



## Topic Exploration Report

Topic explorations are designed to provide a high-level briefing on new topics submitted for consideration by Health Technology Wales. The main objectives of this report are to:

1. Determine the quantity and quality of evidence available for a technology of interest.
2. Identify any gaps in the evidence/ongoing evidence collection.
3. Inform decisions on topics that warrant fuller assessment by Health Technology Wales.

Topic:	Pillow speakers to deliver sound therapy for people with tinnitus
Topic exploration report number:	TER183

### Introduction and aims

People who have tinnitus often report that it is more noticeable and bothersome in a quiet environment, for example at night when it can interfere with sleep. Listening to other sounds can make tinnitus less intrusive. The deliberate use of any sound to reduce tinnitus awareness or reduce the distress associated with it can be called sound enrichment or sound therapy. Pillow speakers enable people with tinnitus to use sound enrichment or sound therapy via a non-intrusive speaker with reduced noise impact on others.

HTW researchers searched for evidence on the use of under-pillow speakers to deliver sound enrichment or sound therapy for people with tinnitus.

### Summary of evidence

We did not identify any evidence that assessed the effectiveness of pillow speakers specifically. We identified guidelines and systematic reviews that assessed sound therapy and/or sound enrichment in general.

#### *Guidelines and guidance*

Evidence on the effectiveness of sound enrichment/sound therapy was assessed as part of a recent NICE Guideline: *Tinnitus: assessment and management* (NG155, published March 2020). Evidence on the effectiveness of sound therapy (delivered using any type of device) was reviewed as part of this guideline but the Guideline Committee were unable to make recommendations for practice in this area, because there are many types of sound therapy used by people with tinnitus and insufficient evidence to recommend any particular type. The committee also noted that although it is important to know the clinical effectiveness of sound therapies in isolation, it is important that tinnitus support is provided in combination with these interventions and further research in this area was recommended.

*A multidisciplinary European guideline for tinnitus: diagnostics, assessment, and treatment* was published in 2019. Similarly to the NICE Guideline, this assessed sound therapy in general

but did find little high-level evidence for its effectiveness. The guideline notes that sound therapy (including masking, music, environmental sound) may be useful for acute relief purposes but is not considered an effective intervention with long-term results when used as a standalone therapy. Recommendations were not made about specific devices to deliver sound therapy.

#### Systematic reviews

We identified several Cochrane Reviews assessing the evidence on some aspects of sound therapy. The most relevant (Sereda, 2018) was published in 2018 and studied sound therapy (using amplification devices and/or sound generators) for tinnitus. This supersedes an earlier review (Hobson, 2014) that also assessed sound therapy. The review by Sereda (2018) was also used as the main source of evidence on sound therapy when developing NICE Guideline 155. Cochrane also produced a Clinical Answer in 2020, using the findings of the same review.

The reviewers identified eight randomised controlled trials assessing the effectiveness of sound therapy. These used a wide range of designs and types of sound therapy, and compared sound therapy either to no therapy or to other types of tinnitus management. These RCTs were deemed to be too small to provide clinically useful results. The authors concluded that there was insufficient evidence to support the superiority of sound therapy for tinnitus over waiting list control, placebo or education/information with no device, and insufficient evidence to support the superiority or inferiority of any of the sound therapy options (hearing aid, sound generator or combination hearing aid) over each other.

#### Areas of uncertainty

The evidence found compared different sound therapy types or techniques to each other, or to no treatments: we did not identify any evidence comparing specific sound delivery devices to each other, or any evidence on how different devices affect tinnitus outcomes, or patients' preferences for different devices.

#### Conclusions

There is some evidence on the effectiveness of sound therapy/sound enrichment for the acute relief of tinnitus or its longer-term management, but this does not cover specific types of device used to deliver sound (whether pillow speakers or any other alternatives). Guidelines on this topic recommend further research into the use of sound therapy or enrichment alongside other tinnitus management strategies.

## Brief literature search results

Resource	Results
HTA organisations	
<a href="#">Healthcare Improvement Scotland</a>	We did not identify any relevant guidance or advice from this source.
<a href="#">Health Technology Assessment Group</a>	Only generic guidance on the condition, including the use of sound therapy in general.
<a href="#">Health Information and Quality Authority</a>	We did not identify any relevant guidance or advice from this source
UK guidelines and guidance	
<a href="#">SIGN</a>	We did not identify any relevant guidance from this source
<a href="#">NICE</a>	National Institute for Health and Care Excellence. Tinnitus: assessment and management. NICE guideline [NG155]. Published date: 11 March 2020. <a href="https://www.nice.org.uk/guidance/ng155">https://www.nice.org.uk/guidance/ng155</a>
Secondary literature and economic evaluations	
<a href="#">EUnetHTA</a>	We did not identify any relevant guidance or advice from this source.
<a href="#">Cochrane library</a>	<p>Hobson, J, Chisholm, E, El Refaie, A. Sound therapy (masking) in the management of tinnitus in adults. Cochrane Database of Systematic Reviews 2012, Issue 11. Art. No.: CD006371. <a href="https://doi.org/10.1002/14651858.CD006371.pub3">https://doi.org/10.1002/14651858.CD006371.pub3</a></p> <p>Sereda, M., Xia, J., El Refaie, A., Hall, D.A. and Hoare, D.J., 2018. Sound therapy (using amplification devices and/or sound generators) for tinnitus. Cochrane Database Syst Rev. 2018 Dec 27;12(12):CD013094. <a href="https://doi.org/10.1002/14651858.cd013094.pub2">https://doi.org/10.1002/14651858.cd013094.pub2</a></p> <p><i>The review by Sereda supersedes the earlier review by Hobson; the latter is included here for completeness but contains no extra information of relevance. Both reviews refer only to sound therapy in general and not to these technologies specifically.</i></p> <p>What are the effects of sound therapy for adults with tinnitus? Jane Burch (PhD) and Sera Tort (MD) (on behalf of Cochrane Clinical Answers Editors). Cochrane Clinical Answers 2020. <a href="https://doi.org/10.1002/cca.2951">https://doi.org/10.1002/cca.2951</a></p>
<a href="#">TRIP database</a>	<p>Cima R.F.F, et al. (2019) A multidisciplinary European guideline for tinnitus: diagnostics, assessment, and treatment Volume 67, Supplement 1, pp 10-42. <a href="https://doi.org/10.1007/s00106-019-0633-7">https://doi.org/10.1007/s00106-019-0633-7</a></p> <p><i>This guideline refers only to the use of sound and masking therapies generally and not to these technologies specifically.</i></p>

	<p>Stockdale D, McFerran D, Brazier P, Pritchard C, Kay T, Dowrick C, Hoare DJ. An economic evaluation of the healthcare cost of tinnitus management in the UK. BMC Health Serv Res. 2017 Aug 22;17(1):577. doi: 10.1186/s12913-017-2527-2. <a href="https://doi.org/10.1186/s12913-017-2527-2">https://doi.org/10.1186/s12913-017-2527-2</a></p> <p><i>This economic evaluation provides costing information on a range of tinnitus treatments but does not include pillow speakers or other methods of delivering sound therapy/enrichment specifically.</i></p>
Ongoing primary or secondary research	
<a href="#">PROSPERO database</a>	We did not identify any relevant ongoing systematic reviews.
<a href="#">Clinicaltrials.gov</a> <i>Only include if insufficient secondary evidence and primary studies found. Check for ongoing studies that have recently closed or are due to complete in the next 6-12 months.</i>	We did not identify any relevant ongoing clinical trials.
Date of search:	February 2021
Concepts used:	Tinnitus, sound therapy, sound enrichment, sleep therapy, speaker, pillow