



HEARING LOSS IN OLDER ADULTS: A PUBLIC HEALTH IMPERATIVE

THOUGHTS BY
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DISCLOSERS

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OBJECTIVES

- Burden of hearing loss on public and individual health
- Identifying those with hearing loss
- How do we treat hearing loss and what are the benefits?

HEARING LOSS IN OLDER ADULTS: A PUBLIC HEALTH IMPERATIVE

- Hearing loss affects ~38 million Americans
- ~Half of those >60 year old have hearing loss
 - Most common sensory deficit among older adults
- Will increase to 73.5 million Americans by 2060
- Do you know someone with hearing loss?

THE MANY HEALTH CONSEQUENCES OF HEARING LOSS

- Hearing loss associated with:
 - Social isolation, loneliness, depression
 - Falls
 - Cognitive decline and dementia
- Hearing loss burden
 - Individuals
 - Healthcare utilization and spending

HEARING LOSS AND FALLS

Systematic Review

Hearing Loss and Falls: A Systematic Review and Meta-analysis

Nicole Tin-Lok Jiam, BA; Carol Li, MD; Yuri Agrawal, MD, MPH

- Older adults with HL 2.4x more likely to fall



HOSPITALIZATIONS

Associations among hearing loss, hospitalization, readmission and mortality in older adults: A systematic review[☆]

Amber Kimball Hsu, BSN, RN^{a,*}, Michael McKee, MD, MPH^b, Sharon Williams, PhD, CCC-A^a, Cecelia Roscigno, PhD, MN, RN, CNRN^a, Jamie Crandell, PhD^a, Audra Lewis, PhD, RN^c, William Hazzard, MD^d, Coretta Jenerette, PhD, RN, AOCN, CNE, FAAN^e

^a University of North Carolina at Chapel Hill, United States

^b University of Michigan, Ann Arbor, United States

^c Texas Woman's University, United States

^d Wake Forest Baptist Medical Center, United States

^e University of South Carolina, United States

- Increased hospitalization
 - Length of stay
- Increased readmission
- Increased mortality



TINNITUS

- Highly associated with HL
- Those at risk:
 - Older adults, military
- No treatment coverage by Medicare, private insurance



ORIGINAL ARTICLE

Central Auditory Dysfunction as a Harbinger of Alzheimer Dementia

George A. Gates, MD; Melissa L. Anderson, MS; Susan M. McCurry, PhD; M. Patrick Feeney, PhD; Eric B. Larson, MD, MPH

Neuropsychology
2011, Vol. 25, No. 6, 763–770

In the public domain
DOI: 10.1037/a0024238

Hearing Loss and Cognition in the Baltimore Longitudinal Study of Aging

Frank R. Lin
Hopkins University

Luigi Ferrucci, E. Jeffrey Metter, Yang An,
Alan B. Zonderman, and Susan M. Resnick
National Institute on Aging, Baltimore, Maryland

ORIGINAL INVESTIGATION

ONLINE FIRST

Hearing Loss and Cognitive Decline in Older Adults

Frank R. Lin, MD, PhD; Kristine Yaffe, MD; Jin Xia, MS; Qian-Li Xue, PhD; Tamara B. Harris, MD, MS; Elizabeth Purchase-Helzner, PhD; Suzanne Satterfield, MD, DrPH; Hilda N. Ayonayon, PhD; Luigi Ferrucci, MD, PhD; Eleanor M. Simonsick, PhD; for the Health ABC Study Group

Results by year

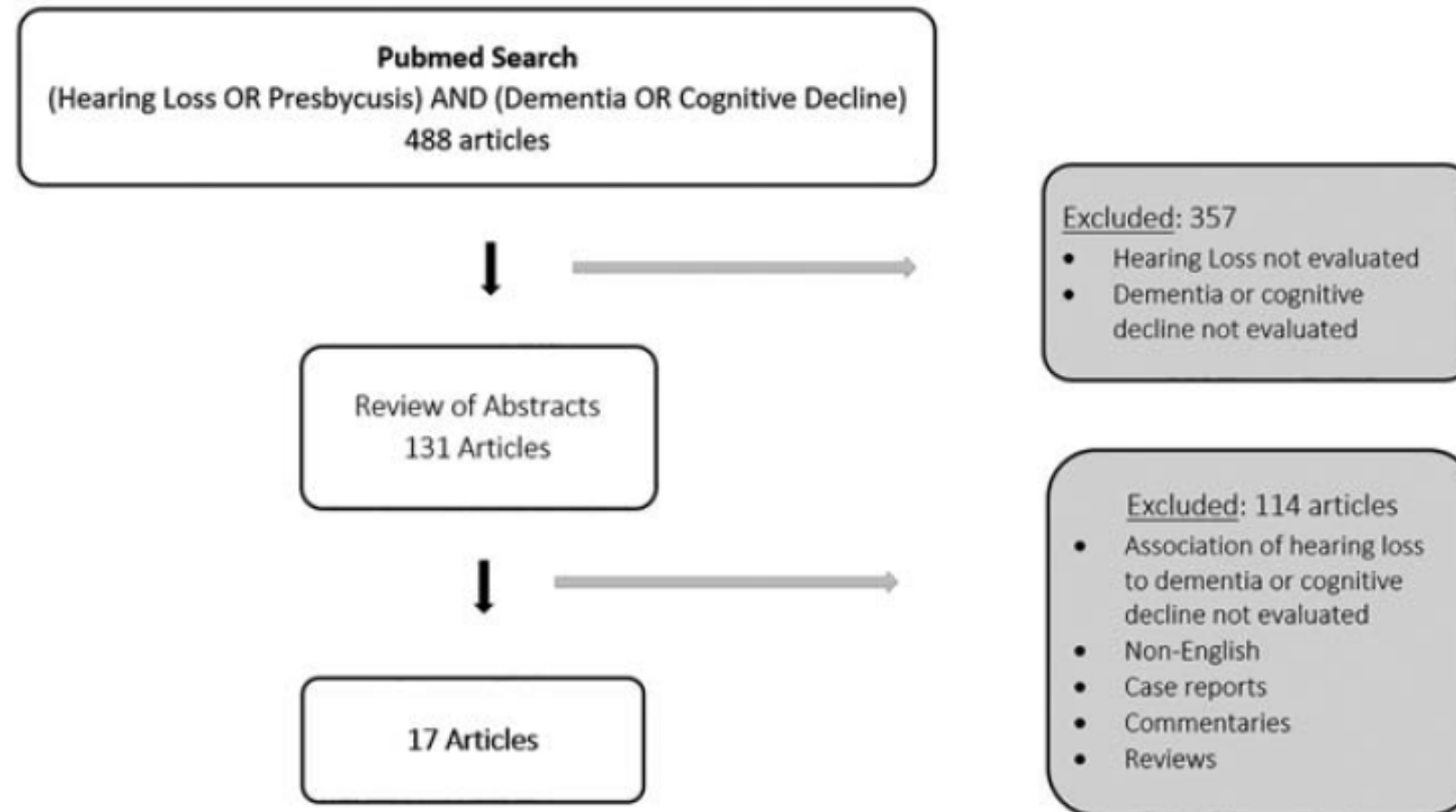


Relationship of Hearing Loss and Dementia: A Prospective, Population-Based Study

*Richard Klaus Gurgel, *Preston Daniel Ward, †Sarah Schwartz,
†‡§Maria C. Norton, ||Norman L. Foster, and †§JoAnn T. Tschanz

Hearing Loss as a Risk Factor for Dementia: A Systematic Review

Rhett S. Thomson, BA; Priscilla Auduong, MD; Alexander T. Miller, BS; Richard K. Gurgel, MD

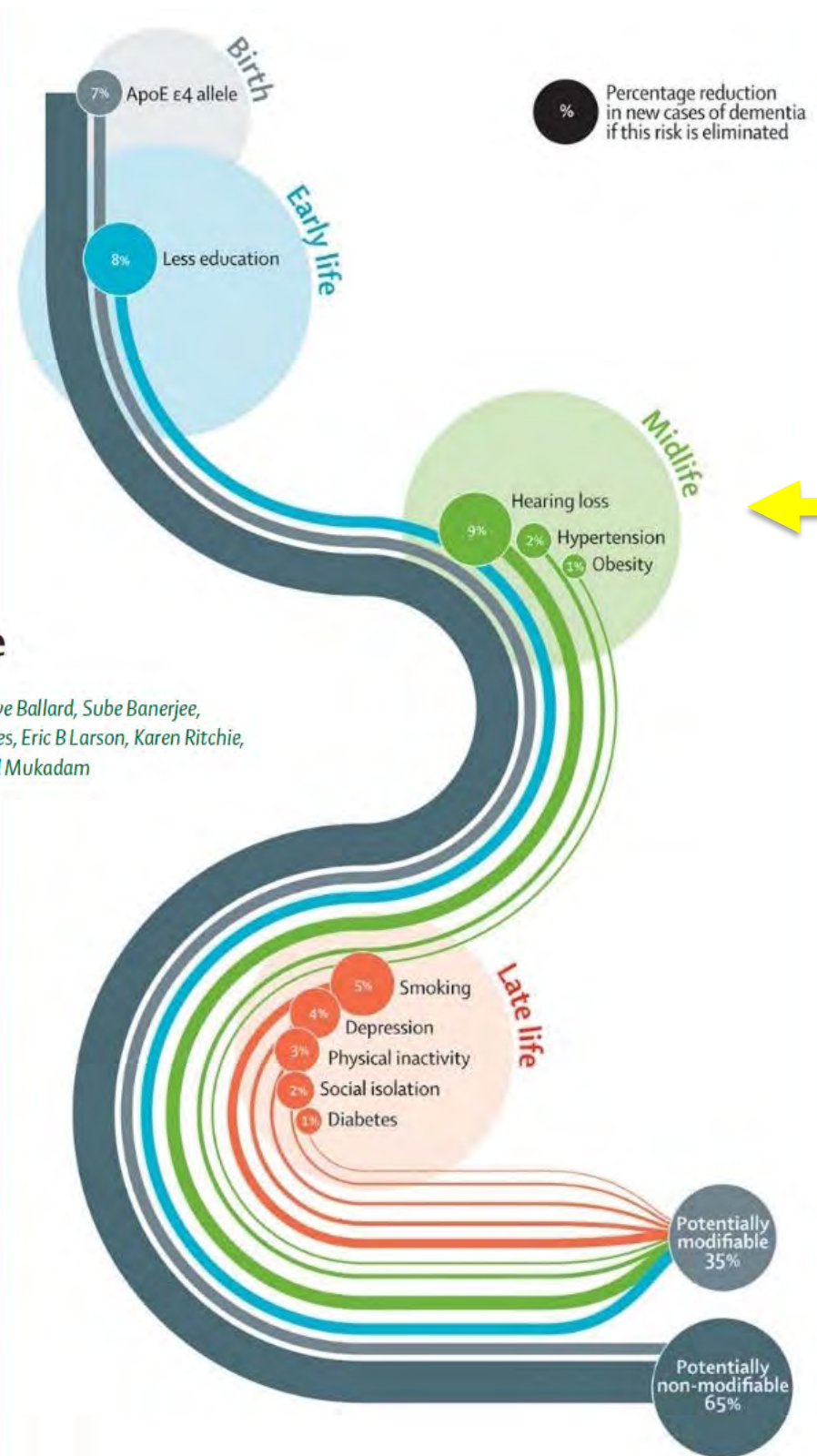


- Odds ratio for an older adult with hearing loss developing dementia compared to normal hearing control:
 - **1.24-1.8**
- up to OR 4 for severe-profound SNHL



Dementia prevention, intervention, and care

Gill Livingston, Andrew Sommerlad, Vasiliki Orgeta, Sergi G Costafreda, Jonathan Huntley, David Ames, Clive Ballard, Sube Banerjee, Alistair Burns, Jiska Cohen-Mansfield, Claudia Cooper, Nick Fox, Laura N Gitlin, Robert Howard, Helen C Kales, Eric B Larson, Karen Ritchie, Kenneth Rockwood, Elizabeth L Sampson, Quincy Samus, Lon S Schneider, Geir Selbæk, Linda Teri, Naaheed Mukadam



9% of modifiable risk of Alzheimers disease attributed to hearing loss

G. LIVINGSTON ET AL., LANCET, 19 JULY 2017

SCREENING



- How do we best identify those with hearing loss?



AMERICAN ACADEMY OF
OTOLARYNGOLOGY-HEAD AND
NECK SURGERY FOUNDATION

Age-Related Hearing Loss Measurement Set

CMS SUBMISSION

- Submitted Centers for Medicare & Medicaid Services for the 2018 Qualified Clinical Data Registry
- 3 approved, with the screening measure not approved as a stand-alone measure.
- After a year of testing in the Reg-ent registry with data pulled from electronic health records, modifications were necessary to capture the necessary data.
- Subsequent consultation with the CMS Center for Clinical Standards and Quality resulted in modifications that would meet CMS measure requirements for the 2019 Qualified Clinical Data Registry.



TREATING HEARING LOSS



Reagan Begins to Wear A Hearing Aid in Public

By STEVEN R. WEISMAN
Special to The New York Times

WASHINGTON, Sept. 7 — President Reagan has begun wearing a custom-made, technologically advanced hearing aid in his right ear after experiencing increased difficulty hearing high-pitched sound.

Mr. Reagan, who is 72 years old, began wearing the device last week, according to the White House. He wore it today in public for the first time, at a meeting of business and education leaders on the subject of adult literacy.

The hearing aid is fitted into the ear canal and is barely visible.

Larry Speakes, the White House spokesman, said the President's hearing aid was prescribed after he visited Dr. John William House in Los Angeles Aug. 22. Dr. House, an associate of the House Ear Institute, a research and training facility, has been treating Mr. Reagan for his hearing problems since 1979.

Removes It at Will

A White House official said Mr. Reagan had already developed the habit of using and then removing the hearing aid at will, much like a pair of glasses. The official said the President had told aides he intended to use it mostly for meetings at the White House.

Among Presidential advisers, Mr. Reagan's use of a hearing aid revived speculation on whether his age would be an issue if he seeks re-election next year. The general feeling was that it would not.

Both Dr. House and a spokesman for the manufacturer of the device said in interviews that Mr. Reagan's hearing problems were common. They also expressed the hope that his wearing a hearing aid publicly would set an example for others who might be reluctant to use one.

Mr. Reagan's hearing problems date from the 1930's, when a .38-caliber pistol was fired near his right ear while he was acting in a movie. Dr. House said the impairment "affects the right ear primarily."

Many people who have spent time with the President have noticed his hearing has deteriorated in the last year or so. Reporters have been told to speak loudly when they interview him, particularly from the right side.

Dr. House said of the President's hearing, "It's not really deteriorated much from last year." He said he had recommended that Mr. Reagan use a hearing aid not so much because the hearing had worsened but because there had been many recent technological advances.

"There have been many improvements in hearing aids recently, particularly in the area of quality of sound they can produce," the doctor said. "There have also been improvements in miniaturization. That's the reason we felt we could make the recommendation that he use one."

He said Mr. Reagan suffered a deterioration in the auditory nerve, which picks up sound vibrations in the inner ear and converts them to electrical impulses to the brain. He said the nerve was damaged by the old gunshot noise.

Amplifies High Frequencies

The hearing aid, manufactured by Starkey Laboratories of Minneapolis, is powered by a small battery and is designed to amplify higher sound frequencies. Because it can selectively amplify these higher frequencies, the device has the effect of making what Mr. Reagan hears not just louder but also clearer, Dr. House said.

Jerome Buzicka, director of manufacturing for Starkey Laboratories, said the ability to make a hearing aid that could amplify some frequencies more than others was a major technological gain of the last year or so.

Another recent improvement cited by Mr. Buzicka is the ability to fit the hearing aid into the ear canal itself rather than restricting it to the outer part of the ear.

Mr. Buzicka said liquid material had been injected into Mr. Reagan's ear canal so an impression could be made



President Reagan wearing a hearing aid as he addressed a group of business and education leaders yesterday at the White House.

when the material hardened. The hearing aid was then molded to conform to this impression.

'Big Cosmetic Appeal'

"There's a big cosmetic appeal for a canal hearing aid," he said. "It's pretty obvious that with a President, you have an advantage to having it out of sight."

"That seems to be the problem with millions of people who need hearing aids," Mr. Buzicka continued. "One reason they don't want to wear one is that they don't want it hanging over their ear or sticking out of their ear. This one is tucked securely in the canal

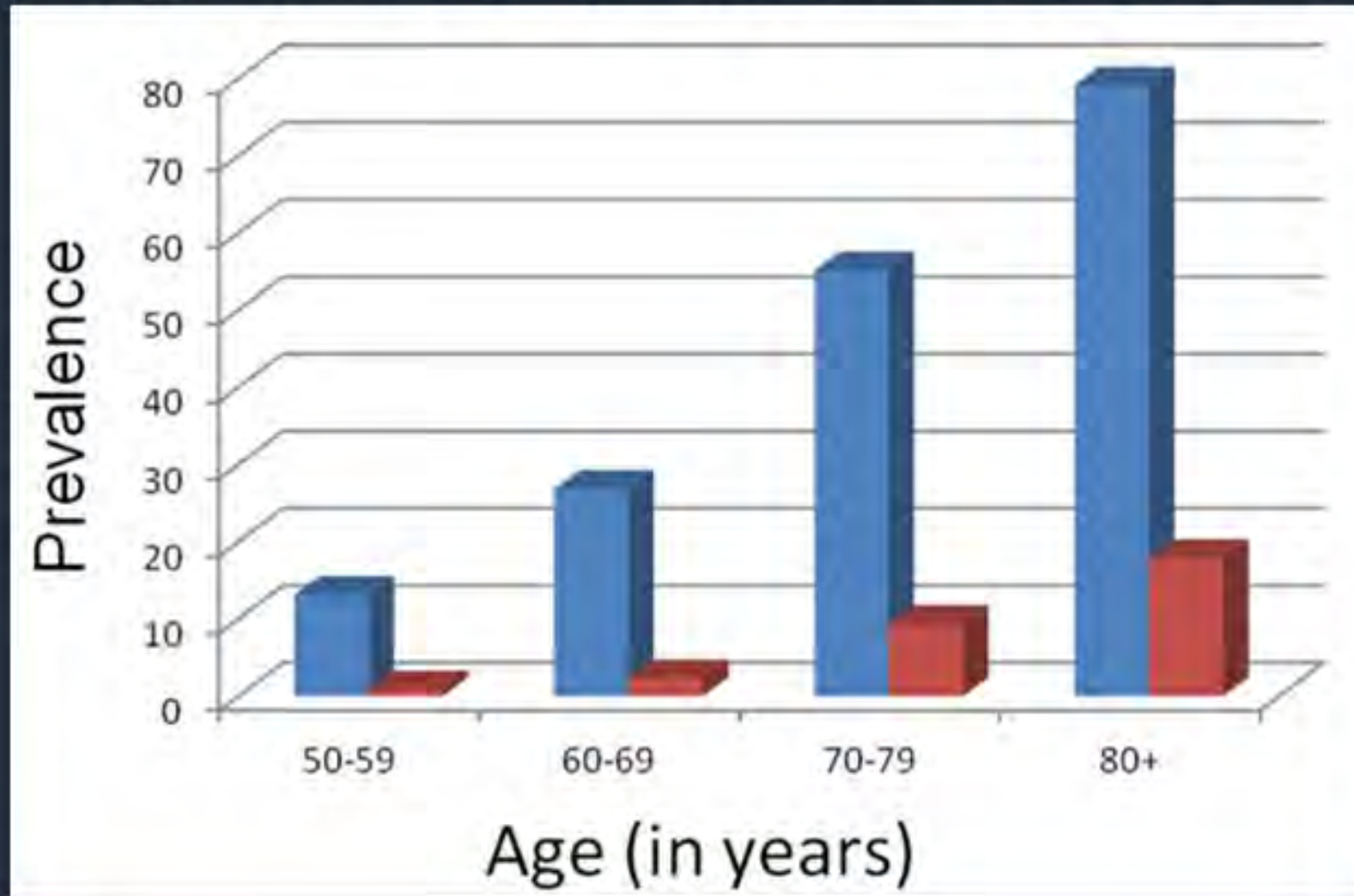
and, in most cases, it's out of sight."

Mr. Buzicka said the President's hearing aid was donated by Starkey Laboratories and Burton Associates, the Los Angeles distributor. The device, custom fitted, retails for \$900 to \$1,100, he said.

Dr. House said one out of three people over the age of 60 had hearing problems. "Hearing loss is the most common problem in the country," he said. "It affects one in 10 of the general population. Maybe the President's doing this will help others realize that they can ease their problems with a hearing aid. I would hope so."

"Among presidential advisors, Mr. Reagan's use of a hearing aid revived speculation on whether his age would be an issue if he seeks re-election next year"

Hearing Loss & Hearing Aid Use Prevalence Among Older Adults in the U.S. 1999-2006



Chien W et al, Arch Int Med, 2012

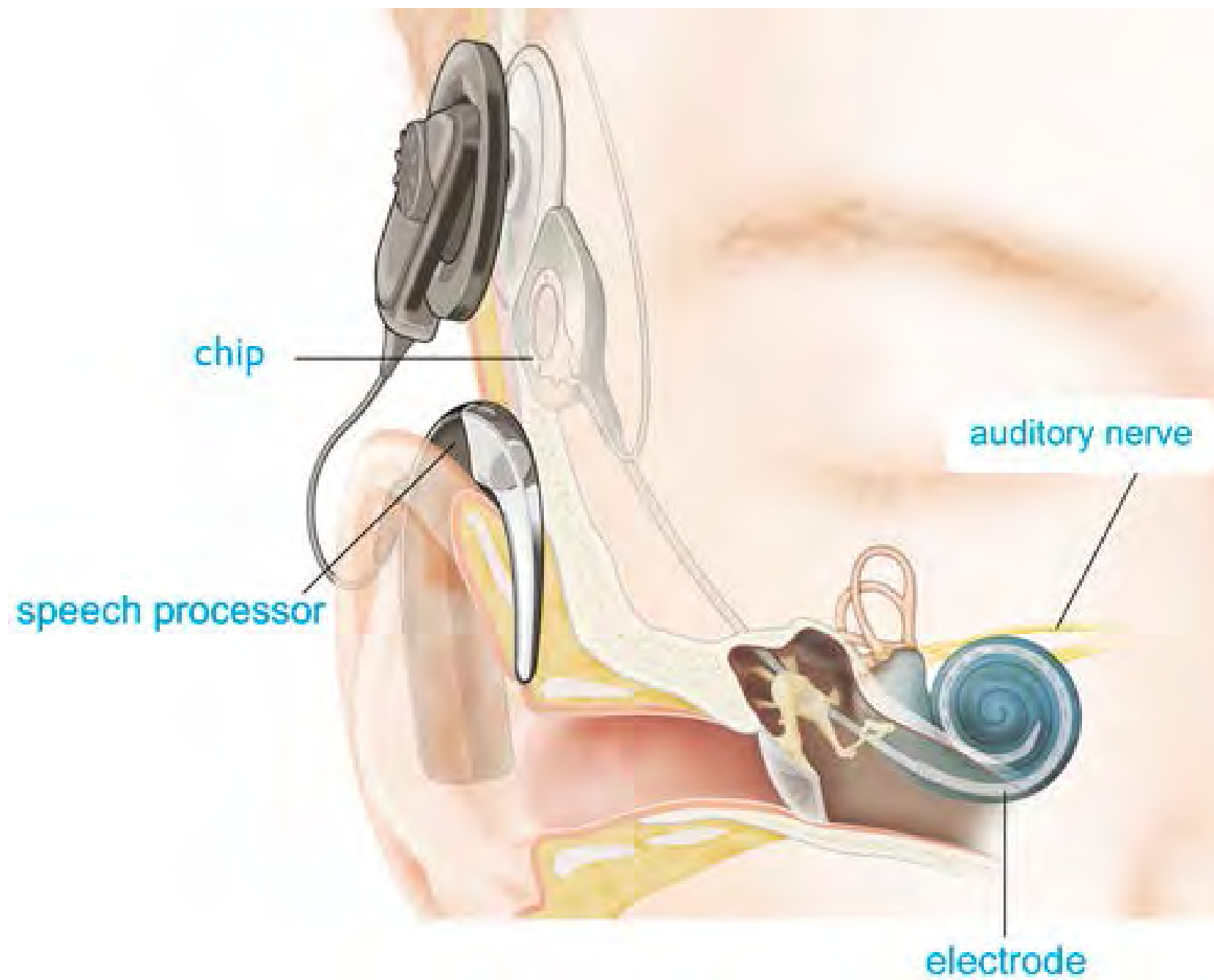
COST EFFECTIVENESS

Cost-Benefit Analysis of Hearing Care Services: What Is It Worth to Medicare?

Amber Willink, PhD,[†] Nicholas S. Reed, AuD,*[‡] and Frank R. Lin, MD, PhD*[‡]*

- Average annual spending for those who used hearing aid: \$8,196
- Average annual spending for those without hearing aid: \$10,709 (difference of \$2,513)
- Difference mainly in higher skilled nursing and home health





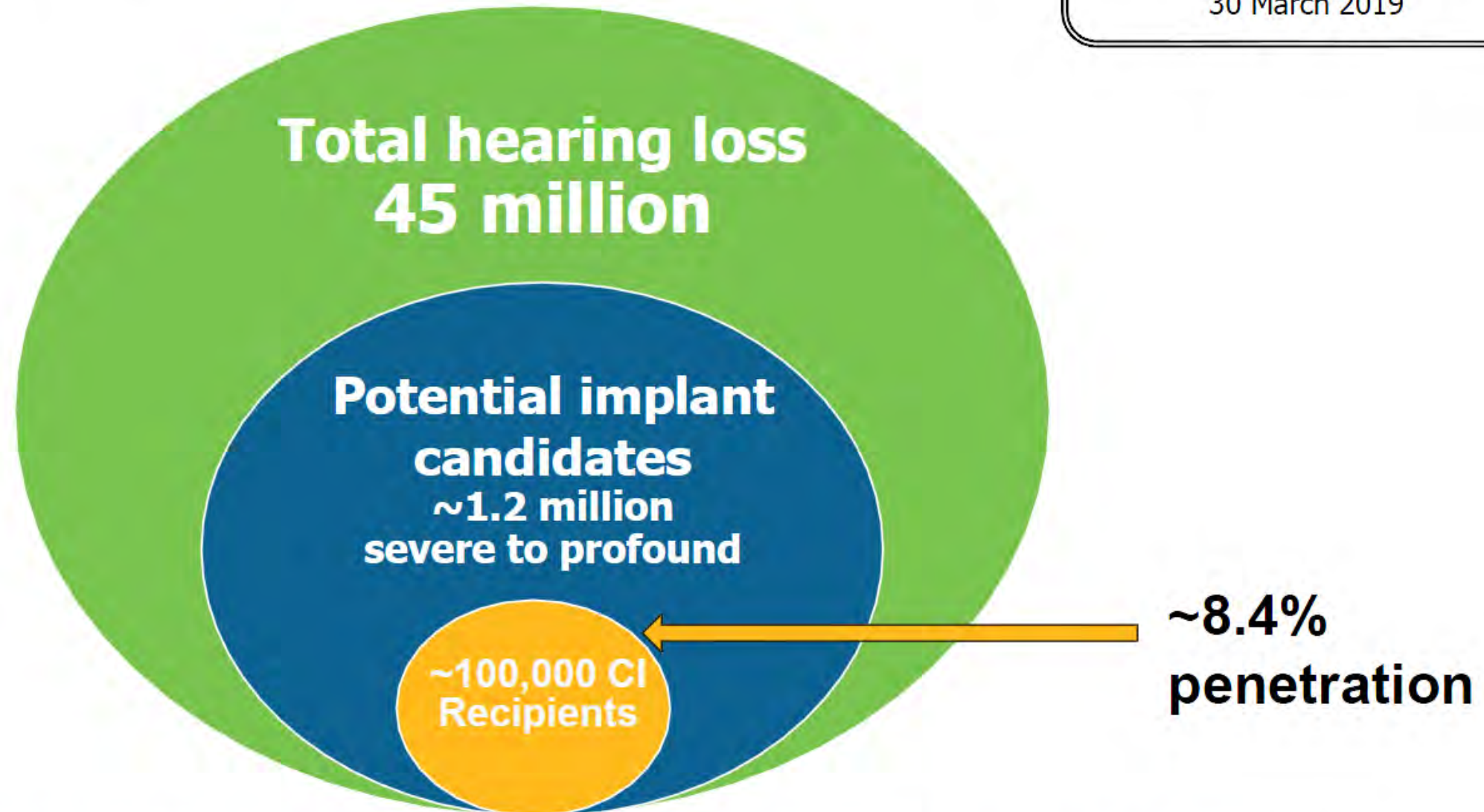
COCHLEAR IMPLANTS IN OLDER ADULTS

- Only 5-10% of adult cochlear implant candidates in the US have received cochlear implants
- Average delay from time of profound ARHL to CI is 10 years
- Fastest growing segment of CI users = older adults



U.S Adult Hearing loss (2018)

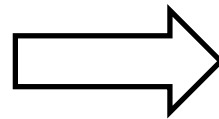
Delphi Consensus Meeting
Cochlear Implant Use
Los Angeles
30 March 2019



1. In 2018, the World Health Organization (WHO) estimated the prevalence of disabling hearing loss to be 45 million adults and nearly 1 million children in the United States (WHO, 2018).
2. American Academy of Audiology. Incidence of Severe and Profound Hearing Loss in the United States and United Kingdom. <https://www.audiology.org/news/incidence-severe-and-profound-hearing-loss-united-states-and-united-kingdom>
3. Market penetration estimate based on Cochlear sourced data.

COCHLEAR IMPLANTS IN OLDER ADULTS

- Move past “safe and effective.” No longer research
- How do we improve access?



CONCLUSIONS



CONCLUSIONS

- Hearing loss creates a tremendous healthcare burden
 - Falls, hospitalization, tinnitus, loneliness, cognitive decline and dementia
- We can do more to screen for hearing loss
- Treating hearing loss mitigates many of the downstream side effects of hearing loss and is cost-effective

Questions

