

Study Guide for Ear Procedures (Cerumen Impaction Removal, Audiometry, & Tympanogram) 2020



THE UNIVERSITY OF ARIZONA

College of Nursing

Cerumen Impaction:

1. Overview

- a. Cerumen can build up in an ear canal leading to pain and hearing problems.
- b. Some reasons for removing the cerumen are to visualize the tympanic membrane, to remove wax buildup, to ease discomfort, and to reduce the problem of hearing changes resulting from cerumen impaction. On occasion, irrigation of the ear canal is done to remove a foreign body.

2. Goal of the procedure

- a. Safe removal of impacted cerumen without complications

3. References

- a. Colyar, M. R. (2015). Cerumen impaction removal. In M. R. Colyar, Advanced practice nursing procedures (pp. 363 - 366). Philadelphia, PA: F. A.
- b. [Schwartz, S. R., Magit, A. E., Rosenfeld, R. M., Ballachanda, B. B., Hackell, J. M., Krouse, H. J., Cunningham, E. R. \(2017\). Clinical practice guideline \(Update\): Earwax \(Cerumen impaction\). Otolaryngology – Head and Neck Surgery, 156\(IS\) S1-S29. DOI: 10.1177/0194599816671491](#)

4. Required Reading and Video

- Book
 - Colyar, M. R. (2015). Cerumen impaction removal. In M. R. Colyar, Advanced practice nursing procedures (pp. 363 - 366). Philadelphia, PA: F. A.
 - This can be accessed through the University of Arizona Health Sciences Library.
- Article
 - [Schwartz, S. R., Magit, A. E., Rosenfeld, R. M., Ballachanda, B. B., Hackell, J. M., Krouse, H. J., Cunningham, E. R. \(2017\). Clinical practice guideline \(Update\): Earwax \(Cerumen impaction\). Otolaryngology – Head and Neck Surgery, 156\(IS\) S1-S29. DOI: 10.1177/0194599816671491](#)
- YouTube
 - <https://www.youtube.com/watch?v=43kYy0veEco>

5. Required Procedure Competencies

- Gather needed equipment: kidney basin, large syringe with short piece of winged infusion set tubing, solution of hydrogen peroxide/tepid water
- After having patient change into a gown or after providing drapes to protect clothing, position patient in sitting position, and have them tilt the head slightly downward; children can be positioned supine on the table
- Put on gloves
- Hold the basin snugly beneath the ear
- Hold the pinna and straighten the canal
 - For persons 6 and over: down and back
 - For children under 6: up and back

- Using the large syringe filled with the peroxide/water solution, direct the stream of water aiming at the ear canal, not the tympanic membrane
- After the cerumen is dislodged inspect the ear canal with an otoscope, and gently dry the canal with a cotton-tipped applicator
- Required Procedure Competencies

6. During CSI Skills Lab

- Prior to arriving, you are expected to have read and watched the above. The skills lab is intended to build upon the above information and allow you to engage in a more patient-centered way.
- You will spend thirty minutes at each skills station. This will be divided in the following manner:
 - 5 minutes: Short introduction to the skill
 - 5 Minutes: Focused HPI (consider pointing out one student for OLDCARTS) and Basic Exam
 - 15 Minutes: Procedure
 - 5 Minutes: Final Report and Preceptor Presentation
- Please see the Case Study Worksheet on the next page

Audiometry:

1. Overview

- Understand the guidelines for audiometry testing on an outpatient basis in an office setting.

2. Goal of the procedure

- Understand how to perform an audiogram in the office
- Understand how to record and interpret an audiogram

3. References

- Colyar, M. R. (2015). Audiometry testing. In M. R. Colyar, Advanced practice nursing procedures (pp. 313 - 317). Philadelphia, PA: F. A.
- [Schwartz, S. R., Magit, A. E., Rosenfeld, R. M., Ballachanda, B. B., Hackell, J. M., Krouse, H. J., Cunningham, E. R. \(2017\). Clinical practice guideline \(Update\): Earwax \(Cerumen impaction\). Otolaryngology – Head and Neck Surgery, 156\(IS\) S1-S29. DOI: 10.1177/0194599816671491](#)

4. Required Reading and Video

- Book
 - Colyar, M. R. (2015). Cerumen impaction removal. In M. R. Colyar, Advanced practice nursing procedures (pp. 363 - 366). Philadelphia, PA: F. A.
 - This can be accessed through the University of Arizona Health Sciences Library.
- Articles
 - Harlor, A. D. B., & Bower, C. (2009). Hearing Assessment in Infants and Children: Recommendations Beyond Neonatal Screening. *Pediatrics*, 124(4), 1252–1263. doi: 10.1542/peds.2009-1997
 - <https://pediatrics.aappublications.org/content/124/4/1252>
 - Walker, Jennifer Junnila, et al. American Family Physician, 1 Jan. 2013, <https://www.aafp.org/afp/2013/0101/p41.html>.
 - <https://www.aafp.org/afp/2013/0101/p41.html>
- You Tube Videos:

- HNEkidshealth. YouTube, YouTube, 29 Aug. 2016, <https://www.youtube.com/watch?v=dcWzFVhzy78>.
 - <https://www.youtube.com/watch?v=dcWzFVhzy78>
- Spindell, Adam. YouTube, YouTube, 29 Dec. 2014, <https://www.youtube.com/watch?v=gqN3AN29UOU>.
 - <https://www.youtube.com/watch?v=gqN3AN29UOU>
- CenturyHearingAids. YouTube, YouTube, 19 July 2011, <https://www.youtube.com/watch?v=bP-nJp3yBK4>.
 - <https://www.youtube.com/watch?v=bP-nJp3yBK4>

5. Required Procedure Competencies

- Verbalize an understanding of how to use an office audiogram
- Verbalize an understanding of how to record and interpret the results of an audiogram

Tympanogram:

1. Overview

- a. Tympanograms are often used with pediatric patients to help determine if there is fluid in the middle ear, or otitis media.

2. Goal of the procedure

- a. Identify the method of performing a tympanogram
- b. Identify use of tympanogram to assist in diagnosis of middle ear disease
- c. Read the results of a tympanogram and interpret the associated diagnosis

3. References

- a. Colyar, M. R. (2015). Tympanometry. In M. R. Colyar, *Advanced practice nursing procedures* (pp. 321- 329). Philadelphia, PA: F. A.

4. Required Reading and Video

- Book
 - Colyar, M. R. (2015). Tympanometry. In M. R. Colyar, *Advanced practice nursing procedures* (pp. 321- 329). Philadelphia, PA: F. A.
 - This can be accessed through the University of Arizona Health Sciences Library.
- Articles
 - Harlor, A. D. B., & Bower, C. (2009). Hearing Assessment in Infants and Children: Recommendations Beyond Neonatal Screening. *Pediatrics*, 124(4), 1252–1263. doi: 10.1542/peds.2009-1997
 - <https://pediatrics.aappublications.org/content/124/4/1252>
- You Tube Videos:
 - Eustachian tube dysfunction (ETD) - causes, symptoms, diagnosis, treatment, pathology
 - <https://www.youtube.com/watch?v=H29571Ex-kY>
 - Tympanometry and how to read a tympanogram
 - <https://www.youtube.com/watch?v=djqZ6Awezfw>
 - Images of Eustachian Tube Dysfunction
 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5678035/figure/f1-ceo-2016-01683/>

5. Required Procedure Competencies

- Verbalize the proper procedure for performing and interpreting a tympanogram.

Case Study Worksheet - Student Guide

CC: Emma Jane is a 15yo female presenting with bilateral ear pressure x 3 weeks.

O	Onset	
L	Location/radiation	
D	Duration	
C	Character	
A	Aggravating factors	
R	Relieving factors	
T	Timing	

- Considering these answers, are there any follow up questions you would ask that would not be asked below in the ROS?

ROS: Given the above, which systems will you focus on?

General	
HEENT	
Respiratory	
Cardiovascular	
Musculoskeletal	
Endocrine	
GI/GU	
Genital	
GYN (if applicable)	
Neuro/Psych	

Exam:

- How would you document HEENT?

Differential Diagnoses:

- List three differentials in their order of likelihood
 1. Probable:
 2. Possible:
 3. Unlikely:

Preceptor Report:

Documentation Example:

CC:

S:

O:

Case Study Worksheet - Instructor Guide

CC: Emma Jane is a 15yo female presenting with bilateral ear pressure x 3 weeks.

O	Onset	3-4 weeks ago
L	Location/radiation	Bilateral ear pressure
D	Duration	Consistently an issue since it started.
C	Character	Dull pain.
A	Aggravating factors	Sometimes loud sounds as those produced an "odd sensation" in her ears.
R	Relieving factors	Has tried IBU, Tylenol, and OTC antihistamine without relief.
T	Timing	The pain is constant.

- Considering these answers, are there any follow up questions you would ask that would not be asked below in the ROS?
 - Have you put anything in your ears (pediatrics)?
 - Do you use earbuds?
 - Do you use Qtips?
 - Do you wear hearing aids?

ROS: Given the above, which systems will you focus on?

General	Denies fever, chills, night sweats, wt changes
HEENT	Negative except for above
Respiratory	Denies SOB, cough
Cardiovascular	
Musculoskeletal	
Endocrine	
GI/GU	
Genital	
GYN (if applicable)	
Neuro/Psych	Endorses slight dizziness

Exam:

- How would you document HEENT?

Differential Diagnoses:

- List three differentials in their order of likelihood
 1. Probable: Cerumen impaction
 2. Possible: Otitis media
 3. Unlikely: Foreign body in ear canal

Preceptor Report:

Emma Jane is a 15yo female presenting with bilateral ear pressure x 3 weeks. She describes this as bilateral ear pressure, which is constant. It can sometimes be painful, which she describes as a dull pain. She reports that loud sounds can somewhat aggravate the sensation; the sensation becomes

“odd”. The patient denies any known foreign objects. She does use earbuds regularly; the patient also use Q-tips regularly. She has not gone swimming regularly. Her ROS is negative except for the above and slight, intermittent dizziness. Upon exam, patient was noted to have bilateral cerumen impaction. The cerumen is dark and hard; this was unable to removed by curette. Two gtts of debrox were placed in bilateral ears. Patient then sat for five minutes. Patient was comfortable seated in exam table with feet up. Then applied lukewarm peroxide/water mixture into bilateral ears via large syringe. The cerumen was then dislodged; was able to then utilize the curette to fully evacuate bilateral ear canal. Patient tolerated well. TM and ear canals fully visualized and without secondary signs of infection. Notified patient that she may have slight dizziness over the last couple of days. Patient was advised to use debrox instead of Q-tips at home. Encouraged patient to use over-the-ear headphones. Instructed to RTC with any worsening pain, discharge, or other new symptoms.

Documentation Example:

CC: 15 year old female with complaints of bilat ear pressure x 3 weeks

S: Emma Jane is a 15yo female presenting with bilateral ear pressure x 3 weeks. She describes this as bilateral ear pressure, which is constant. It can sometimes be painful, which she describes as a dull pain. She reports that loud sounds can somewhat aggravate the sensation; the sensation becomes “odd”. The patient denies any known foreign objects. She does use earbuds regularly; the patient also use Q-tips regularly. She has not gone swimming regularly. Her ROS is negative except for the above and slight, intermittent dizziness.

O: VS: Temperature: 98.6 Pulse: 86, regular. Respirations: 16, easy and unlabored. Blood Pressure: 95/68. Height:62 inches. Weight: 134 pounds. PE unremarkable except for bilat cerumen impaction.

A:

1. Probable: Cerumen impaction
2. Possible: Otitis media
3. Unlikely: Foreign body

P:

- Procedure: Unsuccessfully attempted to remove cerumen. Two gtts of debrox were placed in bilateral ears. Patient then sat for five minutes. Patient was comfortable seated in exam table with feet up. Then applied lukewarm peroxide/water mixture into bilateral ears via large syringe. The cerumen was then dislodged; was able to then utilize the curette to fully evacuate bilateral ear canal. Patient tolerated well. TM and ear canals fully visualized and without secondary signs of infection.
- Notified patient that she may have slight dizziness over the last couple of days.
- Patient was advised to use debrox instead of Q-tips at home.
- Encouraged patient to use over-the-ear headphones.
- Instructed to RTC with any worsening pain, discharge, or other new symptoms.