- Aggregate evidence quality: Grade B, RCTs with limitations and cohort studies
- Level of confidence in the evidence: High
- Benefits: Improved cerumen removal by using effective therapies and avoiding harm from ineffective or untested therapies
- Risks, harms, costs: Specific adverse effects related to treatments used; no cost associated with the decision to use appropriate therapy
- Benefit-harm assessment: Preponderance of benefit over harm
- Value judgments: Therapy should be effective and minimize harm
- Intentional vagueness: This does not specify one method as superior, as studies have not compared them head-to-head and all may be effective.
- Role of patient preferences: Large
- Exceptions: Irrigation and cerumenolytics should not be used in the setting of a nonintact tympanic membrane.
- Policy level: Recommendation
- Differences of opinion: None

Supporting Text

The purpose of this statement is to encourage safe and effective methods managing impacted cerumen. Details of each treatment are enumerated in key action statements 6, 7, and 8.

Appropriate Interventions for Cerumen Impaction. In the symptomatic patient, the goal of intervention is to help alleviate or relieve the symptoms (pain, fullness, hearing loss, tinnitus, etc). In the asymptomatic patient with impacted cerumen, the goal is to allow visualization of the ear canal and the tympanic membrane or perform audiometric or vestibular evaluations. Several methods for achieving these goals are widely used. However, evidence in the literature that clearly identifies the superiority of one therapeutic option versus another is lacking.

Three effective therapeutic options are widely used: (1) irrigation, (2) cerumenolytic agents, and (3) manual removal requiring instrumentation. Combining ≥1 of these options on the same day or at intervals is routinely used in everyday practice.[85] There are no comparative randomized clinical trials addressing the relative effectiveness of the 3 methods.[86] **Table 8** gives an overview of these methods in the form of a shared decision grid for patients and caregivers.[87]

Irrigation (also referred to as *ear syringing*) involves flushing the wax out by a jet of warm water (ideally at body temperature). This is generally safe and effective but does carry the small risk of perforation of the eardrum.[88] Irrigations should be avoided in certain at risk populations (see key action statement 2B).

Cerumenolytics, or wax-softening agents, are used to disperse the cerumen and reduce the need for syringing or for manual removal of the impaction. Cerumenolytics can be used alone or in combination with irrigation or manual removal. A Cochrane review demonstrated the effectiveness of cerumenolytic drops but did not find any significant difference among agents. In fact, none were superior to water.[89]

Manual removal includes the use of ear curettes, probes, hooks, forceps, or microsuction. This method is generally safe and effective but can abrade the ear canal. If the suction device becomes partially occluded, it can generate excessive noise in the ear canal and potentially lead to tinnitus or hearing loss.[90]

These methods can also be combined to increase effectiveness. Irrigation or manual removal can be combined with softening the impacted cerumen. No direct comparison has been performed between (1) same-day, in-office softening followed by irrigation or manual removal and (2) home softening followed by irrigation and manual removal.

Since there is no demonstrated advantage of one method over another, the treatment method used should depend on (1) the available resources, (2) experience of the treating clinician with the available options, (3) the ease with which the canal can be cleared, and (4) shared decision making. Recently, Clegg et al[91] performed a systematic review and cost-effectiveness analysis of published articles from 2008 to 2010 on the effectiveness of softening and/or removing earwax in adults and children. They identified 24 studies that met their criteria of earwax removal with softening, irrigation, mechanical removal, and other methods and combinations of these methods. They determined that (1) softening by any agent was more effective than no softening for earwax removal and (2) removal by a nurse practitioner/professional was better than self-irrigation.

Interventions Not Recommended to Treat Cerumen Impaction. Interventions that are not appropriate for cerumen removal include home use of oral jet irrigators and cotton-tipped swabs.[92] Removing cerumen with an oral jet irrigator was described by Larsen.[93] Flared tip and OtoClear Tip are promoted as safer tips to eliminate overinsertion and direct the water away from the tympanic membrane, theoretically avoiding the risk of injury by reducing the buildup of pressure causing damage or pain. Research demonstrating the effectiveness of these home therapeutic options is lacking. Expert opinion favors the 3 clinician-administered methods discussed above as the most safe and effective options.

Expert opinion recommends against the use of cotton-tipped swabs to remove cerumen from the ear canal, although the evidence against it is sparse. The product label of one of the leading manufacturers of cotton-tipped swabs specifically notes that the product should not be placed into the ear canal. The cotton buds at the end of cotton-tipped applicators may separate, requiring removal as a foreign body.[92] One case report did report fatal otogenic meningitis and brain abscess due to retained cotton swabs.[94]

In a prospective study, Lee et al showed that complications do arise from self-cleaning of the external auditory canal.[42] Thirty-six percent of the patients cleaned their ears by introducing a foreign object into the ear. Unfortunately, the