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David E. Tunkel, MD, Carol A. Bauer, MD,
Gordon H. Sun, MD, MS, Richard M. Rosenfeld, MD, MPH,
Sujana S. Chandrasekhar, MD, Eugene R. Cunningham Jr, MS,
Sanford M. Archer, MD, Brian W. Blakley, MD, PhD,
John M. Carter, MD, Evelyn C. Granieri, MD, MPH, MEd,
James A. Henry, PhD, Deena Hollingsworth, RN, MSN, FNP,
Fawad A. Khan, MD, Scott Mitchell, JD, CPA, Ashkan Monfared, MD,
Craig W. Newman, PhD, Folashade S. Omole, MD,
C. Douglas Phillips, MD, Shannon K. Robinson, MD,
Malcolm B. Taw, MD, Richard S. Tyler, PhD,
Richard Waguespack, MD, and Elizabeth J. Whamond




**AMERICAN ACADEMY OF
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F O U N D A T I O N

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David E. Tunkel, MD¹, Carol A. Bauer, MD², Gordon H. Sun, MD, MS³,
 Richard M. Rosenfeld, MD, MPH⁴, Sujana S. Chandrasekhar, MD⁵,
 Eugene R. Cunningham Jr, MS⁶, Sanford M. Archer, MD⁷,
 Brian W. Blakley, MD, PhD⁸, John M. Carter, MD⁹,
 Evelyn C. Granieri, MD, MPH, MSEd¹⁰, James A. Henry, PhD¹¹,
 Deena Hollingsworth, RN, MSN, FNP¹², Fawad A. Khan, MD¹³,
 Scott Mitchell, JD, CPA¹⁴, Ashkan Monfared, MD¹⁵,
 Craig W. Newman, PhD¹⁶, Folashade S. Omole, MD¹⁷,
 C. Douglas Phillips, MD¹⁸, Shannon K. Robinson, MD¹⁹,
 Malcolm B. Taw, MD²⁰, Richard S. Tyler, PhD²¹,
 Richard Waguespack, MD²², and Elizabeth J. Whamond²³

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Abstract

Objective. 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. Despite the high prevalence of tinnitus and its potential significant effect on quality of life, there are no evidence-based, multidisciplinary clinical practice guidelines to assist clinicians with management. The focus of this guideline is on tinnitus that is both bothersome and persistent (lasting 6 months or longer), which often negatively affects the patient's quality of life. The target audience for the guideline is any clinician, including nonphysicians, involved in managing patients with tinnitus. The target patient population is limited to adults (18 years and older) with primary tinnitus that is persistent and bothersome.

Purpose. The purpose of this guideline is to provide evidence-based recommendations for clinicians managing patients with tinnitus. This guideline provides clinicians with a logical framework to improve patient care and mitigate the personal and social effects of persistent, bothersome tinnitus. It will discuss 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 effect of tinnitus and to determine the most appropriate interventions to improve symptoms and quality of life for tinnitus sufferers.

Action Statements. The development group made a *strong recommendation* that clinicians distinguish patients with bothersome tinnitus from patients with nonbothersome tinnitus. The development group made a *strong recommendation against* obtaining imaging studies of the head and neck in patients with tinnitus, specifically to evaluate tinnitus that does not localize to 1 ear, is nonpulsatile, and is not associated with focal neurologic abnormalities or an asymmetric hearing loss. The panel made the following *recommendations*: Clinicians should (a) 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; (b) obtain a prompt, comprehensive audiologic examination in patients with tinnitus that is unilateral, persistent (≥ 6 months), or associated with hearing difficulties; (c) 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; (d) educate patients with persistent, bothersome tinnitus about management strategies; (e) recommend a hearing aid evaluation for patients who have persistent, bothersome tinnitus associated with documented hearing loss; and (f) recommend cognitive behavioral therapy to patients with persistent, bothersome tinnitus. The panel *recommended against* (a) antidepressants, anticonvulsants, anxiolytics, or intratympanic medications for the routine treatment of patients with persistent, bothersome tinnitus; (b) Ginkgo biloba, melatonin, zinc, or other dietary supplements for treating patients with persistent, bothersome tinnitus; and (c) transcranial magnetic stimulation for the routine treatment of patients with persistent, bothersome tinnitus. The development group provided the following *options*: Clinicians may (a) obtain an initial comprehensive audiologic examination in patients who present with tinnitus (regardless of laterality, duration, or perceived hearing status);

and (b) recommend sound therapy to patients with persistent, bothersome tinnitus. The development group provided *no recommendation* regarding the effect of acupuncture in patients with persistent, bothersome tinnitus.

Keywords

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

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Introduction

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.^{1,2} About 20% of adults who experience tinnitus will require clinical intervention.³ Not a disease in and of itself, tinnitus is actually a symptom that can be associated with multiple causes and aggravating co-factors. 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 3 months.” Such tinnitus was present in 1.6% of adults ages 18 to 44 years, 4.6% of adults ages 45 to 64 years, and 9.0% of adults 60 years and older.⁴ In the Beaver Dam offspring study of more than 3000 adults between the ages of 21 and 84 years studied between 2005 and 2008, 10.6% reported tinnitus of at least moderate severity or causing difficulty falling asleep.⁵ Tinnitus can also have a large economic effect. For example, tinnitus was the most prevalent service-connected disability for U.S. military veterans receiving compensation at the end of fiscal year 2012, resulting in nearly 1 million veterans receiving disability awards.⁶

Tinnitus can occur on 1 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 tinnitus patients. 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 tinnitus patients⁷ 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 effect 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. Although there is currently no cure for primary tinnitus, a wide range of therapies has 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

¹Otolaryngology—Head and Neck Surgery, Johns Hopkins Outpatient Center, Baltimore, Maryland, USA; ²Division of Otolaryngology—Head and Neck Surgery, Southern Illinois University School of Medicine, Springfield, Illinois, USA; ³Partnership for Health Analytic Research, LLC, Los Angeles, California, USA; ⁴Department of Otolaryngology, State University of New York at Downstate Medical Center, Brooklyn, New York, USA; ⁵New York Otology, New York, New York, USA; ⁶Department of Research and Quality Improvement, American Academy of Otolaryngology—Head and Neck Surgery Foundation, Alexandria, Virginia, USA; ⁷Divisions of Rhinology & Sinus Surgery and Facial Plastic & Reconstructive Surgery, University of Kentucky, Lexington, Kentucky, USA; ⁸Department of Otolaryngology, University of Manitoba, Winnipeg, Manitoba, Canada; ⁹Department of Otolaryngology, Tulane University, New Orleans, Louisiana, USA; ¹⁰Division of Geriatric Medicine and Aging, Columbia University, New York, New York, USA; ¹¹National Center for Rehabilitative Auditory Research, Portland VA Medical Center, Portland, Oregon, USA; ¹²ENT Specialists of Northern Virginia, Falls Church, Virginia, USA; ¹³Ochsner Health System, Kenner, Louisiana, USA; ¹⁴Mitchell & Cavallo, P.C., Houston, Texas, USA; ¹⁵Department of Otolaryngology and Neurotology, The George Washington University, Washington, DC, USA; ¹⁶Department of Surgery, Cleveland Clinic Lerner College of Medicine, Cleveland, Ohio, USA; ¹⁷Morehouse School of Medicine, East Point, Georgia, USA; ¹⁸Department of Head and Neck Imaging, Weill Cornell Medical Center, New York-Presbyterian Hospital, New York, New York, USA; ¹⁹Department of Psychiatry, University of California, San Diego, La Jolla, California, USA; ²⁰Department of Medicine, UCLA Center for East-West Medicine, Los Angeles, California, USA; ²¹Department of Otolaryngology—Head and Neck Surgery, The University of Iowa, Iowa City, Iowa, USA; ²²Department of Surgery, University of Alabama School of Medicine, Birmingham, Alabama, USA; ²³Consumers United for Evidence-Based Healthcare, Fredericton, New Brunswick, Canada.

Corresponding Author:

David E. Tunkel, MD, Otolaryngology—Head and Neck Surgery, Johns Hopkins Outpatient Center, 601 North Caroline Street, Room 6231, Baltimore, MD 21287-0006, USA.
Email: dtunkel@jhmi.edu