

Connecting the Dots

Hearing, Cognition, and Clinical Considerations

Andrea Hannan Dawkes, Au.D., CCC-A
Sr. Education & Training Audiologist

© 2026 continued.com, LLC. All rights reserved. Unauthorized reproduction prohibited. See final page for complete terms.

What's in This Handout

KEY TAKEAWAYS.....	3
COURSE CONTENT.....	4
Cognition and Cognitive Decline.....	4
Hearing and Cognition.....	5
Hearing Loss Treatment and Cognition.....	7
Modifying Clinical Protocols.....	9
Hearing Aid Technology.....	14
INTERACTIVE WORKSHEET.....	18
NOTES.....	27
QUIZ SUMMARY.....	28
REFERENCES.....	29
ADDITIONAL INFORMATION.....	31–32

Key Takeaways

Key Takeaway	Clinical Implication
Hearing loss is associated with cognitive decline	Public health literature links hearing loss with cognitive decline, dementia, health resource utilization, and physical function and activity.
Hearing loss is the largest mid-life modifiable risk factor for dementia	45% of dementia cases are associated with 14 modifiable risk factors, and hearing loss is the largest of these in mid-life.
Choose words carefully when discussing risk	Avoid statements such as "Hearing loss causes dementia" or "Hearing aid use will prevent dementia."
Hearing aid use is associated with better cognitive outcomes	Hearing aid use attenuates cognitive decline; the ACHIEVE study found hearing intervention reduced 3-year global cognitive decline by 48% in the ARIC cohort.
Older adults are complex patients	The combination of peripheral and central, auditory and cognitive decline means older adults should not be treated as 'standard' patients.
Speech-in-noise testing adds clinical value	Poorer speech-in-noise performance is associated with reduced cognitive performance, even after controlling for hearing loss.
Cognitive screening supports patient-centered care	Screening tools such as the MoCA and MoCA-H help identify patients who may need further evaluation, guide counseling, and support referral.
Counseling should adapt to cognitive changes	Limit new information to 3 to 5 points, present it in small chunks, use visual supports, and include family and caregivers.
Technology can reduce listening effort	Noise reduction, directionality, remote microphones, and reminder features can support patients with cognitive considerations.

Course Content

Learner Outcomes

1. Explain the connection between hearing loss and cognitive function and discuss its relevance to patient-centered hearing care
2. Assess how cognitive factors may affect listening, communication, and successful hearing aid use
3. Integrate practical clinical, communication, and counseling techniques that address cognitive considerations within hearing care plans

An explosion in public health literature over the past 15 years suggest hearing loss is associated with important negative health consequences including cognitive decline, dementia, health resource utilization, and physical function/activity.

Reed, Jiang, & Deal, 2026

Cognition and Cognitive Decline

What Is Cognition?

- Cognition is how our brains take in, understand and use information.
- It involves mental skills used every day, like paying attention, remembering, learning, making decisions, using language and planning.
- These thinking processes help us use what we already know and gain new knowledge from our experiences and senses.

Cognitive domains include memory, attention, perception, judgement, decision-making, planning, visual and spatial processing, knowledge, language, and reasoning.

Age-Related Changes in Cognition

Age-related changes are typically characterized by problems with memory, language, thinking and judgment, including:

- Slower processing speed
- Poorer attention
- Poorer working memory
- Reduced fluid reasoning
- Reduced inhibitory control
- Slower learning
- Declines in executive functioning

Reasons for Cognitive Changes

- Age
- Neurodegenerative conditions, like dementia and multiple sclerosis
- Cancer
- Acquired brain injury, like TBI and stroke, and mental illnesses

Mild Cognitive Impairment (MCI)

- MCI is an intermediate stage between normal cognitive decline and the more serious condition of dementia.
- Global prevalence is 15 to 20% at 50+ years.
- MCI increases with age and decreases with education level.
- Prevalence triples between ages 60 and 80.
- 10 to 15% progress to dementia each year.

Two-thirds of Americans experience some level of cognitive impairment at 70 years of age (Hale et al., 2020).

Hearing and Cognition

Cognition and Hearing

Cognition and hearing describes the brain's ability to process, interpret, and use sound information. When sound waves enter the ear, they are converted into neural signals that travel to the auditory cortex and integrate with brain regions for memory, attention, language, and emotional processing. This supports the:

- Ability to focus on relevant speech in noisy environments (selective attention)
- Recognition of voices and words by matching them to stored memories
- Use of auditory input to guide decision-making and social interaction

Q3

Quiz Hint: Focusing on relevant speech in a noisy environment draws on selective attention, one of the ways the brain processes, interprets, and uses sound information.

Impact of Hearing Loss on Cognitive Abilities

- Hearing loss is associated with faster decline in memory, concentration, and other cognitive domains (National Institute on Aging).
- Reduced auditory input can lead to social withdrawal, increased cognitive load, and brain changes linked to neurodegeneration (National Institutes of Health).

Group (American Speech-Language-Hearing Association)	Finding
Individuals with hearing loss	1.9x more likely to develop dementia than those with normal hearing
Individuals with hearing loss	2.78x have coinciding cognitive impairment
Mild hearing loss	1.89x more likely to develop dementia
Severe hearing loss	4.49x more likely to develop dementia
Age-related hearing loss	2x have coinciding cognitive impairment
Age-related hearing loss	2.42x more likely to develop dementia

Age-related hearing loss may play a causal role in the development of cognitive impairments (Amieva et al., 2015; Dawes et al., 2015; Castiglione et al., 2016; Qian et al., 2016; Ray et al., 2018; Grenier et al., 2024).

Among people with Alzheimer's disease and related dementias (ADRD), 79% of those age 71+ and 94% of those age 85+ are affected by hearing loss (Nieman et al., 2024).

Hearing Loss and Cognitive Impairment

Proposed pathways between hearing loss and cognitive impairment include cognitive load, psychosocial factors, and change in brain structures. A common etiopathology, such as microvascular diseases, aging, or unknown neurodegenerative mechanisms, may underlie both.

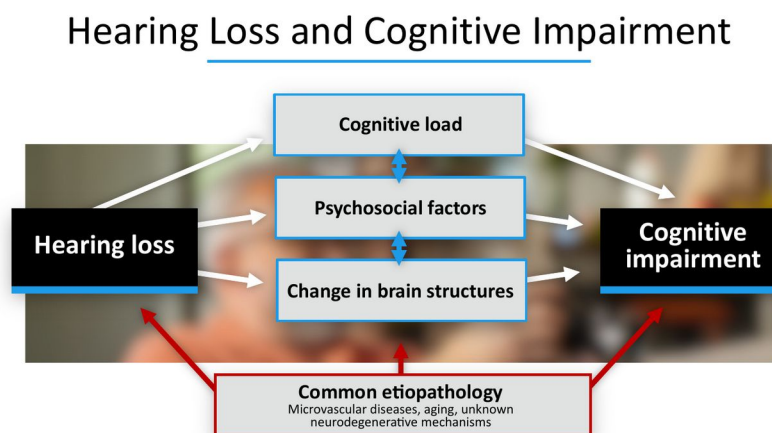


Figure 1. Proposed pathways linking hearing loss and cognitive impairment.

Q1

Quiz Hint: Reduced auditory input can lead to social withdrawal, increased cognitive load, and brain changes linked to neurodegeneration. Cognitive load, psychosocial factors, and changes in brain structure are each proposed pathways between hearing loss and cognitive impairment.

Avoid Statements Like...

- Hearing Loss Causes Dementia
- Hearing Aid Use will Prevent Dementia

Hearing Loss Treatment and Cognition

Hearing Aid Use and Cognitive Abilities

- Hearing aid use attenuates cognitive decline, and ARHL may play a causal role in the development of cognitive impairments (Amieva et al., 2015; Dawes et al., 2015; Castiglione et al., 2016; Qian et al., 2016; Ray et al., 2018; Grenier et al., 2024).
- Longitudinal studies have demonstrated reduced cognitive decline or cognitive gains following prolonged use of hearing aids (Maharani et al., 2018; Sarant et al., 2020, 2024; Cominetti et al., 2023; Glick and Sharma, 2020).

Benefits of Hearing Aid Use

Hearing aid use is associated with significant improvements in speech perception in noise, global cognitive function, processing speed, visual working memory, and executive function (Glick & Sharma, 2020).

ACHIEVE Study

The Aging and Cognitive Health Evaluation in Elders (ACHIEVE) study is a landmark randomized controlled trial to determine how hearing intervention affects brain health in older adults.

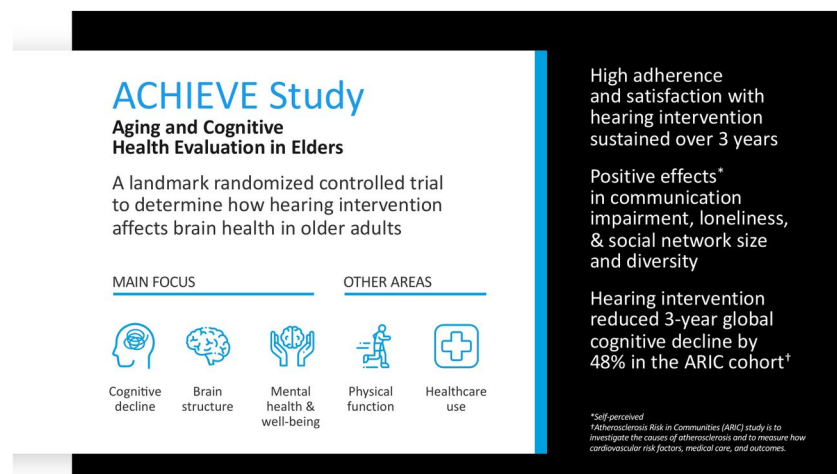


Figure 2. Overview of the ACHIEVE study and its key findings.

Hearing Loss as a Modifiable Risk Factor

45% of dementia cases are associated with 14 modifiable risk factors, and hearing loss is the largest mid-life modifiable risk factor. The recommendation is to "make hearing aids accessible for people with hearing loss and decrease harmful noise exposure to reduce hearing loss."

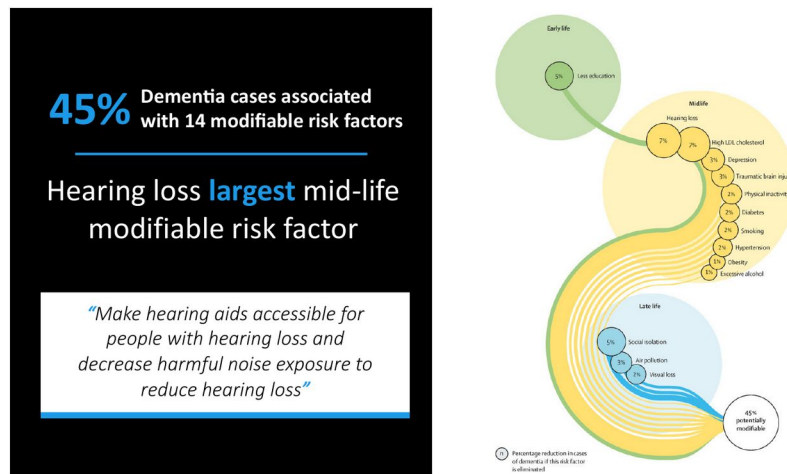
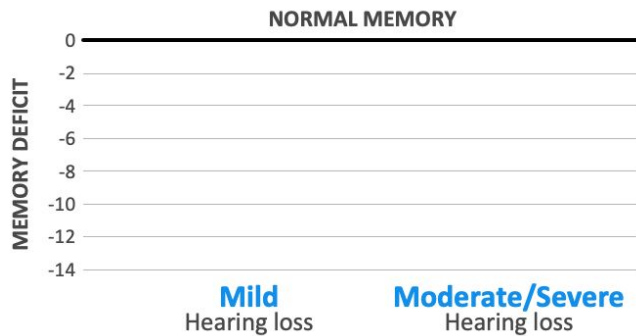


Figure 3. Modifiable risk factors for dementia across the life course.

Amplification and Cognitive Function

Outcome (American Speech-Language-Hearing Association)	Result
Global cognitive function scores	4.8% to 6.4% improvement
Abilities related to long-term memory	1.5x improvement
Short-term memory	12.5% to 20.7% improvement
Attention	16.4% improvement
Adults after cochlear implantation	81% showed improvements in cognitive performance
CI users with mild cognitive impairment	32% returned to typical cognitive function

Silent Risk of Hearing Loss



Source: JAMA Otolaryngol Head Neck Surg. 2018 Oct; 144(10): 876–882.

Figure 4. Memory deficit by degree of hearing loss for hearing aid users and non-users.



Hearing Aid Use and MoCA Scores

- When examining trends over time, hearing aid use was associated with better MoCA scores (Saunders et al., 2018; Moradi et al., 2024; Glick et al., 2020; Cuoco et al., 2021).
- Global score improved in 71% of individuals with mild hearing loss after 6 months of hearing aid use (Glick et al., 2020).
- Adults with mild hearing loss demonstrated significant improvement on a clock drawing task after six months of hearing aid use (Cuoco et al., 2021).

Additional Benefits of Amplification

- Improved quality of life
- Social connectedness
- Emotional well-being
- Decreased depression, anxiety and stress
- Healthy aging

Treatment of Hearing Loss

79% of people with dementia have significant hearing loss, yet only 21.7% use hearing aids (Nieman et al., 2024).

Modifying Clinical Protocols

Clinical protocols can be modified in four areas: communication needs assessments, speech-in-noise testing, cognitive screening, and counseling.

It is important to recognize that the combination of peripheral and central, auditory and cognitive decline make older adults some of the most complex patients seen in audiology services, so they should not be treated as 'standard' despite the high prevalence of age-related hearing loss.

Reed, Jiang, & Deal, 2026

Communication Needs Assessments

Communication needs assessments include the APHAB, COSI, HHIE (-S), and IOI-HA. Patient database tools such as Noah include questionnaire modules for the COSI, APHAB, and IOI-HA.

Speech-in-Noise Testing

- A systematic review found robust associations between poorer speech-in-noise performance and reduced cognitive performance in adults, even after controlling for hearing loss. More research is needed to tease out specific relationships (Dryden et al., 2017).
- Speech-in-noise hearing impairment is associated with increased risk of dementia: 61% for a moderate degree and 80% for a severe degree of speech-in-noise impairment (Journal of the Alzheimer's Association, 2021).
- Participants with audiometric hearing loss showed similar baseline cognitive performance but faster decline in global cognitive function, language, executive function, and attention (Jiang et al., 2022).
- Participants with below-median QuickSIN scores showed worse baseline cognitive performance in all domains and faster decline in global cognitive function, language, memory, executive function and attention (Jiang et al., 2022).

Why Test Speech in Noise?

- Easy, fast and reliable, with technology choices
- Predicts hearing aid use and assesses hearing aid benefit
- Supports compliance with best practice guidelines
- Commercially available test materials are standardized, sensitive to changes in performance, recorded to reduce presentation variables, and have multiple applications (unaided and aided)

Speech/Hearing in Noise Tests

Test	Source
Hearing in Noise Test (HINT)	Nilsson, Soli, and Sullivan, 1994
Words in Noise (WIN)	Wilson, 2003; Wilson and Burks, 2005
Connected Speech Test (CST)	Cox, Alexander, and Gilmore, 1987
QuickSIN	Etymotic Research, 2001; Killion et al., 2004
Speech Perception in Noise Test (SPIN)	Kalikow, Stevens, and Elliott, 1977
Bamford-Kowal-Bench SIN (BKB-SIN)	Etymotic Research, 2005; Bench, Kowal, and Bamford, 1979; Niquette et al., 2003
Acceptable Noise Level (ANL)	Nabelek et al., 2006

Cognitive Screening

Value of Cognitive Screening in the Clinic

- Identify patients who may need further evaluation
- Differentiate contributing factors to communication difficulties
- Guide hearing aid expectations and counseling
- Develop patient-centered rehabilitation plans
- Support interprofessional collaboration
- Establish a baseline for future monitoring

Patients expect that their hearing care professional provide holistic care including promoting cognitive health. Recognizing and addressing the interplay between hearing loss and cognition allows hearing care professionals to develop more effective strategies for assessment, intervention, and patient support to improve overall health and quality of life for older adults.

Muir et al., 2025

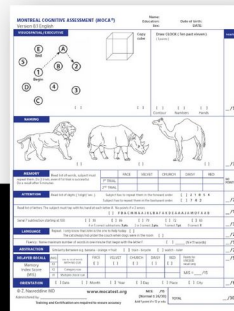
Scope of Practice

Both the Scope of Practice in Audiology (2023) and the Scope of Practice in Audiology (2018) include cognition. They state that audiologists may perform cognitive screening to identify associated comorbid conditions that may impact treatment plans or patient welfare, or for identification and referral to appropriate providers; that audiologists promote cognitive health across the life span; and that additional screening measures of mental health and cognitive impairment should be used to assess, treat, and refer.

Montreal Cognitive Assessment

The Montreal Cognitive Assessment (MoCA) (Nasreddine et al., 2005) and the MoCA-H, for hearing impairment (Dawes et al., 2023), are available screening tools.

Montreal Cognitive Assessment



The Montreal Cognitive Assessment (MoCA)⁵ MoCA-H (For Hearing Impairment)⁶

MoCA Validation Scores of Individuals Diagnosed with Normal Cognition, Mild Cognitive Impairment and Alzheimer's Disease ¹			
	Normal Control	Mild Cognitive Impairment	Alzheimer's Disease
Number of Subjects	90	94	93
Average MoCA Score	27.4	22.1	16.2
MoCA Score Range	25.2-29.6	19.0-25.2	11.4-21.0
Suggested Cut-Off Score	≥26	<26	<26

⁵Nasreddine et al (2005)
⁶Daves et al (2023)

Figure 5. MoCA validation scores for normal cognition, MCI, and Alzheimer's disease.

MoCA for Audiologists

- The MoCA is a screening tool.
- Clinical significance should only be interpreted by a health care professional who has expertise in cognitive function.
- MoCA scores may be affected by audibility.
- Eliminating auditory-dependent sections of the MoCA significantly reduces the sensitivity and specificity of the test.
- MoCA training is free for students, faculty members, academic researchers and publicly operated healthcare institutions.

As health care professionals who serve the aging population, audiologists are likely to encounter cases of undiagnosed cognitive impairment. In order to provide timely referral for medical assistance as well as an optimized individual outcome of audiologic interventions, audiologists should be trained to recognize an abnormality in older clients' cognitive status.

Shen & Souza, 2016

Important Clinical Considerations

- Modified assessment techniques
- Simplified instructions
- Visual supports
- Include family and caregivers to support treatment/care protocols
- Establish relationships with inter-disciplinary professionals

Q5

Quiz Hint: Demanding listening situations require additional cognitive resources, known as listening effort. A patient-centered plan assesses communication challenges with tools such as communication needs assessments, counsels the patient on listening effort, and builds in individualized supports such as modified assessment techniques, simplified instructions, visual supports, and family or caregiver involvement.

Counseling Considerations

Changes to cognition can impact the way a message is understood, responded to, and acted upon.

Structuring the Appointment

- Limit the amount of new information presented during any one appointment or interaction to 3 to 5 points.
- Present each point as a small, manageable chunk of information or concept.
- Allow for time after each point to repeat and paraphrase.
- Longer appointment times may be needed.
- Schedule appointments in mid-morning or whenever energy levels are high.
- Have important conversations in a setting without distractions like noise or other people.

Q4

Quiz Hint: Counseling for patients with cognitive changes works best when new information is limited to 3 to 5 points, each presented as a small, manageable chunk, with time after each point to repeat and paraphrase. Speaking slowly and clearly in a setting without distractions also supports understanding.

Communicating With the Patient

- Speak slowly, clearly and enunciate your words.
- Keep your hands away from your face when having a conversation.
- Communication is words, body language, and tone of voice. A good communicator shows they are listening by nodding, using eye contact, and friendly facial expressions.
- Talk with the patient, not about them or over them.
- If the person is sitting or in a wheelchair, sit down and converse with them at eye level.
- If confused, instill confidence and trust by saying something like: "We're going to figure this out together."
- Speak to the patient as an adult, not as a child.
- Have patience and compassion, and focus on the present moment.

Supporting Materials and Follow-Up

- All reading material should be at a 6th grade reading level, in large font.
- Checklists can be helpful (for example, hearing aid use and care).
- Videos are visual tools to supplement what was communicated verbally.
- Schedule more frequent visits: follow up in 1 to 2 days rather than 2 to 4 weeks.

Q2

Quiz Hint: Changes to cognition can affect the way a message is understood, responded to, and acted upon. This shapes how well a patient learns, remembers, and follows through on hearing aid use and care instructions, which is why checklists, videos, and more frequent follow-up visits are recommended.

Aural Rehabilitation

- Can counteract neuroplasticity changes in the brain
- May positively influence working memory and learning abilities
- Improvements in self-motivation, self-esteem or self-confidence can result in a positive effect on cognitive skills
- Early auditory rehabilitation can lead to extended benefits beyond hearing ability, including cognitive function and depression (Benatti et al., 2013; Bovo et al., 2011a, b; Ciorba et al., 2012)

Hearing Aid Technology

The presenter's Starkey portfolio includes custom styles (IIC, CIC, ITC, ITE), mRIC, RIC 312, and RIC RT hearing aids, plus StarLink Edge accessories: Table Microphone, Remote Microphone, LE Adapter, TV Streamer, and Remote Control 2.0.

Hearing Aid Features

- Digital noise reduction
- Automatic directionality
- Automatic signal processing
- Automatic streaming
- Verbal prompts (memory names, low battery, etc.)
- Rechargeable

Listening Effort

- More demanding listening situations require additional cognitive resources.
- The mental exertion involved is sometimes referred to in the literature as listening effort.
- Poor working memory makes it difficult to inhibit distractions or irrelevant information.

Features that address listening effort include the DNN-Enhanced Speech in Noise algorithm, DNN 360 directionality, Edge Mode, and remote microphones.

DNN Enhanced Speech in Noise

Deep Neural Network Enhanced Speech in Noise is 30% more accurate at identifying speech.

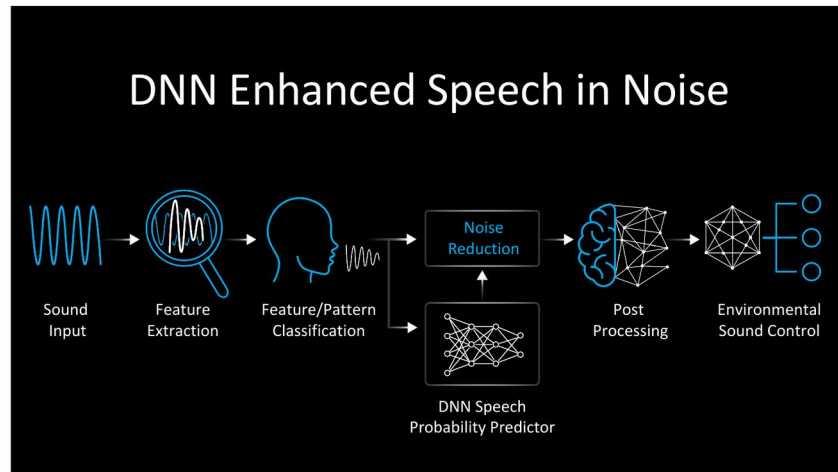


Figure 6. Signal processing flow for DNN Enhanced Speech in Noise.

DNN 360 Automatic Directionality

Mode	Behavior
Omnidirectional	Captures sounds from all directions equally for a natural, balanced listening experience
DNN Spatial Awareness	Omnidirectional in low frequencies; fixed directional in high frequencies to maintain speech audibility
DNN Directionality	Independent adaptive null steering
Motion Based Optimization	Low frequency: omnidirectional with additional gain for general environmental awareness. High frequency: fixed directional for improved SNR for speech onsets

DNN 360 offers 28% improved speech intelligibility and up to 8 dB SNR for better spatial awareness, while maintaining spatial awareness in non-speech environments and maintaining industry-leading battery life.

Edge Mode+ and Remote Microphones

- Edge Mode+ is an intelligent, on-demand noise management and comfort feature that improves speech intelligibility and listening effort in noise.
- StarLink Edge remote microphones (Table Microphone and Remote Microphone) are accessories that improve speech understanding in noise.

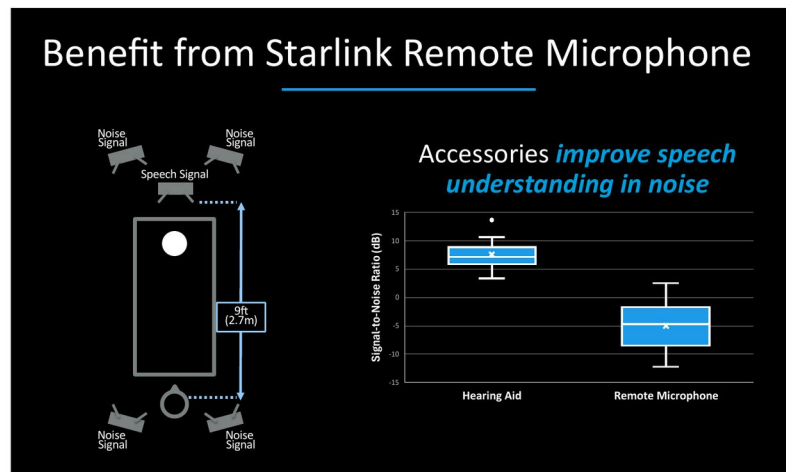


Figure 7. Signal-to-noise ratio results for hearing aid alone versus remote microphone.

App and Connectivity Features

App features include Auracast Assistant, Push to Talk, Find My Phone, TeleHear, Find My Hearing Aids, Reminders, Transcribe, Self Check, Translate, Fall Alert, Balance Assessment, Gen AI Smart Assistant, Respiratory Rate, Balance Builder, and TeleHear AI.

- **Intelligent Reminders:** Hearing Aid Maintenance reminds patients to perform Self Check (weekly, biweekly, or monthly), and Insert Your Hearing Aids reminds the user to put on their hearing aids if they have not been turned on yet that day.
- **Hearing Aid Left Behind** notifies the patient when they may have left their hearing aids behind (exclusive to Omega AI+; pending DLC approval).
- **Self Check** performs an integrity check; tapping Details shows further instructions on cleaning and maintenance.
- **Basic Reminders** set up audible reminders for appointments, taking medications, prescription refills, mealtime, hydration breaks, and more.
- **Smart Assistant** voice commands include increase or decrease volume, mute, change programs, user guide, set a reminder, Find My Phone, and internet.
- **Transcribe** provides closed captioning for real-world situations.
- **TeleHear** remote programming options are synchronous (live virtual session with provider, real-time changes), asynchronous (help request sent to provider, not in real time), and TeleHear AI (patient interacts with Gen AI technology to improve hearing aid settings, real-time changes).
- **HEARShare** lets patients who wear hearing aids share certain health and wellness information with people they select.

Conclusion

- Hearing loss is associated with cognitive decline and dementia, and it is the largest mid-life modifiable risk factor for dementia.
- Hearing aid use is associated with attenuated cognitive decline and broader benefits for quality of life, social connectedness, and emotional well-being.
- Older adults with combined auditory and cognitive decline are complex patients who benefit from modified protocols: communication needs assessments, speech-in-noise testing, cognitive screening, and adapted counseling.
- Hearing aid technology, accessories, and app features can reduce listening effort and support patients with cognitive considerations.

Interactive Worksheet

Directions: Click into any box to type your response. Complete each activity as you move through the course, then finish the Reflection and Action Plan at the end. Checkboxes are best completed in desktop Word.

Name		Date	
-------------	--	-------------	--

Module 1: Cognition, Hearing, and the Connection

Key Terms

Define each term in your own words, based on the course content.

Term	Definition
Cognition	
Mild Cognitive Impairment (MCI)	
Selective attention	
Cognitive load	

List the three proposed pathways between hearing loss and cognitive impairment:

1.	2.	3.
-----------	-----------	-----------

Quick Check

Mark True or False for each statement.

Statement	True	False
It is accurate to tell patients that hearing loss causes dementia.	☐ True	☐ False
Hearing loss is the largest mid-life modifiable risk factor for dementia.	☐ True	☐ False
Most people with dementia who have significant hearing loss use hearing aids.	☐ True	☐ False

Pause and Apply

If-Then Plan: If a patient asks me whether hearing aids will prevent dementia, then I will...

--

Module 2: Hearing Loss Treatment and Cognition

Window Pane Summary

Summarize the evidence on amplification and cognition in each pane.

What the ACHIEVE study found	Cognitive benefits linked to hearing aid use
Benefits of amplification beyond cognition	How I would explain this to a patient

Pause and Apply

If-Then Plan: If I see a patient with dementia and significant hearing loss who does not use hearing aids, then I will...

--

Module 3: Modifying Clinical Protocols

Matching

Write the letter of the matching description in the box next to each item.

Your Letter	Item	Description
	1. Normal control (MoCA validation)	A. A speech-in-noise test; below-median scores were linked to faster cognitive decline
	2. Mild cognitive impairment (MoCA validation)	B. Average MoCA score of 16.2
	3. Alzheimer's disease (MoCA validation)	C. Version of the MoCA for hearing impairment
	4. QuickSIN	D. Average MoCA score of 27.4
	5. MoCA-H	E. Average MoCA score of 22.1

Name two ways cognitive screening adds value in the clinic, and one caution about interpreting MoCA scores:

--

Pause and Apply

If-Then Plan: If a patient's speech-in-noise performance is much poorer than their audiogram predicts, then I will...

Module 4: Counseling Considerations

Fill in the Blank

Counseling Guideline	Your Answer
Limit new information in any one appointment to this many points:	
Reading material should be written at this grade level:	
Follow up in this many days, rather than 2 to 4 weeks:	
Schedule appointments at this time of day, or whenever energy levels are high:	

Describe how you would change your hearing aid orientation appointment for a patient with suspected cognitive changes:

Pause and Apply

If-Then Plan: If a patient seems confused during counseling, then I will...

Clinical Case: Unfolding Scenario

Part 1: Introduction

A 76-year-old patient returns for a hearing aid follow-up with her daughter. She reports that conversations at family dinners are exhausting and that she often cannot remember what was said afterward. She wears her hearing aids only a few hours a day.

What clinical information is most relevant here, and what would you notice first?

Part 2: Assessment Data

Her audiogram is stable compared with last year, but her QuickSIN score shows a moderate speech-in-noise loss. Her APHAB indicates the greatest difficulty in background noise.

What does this pattern suggest, and what additional measure would you consider?

Part 3: Complicating Factor

Her daughter mentions that her mother has recently missed appointments and has trouble remembering how to charge her hearing aids.

How does this change your interpretation and plan?

Part 4: Application

What is your final plan? Include counseling strategies, technology options, any red flags, and referral considerations.

Clinical Reference Tool: Cognition-Friendly Appointment Checklist

Check each strategy as you build it into your next appointment with a patient who has cognitive considerations, and add notes for your setting.

Done	Strategy	Notes for My Setting
☐	Schedule mid-morning or when energy is high	
☐	Choose a quiet setting without distractions	

Done	Strategy	Notes for My Setting
☐	Limit new information to 3 to 5 points	
☐	Pause after each point to repeat and paraphrase	
☐	Speak slowly and clearly; keep hands away from face	
☐	Sit at eye level and talk with the patient, not about them	
☐	Include family or caregivers	
☐	Provide large-font, 6th grade level materials and a checklist	
☐	Offer videos to supplement verbal instructions	
☐	Schedule follow-up in 1 to 2 days	

This tool is for clinical reference only. Always follow your facility's protocols.

Post-Course Reflection

What was the most significant thing you learned today that surprised you or challenged your existing practice?

What knowledge gaps did this course reveal in your own skills or knowledge?

Describe a specific patient from your own practice where you would apply something from this course:

What is one thing you will do differently in your practice next week as a result of this course?

Action Plan

Identify at least 2 specific, measurable changes you plan to make to your clinical practice as a direct result of this course. Use the If-Then format where possible: "If I encounter [situation X], then I will [action Y]."

My Action Plan Goal	Target Date	How I Will Measure Success

Quiz Summary

The following quiz hints appeared throughout the course content. Use this section as a quick study reference.

Q1

Quiz Hint: Reduced auditory input can lead to social withdrawal, increased cognitive load, and brain changes linked to neurodegeneration. Cognitive load, psychosocial factors, and changes in brain structure are each proposed pathways between hearing loss and cognitive impairment.

Q2

Quiz Hint: Changes to cognition can affect the way a message is understood, responded to, and acted upon. This shapes how well a patient learns, remembers, and follows through on hearing aid use and care instructions, which is why checklists, videos, and more frequent follow-up visits are recommended.

Q3

Quiz Hint: Focusing on relevant speech in a noisy environment draws on selective attention, one of the ways the brain processes, interprets, and uses sound information.

Q4

Quiz Hint: Counseling for patients with cognitive changes works best when new information is limited to 3 to 5 points, each presented as a small, manageable chunk, with time after each point to repeat and paraphrase. Speaking slowly and clearly in a setting without distractions also supports understanding.

Q5

Quiz Hint: Demanding listening situations require additional cognitive resources, known as listening effort. A patient-centered plan assesses communication challenges with tools such as communication needs assessments, counsels the patient on listening effort, and builds in individualized supports such as modified assessment techniques, simplified instructions, visual supports, and family or caregiver involvement.

References

- Addressing cognition and hearing: 10 recommendations for HCPs. (n.d.). *The Hearing Review*. <https://hearingreview.com/hearing-loss/patient-care/counseling-education/addressing-cognition-and-hearing-10-recommendations-for-hcps>
- Alzheimer's Association. (n.d.). *Communication*. <https://www.alz.org/help-support/caregiving/daily-care/communications>
- Arjmandi, M. K., Neils-Strunjas, J., Nemati, S., Fridriksson, J., Newman-Norlund, S., Newman-Norlund, R., & Bonilha, L. (2024). Age-related hearing loss, cognitive decline, and social interaction: Testing a framework. *Journal of Speech, Language, and Hearing Research*, 67(8), 2743–2760. https://doi.org/10.1044/2024_jslhr-23-00810
- Bai, W., Chen, P., Cai, H., Zhang, Q., Su, Z., Cheung, T., Jackson, T., Sha, S., & Xiang, Y. T. (2022). Worldwide prevalence of mild cognitive impairment among community dwellers aged 50 years and older: A meta-analysis and systematic review of epidemiology studies. *Age and Ageing*, 51(8), Article afac173. <https://doi.org/10.1093/ageing/afac173>
- Communication guidelines for healthcare professionals working with adults with changed cognitive capacity and their carers: A scoping review with implications for neuro-oncology. (n.d.). *ScienceDirect*. <https://www.sciencedirect.com/science/article/pii/S0738399126001448>
- Deal, J. A., Albert, M. S., Arnold, M., [additional authors not listed in source]. (2017). A randomized feasibility pilot trial of hearing treatment for reducing cognitive decline: Results from the Aging and Cognitive Health Evaluation in Elders Pilot Study. *Alzheimer's & Dementia: Translational Research & Clinical Interventions*, 3(3), 410–415. <https://doi.org/10.1016/j.trci.2017.06.003>
- Donovan, N. J., Wu, Q., Rentz, D. M., Sperling, R. A., Marshall, G. A., & Glymour, M. M. (2017). Loneliness, depression and cognitive function in older U.S. adults. *International Journal of Geriatric Psychiatry*, 32(5), 564–573. <https://doi.org/10.1002/gps.4495>
- Dryden, A., Allen, H. A., Henshaw, H., & Heinrich, A. (2017). The association between cognitive performance and speech-in-noise perception for adult listeners: A systematic literature review and meta-analysis. *Trends in Hearing*, 21, 2331216517744675. <https://doi.org/10.1177/2331216517744675>
- Glick, H. A., & Sharma, A. (2020). Cortical neuroplasticity and cognitive function in early-stage, mild-moderate hearing loss: Evidence of neurocognitive benefit from hearing aid use. *Frontiers in Neuroscience*, 14, 93. <https://doi.org/10.3389/fnins.2020.00093>
- Hale, J. M., Schneider, D. C., Mehta, N. K., & Myrskylä, M. (2020). Cognitive impairment in the U.S.: Lifetime risk, age at onset, and years impaired. *SSM - Population Health*, 11, 100577. <https://doi.org/10.1016/j.ssmph.2020.100577>
- Hearing loss and cognitive impairment: Epidemiology, common pathophysiological findings, and treatment considerations. (n.d.). *PubMed Central*. <https://pmc.ncbi.nlm.nih.gov/articles/PMC8538578/>
- How to communicate with someone with dementia. (n.d.). *AARP*. <https://www.aarp.org/caregiving/home-care/talk-to-someone-with-dementia/>
- Huang, A. R., Jiang, K., Lin, F. R., Deal, J. A., & Reed, N. S. (2023). Hearing loss and dementia prevalence in older adults in the US. *JAMA*, 329(2), 171–173. <https://doi.org/10.1001/jama.2022.20954>
- Jiang, K., Armstrong, N. M., Agrawal, Y., Gross, A. L., Schrack, J. A., Lin, F. R., Ferrucci, L., Resnick, S. M., Deal, J. A., & Powell, D. S. (2022). Associations of audiometric hearing

- and speech-in-noise performance with cognitive decline among older adults: The Baltimore Longitudinal Study of Aging (BLSA). *Frontiers in Neurology*, 13, 1029851. <https://doi.org/10.3389/fneur.2022.1029851>
- Kestens, K., Degeest, S., & Keppler, H. (2021). The effect of cognition on the aided benefit in terms of speech understanding and listening effort obtained with digital hearing aids: A systematic review. *American Journal of Audiology*, 30, 190–210. https://doi.org/10.1044/2020_AJA-20-00019
- The link between hearing loss and cognitive decline. (n.d.). *Michigan Medicine*. <https://www.michiganmedicine.org/minding-memory/link-between-hearing-loss-and-cognitive-decline>
- Muir, L., Lo, C. Y., Russo, F. A., & Singh, G. (2025). Client and clinician perspectives on the roles and responsibilities of hearing care practitioners in addressing health domains beyond hearing. *American Journal of Audiology*, 34(3), 632–641. https://doi.org/10.1044/2025_AJA-24-00256
- Nieman, C. L., Garcia Morales, E. E., Huang, A. R., Reed, N. S., Yasar, S., & Oh, E. S. (2024). Prevalence of hearing loss and hearing aid use among persons living with dementia in the US. *JAMA Network Open*, 7(10), e2440400. [DOI not listed in source]
- Reed, N. S., Garcia-Morales, E. E., Myers, C., Huang, A. R., Ehrlich, J. R., [additional authors not listed in source]. (2023). Prevalence of hearing loss and hearing aid use among US Medicare beneficiaries aged 71 years and older. *JAMA Network Open*, 6, e2326320. [Issue and DOI not listed in source]
- Reed, N. S., Jiang, K., & Deal, J. A. (2026). Hearing loss among older adults: Epidemiology, disparities, and gaps in research. *Annual Review of Public Health*, 47(1), 41–58. <https://doi.org/10.1146/annurev-publhealth-081524-110330>
- Windle, R., Dillon, H., & Heinrich, A. (2023). A review of auditory processing and cognitive change during normal ageing, and the implications for setting hearing aids for older adults. *Frontiers in Neurology*, 14, 1122420. <https://doi.org/10.3389/fneur.2023.1122420>
- Yadav, A. K., Ahsan, A., Kumar, V., & Banik, A. (2025). Impact of over 6 months of digital hearing aid usage on auditory working memory in acquired severe to profound hearing loss. *Journal of Family Medicine and Primary Care*, 14(1), 101–106. https://doi.org/10.4103/jfmprc.jfmprc_570_24

Additional Information

Presenter Bio

Andrea Hannan-Dawkes - Education and Training Division

Dr. Andrea Hannan Dawkes joined Starkey in 2010 as a member of the Education and Training team. In her current role as a senior member of the group, she assists in the development of educational materials, leads training classes, and serves as the liaison for Starkey's university and student initiatives. Prior to joining Starkey, Dr. Hannan Dawkes worked as a clinical audiologist in a variety of prominent medical centers, served as an audiology clinical supervisor and adjunct faculty member at Hofstra University, and contributed to research efforts involving signal detection, hearing aid performance, and signal processing. She earned her Master of Arts degree in Audiology from the University of Maryland at College Park and her Doctor of Audiology degree from the Arizona School of Health Sciences.

Presenter Disclosure

Financial: Andrea Hannan-Dawkes is employed by Starkey Hearing.

Non-financial: Andrea Hannan-Dawkes has no relevant non-financial relationships to disclose.

Additional Information (continued)

Handout Information

About This Document

This document is created for accessibility and is an AI-generated supplement synthesized directly from the presentation's PowerPoint content.

Reference Use & Links

This handout is for reference only. Non-essential images have been removed. Any links are current at the time of the live webinar but are subject to change.

Copyright

Images used in this course comply with copyright laws; permission has been secured where required. All use of these images outside this course may violate copyright laws and is strictly prohibited.

Social Workers

For additional information regarding standards and indicators for cultural competence, please review the NASW resource: [Standards and Indicators for Cultural Competence in Social Work Practice](#)

Need Help?

Select the "Help" option in the member dashboard to access FAQs or contact us.

Limitations/Risks

- The applicability and accuracy of the course content may vary by the clinical, geographical, and cultural context; you should evaluate the course accordingly.
- As healthcare is rapidly evolving, new findings may change the validity of the information presented in this course. Providers should always consult the latest research and guidelines from professional associations.
- The interventions discussed in this course may be limited in generalizability, requiring practitioners to consider specific individual and population factors.
- The course may not cover all possible risk factors, diagnostic methods, or treatment options, and complex cases may require additional considerations.
- Healthcare providers should apply cultural competence and sensitivity to ensure effective and respectful care based on their patients' diverse needs.
- Providers should always evaluate the limitations of diagnostic and screening tools, considering their potential for false results as well as any ethical implications.
- It is the responsibility of course participants to critically evaluate the evidence from multiple sources to guide professional practice.

No part of the materials available through the continued.com site may be copied, photocopied, reproduced, translated or reduced to any electronic medium or machine-readable form, in whole or in part, without prior written consent of continued.com, LLC. Any other reproduction in any form without such written permission is prohibited. All materials contained on this site are protected by United States copyright law and may not be reproduced, distributed, transmitted, displayed, published or broadcast without the prior written permission of continued.com, LLC. Users must not access or use for any commercial purposes any part of the site or any services or materials available through the site.