENT 1. HISTORY AND PHYSICAL EXAM:** Clinicians should perform a targeted history and physical examination at the initial evaluation of a patient with presumed primary tinnitus to identify conditions that if promptly identified and managed may relieve tinnitus. Recommendation based on observational studies, with a preponderance of benefit over harm.

**Action Statement Profile**

- **Quality improvement opportunity:** To promote a consistent and systematic approach to the initial evaluation of the patient with tinnitus
- **Aggregate evidence quality:** Grade C, based on observational studies
- **Level of confidence in evidence:** Moderate, as few if any studies specifically investigate the diagnostic yield or impact of history and examination on tinnitus patients
- **Benefits:** Identify organic, and potentially treatable, underlying causes (eg, secondary tinnitus); minimize cost and administrative burden through a targeted approach to history and physical examination; streamline care/increase efficiency; improve patient satisfaction; identify patients with primary tinnitus who may benefit from further management (as outlined in this guideline)
- **Risks, harms, costs:** None
- **Benefit-harm assessment:** Preponderance of benefit
- **Value judgments:** Perception by the GDG that tinnitus sufferers may not receive thorough evaluations from clinicians; further perception that many clinicians are unaware of the optimal targeted history and physical examination to evaluate a patient with tinnitus
- **Intentional vagueness:** The definition of a “targeted” history and physical examination is elaborated upon in the supporting text.
- **Role of patient preferences:** None
- **Exclusions:** None
- **Policy level:** Recommendation
- **Differences of opinion:** None

**STATEMENT 2A. PROMPT AUDIOLOGIC EXAMINATION:** Clinicians should obtain a prompt, comprehensive audiologic examination in patients with tinnitus that is unilateral, persistent (>6 months), or associated with hearing...
difficulties. Recommendation based on observational studies, with a preponderance of benefit over risk.

Action Statement Profile

- **Quality improvement opportunity**: To address potential underutilization of audiologic testing in patients with tinnitus who are likely to have underlying hearing loss and to avoid delay in such diagnosis
- **Aggregate evidence quality**: Grade C, based on observational studies
- **Level of confidence in the evidence**: Moderate, as literature about the impact of prompt audiologic assessment on tinnitus management is scant
- **Benefits**: Prioritize the need for otolaryngologic evaluation (if not already completed) using audiologic criteria; identify hearing loss, which is frequently associated with tinnitus; characterize the nature of hearing loss (conductive, sensorineural, or mixed; unilateral or bilateral); detect hearing loss that may be unsuspected; initiate workup for serious disease that causes unilateral tinnitus and hearing loss (ie, VS)
- **Risks, harms, costs**: Direct cost of examination; access to testing; time
- **Benefit-harm assessment**: Preponderance of benefit
- **Value judgments**: None
- **Intentional vagueness**: The term prompt is used to emphasize the importance of ordering a timely test and ensuring it is done, preferably within 4 weeks of assessment.
- **Role of patient preferences**: Small; patients may participate in decisions regarding timing of audiogram.
STATEMENT 2B. ROUTINE AUDIOLOGIC EXAMINATION: Clinicians may obtain an initial comprehensive audiologic examination in patients who present with tinnitus (regardless of laterality, duration, or perceived hearing status). Option based on observational studies, with a balance of benefit and harm.

Action Statement Profile

- Quality improvement opportunities: To promote awareness of hearing loss associated with tinnitus, even in patients who do not have unilateral tinnitus or hearing difficulties, and to emphasize that clinicians do not have to wait 6 months before obtaining an audiogram if deemed appropriate
- Aggregate evidence quality: Grade C, based on observational studies and prevalence of hearing loss (HL) in RCTs of tinnitus therapy
- Level of confidence in the evidence: High
- Benefits: Detect a hearing loss not perceived by the patient; identify SNHL, which is a treatable condition commonly associated with tinnitus; identify patients who may be candidates for sound therapy; identify opportunities for patient counseling/education
- Risks, harms, costs: Direct costs of audiologic testing; detection of minor audiologic abnormalities leading to potentially unnecessary further testing or referral; inconsistent access to testing
- Benefit-harm assessment: Equilibrium
- Value judgments: None
- Intentional vagueness: None
- Role of patient preferences: Large role for shared decision making to proceed with audiologic examination
- Exclusions: None
- Policy level: Option
- Differences of opinion: None

STATEMENT 3. IMAGING STUDIES: Clinicians should not obtain imaging studies of the head and neck in patients with tinnitus, specifically to evaluate the tinnitus, unless they have 1 or more of the following: tinnitus that localizes to 1 ear, pulsatile tinnitus, focal neurological abnormalities, or asymmetric hearing loss. Strong recommendation against based on observational studies, with a preponderance of benefit over harm.

Action Statement Profile

- Quality improvement opportunity: To avoid overuse of imaging in patients with a low likelihood of any significant benefit from the imaging
- Aggregate evidence quality: Grade C, based on observational studies
- Level of confidence in the evidence: High
- Benefits: Avoid testing with low yield; avoid harms of unnecessary tests (radiation, contrast, cost); avoid test anxiety; avoid detecting subclinical, incidental findings
- Risks, harms, costs: Slight chance of missed diagnosis; relatively high costs and limited access to certain types of imaging studies
- Benefit-harm assessment: Preponderance of benefit
- Value judgments: The GDG made this a strong recommendation against, instead of a recommendation against, based on consensus regarding the importance of avoiding low-yield, expensive tests with potential adverse events in patients with tinnitus.
- Intentional vagueness: Specific imaging studies are specified in the supporting text, including computed tomography (CT), computed tomography angiography (CTA), magnetic resonance imaging (MRI), and magnetic resonance angiography (MRA).
- Role of patient preferences: None
- Exclusions: None
- Policy level: Strong recommendation against
- Differences of opinion: None

STATEMENT 4. BOTHERSOME TINNITUS: Clinicians must distinguish patients with bothersome tinnitus from patients with nonbothersome tinnitus. Strong recommendation based on inclusion criteria for RCTs on tinnitus treatment, with a preponderance of benefit over harm.

Action Statement Profile

- Quality improvement opportunity: To identify those patients in need of clinical management and limit unnecessary testing and treatment for others
- Aggregate evidence quality: Grade B, based on inclusion criteria for RCTs on tinnitus treatment
- Level of confidence in evidence: High
- Benefits: Identify patients for further counseling and/or intervention/management; determine impact of tinnitus on health-related QOL; identify patients with bothersome tinnitus who may benefit from additional assessment for anxiety and depression; encourage an explicit and systematic assessment of patients to avoid underestimating or trivializing the impact of tinnitus; avoid unnecessary interventions/management of patients with nonbothersome tinnitus
- Risks, harms, costs: Time involved in assessment
- Benefit-harm assessment: Preponderance of benefit
- Value judgments: None
- Intentional vagueness: Method of distinguishing bothersome vs nonbothersome is not specifically stated. One or more of the validated questionnaires described in the supporting text may be helpful.
- Role of patient preferences: None
- Exclusions: None
- Policy level: Strong recommendation
- Differences of opinion: None
STATEMENT 5. PERSISTENT TINNITUS: Clinicians should distinguish patients with bothersome tinnitus of recent onset from those with persistent symptoms (≥6 months) to prioritize intervention and facilitate discussions about natural history and follow-up care. Recommendation based on inclusion criteria in RCTs, with a preponderance of benefit over harm.

Action Statement Profile
- **Quality improvement opportunity:** To identify patients with a duration of tinnitus similar to that studied in RCTs of tinnitus treatment, to identify those who may need and benefit from intervention, and to avoid inappropriate interventions for patients with a shorter duration of tinnitus
- **Aggregate evidence quality:** Grade B, based on inclusion criteria in RCTs
- **Level of confidence in the evidence:** Moderate, based on varying tinnitus duration in RCTs, with some including patients with tinnitus of less than 3 months’ duration
- **Benefits:** Identify patients who have duration of tinnitus similar to the patients included in RCTs and identify those patients who are most likely to benefit from intervention
- **Risks, harms, costs:** Defer treatment that may benefit some patients with tinnitus who do not have persistent symptoms
- **Benefit-harm assessment:** Preponderance of benefit
- **Value judgments:** Despite some variation in inclusion criteria for duration of tinnitus used in clinical trials, the GDG felt that 6 months was a reasonable time to conclude that the tinnitus would likely persist.
- **Intentional vagueness:** None
- **Role of patient preferences:** None
- **Exclusions:** None
- **Policy level:** Recommendation
- **Differences of opinion:** None

STATEMENT 6. EDUCATION AND COUNSELING: Clinicians should educate patients with persistent, bothersome tinnitus about management strategies. Recommendation based on studies of the value of education and counseling, with a preponderance of benefit over harm.

Action Statement Profile
- **Quality improvement opportunity:** To address potential underutilization of education and counseling by clinicians who manage patients with persistent, bothersome tinnitus and to bring awareness of available management strategies to the patient
- **Aggregate evidence quality:** Grade B, based on studies of the value of education and counseling in general, and Grade C based on such studies in tinnitus in particular
- **Level of confidence in the evidence:** High
- **Benefits:** Improved QOL; increased ability to cope with tinnitus; improved outcomes and patient satisfaction; less health care utilization
- **Risks, harms, costs:** Direct cost and time
- **Benefit-harm assessment:** Preponderance of benefit
- **Value judgments:** None
- **Intentional vagueness:** None
- **Role of patient preferences:** None
- **Exclusions:** None
- **Policy level:** Recommendation
- **Differences of opinion:** None

STATEMENT 7. HEARING AID EVALUATION: Clinicians should recommend a hearing aid evaluation for patients with hearing loss and persistent, bothersome tinnitus. Recommendation based on observational studies with a preponderance of benefit over harm.

Action Statement Profile
- **Quality improvement opportunities:** To promote awareness of the beneficial effect of hearing aids on tinnitus and encourage utilization of this first-line audiologic intervention for patients with tinnitus, even those who might otherwise be marginal hearing aid candidates
- **Aggregate evidence quality:** Grade C, based on observational studies
- **Level of confidence in the evidence:** High
- **Benefits:** Raise awareness of potential beneficial effects of hearing aids on tinnitus; ensure that patient receives proper guidance regarding benefits and costs of hearing aids; provide patients who have hearing loss with access to information and interventions that may alleviate hearing loss and improve function/QOL
- **Risks, harms, costs:** Direct cost related to dispensing of a hearing aid
- **Benefit-harm assessment:** Preponderance of benefit
- **Value judgments:** Perceived lack of awareness regarding the ability of hearing aids to improve QOL for patients with tinnitus
- **Intentional vagueness:** The level of hearing loss is not specified because hearing loss–associated tinnitus may benefit from hearing aids even if the hearing loss is only of a mild degree, or even if there is a more severe unilateral SNHL associated with the tinnitus.
- **Role of patient preferences:** Patient may accept or decline the recommendation to pursue a hearing aid evaluation.
- **Exclusions:** None
- **Policy level:** Recommendation
- **Differences of opinion:** None

STATEMENT 8. SOUND THERAPY: Clinicians may recommend sound therapy to patients with persistent,
bothersome tinnitus. **Option** based on RCTs with methodological concerns, with a balance between benefit and harm.

**Action Statement Profile**
- **Quality improvement opportunity:** To promote awareness and utilization of sound therapy as a reasonable management option in patients with persistent, bothersome tinnitus
- **Aggregate evidence quality:** Grade B, based on RCTs with methodological concerns
- **Level of confidence in the evidence:** Medium, as strength of evidence is low
- **Benefits:** Access to technology/devices that may relieve tinnitus; improve QOL, sleep, and concentration
- **Risks, harms, costs:** Consequences of recommending an intervention of uncertain efficacy; promoting false hope; costs associated with sound therapy
- **Benefit-harm assessment:** Equilibrium
- **Value judgments:** None
- **Intentional vagueness:** None
- **Role of patient preferences:** Significant role in deciding whether to pursue sound therapy and to choose among the available options
- **Exclusions:** None
- **Policy level:** Option
- **Difference of opinion:** One GDG member expressed a difference of opinion about mechanisms of sound therapy, particularly with the concepts of partial and total masking.

**STATEMENT 9. COGNITIVE-BEHAVIORAL THERAPY (CBT):** Clinicians should recommend CBT to patients with persistent, bothersome tinnitus. **Recommendation based on RCTs,** with a preponderance of benefit over harm.

**Action Statement Profile**
- **Quality improvement opportunity:** To promote awareness and utilization of CBT as an effective management option in patients with persistent, bothersome tinnitus
- **Aggregate evidence quality:** Grade A, based on multiple systematic reviews of RCTs
- **Level of confidence in the evidence:** Moderate, based on concerns about methodology and sample size of trials
- **Benefits:** Treatment of depression and anxiety; improved QOL, tinnitus coping skills, and adherence to other tinnitus treatments
- **Risks, harms, costs:** Direct cost; time involved (multiple sessions, 1-2 hours each); availability to services may be limited
- **Benefit-harm assessment:** Preponderance of benefit
- **Value judgments:** None
- **Intentional vagueness:** None
- **Role of patient preferences:** None
- **Exclusions:** None
- **Policy level:** Recommendation
- **Differences in opinion:** None

**STATEMENT 10. MEDICAL THERAPY:** Clinicians should not routinely recommend antidepressants, anticonvulsants, anxiolytics, or intratympanic medications for a primary indication of treating persistent, bothersome tinnitus. **Recommendation against based on systematic reviews and RCTs with methodological concerns,** with a preponderance of benefit over harm.

**Action Statement Profile**
- **Quality improvement opportunity:** To decrease the use of medications that may have no benefit and have significant potential side effects in the management of patients with tinnitus
- **Aggregate evidence quality:** Grade B, based on RCTs with methodological concerns and systematic reviews demonstrating a low strength of evidence
- **Level of confidence in the evidence:** Medium regarding the lack of efficacy of medical therapy as a primary treatment for persistent bothersome tinnitus, since several studies with methodological flaws, bias, and lack of power did show some benefit in certain tinnitus outcome measures
- **Benefits:** Avoid unproven therapy, side effects/adverse events (including tinnitus), and false hope; reduce expense. Avoid use of medications that are not approved for use in geriatric population
- **Risks, harms, costs:** Denying some patients benefit
- **Benefit-harm assessment:** Preponderance of benefit
- **Value judgments:** None
- **Intentional vagueness:** None
- **Role of patient preferences:** Limited; a trial of medications may be administered based on individual circumstances.
- **Exclusions:** None
- **Policy level:** Recommendation against
- **Differences in opinion:** None

**STATEMENT 11. DIETARY SUPPLEMENTS:** Clinicians should not recommend Ginkgo biloba, melatonin, zinc, or other dietary supplements for treating patients with persistent, bothersome tinnitus. **Recommendation against based on RCTs and systematic reviews with methodological concerns,** with a preponderance of benefit over harm.

**Action Statement Profile**
- **Quality improvement opportunity:** To avoid use of commonly available supplements that have no
proven efficacy and pose potential harm in the management of patients with tinnitus
• Aggregate evidence quality: Grade C, based on RCTs and systematic reviews with extreme heterogeneity; most of the RCTs raise significant concerns regarding methodology and subject selection
• Level of confidence in the evidence: High confidence regarding potential harm and adverse effects related to these agents, particularly in the elderly population; low confidence in benefits due to methodological concerns and study quality and ability to generalize results to patients with persistent, primary tinnitus
• Benefits: Avoid unproven therapy, side effects/adverse events (including tinnitus), and false hope; reduce expense
• Risks, harms, costs: None
• Benefit-harm assessment: Preponderance of benefit
• Value judgments: Concern regarding the actual content and dosage of proposed active agents in these preparations, since they are currently packaged over-the-counter (OTC). Many of these supplements, not under the regulations of the US Food and Drug Administration (FDA), have varying amounts of the “active” agent. The GDG was concerned over the widespread availability for easy purchase of these agents without considering potential drug interactions and adverse events.
• Intentional vagueness: The term dietary supplements is used to generalize nutritional and herbal supplements promoted as remedies for tinnitus.
• Role of patient preferences: Limited
• Exclusions: None
• Policy level: Recommendation against
• Differences in opinion: The majority of the GDG felt there was a clear predominance of harm over benefit; a minority felt there was an equilibrium. None of the group perceived a preponderance of benefit over harm.

STATEMENT 12. ACUPUNCTURE: No recommendation can be made regarding the effect of acupuncture in patients with persistent bothersome tinnitus. No recommendation based on poor quality trials, no benefit, and minimal harm.

Action Statement Profile
• Quality improvement opportunity: Limited; to educate patients and providers about the controversies regarding the use of acupuncture for tinnitus
• Aggregate evidence quality: Grade C, based on inconclusive RCTs and the presence of costs and potential harm with no established benefit with the use of acupuncture for tinnitus
• Level of confidence in the evidence: Low regarding benefit because of heterogeneity and methodological flaws in the RCTs; high regarding harm or cost, with the understanding that serious harm from acupuncture is rare
• Benefits: No direct benefits of no recommendation
• Risks, harms, costs: Cost of acupuncture therapy, time required for therapy, and potential delay in instituting sound therapy or hearing aids
• Benefit-harm assessment: Unknown
• Value judgments: The poor quality of the data and the limited potential for harm from acupuncture kept the GDG from making a recommendation about acupuncture.
• Intentional vagueness: None
• Role of patient preferences: Significant role for shared decision making; patients may wish to try acupuncture based on circumstances.
• Exclusions: None
• Policy level: No recommendation
• Differences in opinion: Minor: the GDG was divided between making no recommendation and making a recommendation against the use of acupuncture.

STATEMENT 13. TRANSCRANIAL MAGNETIC STIMULATION (TMS): Clinicians should not recommend TMS for the routine treatment of patients with persistent, bothersome tinnitus. Recommendation against based on inconclusive RCTs.

Action Statement Profile
• Quality improvement opportunity: To avoid use of a therapy that has inconclusive efficacy and poses potential financial and physical harm in the management of patients with tinnitus
• Aggregate evidence quality: Grade B, based on inconclusive RCTs and systematic reviews that show low strength of evidence
• Level of confidence in the evidence: High regarding the absence of a long-term (>6 months) benefit of TMS; moderate regarding the absence of a short-term benefit, since a minority of trials demonstrated transient beneficial outcomes, and strength of this evidence is low
• Benefits: Avoid unproven therapy, side effects/adverse events, and false hope; reduce expense
• Risks, harms, costs: Denying some patients benefit
• Benefit-harm assessment: Preponderance of benefit
• Value judgments: None
• Intentional vagueness: None
• Role of patient preferences: Limited
• Exclusions: Patients with depression or other neurological conditions for which TMS is indicated
• Policy level: Recommendation against
• Differences in opinion: None

Disclaimer
The clinical practice guideline is provided for information and educational purposes only. It is not intended as a sole source of guidance in managing patients with tinnitus. Rather, it is designed to assist clinicians by providing an evidence-based framework for decision-making strategies. The guideline is not intended to replace clinical
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