

**Surgery versus radiation therapy for treatment of  
vestibular schwannoma:  
update searches and screening  
for  
Universitätsklinikum Schleswig-Holstein/Campus Kiel**



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## 1. PROJECT OBJECTIVES

A key aim of the research project “Making SDM a reality” is to inform patients as part of shared decision making (SDM).

Kleijnen Systematic Reviews (KSR) Ltd has prepared an evidence report with a synthesis of the evidence of surgery vs. radiation therapy for the treatment of vestibular schwannoma <30 mm.

## 2. METHODS

### LITERATURE SEARCHES

Literature searches were conducted to identify systematic reviews and evidence-based guidelines about vestibular schwannoma to update the 2019 evidence report.

The search strategies were developed specifically for each database and the keywords adapted according to the configuration of each database. Searches were limited by date range to update earlier searches: 2019-2021. Searches were not limited by language or publication status.

### SEARCH SOURCES

#### Systematic reviews and guidelines

The following systematic review and health technology assessment specific databases were searched:

- Cochrane Database of Systematic Reviews (CDSR) (Wiley): issue 9 of 12, September 2021
- KSR Evidence (Internet) (<https://ksrevidence.com/>): 2019-2021
- Epistemonikos (Internet) (<https://www.epistemonikos.org/>): 2019-2021
- International HTA Database (INAHTA) (<https://database.inahta.org/>): 2019-2021

The following guidelines resources were searched:

- Guidelines International Network (GIN) (Internet) (<https://www.g-i-n.net/home>): 2019-2021
- NICE Evidence (Internet) ([www.evidence.nhs.uk/](http://www.evidence.nhs.uk/)): 2019-2021
- NICE Guidance (Internet) (<https://www.nice.org.uk/guidance>): 2019-2021
- ECRI Guidelines Trust (Internet) (<https://guidelines.ecri.org/>): 2019-2021
- Trip Database (<https://www.tripdatabase.com/>): 2019-2021
- Canadian Agency for Drugs and Technologies in Health (CADTH) ([www.cadth.ca](http://www.cadth.ca)): 2019-2021

Full details of all search strategies are presented in Appendix 1.

#### Handling of citations

References identified from the searches were downloaded into EndNote bibliographic management software for further assessment and handling.

### Supplementary searches

The bibliographies of included studies and review articles were also checked for additional relevant articles.

### Prioritisation

During formal screening of titles and abstracts, studies were subject to a prioritisation process whereby the recency e.g., to most up-to-date clinical practice guidelines (CPG), methodological quality e.g., Cochrane systematic review (CSR), quality of the analyses per outcome (e.g., ratio of RCTs to observational studies), the number of included RCTs, the breadth of the timepoints reported etc. were considered to further prioritise which studies would be used to inform analyses. Studies were categorised into the following three categories: '1' = German, American, European or similar CPG; '2' = CSR or similar quality SR; '3' = potentially lower/other quality SR.

## 3. RESULTS

The original EBSCO searches were conducted on June 19, 2019; and of the 110 references screened, 16 studies were deemed eligible. In the current update, a total of 321 records were retrieved from the electronic literature searches (see Appendix 1). After the removal of duplicate records 174 titles and abstracts were screened by two reviewers. Twenty-two records were found to be potentially eligible and were longlisted after a consensus. Of those, five were short-listed and included in the analyses (Table 1).<sup>1-5</sup> See also Table 2 for an overview of primary studies included in the identified SRs/CPGs.

### **UPDATE – Concluding Assessment by SHARE-TO-CARE Evidence Team (16/05/22)**

Based on the update searches conducted by KSR Ltd in September 2021, we want to highlight the following aspects: In the absence of randomised controlled trials comparing microsurgery and radiosurgery, recent systematic reviews (Ding et al., 2020; Ojha & Clamp, 2020; Neves Cavada et al., 2021) cannot add any substantial new findings to the existing body of evidence on the treatment modalities for vestibular schwannomas. A minor modification of the decision aid will be made following results by Kim, Hullar, & Seo (2020) who found no differences concerning balance outcomes after surgery between microsurgery and radiosurgery.

Conclusion regarding the evidence report: The present evidence report (June 19, 2019) remains valid but will be supplemented with this update report and its new data on balance outcomes.

Table 1 Evidence sources

| Study/year              | Evidence type | Primary studies    | Number of studies | Intervention(s)          | Comparator(s)                | Outcome(s)                                   | Date searched   | Conclusions                                                                                                                                                                                                                                    |
|-------------------------|---------------|--------------------|-------------------|--------------------------|------------------------------|----------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kim 2020 <sup>1</sup>   | SR            | Non-RCTs, OS       | 34                | Microsurgery             | Radiotherapy, or observation | Balance (dizziness, disequilibrium, vertigo) | September 2017  | "Our results indicate that microsurgery should be considered at least equal to radiotherapy in regard to resolving long-term dizziness and improving balance outcomes"                                                                         |
| Preet 2020 <sup>2</sup> | SR            | RCTs, non-RCTs, OS | 26                | Retro-sigmoid surgery    | Various controls             | Hearing preservation                         | April 21, 2018  | "Tumour size may have an effect on hearing preservation rates, but multiple factors should be considered. Discussion of a patient's expectations for hearing preservation is critical when deciding on vestibular schwannomas treatment plans" |
| Ding 2020 <sup>3</sup>  | SR            | OS                 | 6                 | Gamma knife radiosurgery | None                         | Tumour control rates                         | October 2018    | "Despite the paucity of pertinent data, the results of our meta-analysis suggest that stereotactic radiosurgery exhibits effective tumour control rates in patients with cystic vestibular schwannoma"                                         |
| Ojha 2020 <sup>4</sup>  | SR            | OS                 | 8                 | Surgery (various)        | Gamma knife radiosurgery     | Balance function                             | August 23, 2017 | "No specific treatment modality was superior in terms of long-term balance function. Patients with severe dizziness may benefit from surgery, although no comparator studies were identified"                                                  |
| Neves                   | SR            | CS, OS             | 71                | Microsurgery             | Radiotherapy,                | Hearing                                      | October 5,      | "Serviceable hearing was                                                                                                                                                                                                                       |

| Study/year                                                                                                                  | Evidence type | Primary studies | Number of studies | Intervention(s) | Comparator(s)  | Outcome(s)   | Date searched | Conclusions                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|-------------------|-----------------|----------------|--------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cavada 2021 <sup>5</sup>                                                                                                    |               |                 |                   |                 | or observation | preservation | 2019          | observed in 31% of patients after observation, 56% after radiotherapy, and 51% after surgical treatment with mean follow-up time of 4.04 years, 4.92 years, and 2.23 years, respectively” |
| CS = case series; N/M = not mentioned; OS = observational study; RCT = randomised controlled trial; SR = systematic review. |               |                 |                   |                 |                |              |               |                                                                                                                                                                                           |

**Table 2 Overview of primary studies included in the identified SRs/CPGs**

| Study/year              | Primary study(ies)  | Reference (first author & journal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kim 2020 <sup>1</sup>   | Non-RCTs, OS*       | <ol style="list-style-type: none"> <li>1. Soulier G, van Leeuwen BM, Putter H, Jansen JC, Malessy MJA, van Benthem PPG, van der Mey AGL, Stiggelbout AM. Quality of Life in 807 Patients with Vestibular Schwannoma: Comparing Treatment Modalities. <i>Otolaryngol Head Neck Surg.</i> 2017 Jul;157(1):92-98.</li> <li>2. Samii M, Metwali H, Gerganov V. Efficacy of microsurgical tumor removal for treatment of patients with intracanalicular vestibular schwannoma presenting with disabling vestibular symptoms. <i>J Neurosurg.</i> 2017 May;126(5):1514-1519.</li> <li>3. Kessel KA, Fischer H, Vogel MM, Oechsner M, Bier H, Meyer B, Combs SE. Fractionated vs. single-fraction stereotactic radiotherapy in patients with vestibular schwannoma : Hearing preservation and patients' self-reported outcome based on an established questionnaire. <i>Strahlenther Onkol.</i> 2017 Mar;193(3):192-199. English. doi: 10.1007/s00066-016-1070-0. Epub 2016 Nov 1. Erratum in: <i>Strahlenther Onkol.</i> 2017 Feb;193(2):171.</li> <li>4. Putz F, Müller J, Wimmer C, Goerig N, Knippen S, Iro H, Grundtner P, Eyüpoglu I, Rössler K, Semrau S, Fietkau R, Lettmaier S. Stereotactic radiotherapy of vestibular schwannoma : Hearing preservation, vestibular function, and local control following primary and salvage radiotherapy. <i>Strahlenther Onkol.</i> 2017 Mar;193(3):200-212. English. doi: 10.1007/s00066-016-1086-5.</li> </ol> |
| Preet 2020 <sup>2</sup> | RCTs, non-RCTs, OS* | <ol style="list-style-type: none"> <li>1. ZhuW, Chen H, Jia H, et al. Long-term hearing preservation outcomes for small vestibular schwannomas: retrosigmoid removal versus observation. <i>Otol Neurotol.</i> 2018;39(2):e158-e165.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Study/year             | Primary study(ies) | Reference (first author & journal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        |                    | <ol style="list-style-type: none"> <li>Shinoura N, Midorikawa A, Hiromitsu K, Saito S, Yamada R. Preservation of hearing following awake surgery via the retrosigmoid approach for vestibular schwannomas in eight consecutive patients. <i>Acta Neurochir.</i> 2017;159(9):1579-1585</li> <li>Huang X, Xu M, Xu J, et al. Complications and management of large intracranial vestibular schwannomas via the retrosigmoid approach. <i>World Neurosurg.</i> 2017;99:326-335.</li> <li>Scheller C, Wienke A, Tatagiba M, et al. Stability of hearing preservation and regeneration capacity of the cochlear nerve following vestibular schwannoma surgery via a retrosigmoid approach. <i>J Neurosurg.</i> 2016;125(5):1277-1282.</li> <li>Abboud T, Regelsberger J, Matschke J, Jowett N, Westphal M, Dalchow C. Long-term vestibulocochlear functional outcome following retro-sigmoid approach to resection of vestibular schwannoma. <i>Eur Arch Otorhinolaryngol.</i> 2016;273(3):719-725.</li> </ol>                                                                                                                                                                                      |
| Ding 2020 <sup>3</sup> | OS*                | <ol style="list-style-type: none"> <li>C.C. Wu, W.Y. Guo, W.Y. Chung, et al., Magnetic resonance imaging characteristics and the prediction of outcome of vestibular schwannomas following Gamma Knife radiosurgery, <i>J. Neurosurg.</i> 127 (6) (2017) 1384–1391.</li> <li>G. Bowden, J. Cavaleri, E. Monaco III, A. Niranjani, J. Flickinger, L.D. Lunsford, Cystic vestibular schwannomas respond best to radiosurgery, <i>Neurosurgery</i> 81 (3) (2017) 490–497.</li> <li>C.D. Frisch, J.T. Jacob, M.L. Carlson, et al., Stereotactic radiosurgery for cystic vestibular schwannomas, <i>Neurosurgery</i> 80 (1) (2017) 112–118.</li> <li>M. Teo, M. Zhang, A. Li, et al., The outcome of hypofractionated stereotactic radiosurgery for large vestibular schwannomas, <i>World Neurosurg.</i> 93 (2016) 398–409.</li> </ol>                                                                                                                                                                                                                                                                                                                                                             |
| Ojha 2020 <sup>4</sup> | OS                 | <ol style="list-style-type: none"> <li>Stavas MJ, Carlson ML, Attia A, et al. Does radiation dose to the vestibule predict change in balance function and patient perceived dizziness following stereotactic radiotherapy for vestibular schwannoma? <i>Am J Otolaryngol</i> 2014;35:565–71.</li> <li>Thomeer H, Bonnard D, Franco-Vidal V, et al. Prognostic factors of balance quality after transpetrosal vestibular schwannoma microsurgery: An instrumentally and DHI-based prospective cohort study of 48 patients. <i>Otol Neurotol</i> 2015;36:886–91.</li> <li>Pollock BE, Driscoll CL, Foote RL, et al. Patient outcomes after vestibular schwannoma management: A prospective comparison of microsurgical resection and stereotactic radiosurgery. <i>Neurosurgery</i> 2006;59:77–85.</li> <li>Park SS, Grills IS, Bojrab D, et al. Longitudinal assessment of quality of life and audiometric test outcomes in vestibular schwannoma patients treated with gamma knife surgery. <i>Otol Neurotol</i> 2011;32:676–9.</li> <li>Humphriss RL, Baguley DM, Moffat DA. Change in dizziness handicap after vestibular schwannoma excision. <i>Oto Neurotol</i> 2003;24:661–5.</li> </ol> |

| Study/year                     | Primary study(ies) | Reference (first author & journal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                |                    | <ol style="list-style-type: none"> <li>6. Uehara N, Tanimoto H, Nishikawa T, et al. Vestibular dysfunction and compensation after removal of acoustic neuroma. J Vestib Res 2011;21:289–95.</li> <li>7. Samii M, Metwali H, Gerganov V. Efficacy of microsurgical tumour removal for treatment of patients with intracanalicular vestibular schwannoma presenting with disabling vestibular symptoms. J Neurosurg 2016;126:1514–9.</li> <li>5. Vaz Garcia F. Disequilibrium and its management in elderly patients. Int Tinnitus J 2009;15:83–90.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Neves Cavada 2021 <sup>5</sup> | CS, OS*            | <ol style="list-style-type: none"> <li>1. Daultrey CRJ, Rainsbury JW, Irving RM. Size as a risk factor for growth in conservatively managed vestibular schwannomas: The Birmingham Experience. Otolaryngol Clin North Am 2016;49:1291–5.</li> <li>2. Wolbers JG, Dallenga AHG, van Linge A, et al. Identifying at diagnosis the vestibular schwannomas at low risk of growth in a long-term retrospective cohort. Clin Otolaryngol 2016;41:788–92</li> <li>3. Marston AP, Jacob JT, Carlson ML, Pollock BE, Driscoll CLW, Link MJ. Pretreatment growth rate as a predictor of tumor control following Gamma Knife radiosurgery for sporadic vestibular schwannoma. J Neurosurgery 2017;127:380–7</li> <li>4. Raheja A, Bowers CA, Macdonald JD, et al. Middle fossa approach for vestibular schwannoma: good hearing and facial nerve outcomes with low morbidity. World Neurosurg 2016;92:37–46.</li> <li>5. Kirchmann M, Karnov K, Hansen S, et al. Ten-year follow-up on tumor growth and hearing in patients observed with an intracanalicular vestibular schwannoma. Neurosurgery 2017;80:49–56.</li> <li>6. Younes EMM, Bachelard-Serra M, Jaloux L, Salburgo F, Lavieille JP. Intracanalicular vestibular schwannomas: initial clinical manifestation, imaging classification, and risk stratification for management proposal. Otol Neurotol 2017;38:1345–50.</li> <li>7. Lin RH, Wang TC, Lin CD, et al. Predictors of hearing outcomes following low-dose stereotactic radiosurgery in patients with vestibular schwannomas: a retrospective cohort review. Clin Neurol Neurosurg 2017;162:16–21.</li> <li>8. Rues DPL, Grau S, Hamisch C, et al. Long-term follow-up after stereotactic radiosurgery of intracanalicular acoustic neurinoma. Radiat Oncol 2017;12:68.</li> <li>9. Samii M, Metwali H, Gerganov V. Efficacy of microsurgical tumor removal for treatment of patients with intracanalicular vestibular schwannoma presenting with disabling vestibular symptoms. J Neurosurg 2017;126:1514–9.</li> <li>10. Prasad SC, Patnaik U, Grinblat G, et al. Decision making in the wait-and-scan approach for vestibular schwannomas: is there a price to pay in terms of hearing, facial nerve, and overall outcomes? Neurosurgery 2018;83:858–70</li> </ol> |



| Study/year                                                                                                                                                              | Primary study(ies) | Reference (first author & journal)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                         |                    | <ol style="list-style-type: none"> <li>11. Prasad SC, Patnaik U, Grinblat G, et al. Decision making in the wait-and-scan approach for vestibular schwannomas: is there a price to pay in terms of hearing, facial nerve, and overall outcomes? <i>Neurosurgery</i> 2018;83:858–70</li> <li>12. Sauer JP, Kinfe TM, Pintea B, Schafer A, Bostrom JP. The impact of MRI steady-state sequences as an additional assessment modality in vestibular schwannoma patients after LINAC stereotactic radiotherapy or radiosurgery. <i>Strahlenther Onkol</i> 2018;194:1103–13.</li> <li>13. Tang X, Zheng M, Tang H, et al. Hearing outcomes between multisession and single-session radiosurgery for vestibular schwannoma: a single center study. <i>Translat Cancer Res</i> 2018;7:1092–102.</li> <li>14. Marchioni D, Soloperto D, Masotto B, et al. Transcanal transpromontorial acoustic neuroma surgery: results and facial nerve outcomes. <i>Otol Neurotol</i> 2018;39:242–9.</li> <li>15. Dandinarasaiah M, Prasad SC, Piccirillo E, et al. Facial nerve outcomes following total excision of vestibular schwannoma by the enlarged translabyrinthine approach. <i>Otol Neurotol</i> ;40:226–35.</li> <li>16. Moon IS, Cha D, Nam SI, et al. The feasibility of a modified exclusive endoscopic transcanal transpromontorial approach for vestibular schwannomas. <i>J Neurol Surg B Skull Base</i> 2019;80:82–7.</li> </ol> |
| <p>* = only studies published after 2015 were extracted<br/> CS = case series; OS = observational study; RCT = randomised controlled trial; SR = systematic review.</p> |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## REFERENCES

- [1] Kim G, Hullar TE, Seo JH. Comparison of balance outcomes according to treatment modality of vestibular schwannoma. *Laryngoscope* 2020;130(1):178-89.
  
- [2] Preet K, Ong V, Sheppard JP, Udawatta M, Duong C, Romiyo P, et al. Postoperative hearing preservation in patients undergoing retrosigmoid craniotomy for resection of vestibular schwannomas: a systematic review of 2034 patients. *Neurosurgery* 2020;86(3):332-42.
  
- [3] Ding K, Ng E, Romiyo P, Dejam D, Udawatta M, Sun MZ, et al. Meta-analysis of tumor control rates in patients undergoing stereotactic radiosurgery for cystic vestibular schwannomas. *Clin Neurol Neurosurg* 2020;188:105571.
  
- [4] Ojha S, Clamp PJ. A systematic review of interventions for balance dysfunction in patients with vestibular schwannoma. *Otol Neurotol* 2020;41(3):e295-e303.
  
- [5] Neves Cavada M, Fook-Ho Lee M, Jufas NE, Harvey RJ, Patel NP. Intracanalicular vestibular schwannoma: a systematic review and meta-analysis of therapeutics outcomes. *Otol Neurotol* 2021;42(3):351-62.

## APPENDIX 1: SEARCH STRATEGIES

### Shared Decision Making: Vestibular schwannoma update (EBSCO)

Table 3. Systematic reviews and guideline search results

| Database                   | Dates                          | Results |
|----------------------------|--------------------------------|---------|
| CDSR                       | 2019 - Issue 9, September 2021 | 0       |
| KSR Evidence               | 2019-2021                      | 61      |
| Epistemonikos              | 2019-2021                      | 118     |
| INAHTA                     | 2019-2021                      | 1       |
| NICE Evidence              | 01/01/2019 - 22/09/2021        | 40      |
| NICE Guidance              | 2019-2021                      | 1       |
| GIN                        | 2019-2021                      | 0       |
| ECRI                       | 2019-2021                      | 1       |
| Trip                       | 2019-2021                      | 99      |
| CADTH                      | 2019-2021                      | 0       |
| Total                      |                                | 321     |
| Total after de-duplication |                                | 174     |

#### Search strategies

**Cochrane Database of Systematic Reviews (CDSR) (Wiley): Issue 9 of 12, September 2021**  
**Searched: 22.9.21**

#1 MeSH descriptor: [Neuroma, Acoustic] explode all trees 66  
#2 ((vestibul\* or acoust\* or auditory or ear) near/3 (schwannom\* or neurom\* or neurinom\* or neurilem\* or neurofibroma\* or tumour\* or tumor\* or "nerve cancer\*")):ti,ab,kw 229  
#3 ((cerebellopontin\* or angle\*) near/3 (tumour\* or tumor\*)):ti,ab,kw 21  
#4 ((central or "type 2" or "type II") near/3 neurofibromatos\*):ti,ab,kw 16  
#5 #1 or #2 or #3 or #4 with Cochrane Library publication date Between Jan 2019 and Dec 2021, in Cochrane Reviews, Cochrane Protocols 0

**KSR Evidence (Internet): Database last updated 22 September 2021**

[www.ksrevidence.com](http://www.ksrevidence.com)

**Searched: 22.9.21**

1 (vestibul\* or acoust\* or auditory or ear) near/3 (schwannom\* or neurom\* or neurinom\* or neurilem\* or neurofibroma\* or tumour\* or tumor\* or "nerve cancer\*") in All text 91 results  
2 (cerebellopontin\* or angle\*) near/3 (tumour\* or tumor\*) in All text 5 results  
3 (central or "type 2" or "type II") near/3 neurofibromatos\* in All text 21 results  
4 #1 or #2 or #3 in All text Date published: 2019 - 61 results  
Search run Wed Sep 22 2021

**Epistemonikos (Internet): up to 22 September 2021**

<https://www.epistemonikos.org/en/>

Searched: 22.9.21

(title:(("vestibular schwannoma" OR "vestibular schwannomas" OR "acoustic neuroma" OR "acoustic neuromas" OR "acoustic neurinoma" OR "acoustic neurinomas" OR "acoustic neurilemoma" OR "acoustic neurilemmas" OR "acoustic neurilemmoma" OR "acoustic neurilemmas" OR "acoustic schwannoma" OR "acoustic schwannomas" OR "acoustic tumour" OR "acoustic tumours" OR "acoustic tumor" OR "acoustic tumors" OR "acoustic nerve cancer" OR "acoustic nerve cancers" OR "cerebellopontine angle" OR neurofibromatosis) OR abstract:(("vestibular schwannoma" OR "vestibular schwannomas" OR "acoustic neuroma" OR "acoustic neuromas" OR "acoustic neurinoma" OR "acoustic neurinomas" OR "acoustic neurilemoma" OR "acoustic neurilemmas" OR "acoustic neurilemmoma" OR "acoustic neurilemmas" OR "acoustic schwannoma" OR "acoustic schwannomas" OR "acoustic tumour" OR "acoustic tumours" OR "acoustic tumor" OR "acoustic tumors" OR "acoustic nerve cancer" OR "acoustic nerve cancers" OR "cerebellopontine angle" OR neurofibromatosis)) Publication year: Custom year range: From 2019 To 2021; Publication Type: Systematic Review

**Records retrieved 118**

**International HTA Database (INAHTA): up to 22 September 2021**

<https://database.inahta.org/>

Searched: 22.9.21

1 "Neuroma, Acoustic"[mh] 6  
2 "vestibular schwannoma" OR "vestibular schwannomas" OR "acoustic neuroma" OR "acoustic neuromas" OR "acoustic neurinoma" OR "acoustic neurinomas" OR "acoustic neurilemoma" OR "acoustic neurilemmas" OR "acoustic neurilemmoma" OR "acoustic neurilemmas" OR "acoustic schwannoma" OR "acoustic schwannomas" OR "acoustic tumour" OR "acoustic tumours" OR "acoustic tumor" OR "acoustic tumors" OR "acoustic nerve cancer" OR "acoustic nerve cancers" OR "cerebellopontine angle" OR neurofibromatosis 20  
3 #1 OR #2 YEAR 2019 TO 2021 1

**NICE Evidence Search (Internet): up to 22 September 2021**

<https://www.evidence.nhs.uk/>

Searched: 22.9.21

| Search terms          | Results (Guidance; Systematic Reviews): 01/01/2019-20/09/2021 |
|-----------------------|---------------------------------------------------------------|
| vestibular schwannoma | 35                                                            |
| acoustic neuroma      | 16                                                            |
| acoustic neurinoma    | 0                                                             |
| acoustic neurilemoma  | 0                                                             |
| acoustic neurilemmoma | 0                                                             |
| acoustic schwannoma   | 13                                                            |
| acoustic tumour       | 35                                                            |
| cerebellopontine      | 9                                                             |

|                                          |            |
|------------------------------------------|------------|
| neurofibromatosis                        | 35         |
| <b>Total retrieved</b>                   | <b>143</b> |
| <b>Total after removal of duplicates</b> | <b>91</b>  |
| <b>Sifted for relevance</b>              | <b>40</b>  |

#### National Institute for Health and Care Excellence (NICE): Guidelines

<https://www.nice.org.uk/>

Searched: 22.9.21

vestibular schwannoma

acoustic neuroma

**2019-2021**

Guidance 0

Advice 0

Quality standards 0

Pathways 1

**Total 1**

#### Guidelines International Network (GIN). International Guidelines Library (Internet): up to 22 September 2021

<https://g-i-n.net/international-guidelines-library/>

Searched: 22.9.21

vestibular schwannoma

acoustic neuroma

2019-2021

**0 records retrieved**

#### ECRI Institute Guidelines Trust (Internet): up to 22 September 2021

<https://guidelines.ecri.org/>

Searched: 22.9.21

vestibular schwannoma

acoustic neuroma

2019-2021

**1 record retrieved**

#### Trip Database: up to 22 September 2021

<https://www.tripdatabase.com/>

Searched: 22.9.21

"vestibular schwannoma" OR "vestibular schwannomas" OR "acoustic neuroma" OR "acoustic neuromas" OR "acoustic neurinoma" OR "acoustic neurinomas" OR "acoustic neurilemoma" OR "acoustic neurilemmomas" OR "acoustic neurilemmoma" OR "acoustic neurilemmomas" OR "acoustic schwannoma" OR "acoustic schwannomas" OR "acoustic

tumour" OR "acoustic tumours" OR "acoustic tumor" OR "acoustic tumors" OR "acoustic nerve cancer" OR "acoustic nerve cancers" OR "cerebellopontine angle" OR neurofibromatosis; in the Document; 2019, 2021

**Guidelines: 29 records retrieved**

**Systematic Reviews: 70 records retrieved**

**99 total records retrieved**

**Canadian Agency for Drugs and Technologies in Health (CADTH): up to 22 September 2021**

<https://www.cadth.ca/>

**Searched: 22.9.21**

vestibular schwannoma

acoustic neuroma

Advanced Search; Project Line; Health Technology Assessment; 2019-2021

**0 records retrieved**