



**The Impact of Aging, Hearing Loss and Cognitive Burden on Health Literacy on Older Adults**


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## **Learning Objectives**

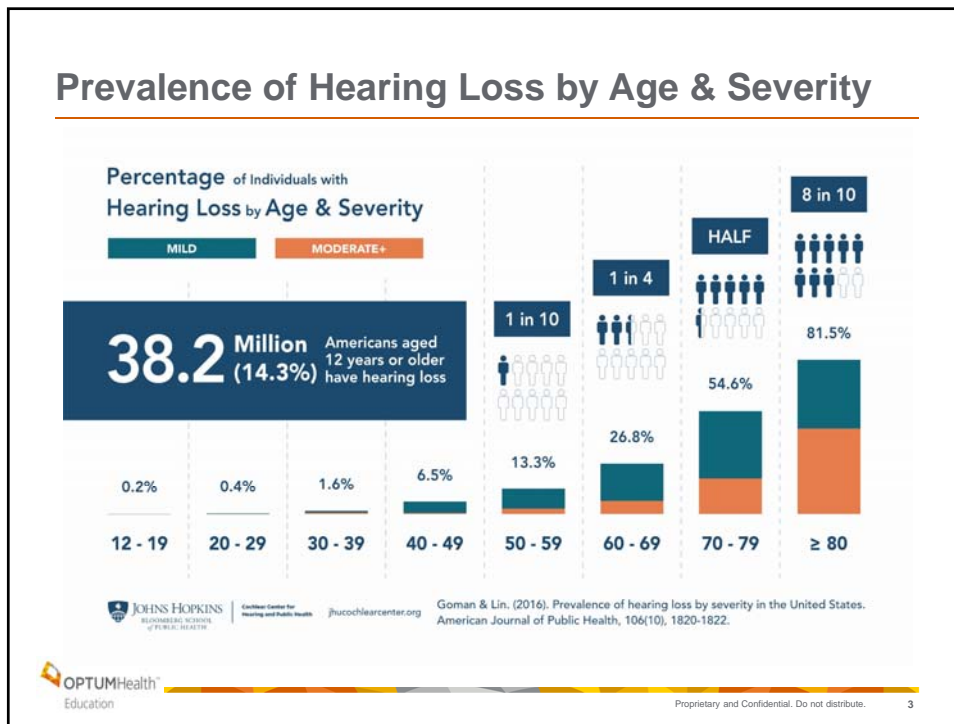
At the end of this educational activity, participants should be able to:

- Explore the association between hearing loss and cognitive burden.
- Explain how the different stages of hearing loss impact cognitive function and health literacy.
- Identify the potential impact of untreated hearing loss on indirect health, psychosocial well-being and overall quality of life.
- Describe communication and management techniques for caregivers to accommodate changes in the cognitive status of those with hearing loss.
- Discuss tools and strategies recommended by the Hearing Loss Association of America (HLAA) and how these can be put into practice.

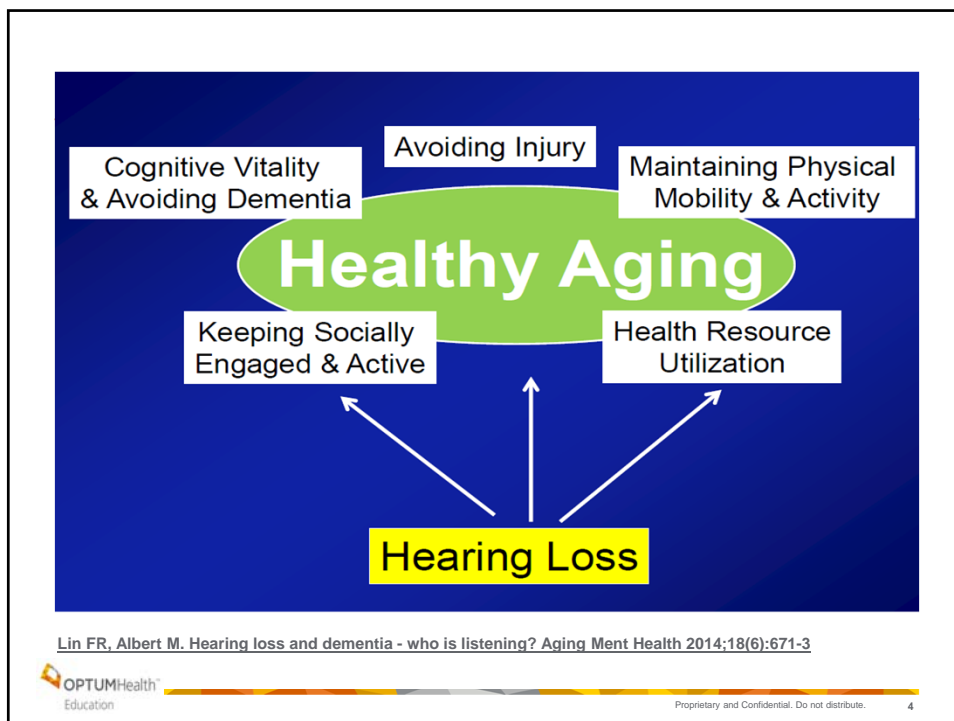


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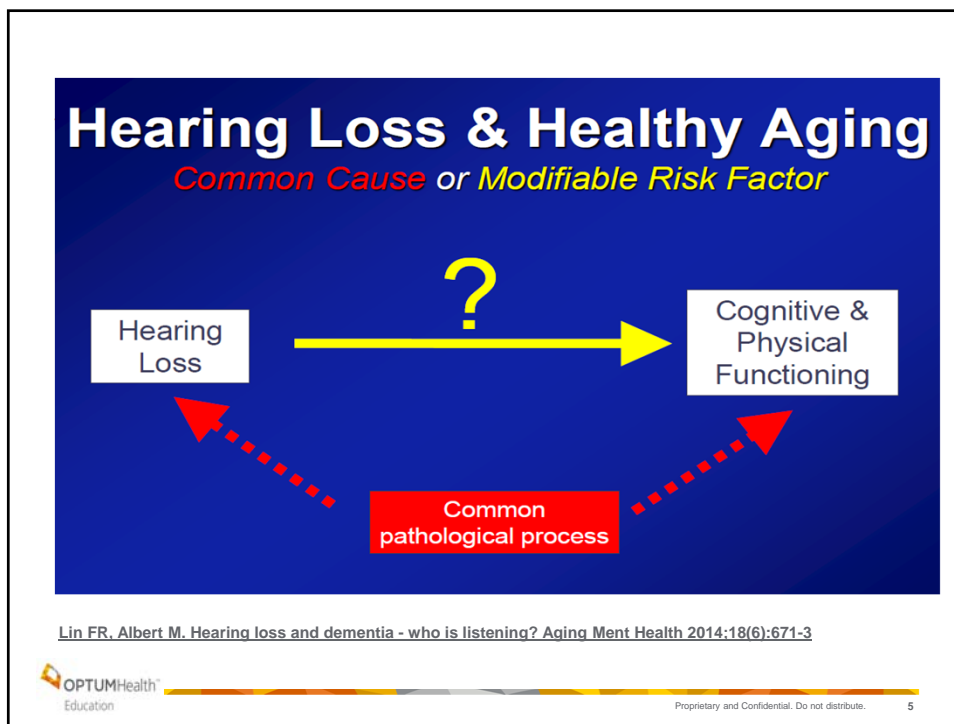
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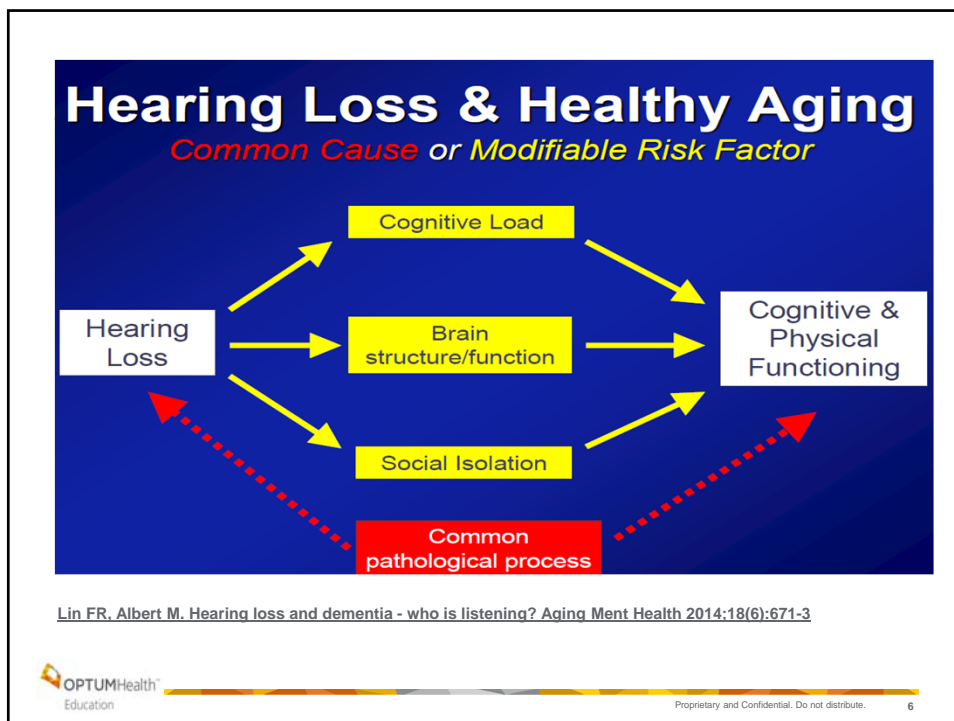
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**Double Hit Theoretical Model**  
*Hearing Loss & Brain Structure/Function*

The diagram features a central red brain with the text "Structure/Function" overlaid. Three starburst shapes point towards the brain: a yellow one labeled "Microvascular Disease" on the left, a green one labeled "Alzheimer's Neuropathology" on the right, and a yellow one labeled "Hearing Impairment" at the bottom.

Lin, F. R., & Albert, M. (2014). Hearing loss and dementia - who is listening?. *Aging & mental health*, 18(6), 671-673. <https://doi.org/10.1080/13607863.2014.915924>

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### What is the impact of treating age-related hearing loss (ARHL)?

- The question of whether addressing/treating ARHL and whether that delays cognitive/physical decline remains unknown. A randomized clinical trial is currently underway.
- However, treating hearing loss with hearing aids will likely impact the three mechanistic pathways: reduce cognitive load, increase stimulation of auditory nerve pathways and auditory centers in the auditory cortex, and improve social engagement.
- Effects of ARHL may be a modifiable late-life risk factor for cognitive decline and dementia (as opposed to processes like vascular disease that must be addressed in mid-life in order to mitigate cognitive decline and dementia in later life).
- Unfortunately, only about 20% of those who would benefit from hearing aids wear them. Why?

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## Hearing Loss and Health Literacy

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Health Literacy is defined as:

- ...the degree to which individuals can obtain, process, and understand the basic health information and services they need to make appropriate health decisions.

Health Literacy includes:

- Print literacy—the ability to read and understand text and locate and interpret information in documents.
- Numeracy—the ability to use quantitative information—for example, take 1 ½ teaspoons every 8 hours.
- Oral/Aural literacy—the ability to speak and listen effectively.

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## Who's at risk?

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The Institute of Medicine identified several populations that are at-risk for low health literacy:

- the elderly
- people with speech, language, hearing, and vision disorders
- people with cognitive or mental disorders
- non-English speakers
- ethnic minorities
- people in poverty
- people who are homeless

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## Effects of low health literacy

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Low health literacy is associated with:

- Inadequate use of health care resources
- Poorer ability to understand and follow medical advice
- Reduced compliance with medical recommendations
- Medication errors
- Greater incidence of preventable hospitalizations and readmissions
- Increased emergency department visits
- Poorer health outcomes
- Increased cost and duplication of services

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## Communication & Management Techniques

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Hearing Loss Association of America (HLAA) ([www.hearingloss.org](http://www.hearingloss.org)) is the nation's leading organization representing consumers with hearing loss.

- HLAA defines **Effective Communication** as the process of exchanging information between two or more people and asking for clarification until all parties are able to fully understand.
- Effective Communication results in the individual being able to make informed decisions and the health care team providing safe and responsible care.

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## Effective Communication in Health care

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- HLAA produces a guide titled **Guide for Effective Communication in Health Care**. It is divided in to two sections: Guide for Patients and Guide for Providers.
- The **Communication Access Plan** is the cornerstone of both sections.
- The **Guide for Patients** helps individuals inform their health care providers about their hearing status and needed communication aids and services.
- The **Guide for Providers** is designed to help health care providers establish and maintain best practices in ensuring effective communication for individuals who are hard of hearing and deaf as well as their families and caregivers.

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## Guide for Providers

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The **Guide for Providers** includes information on:

- Legal and regulatory responsibilities for hospitals and health care practices and facilities
- The Communication Access Plan (CAP) and how it helps providers and individuals manage and ensure effective communication
- Communication aids and services needed for effective communication
- Information for staff working in various settings such as inpatient and outpatient settings, emergency departments, and performing tests and procedures

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## **Benefits of Effective Communication**

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Effective Provider-Individual Communication improves the quality of treatment, resulting in:

- Improved safety
- Informed decision making
- Treatment and medication adherence
- Increased satisfaction
- Better health care outcomes

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## **Recognizing Hearing Loss**

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Common indications that an individual may be hard of hearing:

- Often asks for statements to be repeated
- Often misunderstands conversations and information, especially in noisy or busy environments
- Has difficulty understanding when they cannot see the speaker's face
- Turns one ear towards the person speaking or cups a hand behind an ear
- Speaks loudly
- Complains that people mumble
- Has difficulty understanding on the telephone

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## Communication Access Plan

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Communication Access Plan (CAP)

**Please alert all staff and include in Medical Record**

NAME OF PATIENT: \_\_\_\_\_ DATE OF BIRTH: \_\_\_\_\_ MRN: (Office Use) \_\_\_\_\_

**Which Describes You?**

Hard of Hearing    Deaf    DeafBlind    Low Vision

**Which Device(s) Do You Use?**

Hearing Aid(s)    Right    Left  
 Cochlear Implant(s)    Right    Left  
 Other Implant(s): \_\_\_\_\_

**What Do You Need Hospital/Office to Provide?**

Pocket Talker  
 Captioned Phone (Hospital only)  
 TTY (Hospital Only)    Video Phone  
 Other Alerts or Assistive Device(s): \_\_\_\_\_

**What Services Do You Need?**

Communication in writing  
 Communication Access Realtime Translation (CART)  
 Sign Language Interpreter  
 Tactile Interpreter  
 Video Remote Interpreter (VRI)  
 Other: \_\_\_\_\_

**Waiting Room Practice**



When it is time for me to be seen by my health care provider:    Provide a vibrating pager, if available  
 Come speak to me face-to-face  
 Write me a note and hand it to me

**For scheduling follow up communication, please contact me by:**

Patient Portal    Email    Text    U.S. Mail  
 Cell Phone    Home Phone    Work Phone    Video Phone    Relay

**Notes:**



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- ## Communicating with Individuals who are Hard of Hearing
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- Maintain eye contact when speaking
  - Give your name and discipline. Show your ID badge
  - Reduce background noise
  - Minimize visual distractions
  - Be sure room is well lit with the light source in front of the speaker—not behind
  - Be sure they can see your mouth clearly. Do not chew gum, bite on a pen, etc.
  - Speak clearly and at a moderate pace. Do not exaggerate words as this causes distortion
- 


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## Communicating with Individuals who are Hard of Hearing

- Use clear speech and chunking
- Rephrase rather than repeat
- Inform when changing topics or context—diagnosis, treatment, follow-up, medication
  - Method of Explicit Categorization
- Use visuals as much as possible—diagrams, models, illustrations
- Use teach-back to encourage questions and ensure their understanding
- Provide clearly printed instructions/plan written at an appropriate level

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## Clear Masks

- Visual cues are critical to communication for those with hearing impairment—55% of communication is visual
- The ability to see a smile can really help!
- Clear masks allow for more person-centered, empathetic communication
- Many styles available on Amazon or from medical supply companies

**EZ-Adjuster Style**  
EZ-Adjuster straps go over the head and can be easily adjusted with the adjuster piece for a more personalized fit, avoiding discomfort and strain on the ears.



**Tie-On Style**  
Classic tie-on straps mimic the same strap design as traditional masks, and are placed behind the ears to the back of the head and neck, and are tied securely with bows.



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## Communication Aids

- Most hearing aids now have wireless connectivity to remote devices such as a remote microphone
- You may be asked to use a remote microphone



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## Communication Aids

Ideal for one-on-one conversation or a small-group, the Pocket Talker amplifies sounds closest to the listener while reducing background noise.

Harris Communications  
<https://www.harriscomm.com/loud-and-clear-wireless-fm-system.html>



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## Pocket Talker examples...



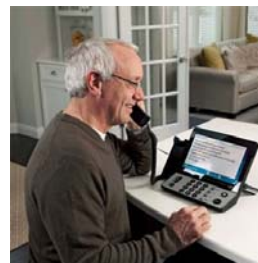
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## Telephone Communication

Ideal for people with some degree of hearing loss, the Captioned Telephone, or CapTel, works like any other telephone with one important addition:

- It displays every word the caller says throughout the conversation.

CapTel phone users can listen to the caller and can also read the written captions in the CapTel's bright display window.



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

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## Summary

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- Hearing loss is one of the top three conditions affecting older adults after heart disease and arthritis.
- Untreated hearing loss negatively impacts healthy aging and quality-of-life and has consistently been linked to an increased risk of cognitive decline.
- Several models suggest that the correlation between untreated hearing loss and increased risk of cognitive decline is due to increased cognitive load, changes in brain structure and function, and social isolation.

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## Summary

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- Untreated hearing loss has a negative impact on health literacy which results in reduced compliance with medical recommendations, inadequate use of health care resources, more hospital admissions and readmissions, increased cost and duplication of services, and poorer health outcomes.
- The Hearing Loss Association of America's *Guide for Effective Communication in Health Care* was created for patients and providers. It provides information, resources, and tools to help improve communication in medical settings and helps individuals ask for and get the services they need.

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## References

- Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: an updated systematic review. *Annals of Internal Medicine*, 155(2), 97-107.
- Centers for Disease Control and Prevention (CDC). *National Center for Health Statistics (NCHS) National Health and Nutrition Examination Survey*. <https://www.cdc.gov/nchs/nhanes/index.htm>
- Cohen, J. M., Blustein, J., Weinstein, B. E., Dischinger, H., Sherman, S., Grudzen, C., & Chodosh, J. (2017). Studies of Physician-Patient Communication with Older Patients: How Often is Hearing Loss Considered? A Systematic Literature Review. *Journal of the American Geriatrics Society*, 65(8), 1642–1649. <https://doi.org/10.1111/jgs.14860>
- DeWalt, D. A., Berkman, N. D., Sheridan, S., Lohr, K. N., & Pignone, M. P. (2004). Literacy and health outcomes : A systematic review of the literature. *Journal of General Internal Medicine*, 19(12), 1228-1239.

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## References

- Genther, D. J., Betz, J., Pratt, S., Martin, K. R., Harris, T. B., Satterfield, S., ... Lin, F. R. (2015). Association between hearing impairment and risk of hospitalization in older adults. *Journal of the American Geriatrics Society*, 63(6), 1146–1152. <https://doi.org/10.1111/jgs.13456>
- Goman, A. M., & Lin, F. R. (2016). Prevalence of hearing loss by severity in the United States. *Journal of Public Health*, 106(10), 1820–2. <https://doi.org/10.2105/AJPH.2016.303299>
- Lin, F. R. (2011). Hearing loss and cognition among older adults in the united states. *The Journals of Gerontology. Series a, Biological Sciences and Medical Sciences*, 66(10), 1131–6. <https://doi.org/10.1093/gerona/qlr115>
- Lin, F. R., & Albert, M. (2014). Hearing loss and dementia - who is listening? . *Aging & mental health*, 18(6), 671–673. <https://doi.org/10.1080/13607863.2014.915924>

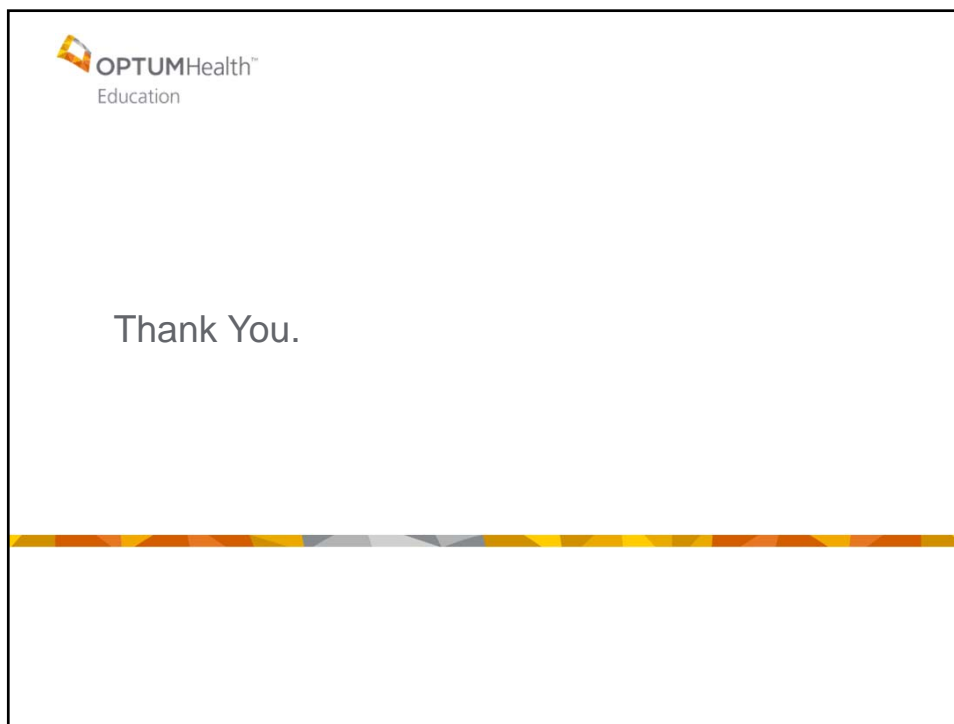
28

## References

- Lin, F. R., Yaffe, K., Xia, J., Xue, Q. L., Harris, T. B., Purchase-Helzner, E., ... Health ABC Study Group. (2013). Hearing loss and cognitive decline in older adults. *Jama Internal Medicine*, 173(4), 293–9. <https://doi.org/10.1001/jamainternmed.2013.1868>
- Michigan Medicine. Hearing aids linked to fewer hospital and ER visits by older adults. *JAMA Otolaryngology*, doi:10.1001/jamaoto.2018.0273
- Nielsen-Bohlman, L., Panzer, A. M., Kindig, D. A., & Institute of Medicine (U.S.). Committee on Health Literacy. (2004). *Health literacy : a prescription to end confusion*. National Academies Press. <https://pubmed.ncbi.nlm.nih.gov/25009856/>
- Pichora-Fuller, M. K., Mick, P., & Reed, M. (2015). Hearing, Cognition, and Healthy Aging: Social and Public Health Implications of the Links between Age-Related Declines in Hearing and Cognition. *Seminars in hearing*, 36(3), 122–139. <https://doi.org/10.1055/s-0035-1555116>

## References

- Rutherford, B. R., Brewster, K., Golub, J. S., Kim, A. H., & Roose, S. P. (2018). Sensation and psychiatry: linking age-related hearing loss to late-life depression and cognitive decline. *The American Journal of Psychiatry*, 175(3), 215–224. <https://doi.org/10.1176/appi.ajp.2017.17040423>
- Uchida, Y., Sugiura, S., Nishita, Y., Saji, N., Sone, M., & Ueda, H. (2019). Age-related hearing loss and cognitive decline — the potential mechanisms linking the two. *Auris Nasus Larynx*, 46(1), 1–9. <https://doi.org/10.1016/j.anl.2018.08.010>
- Yamasoba, T., Lin, F. R., Someya, S., Kashio, A., Sakamoto, T., & Kondo, K. (2013). Current concepts in age-related hearing loss: epidemiology and mechanistic pathways. *Hearing Research*, 303, 30–8. <https://doi.org/10.1016/j.heares.2013.01.021>



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