

Updates in Geriatrics

Oct, 2023

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BWH Division of Aging

Learning Objectives

- Introduce the “4M’s Age Friendly” framework for approaching geriatrics
- Apply the 4M’s framework to recent updates in the following domains:
 - Mentation
 - Medications
 - Mobility
 - Matters Most

No disclosures



The Age Friendly Framework

- Mind
- Meds
- Mobility
- Matters Most

Tinetti, JAGS, 2017

<https://www.ihl.org/Engage/Initiatives/Age-Friendly-Health-Systems/Pages/default.aspx>



An 83-year-old woman with a history of mild Alzheimer’s dementia, IDDM, HTN, HLD, OA, and CAD (remote CABG) is admitted with confusion and disorientation.

- Previous night: reported burning on urination to her daughter
- Safety check: disheveled, in pajamas
- Called her daughter the wrong name, asking to leave the house
- “Felt warm”

Mind
Meds
Mobility
Matters
Most



Mind
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Exam

T: 100.1 BP: 104/68 HR: 87 RR: 12 O2: 98%

Thin, disheveled appearing, very HOH
+ suprapubic TTP
Toenails long, thickened, poorly groomed
Restless, no focal neuro deficits
Oriented to name only
DOW backward: 2/7



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Labs

WBC: 14.3
BMP:
UA: > 100 WBCs, 10-20 RBCs, + bac, culture pending

Imaging

- Head CT: radiographic evidence of chronic microvascular disease, no acute pathology

An 83-year-old woman with a history of mild Alzheimer's dementia, IDDM, HTN, HLD, OA, and CAD (remote CABG) is admitted with delirium precipitated by a UTI.

*Which of the following could have been omitted from her evaluation?

- A. CAM
- B. Urinalysis with reflex culture
- C. Head CT
- D. I would not have omitted anything

Diagnostic yield of CT head in delirium and altered mental status: A systematic review and meta-analysis

-Akhtar, *et al*, JAGS, 2023

Question	Head CT for delirium?
Study design	Systematic review & meta-analysis
Population	21,536 individuals across 46 studies: ED, Medicine, ICU
Results	8.4% of CTs (in North America) had positive results
Considerations	

Diagnostic yield of CT head in delirium and altered mental status: A systematic review and meta-analysis

-Akhtar, *et al*, JAGS, 2023

Diagnostic yield of head CT

- ED/inpatient – 12.9%
- ICU – 17.4%
- North America – 8.4%

Predictors of higher diagnostic yield

- Focal neurologic deficit
- Not North America
- Prior to 2000

Diagnostic yield of CT head in delirium and altered mental status: A systematic review and meta-analysis

-Akhtar, *et al*, JAGS, 2023

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Study design	Systematic review & meta-analysis
Population	21,536 individuals across 46 studies: ED, Medicine, ICU
Results	8.4% of CTs (in North America) had positive results
Take Home Thoughts	Variable yield from head CT for delirium workup → need more precise clinical guidelines





An 83-year-old woman with a history of mild Alzheimer’s dementia, IDDM, HTN, HLD, OA, and CAD (remote CABG) is admitted with delirium and a UTI. She is improving on ceftriaxone and now CAM negative x 2 days.

Mind
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08/18/23 0655	—	—	—	—	183/81	—
					!	
08/18/23 0503	36.3 (97.4)	64	—	18	170/80	98
					!	
08/18/23 0018	36.3 (97.4)	66	—	20	187/84	99
					!	
08/17/23 2001	36.7 (98.1)	60	—	20	153/72	100
					!	
08/17/23 1701	—	60	60	18	—	98
08/17/23 1632	36.8 (98.2)	69	—	26	153/79	94
					!	
08/17/23 1309	36.5 (97.7)	62	—	24	149/66	99
					!	

BP 183/81. What do you want TO DO??*

- A. Give hydralazine
- B. Give labetalol
- C. Cancel overnight vitals
- D. Up titrate home amlodipine



Clinical outcomes of intensive inpatient blood pressure management in hospitalized older adults

Anderson, *et al.* JAMA Internal Medicine, 2023

Question	Does intensive treatment of inpatient hypertension result in increased risk of adverse events?
Study design	Retrospective cohort
Population	VA inpatients ≥ 65 admitted for non-cardiac reasons w/ elevated BP ($> 140/90$) w/in first 48 hours
Results	
Take Home Thoughts	

Clinical outcomes of intensive inpatient blood pressure management in hospitalized older adults

Anderson, *et al.* JAMA Internal Medicine, 2023

	Overall	Oral only	Any intravenous	P value for interaction
No. of patients exposed to intensive BP treatment	14 064	11 560	2504	NA
Primary outcome				
Composite ^a	1.28 (1.18-1.39)	1.15 (1.05-1.26)	1.90 (1.65-2.19)	<.001
Clinical outcome				
Death	1.11 (0.91-1.37)	0.96 (0.76-1.21)	1.79 (1.26-2.53)	.008
ICU transfer	1.23 (1.09-1.39)	0.92 (0.79-1.07)	2.54 (2.08-3.11)	<.001
AKI, any stage	1.43 (1.29-1.58)	1.38 (1.23-1.54)	1.63 (1.34-1.97)	.14
AKI, stage 2 or 3	1.34 (1.08-1.66)	1.30 (1.03-1.64)	1.53 (1.02-2.28)	.47
Stroke	1.46 (0.77-2.78)	1.19 (0.58-2.44)	2.67 (1.02-7.04)	.23
BNP elevation	1.81 (1.16-2.82)	1.88 (1.18-2.99)	1.47 (0.54-4.10)	.62
Troponin elevation	1.20 (1.00-1.43)	1.09 (0.90-1.33)	1.67 (1.22-2.31)	.03
Hypotension (systolic BP <100 mm Hg)	1.22 (1.15-1.30)	1.21 (1.13-1.29)	1.27 (1.12-1.44)	.48

Clinical outcomes of intensive inpatient blood pressure management in hospitalized older adults

Anderson, *et al.* JAMA Internal Medicine, 2023

Question	Does intensive treatment of inpatient hypertension result in increased risk of adverse events?
Study design	Retrospective cohort
Population	VA inpatients ≥ 65 admitted for non-cardiac reasons w/ elevated BP w/in first 48 hours
Results	Intensive inpatient BP management associated with increased risk of adverse events
Take Home Thoughts	Focus on identifying and correcting underlying cause of inpatient hypertension, rather than using prn meds to perfect numbers



An 89-year-old woman with a history of cognitive impairment, Afib (not on AC), HTN, HLD, and osteoarthritis (s/p bilateral hip replacements) presents with a fall during which she sustained the following injuries:

- Scalp laceration
- L periprosthetic femoral fracture
- Non-displaced fractures of L scapula

Mind
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An 89-year-old woman with a history of cognitive impairment, Afib (not on AC), HTN, HLD, and osteoarthritis (s/p bilateral hip replacements) presents with a fall:

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Most

- Tripped walking to bathroom
- Lives in assisted living facility
- Limited ambulation with walker at baseline

- CBC, CMP unrevealing
- Ortho: non-op management

What's missing?

Fall, periprosthetic fracture of left total hip arthroplasty

- WBAT on RLE, touchdown weightbearing on LLE
- orthostatics when able
- monitor on tele
- pain control with standing acetaminophen/lidocaine patch
- fall precautions

Assessment
& Plan

What's missing that just got easier?

Fall, periprosthetic fracture of left total hip arthroplasty

- WBAT on RLE, touchdown weightbearing on LLE
- orthostatics when able
- monitor on tele
- pain control with standing acetaminophen/lidocaine patch
- fall precautions



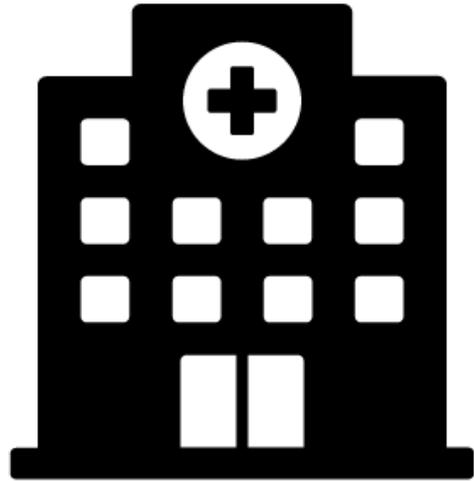
Common

- 27.5%

Dangerous

- 1 year mortality → 25-30%
- 3x v 10x increased risk nursing home placement

Hearing loss →
2.4x more likely
to fall

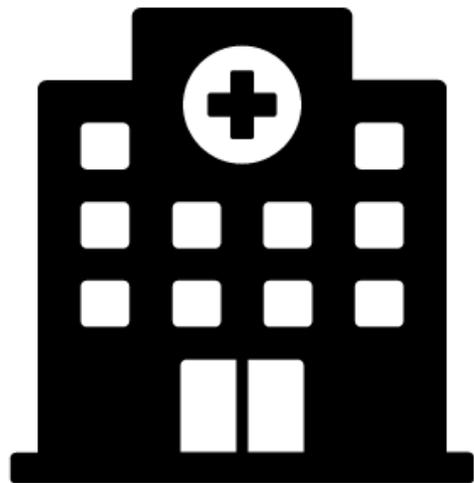


Liam, Ji, & Agarwal, *Laryngoscope*, 2016
Tiase, et al, *Am J Prev Med*, 2020

Corrected with
hearing aids

~~Hearing loss~~ →
~~2.4x~~ more likely
to fall

not
significantly



Liam, Ji, & Agarwal, *Laryngoscope*, 2016
Tiase, et al, *Am J Prev Med*, 2020

FDA

Q Search

IN THIS SECTION: Hearing Aids

← [Hearing Aids](#)

OTC Hearing Aids: What You Should Know

ncoa | Adviser
national council on aging

Comparing hearing aid outcomes in adults using over-the-counter and hearing care professional service delivery models

- Swanepoel, *et al*, American J of Audiology, 2023

Question	Do hearing aid outcomes differ between hearing care professional and OTC care delivery models?
Study design	Cross-sectional survey
Population	650 hearing aid users, identified on two online hearing aid user platforms
Results	No self-reported difference in user satisfaction
Take Home Thoughts	

Comparing hearing aid outcomes in adults using over-the-counter and hearing care professional service delivery models

- Swanepoel, et al, American J of Audiology, 2023

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Study design	Cross-sectional survey
Population	650 hearing aid uses, identified on two online hearing aid user platforms
Results	No self-reported difference in user satisfaction
Take Home Thoughts	OTC hearing aids offer increased affordability and accessibility but we need to learn more about whom they will best help



**Mind
Meds
Mobility
Matters
Most**

A 93-year-old woman with advanced Alzheimer’s dementia is admitted from a nursing home after a fall.

- Temporarily moved to a new room 3 days ago
- Agitated, resisting care x 3 days
- Fell while using a lift to transfer to wheelchair

- Baseline: functionally dependent, non-ambulatory, occasionally answers yes/no questions, recognizes family
- Afebrile, other vitals stable
- Labs: WBC 11.2, Na 131, Cr 1.8 (baseline 0.8)
- UA + leuk est
- Admitted to Medicine for a possible UTI and dehydration



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A 93-year-old woman with advanced Alzheimer's dementia is admitted from a nursing home after a fall.

- Hx: HTN, HLD, hypothyroidism, remote TIA, Afib, gout
- Med list:
 - Donepezil
 - Atenolol
 - Atorvastatin
 - Levothyroxine
 - Apixaban
 - Allopurinol
 - Multivitamin

Geriatric consult
High falls risk. Should we
stop anticoagulation?

A 93-year-old nursing home resident with advanced Alzheimer's dementia, minimally verbal, non-ambulatory and fully functionally dependent is admitted after a fall. She is on apixaban for Afib, with a CHA₂DS₂ VASc of 6. Should anticoagulation be discontinued?*

- A. No – her stroke risk is too high
- B. Yes – her falls → bleeding risk is too high
- C. I need more information
- D. This is a trick question with no right answer

Benefits and harms of oral anticoagulants for atrial fibrillation in nursing home residents with advanced dementia

Ouellet, *et al*, JAGS 2023

Question	Association between AC + mortality, stroke, & significant bleed risk in LTC residents w/ advanced dementia?
Study design	Retrospective cohort study
Population	14,877 nursing home residents w/ advanced dementia and Afib (3678 on AC, 11,191 not on AC)
Results	
Take Home Thoughts	

Benefits and harms of oral anticoagulants for atrial fibrillation in nursing home residents with advanced dementia

Ouellet, *et al*, JAGS 2023

	AC (3678)	No AC (11,199)	Adj HRs for AC (95% CI)
Death %	52.9	61.9	0.71 (0.67-0.75)
Ischemic stroke %	1.7	1.5	1.08 (0.8 – 1.46)
Serious bleeding %	11.7	10	1.15 (1.02 – 1.28)

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Question	Association between AC + mortality, stroke, & significant bleed risk in LTC residents w/ advanced dementia?
Study design	Retrospective cohort study
Population	14,877 nursing home residents w/ advanced dementia and Afib (3678 on AC, 11,191 not on AC)
Results	AC associated with slightly reduced mortality and slightly increased bleeding risk
Take Home Thoughts	Reframes clinical question of whether or not to continue anticoagulation based on what your patient prioritizes

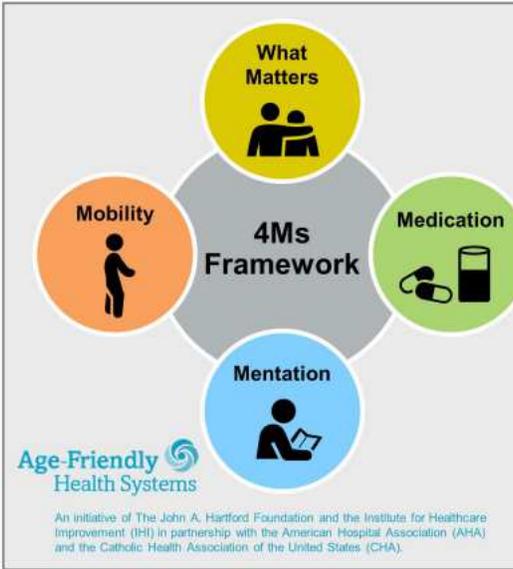
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What matters most to you? Length of life or lower risk of bleeding (and increased risk of discomfort, hospitalization, medical intervention)?

Use evidence tailored for appropriate population to frame GOC decisions

New OTC options for reduce falls risk by improving hearing



More evidence against tight inpatient BP control

Head CT: variable yield for delirium workup + potential downsides

Questions?

