The Impact of Vision and Hearing Loss in the Senior Population – Why Seeing and Hearing are Believing

Noon–1:30 p.m. | Saturday, November 16
Room: Grand Hall C | Manchester Grand Hyatt San Diego
Sponsored by the AMA’s Senior Physicians Section (SPS)

We take harassment and conflicts of interest seriously. Visit ama-assn.org/codeofconduct to learn more.
Moderator
James F. Burdick, MD

Chair-Elect, AMA-SPS Governing Council
Objectives

Upon completion of this activity, the physician will be able to:

• Explain the importance of testing for hearing and vision loss as one ages.

• Review current screening tests available for hearing impairment.

• Identify how hearing loss is associated with significant adverse effects on a person’s social, psychological and physical well-being.
Speakers’ Disclosure

The content of this activity does not relate to any product of a commercial interest as defined by the ACCME; therefore, there are no relevant financial relationships to disclose at this time.
Speaker

Mihir (Max) Y. Parikh, MD
Board-certified ophthalmologist
Former president of the San Diego County Medical Society
Chief surgeon for NVision San Diego
Evaluating Whether Sight Is the Most Valued Sense

Jamie Enoch, MSc; Leanne McDonald, MSc; Llew Jones, PhD; Pete R. Jones, PhD; David P. Crabb, PhD

IMPORTANCE Sight is often considered to be the sense most valued by the general public, but there are limited empirical data to support this. This study provides empirical evidence for frequent assertions made by practitioners, researchers, and funding agencies that sight is the most valued sense.

OBJECTIVE To determine which senses are rated most valuable by the general public and quantify attitudes toward sight and hearing loss in particular.

DESIGN, SETTING, AND PARTICIPANTS This cross-sectional web-based survey was conducted from March to April 2016 through a market research platform and captured a heterogeneous sample of 250 UK adults ages 22 to 80 years recruited in March 2016. The data were analyzed from October to December 2018.

MAIN OUTCOMES AND MEASURES Participants were first asked to rank the 5 traditional senses (sight, hearing, touch, smell, and taste) plus 3 other senses (balance, temperature, and pain) in order of most valuable (8) to least valuable (1). Next, the fear of losing sight and hearing was investigated using a time tradeoff exercise. Participants chose between 10 years without sight/hearing vs varying amounts of perfect health (from 0-10 years).

RESULTS Of 250 participants, 141 (56.4%) were women and the mean (SD) age was 49.5 (14.6) years. Two hundred twenty participants (88%) ranked sight as their most valuable sense (mean [SD] rating, 7.8 [0.9]; 95% CI, 7.6-7.9). Hearing was ranked second (mean [SD] rating, 6.2 [1.3]; 95% CI 61-6.4) and balance third (mean [SD] rating, 4.9 [1.7]; 95% CI, 4.7-5.1). All 3 were ranked above the traditional senses of touch, taste, and smell (F₁ = 928.4, P < .001). The time tradeoff exercise indicated that, on average, participants preferred 4.6 years (95% CI, 4.2-5.0) of perfect health over 10 years without sight and 6.8 years (95% CI, 6.5-7.2) of perfect health over 10 years without hearing (mean difference between sight and hearing, 2.2 years; P < .001).

CONCLUSIONS AND RELEVANCE In a cross-sectional survey of UK adults from the general public, sight was the most valued sense, followed by hearing. These results suggest that people would on average choose 4.6 years of perfect health over 10 years of life with complete sight loss, although how this generalizes to other parts of the world is unknown.

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Study Conclusions

• 88% of 220 participants ranked SIGHT as most valuable sense

• Hearing was SECOND

• Participants preferred 4.6 years of perfect health over 10 years without sight
  vs. 6.8 years of perfect health over 10 years without hearing

• Mean difference of 2.2 more years of life
2015
Population ages 65 and above (% of total)
22.8% of US population over 60

Chart 1: Population Pyramid of the U.S. Total Resident Population in 2015


29% of the MD population in US over 60

Figure 5
Actively Licensed Physicians in the United States and the District of Columbia by Age, 2010 and 2016

Source: 2016 FSMB Census of Licensed Physicians.
Older Age

Lower Educational attainment

Greater Disability

More medical co morbidity

Poorer Memory

Associated with significant VI in most L/MI countries
Review | EVIDENCE REPORT FOR THE USPSTF

Screening for Impaired Visual Acuity in Older Adults
Updated Evidence Report and Systematic Review for the US Preventive Services Task Force

Roger Chou, MD; Tracy Dana, MLS; Christina Bougatsos, MPH; Sara Grusding, BS; Ian Blazina, MPH

CONCLUSIONS AND RELEVANCE: Screening can identify persons with impaired visual acuity, and effective treatments are available for common causes of impaired visual acuity, such as uncorrected refractive error, cataracts, and dry or wet AMD. However, direct evidence found no significant difference between vision screening in older adults in primary care settings vs no screening for improving visual acuity or other clinical outcomes.


The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.
Reduced functioning
• Decreased quality of life
• Increased risk of falls
• Possibly increased risk of depression
• Reducing VI would be an important public health benefit
• BUT vision screening alone is not an effective tool. Does not lower VI

Reduced VI was the only outcome parameter that significantly decreased from baseline to 18 months. There was no statistically significant improvement in any other outcome parameter between the two groups. The study did not aim to compare the effectiveness of the two interventions, but rather to evaluate the potential of these interventions to improve self-reported vision outcomes in a real-world setting.

### Study Limitations

- The study was conducted in a single center, limiting the generalizability of the results.
- The sample size was relatively small.
- The study was a pragmatic trial, which may have introduced some bias.

### Conclusion

The results of this study suggest that vision-screening interventions may be effective in reducing self-reported vision impairment among older adults. However, more research is needed to confirm these findings and to identify the most effective interventions.

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What is Visual Impairment?

- **Vision Impairment:** worse than 20/40 in the better seeing eye

- **Legal Blindness:** vision worse than 20/200 or Visual Field less than 20 degrees
Most Common Cause of Visual Impairment in USA, 2015

• Non-Hispanic White Population

  Cataracts (42%) (141/1000 people)

  Age-Related Macular Degeneration (28%) (15.6/1000 people)

  Others (22%)

  Diabetic Retinopathy (5%) (39.8/1000 people)

  Glaucoma (2%) (23.2/1000 people)

Data from the University of Chicago (UIC)
https://www.healthypeople.gov/2020/topics-objectives/topic/vision/objectives
MACULAR DEGENERATION
Vision with Macular Degeneration
Normal Anatomy of the Retina

Cross section of normal retina

Drusen Formation

Cross section of retina with drusen

Choriocapillaris

Drusen

Photoreceptors

RPE

Bruch’s membrane

Normal

Drusen
Normal

Drusen

Geographic atrophy
Causes of severe vision loss

Dry
10%

Wet
90%
Strategies for Preventing Progression to Advanced AMD

• Early detection, diagnosis, and treatment important to maximize visual outcomes

• Lifestyle modifications may slow progression
  – Smoking cessation
  – Exercise
  – Maintain healthy weight
  – Maintain normal blood pressure
  – Proper nutrition
Strategies for Preventing Progression to Advanced AMD (cont’d)

• Nutritional considerations
  – Evidence supports the role of nutrition in decreasing the risk of progression
  – Fruits and vegetables high in vitamins C and E, selenium, and carotenoids (beta carotene, lutein, and zeaxanthin) are recommended
    • Dark green, leafy vegetables (e.g. spinach)
    • Other colorful fruits and vegetables (e.g. carrots, peas,)
Neovascular AMD
State of the Art 2012

• Intravitreal pan-VEGF blockers:
  • Ranibizumab (Lucentis)-FDA approved
  • Bevacizumab (Avastin)-Off label
  • Aflibercept (Eylea)-FDA approved

• Frequent intravitreal injections
• Frequent follow-up and testing
• Limitations:
  – Not all patients have improved visual acuity
  – Duration of therapy unknown: Disease control- not cure
  – Inconvenient
  – Costly
AMD

The Future

• Genetic testing
• Treatment options for dry AMD
• Stem cell therapy
• New medications for wet AMD
• Sustained release devices
• Combination treatment
• Intraocular telescope
Implantable Telescope Technology for End-Stage AMD
GLAUCOMA
Optic nerve

Contains up to 1.7 Million Nerve Fibers
Glaucoma

• Groups of diseases typically associated with high eye pressure
• Defined by damage to the optic nerve
• Loss of peripheral vision
Aqueous Humor

- Secreted by the ciliary body
- Provides nutrients and oxygen to the front of the eye
- Maintains intraocular pressure
- Drains out via the anterior chamber angle
- Balance between production and drainage is key
- Sustained high pressure can damage the retina and optic nerve

If the drainage angle is blocked, excess fluid cannot flow out of the eye, causing the fluid pressure to increase.
MIGS: Minimally Invasive Glaucoma Surgery

A XEN GEL STENT
B HYDRUS
C ISTENT INJECT
D ISTENT
E CYPASS
DIABETIC RETINOPATHY
Proliferative Diabetic Retinopathy
CATARACTS
Cataracts

- Over 40% of people over 70 have significant cataracts
- Leading cause of blindness
- Symptoms:
  - Cloudy vision
  - Difficulty at night
  - Glare
  - Fading of color
Cataracts

Types of Cataracts

Normal Lens  Immature  Mature  Hypermature
Cataracts
Cataract Surgery
Preventing eye problems

• See your family physician regularly
• Visit your ophthalmologist yearly for routine screening
• See an eye doctor immediately for any loss of vision, blurred vision, eye pain, double vision, redness, swelling, or discharge
• Eat well, exercise, and control any other medical problems well
Healthy People 2020 VISION: Healthypeople.gov

V-5  Reduce visual impairment

V-5.1  Reduce visual impairment due to uncorrected refractive error

V-5.2  Reduce visual impairment due to diabetic retinopathy  Revised

V-5.3  Reduce visual impairment due to glaucoma  Revised

V-5.4  Reduce visual impairment due to cataract  Revised

V-5.5  Reduce visual impairment due to age-related macular degeneration (AMD)  Revised
Have you seen your ophthalmologist recently??

Thank you,
Mihir Parikh MD
DrParikh@max.vision
Speaker

S. Bobby Mukkamala, MD

Board-certified otolaryngologist—head and neck surgeon

Elected to the American Medical Association Board of Trustees in June 2017
Hearing Loss in the Senior Population

aka…

"Pardon me?"
Discussion today will include:

Reviewing types of hearing loss, evaluation of hearing loss, treatment options and other related issues.
Hearing loss in the Elderly - Why are we talking about it?

Prevalence:

• Adults 70 years of age and older have a 65% incidence of significant hearing loss

Consequences:

• Hearing loss has significant association with chronic conditions: Dementia, Falls
Ear - Brain Connection
Types of Hearing Loss

- Conductive
- Sensorineural
- Central
Evaluation of Hearing Loss

History

• Acute or Chronic
• Unilateral or Bilateral
• Noise Exposure

Family History

• Bothering the patient or those around them (severity)
• Other symptoms: Drainage, Pain
Evaluation of Hearing Loss

Exam:

External Ear Findings

Cerumen

Fluid
Evaluation of Hearing Loss

- Tuning Forks
- 512Hz
- Rinne
- Louder in back = Conductive Loss

Rinne’s Test

With a 512 Hz tuning fork press against the mastoid bone and then hold it 1 cm away from the ear.

‘Which is louder, behind the ear or in front?’
Audiogram

- Frequencies
- Severity
- Type (Conductive vs Sensorineural)
- Asymmetry
Most Common Scenario in Seniors

- Chronic
- Gradual Onset
- Bilateral
- Progressive
- Trouble in Social Settings more than one-on-one
- Possible Hx of Noise Exposure
- Possible Family Hx
- Family / Spouse more bothered than patient
Options

• Turn up Television
• Assisted Listening Telephones
• Hearing Aids
• Surgery
Hearing Aids

Satisfaction varies

Issues to consider:

• Vision
• Dexterity
• Cerumen
• Features
Cochlear Implantation

- Surgical procedure that taps directly into the auditory nerve and bypasses the hair cells within the cochlea (which aren’t working)
- Indications have evolved
- Severe to profound hearing loss in both ears (now cleared for single sided deafness)
Recent Data on “Collateral Damage”

Dementia

Alzheimer's

Theories:

• Both HL and Dementia caused by a common process

• HL may cause Dementia (cognitive exhaustion)
Recent Data on “Collateral Damage”

If indeed there is a causal relationship…
(if you don’t use it …you lose it theory)...
then it makes sense to **amplify early** to keep that part of the brain working
Tinnitus

• The perception of noise in the ears
  o Ringing, Buzzing, Humming, Electronic Hum, Crickets / Cicadas

• Most often due to Sensorineural Hearing Loss

• Can be due to Conductive Hearing Loss (the lucky ones)

• Can be Non-Ear Related
  o Central
    o Salt, Caffeine, Nicotine, Aspirin

• Options include masking devices, nutritional supplements (nothing great out there)
Vertigo

• Sensation of movement

• Central or Peripheral (Ear) Related

• Senior Population has many reasons to have it
  o Ear causes (infection, BPPV)
  o Non ear causes (cerebrovascular, tumor, migraine)

• Treatment
  o Supportive
  o Physical Therapy
Facilitator
Louis Weinstein, MD

Chair, AMA-SPS Governing Council
Questions from Audience Members
Your opinion matters!

Provide feedback on your meeting experience:


Or, access the eval link for our session in the CrowdCompass AttendeeHub App
CME Credit
Communications Requirements

Be sure to pick up instructions for claiming CME credit on your way out today.

The deadline for claiming CME Credit is December 31, 2019.
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