



مؤسسة حمد الطبية  
Hamad Medical Corporation  
HEALTH • EDUCATION • RESEARCH  
صحة • تعليم • بحوث

In Collaboration with



Institute for  
Healthcare  
Improvement

# Middle East Forum on Quality & Safety in Healthcare **2023**

**16-19 March, Doha**



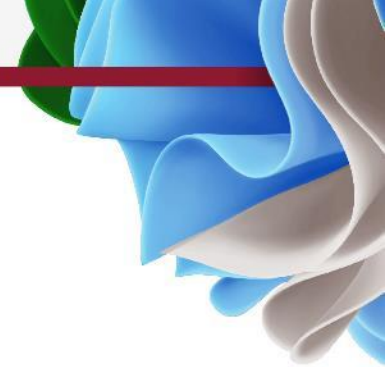
---

## Healthcare Resilience in Extraordinary Times

Brought to you by:  
**Hamad Healthcare Quality Institute**

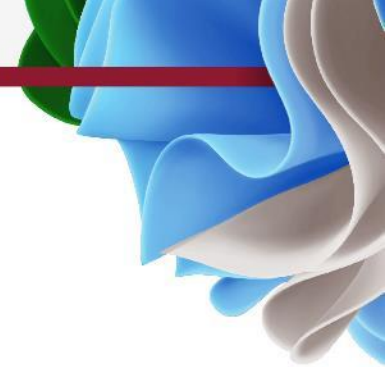
# Can You Hear Me Now?

Jeff Salvon-Harman, MD, CPE, CPPS



# Conflict of Interest

Dr. Jeff Salvon-Harman has no conflict of interest or disclosure in relation to this presentation.



# Learning Objectives

At the end of this session, participants will be able to:

1. Describe the importance of hearing and communication in health care
2. Recognize the impact of hearing loss and language barriers in health care
3. Evaluate strategies to assess and address hearing, communication and language barriers in health care settings

# Could Hearing Loss Really Contribute to an Adverse Event?

## Michael

- 73y male
- Diabetes Mellitus, Type 2 (DM2), Hypertension, Hyperlipidemia, Depression, Prostate CA (remission)
- Widowed, Tobacco (-), Alcohol (1-2 drinks/day)
- Retired office worker
- Recent blood sugar instability despite increasing medications at prior appointment



# Prior Ambulatory Appointment

## Medication Reconciliation:

1. Began bedtime insulin injections
2. Increased dose of oral metformin
3. Referred to nutritionist for lower carbohydrate diet
4. Recommended exercise 2-3x/week to improve glycemic control



# Current Ambulatory Appointment

## Medication Reconciliation:

1. Inconsistent use and measurement of bedtime insulin
2. Did not increase oral metformin dose
3. Met with nutritionist but has not changed diet
4. No interest in exercising



# Hearing Loss in Health Care

**Approximately 1 in 3 people age 65-74y have hearing loss**

**Nearly 50% > age 75y have difficulty hearing**

**Associated with the following conditions in older adults:**

- Depressive disorders / social withdrawal / isolation
- Cognitive decline / dementia
- Falls
- Medication errors



Ref: <https://www.nia.nih.gov/health/hearing-loss-common-problem-older-adults>



# Causes of Hearing Loss

**Sensorineural Hearing Loss** – damage to the inner ear or auditory nerve (CN VIII)

**Conductive Hearing Loss** – mechanical prevention of soundwaves reaching the inner ear

**Age-related Hearing Loss (Presbycusis)** – most commonly sensorineural

Related conditions in older adults:

- |                           |                            |
|---------------------------|----------------------------|
| 1. Diabetes               | 5. Stroke / brain injury   |
| 2. Hypertension           | 6. Tumor                   |
| 3. Infections             | 7. Medications (ototoxic)  |
| 4. Cardiovascular disease | 8. Otosclerosis (heredity) |

# Impact of Hearing Loss in Health Care

## Hearing Impairment and the Amelioration of Avoidable Medical Error: A Cross-Sectional Survey

Henn, P, O'Tuathaigh, C, Keegan, D, Smith, S.  
*Journal of Patient Safety*, 17(3):p e155-e160, April 2021

Cross-sectional, questionnaire-based design of a convenience sample of students with hearing loss 8 Irish and 15 UK third-level institutions.

## JOURNAL OF PATIENT SAFETY

[Articles & Issues](#) ▾ [In The News](#) [For Authors](#) ▾ [Journal Info](#) ▾

### ORIGINAL STUDIES

## Hearing Impairment and the Amelioration of Avoidable Medical Error: A Cross-Sectional Survey

Henn, Patrick MB, BCh, BAO, MSc, MA<sup>\*</sup>; O'Tuathaigh, Colm PhD<sup>\*</sup>; Keegan, Darrelle BA, MA<sup>†</sup>; Smith, Simon BSc, MSc<sup>\*</sup>

[Author Information](#) ⓘ

*Journal of Patient Safety* 17(3):p e155-e160, April 2021. | DOI: 10.1097/PTS.0000000000000298

# Impact of Hearing Loss in Health Care

Hearing Impairment and the Amelioration of Avoidable Medical Error: A Cross-Sectional Survey

Henn, P, O'Tuathaigh, C, Keegan, D, Smith, S | N=95

|                                                                     |            |
|---------------------------------------------------------------------|------------|
| <b>Patient Factors</b> - Mishearing a physician/nurse in a hospital | <b>59%</b> |
| Consultation content                                                | 61%        |
| Mishearing                                                          | 34%        |
| Misinterpreting (diagnosis, advice, medications)                    | 21%        |
| <b>Clinician Factors</b>                                            | <b>22%</b> |
| Eye contact / turning away / wearing mask                           | 20%        |
| Low volume / fast speech                                            | 7%         |
| Sound-alike words                                                   | 23%        |
| Soft / weak consonants                                              | 7%         |

# Impact of Hearing Loss in Health Care

## Impact of Hearing Loss on Patient Falls in the Inpatient Setting

Tiase, V, Tang, K, et al. American Journal of Preventive Medicine, 58(6), pp839-844, June 2020

Retrospective cohort analysis at a large, urban, academic medical center in 2018

Age > 18y,  
1 February 2017 – 1 February 2018



# Impact of Hearing Loss in Health Care

## Impact of Hearing Loss on Patient Falls in the Inpatient Setting

American Journal of Preventive Medicine, 58(6), pp839-844, June 2020

### Self-reported hearing loss was associated with falls in the inpatient setting

(OR=1.74, 95% CI=1.46, 2.07,  $p < 1.43 \times 10^{-9}$ )

### Among patients with hearing impairment, a lack of hearing aids increased the risk for falls in the inpatient setting

(OR=2.70, 95% CI=1.64, 4.69,  $p < 1.41 \times 10^{-5}$ )

### Morse Fall Scale, controlling for age/sex:

Patients with hearing loss and no hearing aids were significantly more likely to fall

(OR=2.44, 95% CI=1.002, 5.654,  $p < 0.042$ )

Patients with hearing loss who did have hearing aids were not significantly more likely to fall ( $p < 0.889$ )

# Impact of Hearing Loss in Health Care

## Can You Hear Me Now? The Impact of Hearing Loss on Patient Health Literacy

Tolisano, A, et al. Otolary & Neurotology 41(8):p 1027-1032, September 2020

300 Consecutive > 18y academic otology practice, Feb-March 2019, assessed with Brief Health Literacy Screen (BHLS)



# Impact of Hearing Loss in Health Care

## Can You Hear Me Now? The Impact of Hearing Loss on Patient Health Literacy

Tolisano, A, et al. Otology & Neurotology 41(8):p 1027-1032, September 2020

Median age – 60y (range 18-91y)

Inadequate health literacy – 9.7%

Men 13.6%

Women 6.3%

Audiometric evidence of hearing loss

82.7% (class A or B)

17.3% (class C or D)

BHLS scores (median composite)

13.6 (class A or B)

11.6 (class C or D)  $p < 0.0001$

Inadequate health literacy

4.7% (class A or B)

28.6% (class C or D)

# Scale of Hearing Loss Impact in Ambulatory Care (US, 2018)

National Ambulatory Medical Care Survey: 2018 National Summary Tables Table page 1 of 1

**Table 3. Office visits, by patient age and sex: United States, 2018**

| Patient age and sex | Number of visits<br>(standard error) in thousands | Percent distribution<br>(standard error of percent) | Number of visits per 100 persons<br>per year <sup>1</sup> (standard error of rate) |
|---------------------|---------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------|
| All visits          | 860,386 (37,935)                                  | 100.0 ...                                           | 267.1 (11.8)                                                                       |
| Age (years)         |                                                   |                                                     |                                                                                    |
| Under 15            | 109,930 (14,314)                                  | 12.8 (1.6)                                          | 180.7 (23.5)                                                                       |
| Under 1             | 22,912 (3,327)                                    | 2.7 (0.4)                                           | 595.7 (86.5)                                                                       |
| 1-4                 | 33,926 (5,312)                                    | 3.9 (0.6)                                           | 212.6 (33.3)                                                                       |
| 5-14                | 53,091 (7,202)                                    | 6.2 (0.8)                                           | 129.4 (17.5)                                                                       |
| 15-24               | 58,754 (4,957)                                    | 6.8 (0.5)                                           | 139.9 (11.8)                                                                       |
| 25-44               | 158,770 (12,842)                                  | 18.5 (1.3)                                          | 186.9 (15.1)                                                                       |
| 45-64               | 251,488 (14,876)                                  | 29.2 (1.0)                                          | 302.5 (17.9)                                                                       |
| 65 and over         | 281,444 (18,327)                                  | 32.7 (1.6)                                          | 550.2 (35.8)                                                                       |
| 65-74               | 147,017 (9,550)                                   | 17.1 (0.8)                                          | 485.7 (31.6)                                                                       |
| 75 and over         | 134,427 (10,813)                                  | 15.6 (1.0)                                          | 643.8 (51.8)                                                                       |

[https://www.cdc.gov/nchs/data/ahcd/namcs\\_summary/2018-namcs-web-tables-508.pdf](https://www.cdc.gov/nchs/data/ahcd/namcs_summary/2018-namcs-web-tables-508.pdf)



# Scale of Hearing Loss Impact for Inpatients (US, 2019)

**Table HospStay. People with hospital stays in the past year, by selected characteristics: United States, selected years 1997–2019**

Excel version (with more data years and standard errors when available): <https://www.cdc.gov/nchs/hus/contents2020-2021.htm#Table-HospStay>

[Data are based on household interviews of a sample of the civilian noninstitutionalized population]

| Characteristic                                                | 1997 | 2000 | 2005 | 2009 | 2015 | 2018 | 2019 |
|---------------------------------------------------------------|------|------|------|------|------|------|------|
| Percent of people with one or more hospital stays             |      |      |      |      |      |      |      |
| Total, 1 year and over, age adjusted <sup>1,2</sup> . . . . . | 7.8  | 7.6  | 7.4  | 7.3  | 6.5  | 6.7  | 7.3  |
| Total, 1 year and over, crude <sup>1</sup> . . . . .          | 7.7  | 7.5  | 7.4  | 7.4  | 6.9  | 7.3  | 7.9  |
| Age group                                                     |      |      |      |      |      |      |      |
| 1–17 years . . . . .                                          | 2.8  | 2.5  | 2.5  | 2.2  | 2.1  | 2.1  | 2.6  |
| 1–5 years . . . . .                                           | 3.9  | 3.8  | 3.7  | 3.3  | 3.1  | 2.9  | 3.2  |
| 6–17 years . . . . .                                          | 2.3  | 1.9  | 2.0  | 1.8  | 1.7  | 1.8  | 2.4  |
| 18–44 years . . . . .                                         | 7.4  | 7.0  | 6.7  | 6.7  | 5.8  | 5.8  | 6.6  |
| 18–24 years . . . . .                                         | 7.9  | 7.0  | 6.3  | 6.3  | 4.5  | 4.3  | 4.5  |
| 25–44 years . . . . .                                         | 7.3  | 7.0  | 6.9  | 6.8  | 6.3  | 6.4  | 7.3  |
| 45–64 years . . . . .                                         | 8.2  | 8.4  | 8.2  | 8.5  | 7.7  | 7.8  | 8.7  |
| 45–54 years . . . . .                                         | 6.9  | 7.3  | 7.1  | 7.4  | 6.4  | 6.2  | 7.2  |
| 55–64 years . . . . .                                         | 10.2 | 10.0 | 9.8  | 9.9  | 9.2  | 9.3  | 10.1 |
| 65 years and over . . . . .                                   | 18.0 | 18.2 | 17.8 | 17.1 | 15.2 | 16.8 | 16.6 |
| 65–74 years . . . . .                                         | 16.1 | 16.1 | 14.5 | 14.3 | 12.8 | 14.2 | 13.9 |
| 75 years and over . . . . .                                   | 20.4 | 20.7 | 21.4 | 20.4 | 18.8 | 20.6 | 20.5 |
| 75–84 years . . . . .                                         | 19.8 | 20.1 | 19.9 | 19.0 | 17.3 | 19.6 | 18.4 |
| 85 years and over . . . . .                                   | 22.8 | 23.4 | 26.6 | 24.8 | 22.5 | 23.3 | 26.1 |

<https://www.cdc.gov/nchs/data/hus/2020-2021/HospStay.pdf>

## Michael's Health

- Could Michael's current care and perceived lack of follow-through be the result of hearing loss?
- What are the Patient-Centered approaches to evaluation and treatment of hearing loss to prevent adverse events/undesired outcomes?



# Hearing Loss Management Strategies Reduce Adverse Event Risks

- Meet Patients Where They Are
- Intervene to Improve Hearing



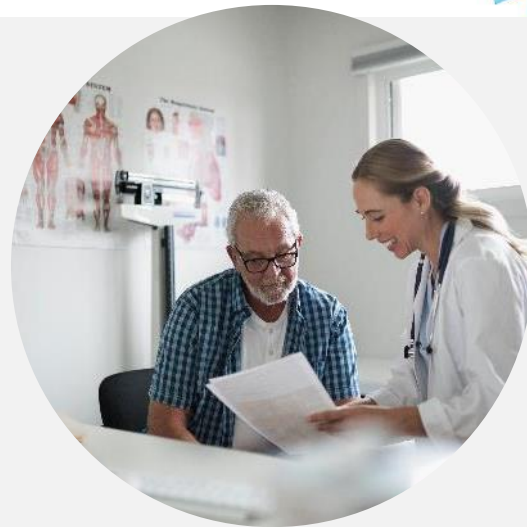
# Meet Patients Where They Are

## Passive Detection of Hearing Loss

- Patient requests clinician repeat themselves
- Silence in response to clinician questions
- Inappropriate responses to clinician questions

## Passive Interventions

- Speaking louder
- Speaking slower
- Facing patient when speaking
- Writing questions / instructions



# Interventions to Improve Hearing

## Active Detection of Hearing Loss

- Annual Screening Audiogram for all patients (or > 65y)
- Hearing quality questionnaire
- Clinical tests of gross hearing (Whisper Test)

## Active Interventions

- Hearing aids
  - Patient-owned vs Practice-owned
- Assistive listening devices
- Auditory Rehabilitation (speech, lip, context reading)



# Nothing About Me Without Me

1. Patient Acceptance / Denial of Hearing Loss
2. Age Friendly Health Systems Alignment
3. Shared Decision-Making
4. Patient Preference of Level of Intervention



# Not All Patients Recognize Their Hearing Loss

## Stages of Change:

1. Denial
2. Pre-contemplation
3. Contemplation
4. Acceptance - Action



# Age Friendly Health Systems Embrace Management of Hearing Loss

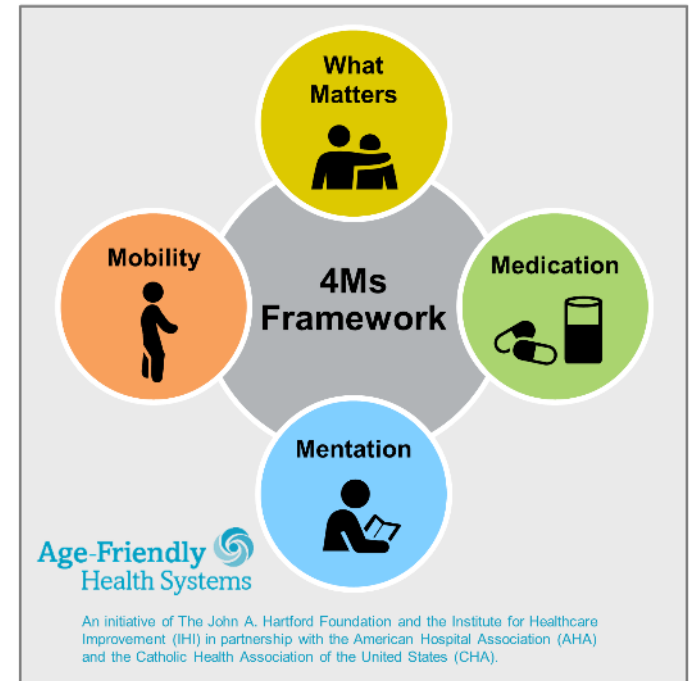
## AFHS 4 Ms

**What Matters?** – How does hearing loss impact daily living?

**Mentation** – Is hearing loss contributing to social isolation, depression, or cognitive decline?

**Medication** – Are medications contributing to hearing loss?  
Are medication instructions understood?

**Mobility** – Is hearing loss affecting ambulation cues/balance?



For related work, this graphic may be used in its entirety without requesting permission.  
Graphic files and guidance at [ihi.org/AgeFriendly](http://ihi.org/AgeFriendly)



# “What Matters to You?”

## The SHARE Approach:

1. Engage patients in the approach
2. Inform patients on treatment options
3. Connect to patient values (What Matters?)
4. Share in deciding with the patient
5. Assess and provide feedback on the decision

## The **SHARE** Approach: A Model for Shared Decision Making

The SHARE Approach is a five-step process for shared decision making that includes exploring and comparing the benefits, harms, and risks of each option through meaningful dialogue about what matters most to the patient.



Shared decision making occurs when a health care provider and a patient work together to make a health care decision that is best for the patient. The optimal decision takes into account evidence-based information about available options, the provider's knowledge and experience, and the patient's values and preferences.

# Quality and Safety Can Be Improved by Addressing Hearing Loss

**Multiple approaches to meet patients where they are**

- Passive vs Active approaches to screening or testing
- Awareness/acknowledgment of hearing loss
- Passive vs Active approaches to interventions
- Follow-up, stages of change, sustainment of treatment intervention



# Keeping Michael Safe

Improvement project in clinic to increase hearing loss screening in all patients > 65y  
Moderate Presbycusis diagnosed by clinic audiogram

## Shared Decision Making with Michael

- Slower speech and more written instructions while awaiting hearing aids
- Agreement to test of change with hearing aids (once received)

## Follow-up in 1-2 months

- Assess impact on daily living
- Re-assess medication use and response to treatment

Plan for later (approx. 6 months) reassessment of mood and cognition

Brought to you by: **Hamad Healthcare Quality Institute**

# Thank you

## Healthcare Resilience in Extraordinary Times