MADISON NEUROLOGY · NEUROLOGY SYMPTOM GUIDE

Ringing, buzzing, pulsating, or other ear noise

Structured history, interpretation & clinical review

Symptom 78 of 94
Clinical educational workbook
Version 1.0 · October 2026

Not for clinical use. This guide cannot diagnose, triage, or exclude an emergency. Seek emergency care for severe, sudden, or worsening symptoms.

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> **Document purpose**
> A structured educational history and diagnostic-reasoning workbook. Treatment is outside its scope.

Scope and safe use

Ear noise is classified by one/both ears, pulse synchrony, hearing change, vertigo, medication/noise exposure, and neurological or vascular warnings.

Not for clinical use.
This educational workbook does not diagnose, triage, estimate probability, replace examination, or exclude an emergency. If a safety-screen answer is Yes or uncertain, follow the stated action rather than continuing routine interpretation.

How to complete the workbook

- Record the current episode and the person’s usual baseline; use a witness account for events with impaired awareness.
- Check one option per question unless a clinician documents a different combination. “Not sure” is unresolved information, not a negative answer.
- Complete the safety screen before all other sections. Record exact onset or last-known-well time for sudden deficits.
- Use Section 2 only after the form is complete. More than one pattern may be relevant; urgency takes precedence.
- Use Section 3 to plan focused examination and clinician-selected investigations. No test is automatic or universally required.

Specific escalation rule

New severe headache, new focal weakness or numbness, new speech/language difficulty, reduced consciousness, a prolonged seizure, severe breathing or swallowing difficulty, sudden visual loss, or rapidly progressive weakness requires emergency assessment. Call 911 in the United States.

Section 1: Input form

Checkbox history for Ringing, buzzing, pulsating, or other ear noise

1A. Immediate safety screen

Is there new face droop, one-sided weakness or numbness, difficulty speaking or understanding, double vision, or severe loss of coordination?

☐ No ☐ Yes ☐ Not sure

If Yes: Call emergency services now and record the exact time the person was last known well.

Is there new confusion, reduced consciousness, a seizure, or difficulty awakening?

☐ No ☐ Yes ☐ Not sure

If Yes: Call emergency services now. Do not leave the person alone or give food, drink, or medication by mouth.

Is there new severe breathlessness, inability to swallow saliva, blue lips, or rapidly worsening weakness?

☐ No ☐ Yes ☐ Not sure

If Yes: Call emergency services now; breathing and swallowing problems can become critical quickly.

Is there sudden loss of vision, a new missing visual field, or a painful red eye?

☐ No ☐ Yes ☐ Not sure

If Yes: Seek emergency eye or emergency-department assessment now.

> **Stop rule:** Any Yes answer triggers the action printed under that question. Any Not sure answer requires prompt in-person clarification; do not treat it as No.

1B. Timeline

How did the symptom begin?

☐ Suddenly, over seconds or minutes ☐ Over hours to days ☐ Gradually over weeks or months ☐ Longstanding or since childhood ☐ Not sure

Use the first occurrence for recurrent episodes; use the current episode for a changing symptom.

What is the overall course?

☐ One persistent episode ☐ Separate recurrent episodes ☐ Steadily worsening ☐ Fluctuating or variable ☐ Currently resolved

Has this exact pattern been assessed before?

☐ Definitely new ☐ The same pattern occurred before ☐ Present and stable for a long time ☐ Not sure

1C. Discriminating features

Does the sound beat in time with the pulse?

☐ Yes, pulse-synchronous ☐ No ☐ Not sure

Where is it heard?

☐ One ear only ☐ Both ears or inside the head ☐ Changes sides ☐ Not sure

Is there hearing loss, sound sensitivity, vertigo, ear fullness, or discharge?

☐ Hearing change or fullness ☐ Recurrent vertigo or imbalance ☐ Pain or discharge ☐ None

How does it affect sleep, concentration, mood, or safety?

☐ Severe distress, insomnia, or safety concern ☐ Regular interference ☐ Noticeable but manageable ☐ Not sure

1D. Associated findings

Are there other neurological symptoms—weakness, numbness, speech change, double vision, swallowing difficulty, or severe imbalance?

☐ Yes ☐ No ☐ Not sure

Are there systemic clues—fever, weight loss, cancer, infection risk, pregnancy/postpartum status, or a new medication?

☐ Yes ☐ No ☐ Not sure

How much does this affect daily activity?

☐ Noticeable but activities continue ☐ Some activities are limited ☐ Cannot perform usual activities ☐ Not sure

1E. Clinical context

Who is being assessed?

☐ Adult or adolescent ☐ Child under 12 ☐ Adult aged 65 or older

Could a medicine, substance, withdrawal, or recent dose change be relevant?

☐ No plausible contributor ☐ Yes or possibly ☐ Not reviewed

Include sedatives, dopamine-blocking drugs, stimulants, decongestants, anticholinergics, alcohol, and non-prescribed substances when relevant.

Is there a relevant neurological, muscular, metabolic, cardiovascular, autoimmune, or sleep disorder?

☐ No known relevant condition ☐ Yes ☐ Not sure

What prior information is available?

☐ A previous examination or investigation ☐ Prior records but no clear explanation ☐ No useful prior assessment ☐ Not sure

Additional history and documentation

Record exact dates/times, witness details, relevant medication doses and changes, prior investigation reports, and the person’s baseline function.

Section 2: Interpreting the input form

Answer combinations generate a differential and an assessment pathway—not a diagnosis.

> **Precedence:** Emergency safety answers override every pattern below. Otherwise, the highest-urgency fully matched pattern takes precedence. If entries are incomplete, contradictory, or match no pattern, use the unresolved-information pathway.

Pattern 1: Pulsatile tinnitus pathway

Does the sound beat in time with the pulse? Yes, pulse-synchronous

Urgent assessment pattern — Same day

Pulse-synchronous ear noise requires prompt vascular assessment rather than routine tinnitus labeling.

Differential to review:

- Pulsatile vascular tinnitus

Action: Arrange same-day medical assessment. If symptoms are rapidly worsening or severe, call 911.

Pattern 2: Unilateral hearing/retrocochlear pattern

Where is it heard? One ear only
Is there hearing loss, sound sensitivity, vertigo, ear fullness, or discharge? Hearing change or fullness

Prompt clinical review pattern — Promptly

One-sided tinnitus with hearing change needs audiometry and assessment for retrocochlear disease.

Differential to review:

- Tinnitus associated with hearing loss or noise exposure
- Retrocochlear or vestibular disorder

Action: Arrange an in-person medical or neurological review promptly, usually within days. Seek sooner care if the pattern changes.

Pattern 3: Vestibular-associated tinnitus

Is there hearing loss, sound sensitivity, vertigo, ear fullness, or discharge? Recurrent vertigo or imbalance

Prompt clinical review pattern — Promptly

Tinnitus with recurrent vertigo needs inner-ear and vestibular characterization.

Differential to review:

- Retrocochlear or vestibular disorder
- Tinnitus associated with hearing loss or noise exposure

Action: Arrange an in-person medical or neurological review promptly, usually within days. Seek sooner care if the pattern changes.

Pattern 4: Bilateral non-pulsatile tinnitus

Does the sound beat in time with the pulse? No
Where is it heard? Both ears or inside the head

Structured clinical review pattern — Routine review

Bilateral non-pulsatile tinnitus follows an audiologic, exposure, medication, and impact assessment.

Differential to review:

- Tinnitus associated with hearing loss or noise exposure
- Middle-ear, patulous-tube, or somatosensory tinnitus

Action: Arrange a routine in-person clinical review. New, severe, or worsening symptoms change this pathway.

Unresolved-information pathway: The entries need structured in-person characterization.

Prompt clinical review pattern — Promptly

Do not guess missing answers or convert uncertainty into reassurance. Document what is unknown, perform an in-person examination, clarify the timeline with a witness or records when available, and reassess if any new feature appears.

Action: Arrange an in-person medical or neurological review promptly, usually within days. Seek sooner care if the pattern changes.

Section 3: Clinical review

Diagnostic modules and focused investigation logic

The examination comes before a test list. Select investigations only after localization, urgency, comorbidity, pregnancy status, renal function, anticoagulation, and prior results have been considered.

3.1 Tinnitus associated with hearing loss or noise exposure

Discriminating features: Non-pulsatile noise with audiometric loss, noise exposure, or sound sensitivity.

Logical investigations: Otoscopy, audiometry, and medication/noise review; sudden associated hearing loss remains urgent.

3.2 Pulsatile vascular tinnitus

Discriminating features: Pulse-synchronous sound, especially unilateral or with headache, visual symptoms, bruit, or blood-pressure clues.

Logical investigations: Prompt vascular/ENT assessment with clinician-directed imaging of head/neck vessels and pressure evaluation.

3.3 Middle-ear, patulous-tube, or somatosensory tinnitus

Discriminating features: Ear fullness, conductive findings, autophony, or modulation by jaw/neck movement.

Logical investigations: Otologic, TMJ/neck, and audiologic assessment according to examination findings.

3.4 Retrocochlear or vestibular disorder

Discriminating features: Unilateral persistent tinnitus with asymmetric hearing loss, vertigo, or cranial-nerve findings.

Logical investigations: Audiometry and clinician-directed MRI or vestibular testing when indicated.

Reassessment and documentation

- If the symptom pattern changes, repeat the safety screen and timeline rather than carrying forward an earlier interpretation.
- If a test is unrevealing but the deficit persists or progresses, revisit localization and seek specialist review; a normal result does not automatically end assessment.
- If symptoms resolve, document duration, completeness of recovery, recurrence, and any residual deficit. Resolved sudden focal symptoms can still require urgent vascular assessment.
- If the history and examination conflict, obtain collateral information and in-person review rather than forcing a single diagnostic label.

Selected references

Sources provide background standards and do not replace local emergency pathways or current specialist guidance. Accessed October 2026.

1. Chandrasekhar SS, Schwartz SR, Bontempo LJ, et al.. (2019). *Clinical Practice Guideline: Sudden Hearing Loss (Update)*. https://pubmed.ncbi.nlm.nih.gov/31369359/

2. National Institute for Health and Care Excellence. (2018). *Hearing loss in adults: assessment and management (NG98)*. https://www.nice.org.uk/guidance/ng98