Effective Fall Prevention Strategies for Clinical Practice

Megan Bounds, MPH
Ted Johnson, MD, MPH
Lynne O’Mara, MBA, PA-C

Disclosures – Megan Bounds

- Funding through: National Institute on Aging
- Clinical work: UCHealth, University of Colorado Hospital

Disclosures – Lynne O’Mara

- None

Disclosures – Ted Johnson

- Royalties: Up-To-Date (nocturia)
- Consultant: None
- Funding (current): HRSA; NIA SBIR (care.coach), NIA (nocturia and sleep); Georgia DHS (Alzheimer's education)
- Funding (within 2 years): CDC fall prevention
- Patents: US Patent 11,624,755 "Gait-Pace Meter and Methods of Determining Gait Speed"
- Clinical work: Emory Integrated Memory Care
- Other: None

EMORY UNIVERSITY SCHOOL OF MEDICINE
Department of Family and Preventive Medicine

Objectives

·Describe the epidemiology and impact of falls on patient health and healthcare systems

· Implement evidence-based guidelines and assessment tools for fall prevention in clinical practice

· Modify clinical workflows to integrate fall prevention strategies

· Recall how to connect patients with community programs to support fall prevention efforts

Epidemiology of Falls

Falls in the Community

- 1 in 4 people age 65+ falls each year
- Every 20 minutes, a person dies from a fall
- 1 in 5 patients who fall sustain a serious injury
- Less than half of Medicare beneficiaries who have fallen tell their healthcare provider
- 3,000,000+ older adults are treated in the Emergency Department each year for falls
- Costs Medicare $31,000,000,000 annually; 2/3 costs are due to inpatient stays

Falls in the Inpatient Setting

- There are 700,000-1,000,000 inpatient falls each year
- Defined as an unplanned descent to the floor with or without injury
- As of 2008 Centers for Medicare and Medicaid Services (CMS) does not reimburse hospitals for certain types of traumatic injuries that occur while a patient is an admitted inpatient

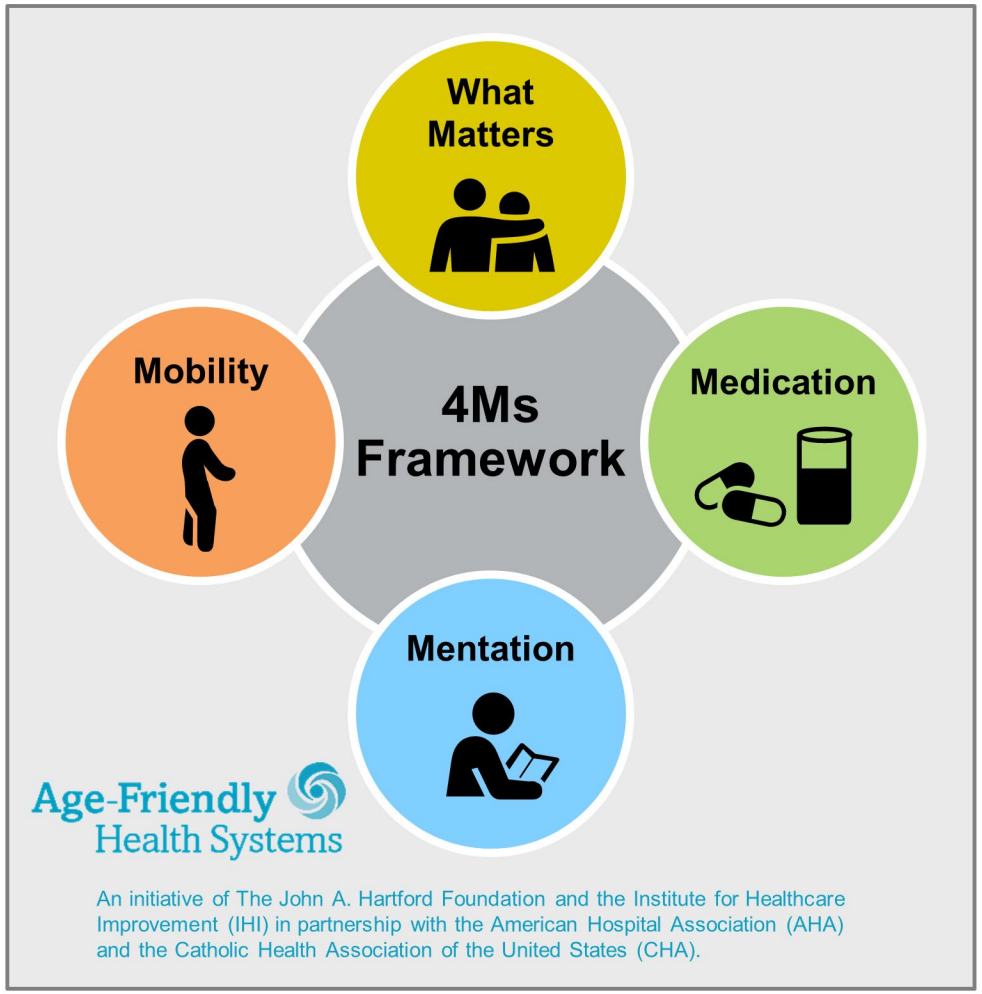
Reasons Patients Fall

- Medications
- Sarcopenia/Weakness
- Mobility Impairment
- Balance Issues
- Visual Impairment
- Foot pain or Inappropriate Footwear
- Home Hazards

Institute for Healthcare Improvement

HealthinAging.org

Trusted Information. Better Care.



The Geriatrics 5Ms*

Multicomplexity	Geriatrics healthcare professionals[1] focus on these 4Ms...	When caring for older adults, all health professionals should consider...
Multicomplexity describes the whole person, typically an older adult, living with multiple chronic conditions, advanced illness, and/or with complicated biopsychosocial needs.	Mind	■ Mentation ■ Dementia ■ Delirium ■ Depression
	Mobility	■ Amount of mobility; function ■ Impaired gait and balance ■ Fall injury prevention
	Medications	■ Polypharmacy; deprescribing ■ Optimal prescribing ■ Adverse medication effects and medication burden
	What Matters Most	■ Each individual's own meaningful health outcome goals and care preferences

Fall Prevention in Primary Care

Ted Johnson, MD, MPH

Case:

A 78-year-old man presents after a fall while walking to the bathroom at night. He has Parkinson's disease, HTN, BPH, CAD, Depression, and knee arthritis. He takes metoprolol tartrate 25 bid, tamsulosin 0.8 mg, carbidopa/levodopa 70/280 tid, and paroxetine 20 mg.

Framework

- Evidence-based
  - Everyone should have this
- Evidence-informed
  - Some individuals should have this
  - 5 M’s framework
  - Workflow in primary care
- Studied by our group

U.S. Preventive Services TASK FORCE

2012

Exercise* or PT Interventions

B

Vitamin D Supplementation

B

Multifactorial Interventions* (Automatically)

C

Final Recommendation Statement

Falls Prevention in Older Adults: Counseling and Preventive Medication

May 15, 2012

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

This Recommendation is out of date

It has been replaced by the following: Falls Prevention in Community-Dwelling Older Adults: Interventions (2024)

Recommendation Summary

Population	Recommendation	Grade
Community-Dwelling Older Adults, Aged 65 Years or Older	The USPSTF recommends exercise or physical therapy and vitamin D supplementation to prevent falls in community-dwelling adults aged 65 years or older who are at increased risk for falls. No single recommended tool or brief approach can reliably identify older adults at increased risk for falls, but several reasonable and feasible approaches are available for primary care clinicians. See the Clinical Considerations section for additional information on risk assessment.	B
Community-Dwelling Older Adults, Aged 65 and Older	The USPSTF does not recommend automatically performing an in-depth multifactorial risk assessment in conjunction with comprehensive management of identified risks to prevent falls in community-dwelling adults aged 65 years or older because the likelihood of benefit is small. In determining whether this service is appropriate in individual cases, patients and clinicians should consider the balance of benefits and harms on the basis of the circumstances of prior falls, comorbid medical conditions, and patient values. See the Clinical Considerations section for more information about providing this service for individual patients.	C

U.S. Preventive Services TASK FORCE

2018

Exercise* Interventions

B

Multifactorial Interventions* (offer selectively)

C

Vitamin D supplementation

D

Final Recommendation Statement

Falls Prevention in Community-Dwelling Older Adults: Interventions

April 17, 2018

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

This Recommendation is out of date

It has been replaced by the following: Falls Prevention in Community-Dwelling Older Adults: Interventions (2024)

Population	Recommendation	Grade
Adults 65 years or older	The USPSTF recommends exercise interventions to prevent falls in community-dwelling adults 65 years or older who are at increased risk for falls.	B
Adults 65 years or older	The USPSTF recommends that clinicians selectively offer multifactorial interventions to prevent falls to community-dwelling adults 65 years or older who are at increased risk for falls. Existing evidence indicates that the overall net benefit of routinely offering multifactorial interventions to prevent falls is small. When determining whether this service is appropriate for an individual, patients and clinicians should consider the balance of benefits and harms based on the circumstances of prior falls, presence of comorbid medical conditions, and the patient's values and preferences. See the Clinical Considerations section for information on risk assessment for falls.	C
Adults 65 years or older	The USPSTF recommends against vitamin D supplementation to prevent falls in community-dwelling adults 65 years or older.	D

U.S. Preventive Services TASK FORCE

Final Recommendation Statement

Falls Prevention in Community-Dwelling Older Adults: Interventions

June 04, 2024

2024

Exercise* Interventions

B

Multifactorial Interventions* (individualize)

C

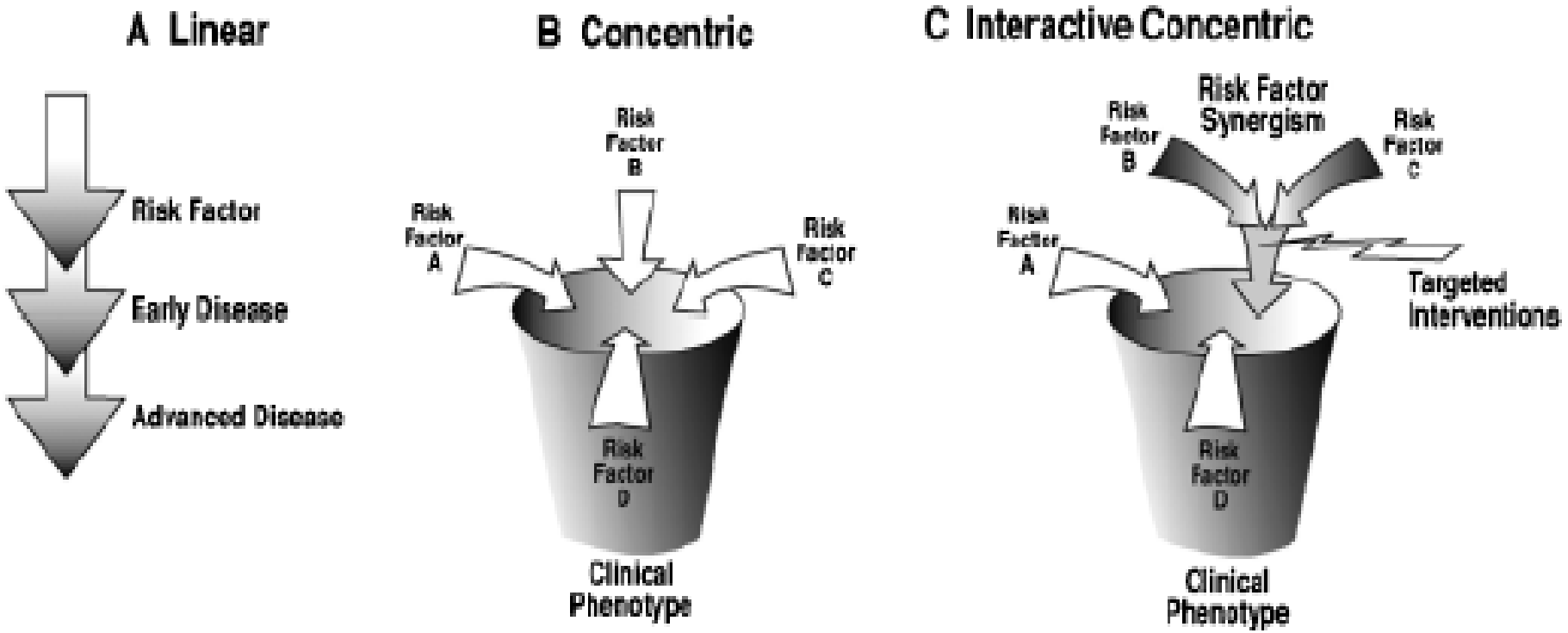
Recommendation Summary

Population	Recommendation	Grade
Community-dwelling adults 65 years or older	The USPSTF recommends exercise interventions to prevent falls in community-dwelling adults 65 years or older who are at increased risk for falls.	B
Community-dwelling adults 65 years or older	The USPSTF recommends that clinicians individualize the decision to offer multifactorial interventions to prevent falls to community-dwelling adults 65 years or older who are at increased risk for falls. Existing evidence indicates that the overall net benefit of routinely offering multifactorial interventions to prevent falls is small. When determining whether this service is appropriate for an individual, patients and clinicians should consider the balance of benefits and harms based on the circumstances of prior falls, presence of comorbid medical conditions, and the patient's values and preferences. See the Practice Considerations section for information on risk assessment for falls.	C • *individualize decision* • *net benefit* of *routinely* multi-component interventions is *small* • *values and preferences*

Evidence-based- Exercise / Multifactorial

- Where this literature comes from
- Types of interventions
- Changes over time

Multi-Factorial Interventions



Inouye et al. J Amer Geriatr Soc 2007

Multifactorial Interventions

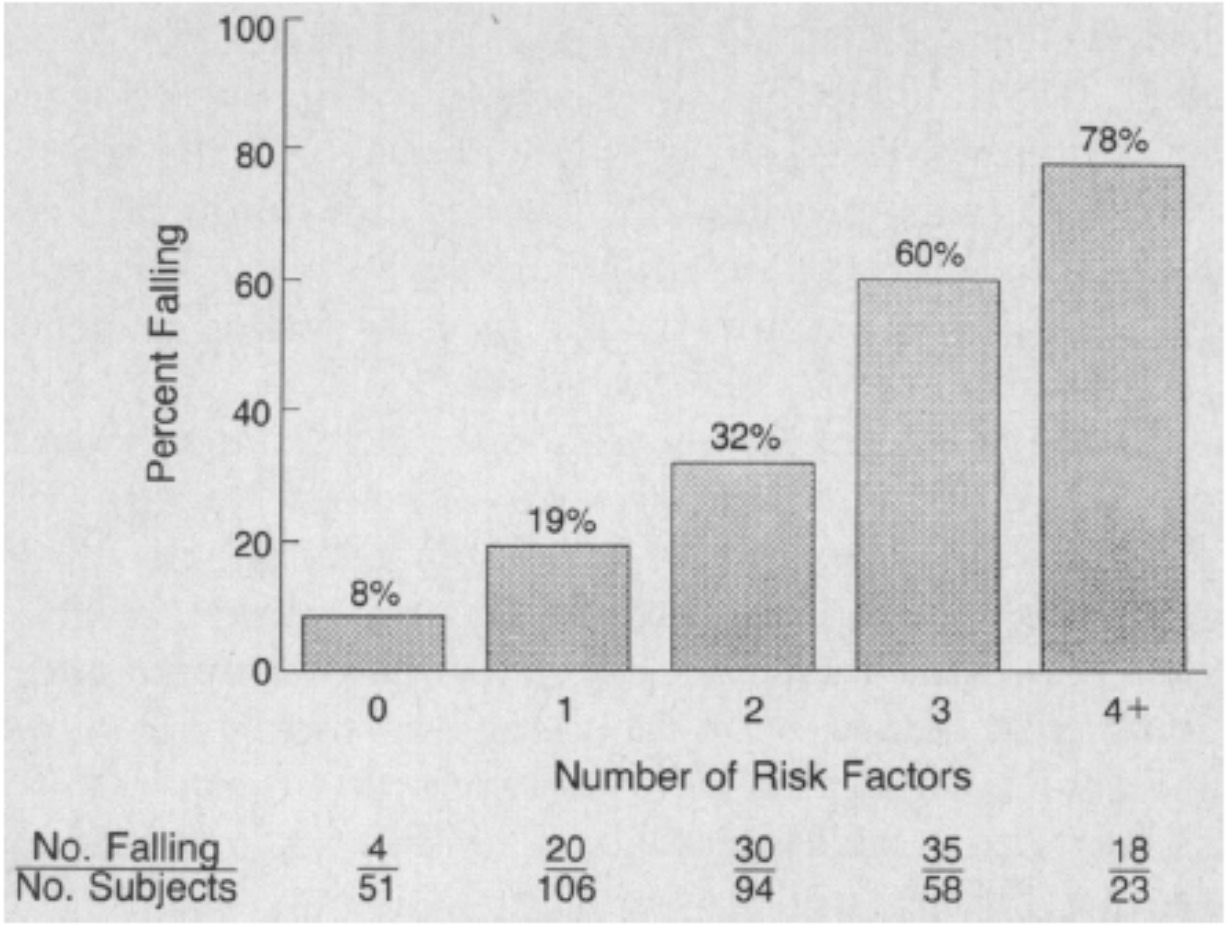


Figure 1. Occurrence of Falls According to the Number of Risk Factors.

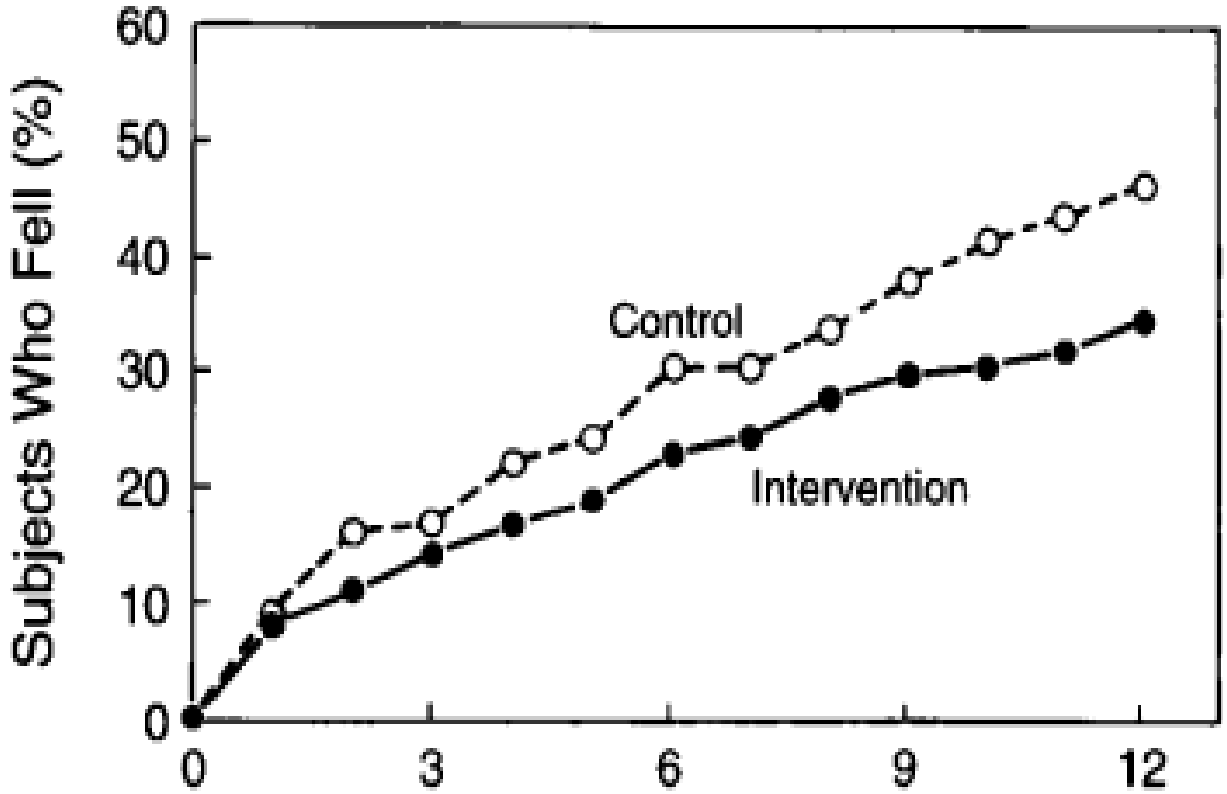
The risk factors included sedative use, cognitive impairment, lower-extremity disability, palmomental reflex, foot problems, and balance-and-gait abnormalities. There is a significant trend in the chi-square test for order in proportions (chi-square = 62.7; $P<0.001$). The denominator is 332 because of missing data on four subjects.

Tinetti, NEJM 1988

Table 3. Risk Factors for Falls.*

Risk Factor	Adjusted Odds Ratio	95% CI
Use of sedatives	28.3	3.4–239.4
Cognitive impairment	5.0	1.8–13.7
Lower-extremity disability	3.8	2.2–6.7
Palmomental reflex	3.0	1.5–6.1
Foot problems	1.8	1.0–3.1
No. of balance-and-gait abnormalities		
0–2	1.0	—
3–5	1.4	0.7–2.8
6–7	1.9	1.0–3.7

Multifactorial Interventions



Intervention	153	130	113	103	95
Control	148	123	102	89	76
Relative risk	—	0.86	0.77	0.79	0.75

The New England
Journal of Medicine

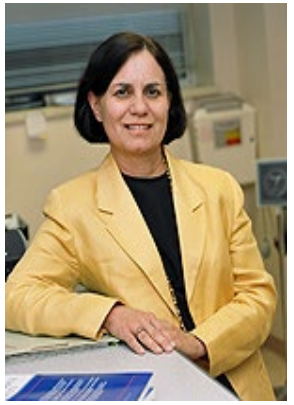
Volume 331 SEPTEMBER 29, 1994 Number 13

A MULTIFACTORIAL INTERVENTION TO REDUCE THE RISK OF FALLING AMONG ELDERLY PEOPLE LIVING IN THE COMMUNITY

Mary E. Tinetti, M.D., Dorothy I. Baker, Ph.D., R.N., C.S., Gail McAvay, M.S., Elizabeth B. Claus, Ph.D., Patricia Garrett, M.H.S., R.N.-C., Margaret Gottschalk, P.T., Marie L. Koch, M.S., P.T., Kathryn Trainor, M.S., and Ralph I. Horwitz, M.D.

Figure 1. Cumulative Percentages of Subjects in the Intervention and Control Groups Who Had One or More Falls during One Year of Follow-up.

The difference between the groups was significant (P = 0.05, by the log-rank test). The numbers still at risk for a fall at 3, 6, 9, and 12 months are shown below the figure. Only 10 of the subjects were lost to follow-up: 6 in the intervention group and 4 in the control group. Data on subjects were censored after a fall. The cumulative relative risks are shown for 3, 6, 9, and 12 months of follow-up.



Multifactorial Interventions: New Haven- Why did this work?

- Risk factors known
  - Postural hypotension, use of a sedative, polypharmacy, transfer safety, gait, balance, leg strength, arm strength
- Multicomponent interventions on these risk factors
- Verified that interventions were delivered
- Were the risk factors reassessed

Multifactorial Interventions STRIDE 2020

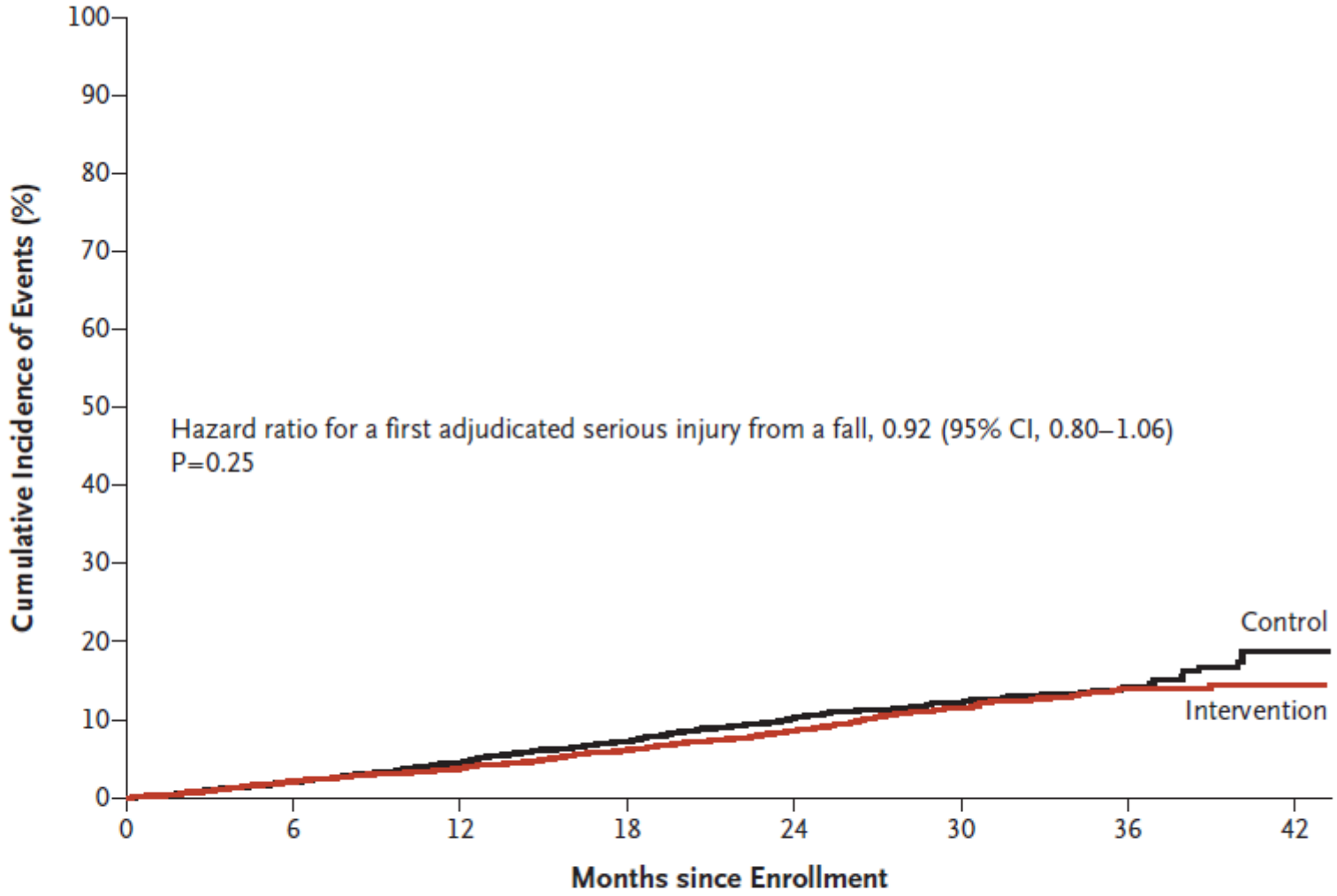
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Randomized Trial of a Multifactorial Strategy to Prevent Serious Fall Injuries

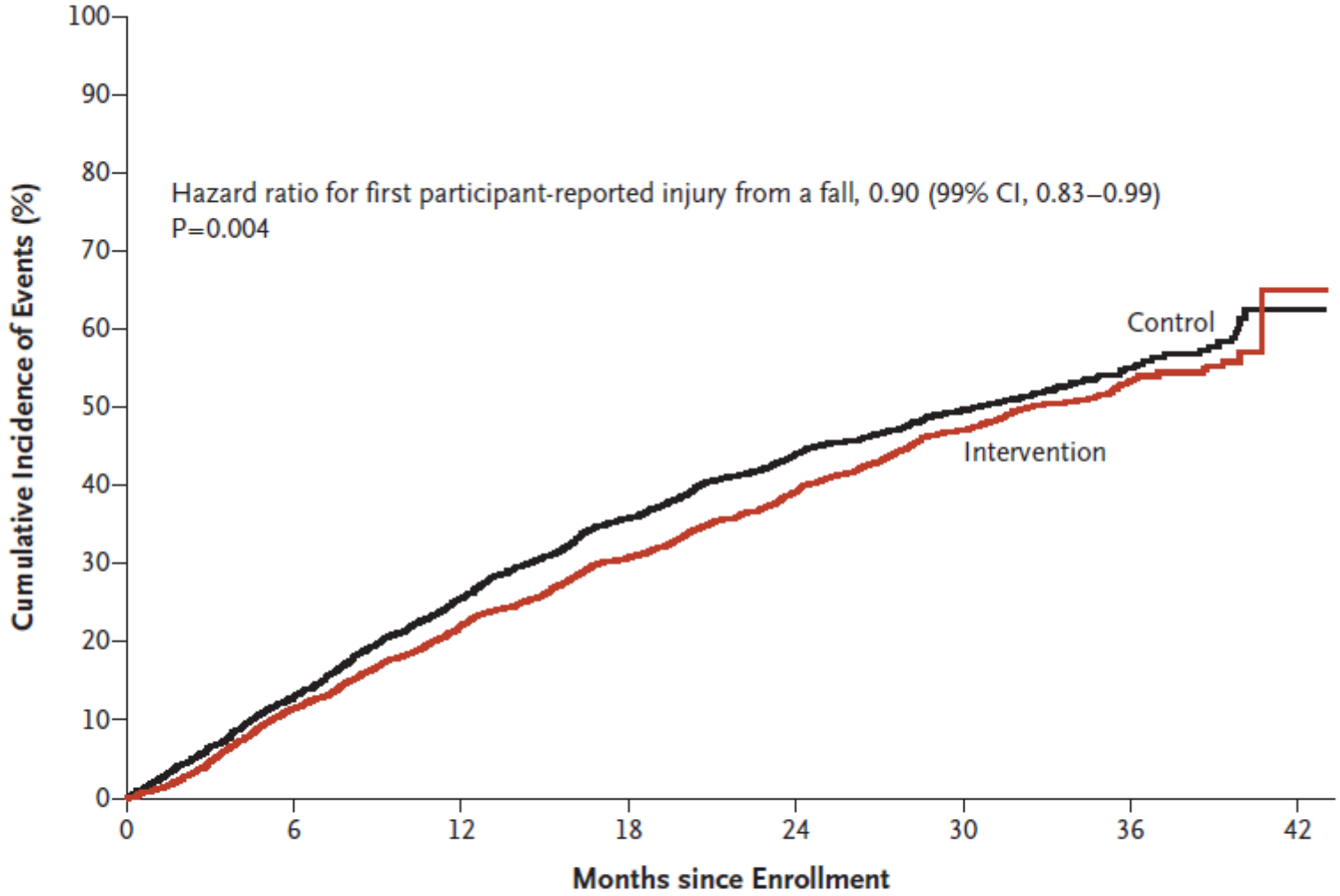
S. Bhasin, T.M. Gill, D.B. Reuben, N.K. Latham, D.A. Ganz, E.J. Greene, J. Dziura, S. Basaria, J.H. Gurwitz, P.C. Dykes, S. McMahon, T.W. Storer, P. Gazarian, M.E. Miller, T.G. Travison, D. Esserman, M.B. Carnie, L. Goehring, M. Fagan, S.L. Greenspan, N. Alexander, J. Wiggins, F. Ko, A.L. Siu, E. Volpi, A.W. Wu, J. Rich, S.C. Waring, R.B. Wallace, C. Casteel, N.M. Resnick, J. Magaziner, P. Charpentier, C. Lu, K. Araujo, H. Rajeevan, C. Meng, H. Allore, B.F. Brawley, R. Eder, J.M. McGloin, E.A. Skokos, P.W. Duncan, D. Baker, C. Boult, R. Correa-de-Araujo, and P. Peduzzi, for the STRIDE Trial Investigators*

A First Adjudicated Serious Injury from a Fall



No. at Risk (cumulative no. of events)								
Control	2649 (0)	2457 (50)	2307 (113)	2146 (179)	1816 (248)	924 (279)	398 (294)	5 (301)
Intervention	2802 (0)	2566 (56)	2423 (98)	2251 (158)	1951 (215)	1054 (267)	437 (290)	3 (291)

B **First Participant-Reported Injury from a Fall**



No. at Risk (cumulative no. of events)								
Control	2649 (0)	2194 (333)	1810 (650)	1494 (898)	1156 (1091)	553 (1182)	220 (1224)	3 (1238)
Intervention	2802 (0)	2320 (308)	1968 (582)	1667 (802)	1300 (1005)	648 (1142)	245 (1202)	2 (1211)

Multifactorial Interventions
STRIDE: Why did this not work

- Pragmatic trial (effectiveness versus efficacy)
- 86 PC practices (43 intervention/control)
- Patients 70+ increased fall injury risk
- Time to event of first serious fall injury
  - Report
  - EHR records
  - Claims data
- Hypothesized 20% reduction

Exercise based

Make it communal

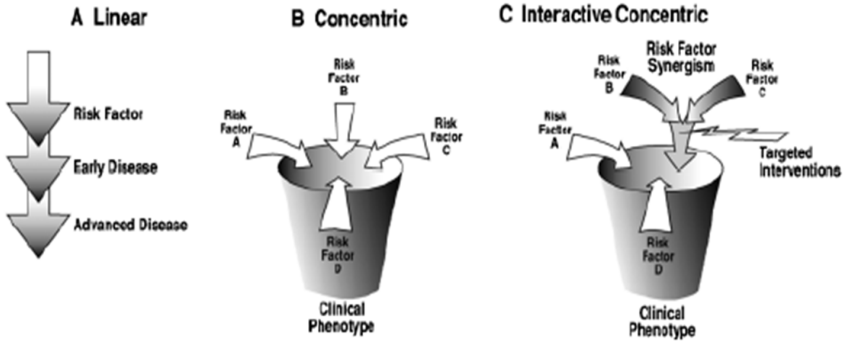
https://www.ncoa.org/article/you-have-the-power-to-prevent-a-fall/

Evidence-Informed

- Where this literature comes from
- Types of interventions
- Why these might work
- Primary care workflow

Nocturia- Sleep and Fall Concerns

- Younger adults + 2 items:
  - Falling at night
  - I feel “old”
- Walking at night
  - Eyes half open
  - Not fully alert
  - In the dark



Mock. Urology 2008

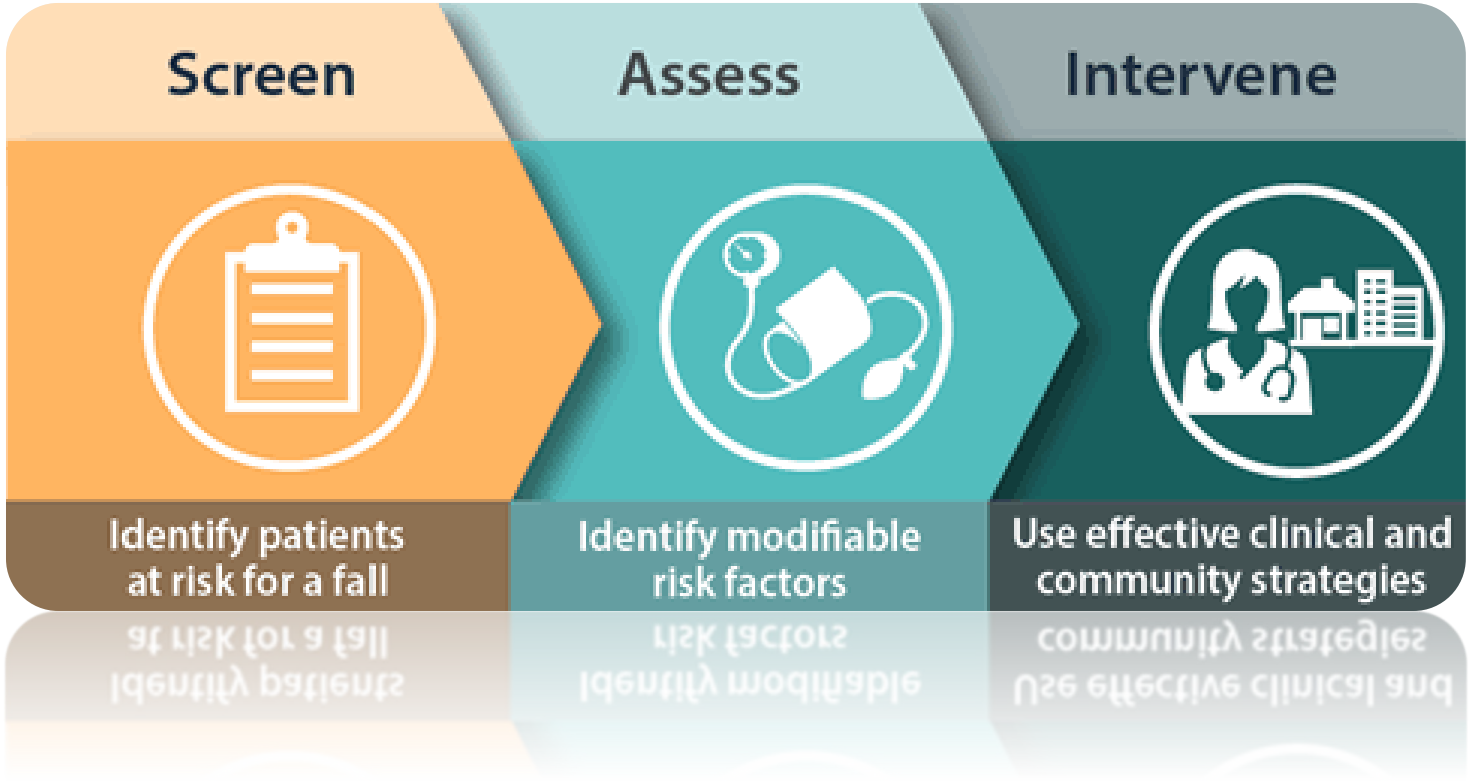
Studied by our Group

- Where this literature comes from
- Types of interventions
- Why these might work

Make it fun

Make it easy

STEADI Stopping Elderly Accidents, Deaths & Injuries



- Emory Primary Care implementation via telemedicine during pandemic

In Addition to the PA, NP, MD . . .

Johnson, Vincenzo, De Lima, et al. JAGS 2025

You May Not Be Able to Tackle Everything at Once in Primary Care

	Minutes	Screening	Positive Screen Actions	Follow-Up/Team Interventions
Initial Encounter	2-5	Three Key Questions (STEADI-3)	• Take a brief fall history and prioritize clinical concerns • Refer to PT, if appropriate • Refer to pharmacist, if appropriate • Assess patient goals and values that may align with fall risk management	• Ask patient to complete STEADI-12 • Include brief patient education • Instruct patient to schedule follow-up visit for additional fall risk-focused care within 30-90 days • Document fall risk on problem list and describe plan for future visit/needs
Follow-Up Visit	5-10	Stay Independent STEADI questionnaire (STEADI-12)	***Any items not done above plus:*** • Complete orthostatic blood pressure, especially if dizziness reported • Review STEADI-12 responses to tailor interventions • Review medication list for FRIDs, especially new prescriptions • Introduce multimodal exercise interventions (aerobic, strength, and balance) to gauge exercise and PT options	***Any items not done above plus:*** • If on FRID, educate patient on gradual dose reduction and refer to pharmacist as available/appropriate. Address if orthostatic/hypotensive • Recommend local community exercises (e.g. tai chi classes) and/or provide home exercise education • If patient answers yes to STEADI questions #1-7, use clinical judgment to refer to PT vs community-based fall prevention programs • Provide patient with home safety checklist
Follow-Up/ Annual Wellness Visit	10+	Stay Independent STEADI questionnaire (STEADI-12)	***Any items not done above plus:*** • Screen for cognition • Screen for hearing issues • Recommend single distance glasses outside the home; refer to opthalmology if not seen in >1 year • Address home safety concerns, foot/footwear, incontinence, vitamin D intake, osteoporosis status, and concern for falling	***Any items not done above plus:*** • Follow-up on prior interventions • Provide patient education on additional relevant fall risk interventions • Offer referral to A Matter of Balance or mental health professional offering cognitive-behavioral therapy, if concern for falling is positive • Provide further referrals/interventions based on results of other assessments (e.g., referral to optometry)

Johnson, Vincenzo, De Lima, et al. JAGS 2025

Case:

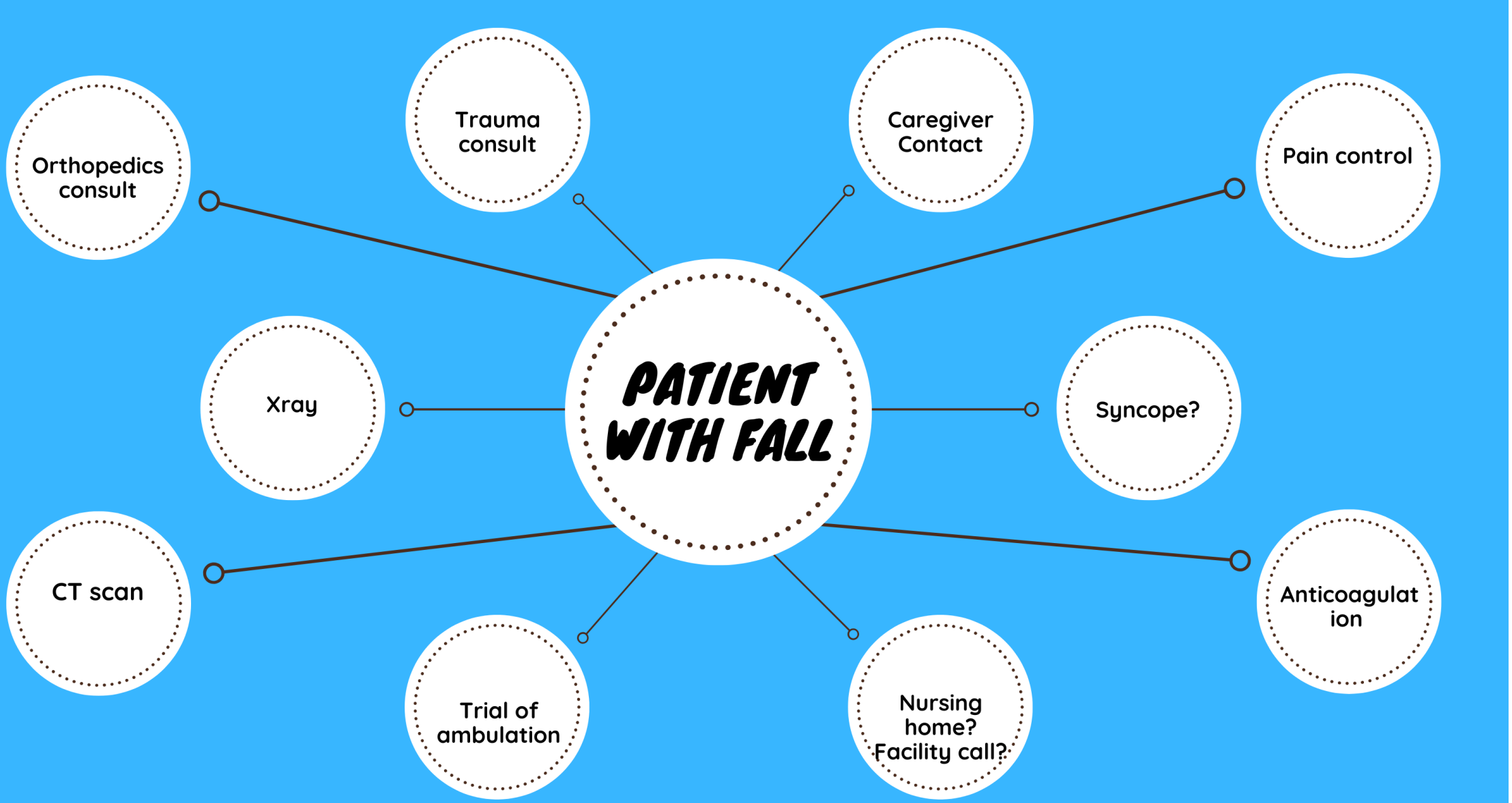
A 78-year-old man presents after a fall while walking to the bathroom at night. He has Parkinson's disease, HTN, BPH, CAD, Depression, and knee arthritis. He takes metoprolol tartrate 25 bid, tamsulosin 0.8 mg, carbidopa/levodopa 70/280 tid, and paroxetine 20 mg.

Fall Prevention in the Emergency Department

Megan Bounds, MPH

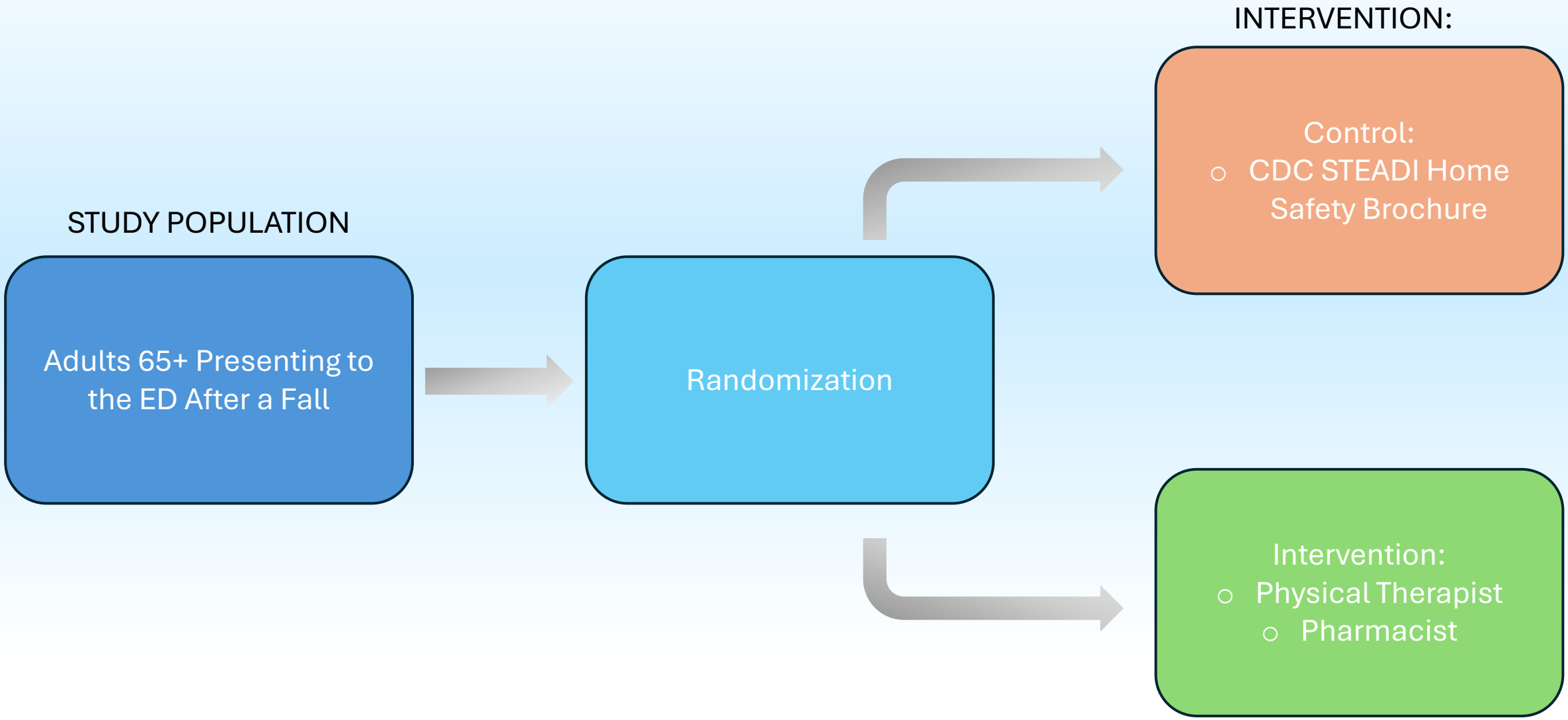
Case:

An 80-year-old woman presents after a fall with headstrike after slipping on a carpet at home. Unable to get up, she calls 911 and is transported to the emergency department...



EMERGENCY DEPARTMENT CONSIDERATIONS

GAPcare I Clinical Trial



Pharmacy Consultation

This patient was evaluated in the Emergency Department after a fall and had a pharmacist consultation. These recommendations are based on Beers Criteria for PIMs in older adults. **Chart review during a single encounter cannot adequately appreciate the historical context of medication use. The patient's primary care provider is ultimately responsible for determination of appropriateness of medication changes and recommendations provided below.**

Name: Famotidine
Nature of Problem: increased risk of delirium, falls
Recommendation: stop

Name: Omeprazole
Nature of Problem: increased risk of osteoporosis, bone loss, fractures, C diff, Pneumonia
Recommendation: stop, consider Tums/calcium carbonate as needed

Name: gabapentin
Strength: 300 mg TID
Nature of Problem: pain
Recommendation (Stop, Start, Change Dose): patient believes she is taking this medication twice daily, please review frequency.

Name: sertraline
Strength: 100 mg daily
Nature of Problem: anxiety/depression
Recommendation (Stop, Start, Change Dose): patient unsure why taking this medication, please assess need.

Name: trazodone
Strength: 100mg at bedtime
Nature of Problem: insomnia
Recommendation (Stop, Start, Change Dose): patient takes this medication at bedtime and this is working well for insomnia. Patient does not get up in the middle of the night. Reviewed house safety including nightlight's and removing rugs. Assess if lower dose could be efficacious.

Name: olanzapine
Strength: 20 mg at bedtime
Recommendation: discussed potential for dizziness and orthostatic hypotension. Please review for potential dose decrease.

Name: tizanidine
Strength: 4 mg BID
Nature of Problem: muscle spasms
Recommendation (Stop, Start, Change Dose): patient does not think she is taking this medication, please assess and discontinue if appropriate.

Physical Therapy Consultation

Fall Risk Assessment

- AM-PAC “6 clicks” result: 24/24
- Tinetti: 26/28
- Other (if desired):

Recommendations

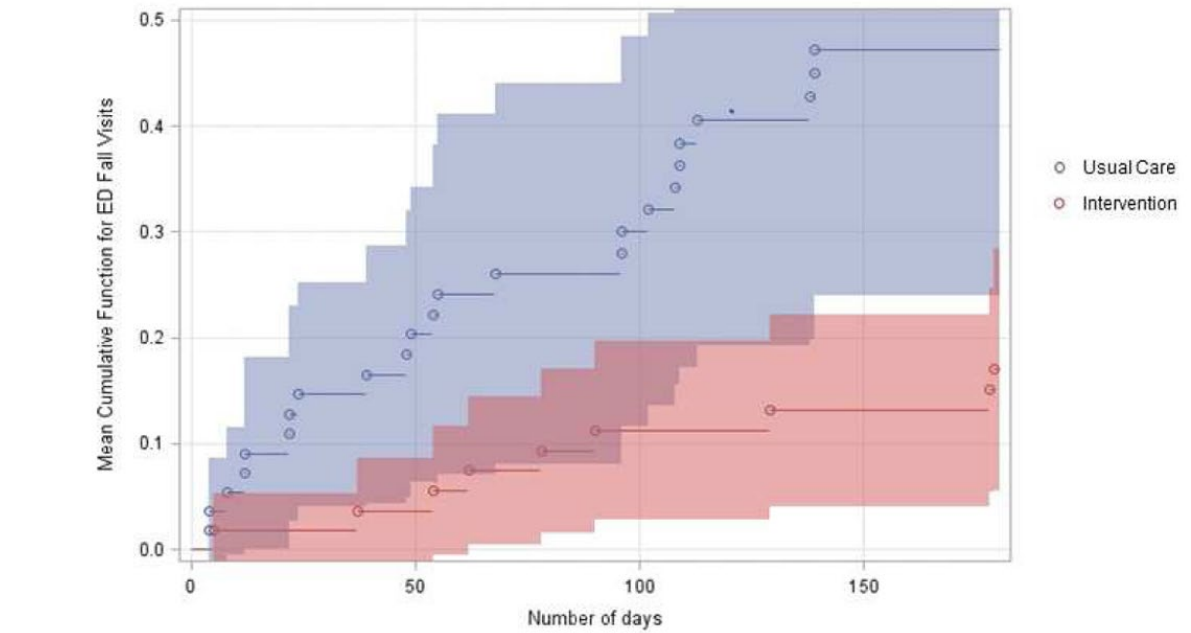
- [ ] New Assistive device
  - [ ] Walker
  - [ ] Cane
  - [ ] Other :
- [ ] Home services
  - [x] Home OT
  - [x] Home PT
  - [ ] Other home care services, specify:
- [ ] Referral to outpatient physical therapy
- [ ] Pain management recommendations, specify
- [x] Patient education provided
  - [ ] Foot wear
  - [ ] Home exercises
  - [x] Specific fracture management
  - [x] Home safety education
  - [ ] Caregiver training, specify:
- [ ] Other recommendations:
- [x] ED disposition recommendations
  - [ ] Home without services

Feasibility & Disposition	Control	Intervention
ED LOS	315 min (IQR: 246 – 420)	300 min (IQR: 222 – 390)
Hospital Admission	10 (18.8)	10 (18.8)
Discharge to SNF	6 (10.9)	10 (18.8)

GAPcare I Results

- Goldberg et al. Annals of Emergency Medicine, 2020

Figure 2b)



UCHealth's Livi

Conversational artificial intelligence chatbot designed to answer questions and educate patients

Patient selects their location to find evidence-based free or low-cost prevention resources

QR code on discharge documents directs patient to Livi

BASED ON OUR ASSESSMENT, YOU ARE AT HIGH RISK FOR FUTURE FALLS

What next?

Use the link on your discharge paperwork, or scan the QR Code below to access the UCHealth LIVI Fall Prevention Chatbot

SCAN ME

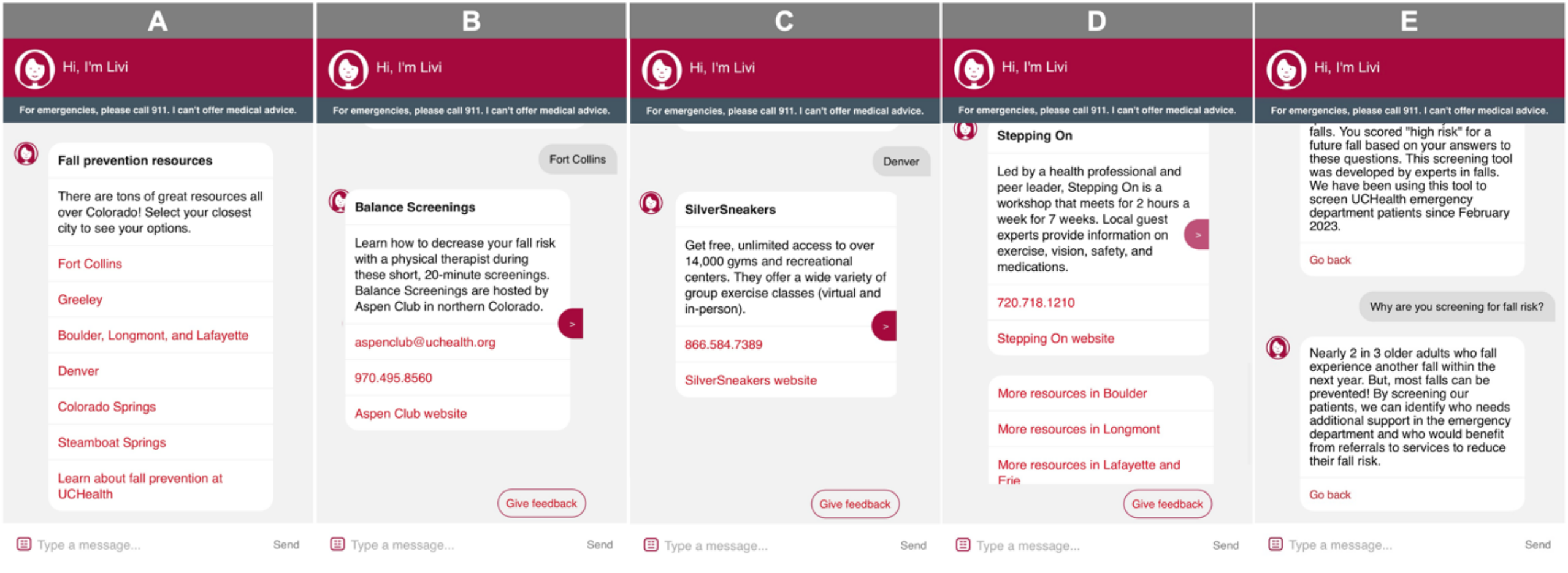
Use the LIVI Chatbot to:

- Ask questions about fall risk
- Find clinician-recommended resources near you
- Learn about fall prevention

CONTACT US AND SHARE YOUR OPINION:

Ask and connect Fall Support study
P: (303) 724 1742 E: askandconnect@cuanschutz.edu

Research Study COMIRB #: 24-1263 Version date: 10.30.2024


A
Hi, I'm Livi
For emergencies, please call 911. I can't offer medical advice.
Fall prevention resources
There are tons of great resources all over Colorado! Select your closest city to see your options.
Fort Collins
Greeley
Boulder, Longmont, and Lafayette
Denver
Colorado Springs
Steamboat Springs
Learn about fall prevention at UCHealth
Type a message...
Send
B
Hi, I'm Livi
For emergencies, please call 911. I can't offer medical advice.
Fort Collins
Balance Screenings
Learn how to decrease your fall risk with a physical therapist during these short, 20-minute screenings. Balance Screenings are hosted by Aspen Club in northern Colorado.
aspenclub@uchealth.org
970.495.8560
Aspen Club website
Give feedback
Type a message...
Send
C
Hi, I'm Livi
For emergencies, please call 911. I can't offer medical advice.
Denver
SilverSneakers
Get free, unlimited access to over 14,000 gyms and recreational centers. They offer a wide variety of group exercise classes (virtual and in-person).
866.584.7389
SilverSneakers website
Give feedback
Type a message...
Send
D
Hi, I'm Livi
For emergencies, please call 911. I can't offer medical advice.
Stepping On
Led by a health professional and peer leader, Stepping On is a workshop that meets for 2 hours a week for 7 weeks. Local guest experts provide information on exercise, vision, safety, and medications.
720.718.1210
Stepping On website
More resources in Boulder
More resources in Longmont
More resources in Lafayette and Erie
Give feedback
Type a message...
Send
E
Hi, I'm Livi
For emergencies, please call 911. I can't offer medical advice.
falls. You scored "high risk" for a future fall based on your answers to these questions. This screening tool was developed by experts in falls. We have been using this tool to screen UCHealth emergency department patients since February 2023.
Go back
Why are you screening for fall risk?
Nearly 2 in 3 older adults who fall experience another fall within the next year. But, most falls can be prevented! By screening our patients, we can identify who needs additional support in the emergency department and who would benefit from referrals to services to reduce their fall risk.
Go back
Type a message...
Send

Fall Prevention in Inpatient Care

Lynne O’Mara, MBA, PA-C

Inpatient Fall Prevention

- Many complex issues facing staff when caring for inpatients
- Acute illness coupled with risk factors such as frailty, mobility impairment, functional impairment, medication side effects, delirium, dementia all can increase fall risk
- Requires an interdisciplinary approach

Centers for Medicare and Medicaid Services (CMS) Age-Friendly Hospital Measure - *New in 2025*

All Hospitals Participating in the Hospital Inpatient Quality Reporting (IQR) Program must report compliance as of January 1, 2025, or face financial penalties

Currently a Pay-For-Reporting Measure with potential to become a Pay-For-Performance Measure in the future

Supported by the American College of Surgeons, Institute for Healthcare Improvement, and the American College of Emergency Physicians

CMS Age-Friendly Hospital Measure

1. Eliciting Patient Healthcare Goals:

Ensures patient health-related goals and treatment preferences are obtained to inform shared decision-making.

2. Responsible Medication Management:

Optimizes medication management by monitoring pharmacological records to avoid inappropriate drugs for older adults.

3. Frailty Screening and Intervention:

Screens for cognitive impairment (including delirium), mobility, and malnutrition, allowing for early detection and intervention.

4. Social Vulnerability:

Recognizes and addresses social issues impacting older adults as part of the care plan such as social isolation, economic insecurity, ageism, caregiver stress, limited access to healthcare, and elder abuse.

5. Age-Friendly Care Leadership:

Identifies an age-friendly champion or committee in the hospital to ensure compliance with all components of the measure.

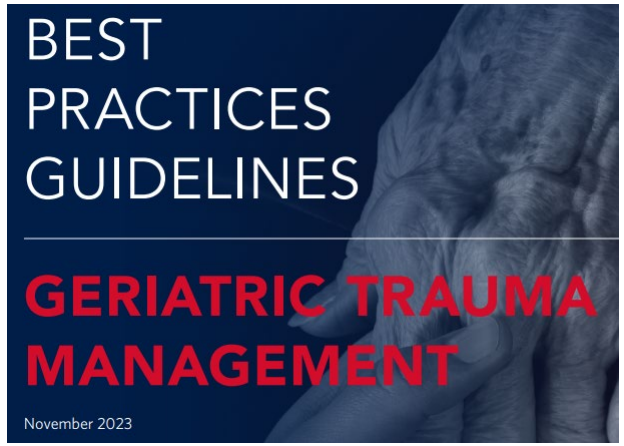
Inpatient Guidelines Promoting Fall Prevention

Help to Meet the CMS Age-Friendly Hospital Measure

Institute for Healthcare Improvement

Age-Friendly Health Systems

[IHI Age-Friendly Health Systems]



[Best Practices Guidelines Geriatric Trauma Management]

ACS SURGICAL QUALITY PARTNER

ACS GSV Geriatric Surgery Verification

[Geriatric Surgery Verification]

AHRQ Agency for Healthcare Research and Quality

[Preventing Falls in Hospitals]

STEADI
Stopping Elderly Accidents, Deaths & Injuries

[STEADI]

Geriatric Surgery Verification
QUALITY IMPROVEMENT PROGRAM
A QUALITY PROGRAM of the AMERICAN COLLEGE OF SURGEONS

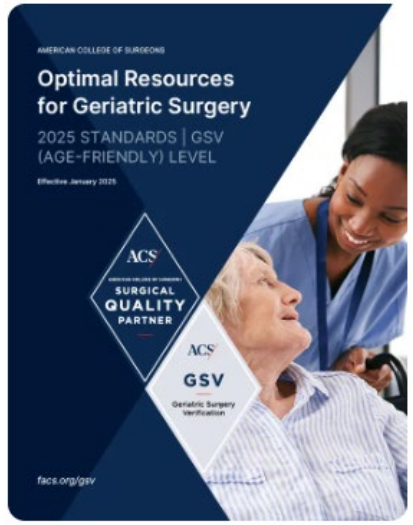
- Launched in 2019 outlining optimal quality standards for the perioperative care of older adult undergoing inpatient surgery age 75+

- Three levels of participation :
  - **Geriatric Surgery Verification (GSV):** 6 standards **NEW**
    - *Aligns with CMS Age Friendly Hospital Measure*
  - **Focused Excellence**: 32 standards in 25-49% surgical patients
  - **Comprehensive Excellence**: 32 standards in 25-49% surgical patients

- Both organizational and patient care standards

- Around 20 verified sites in the US thus far

1. Age-Friendly Care Leadership
2. Treatment and Overall Health Goals
3. Geriatric Vulnerability Screens
4. Management Plan for Patients with Positive Geriatric Vulnerability Screens
5. Age-Friendly Postoperative Protocol
6. Data Review



Focused and Comprehensive Excellence Standards

5 Patient Care: Expectations and Protocols

Goals and Decision Making

5.1 Treatment and Overall Health Goals

5.2 Code Status and Advance Directives

5.3 Medical Proxy

5.4 Life-Sustaining Treatment Discussion for Patients with Planned ICU Admission

5.5 Reaffirm Surgical Decision Making

Preoperative Work-Up

5.6 Geriatric Vulnerability Screens

5.7 Management Plan for Patients with Positive Geriatric Vulnerability Screens

5.8 Interdisciplinary Input or Conference for Elective, High-Risk Patients

5.9 Surgeon-PCP Communication for Elective, High-Risk Patients

Postoperative Management

5.10 Return of Personal Sensory Equipment

5.11 Inpatient Medication Management

5.12 Opioid-Sparing, Multimodality Pain Management

5.13 Standardized Postoperative Care

5.14 Interdisciplinary Care for High-Risk Patients

5.15 Revisiting Goals of Care for ICU Patients

5.16 Assessment of Geriatric Vulnerabilities at Discharge

Transitions of Care

5.17 Discharge Documentation and Hand-Off Communication

5.18 Communication with Post-Acute Care Facilities

Approach to Creating Age-Friendly Surgical& Trauma Care at Brigham and Women's Hospital

Create a pathway of care	• *Make it easy to do the right thing*
Recruit and Train Champions	• *Create a Movement*
Sustain and Innovate	• *Iterate over time*

Superior Treatment for Elders Pathway (STEP) Origins

Brigham and Women's Hospital (BWH) is a 800+ bed urban, academic medical center in Boston, MA.

BWH Trauma

- Over 50% all trauma are ≥ 65 years old falls
- Pre-intervention: marked variability in management of older adults

BWH Surgery

- Over 40% of all inpatient operations are over 65
- Pre-intervention: no standard way to address geriatric vulnerabilities that pre-dispose patients to inpatient falls

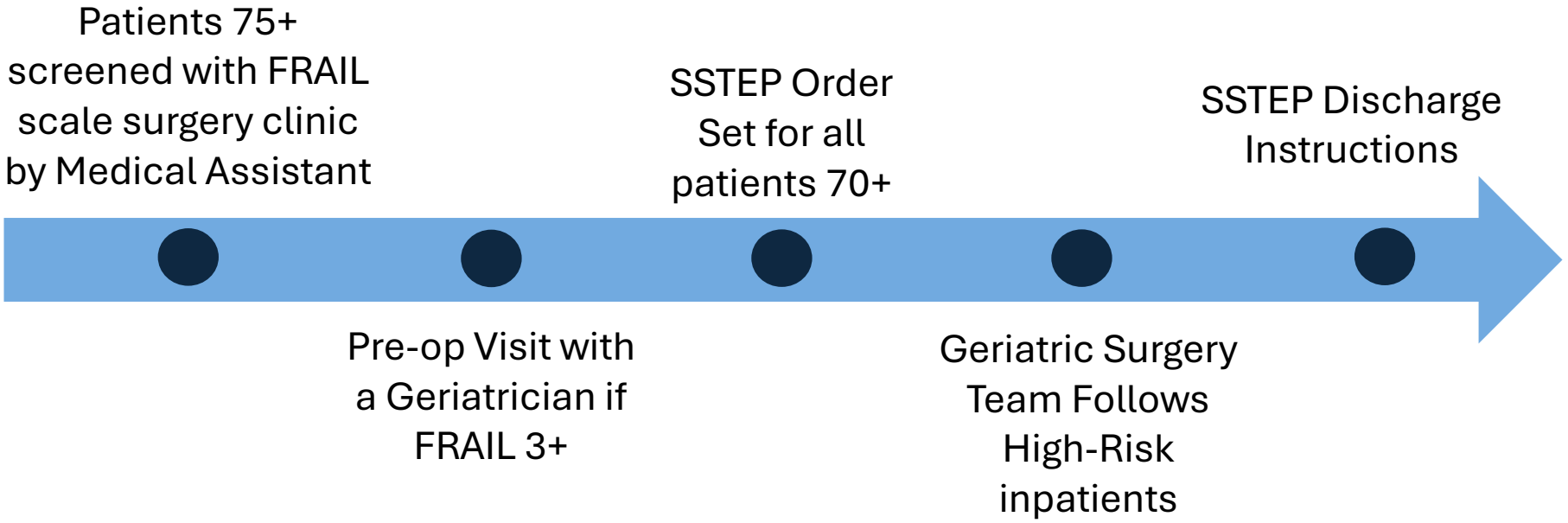
STEP

The **Superior Treatment of Elders Pathway (STEP)** is a custom pathway for older adults that was first established in Trauma BWH in 2013.

CGS developed workflows and tools for STEP to identify vulnerable surgical patients through perioperative frailty screening and functional assessments.

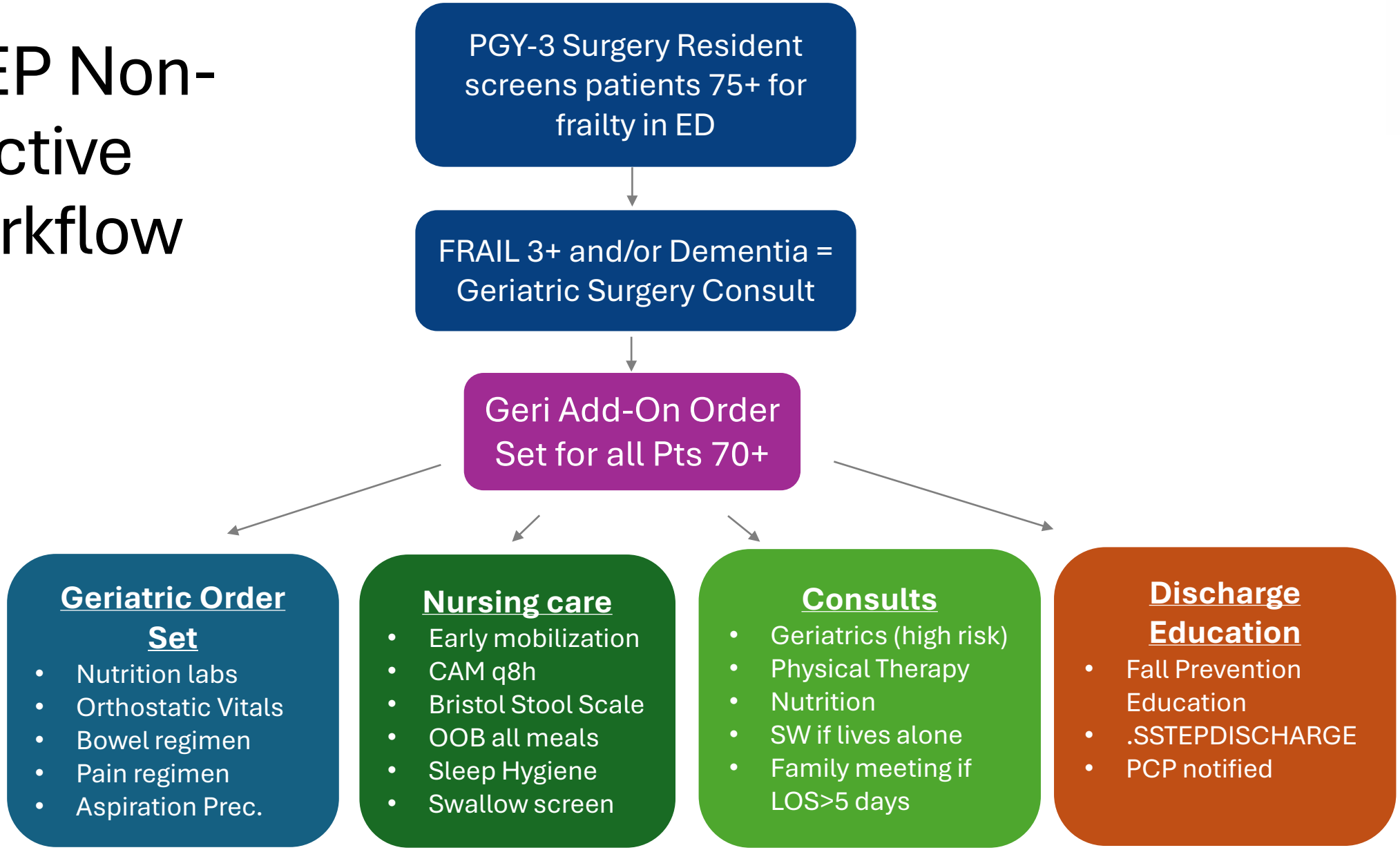
STEP has been **shown to reduce delirium and 30-day readmission rates** on some BWH services but expansion across MGB hospitals has not yet occurred.

STEP Elective Workflow

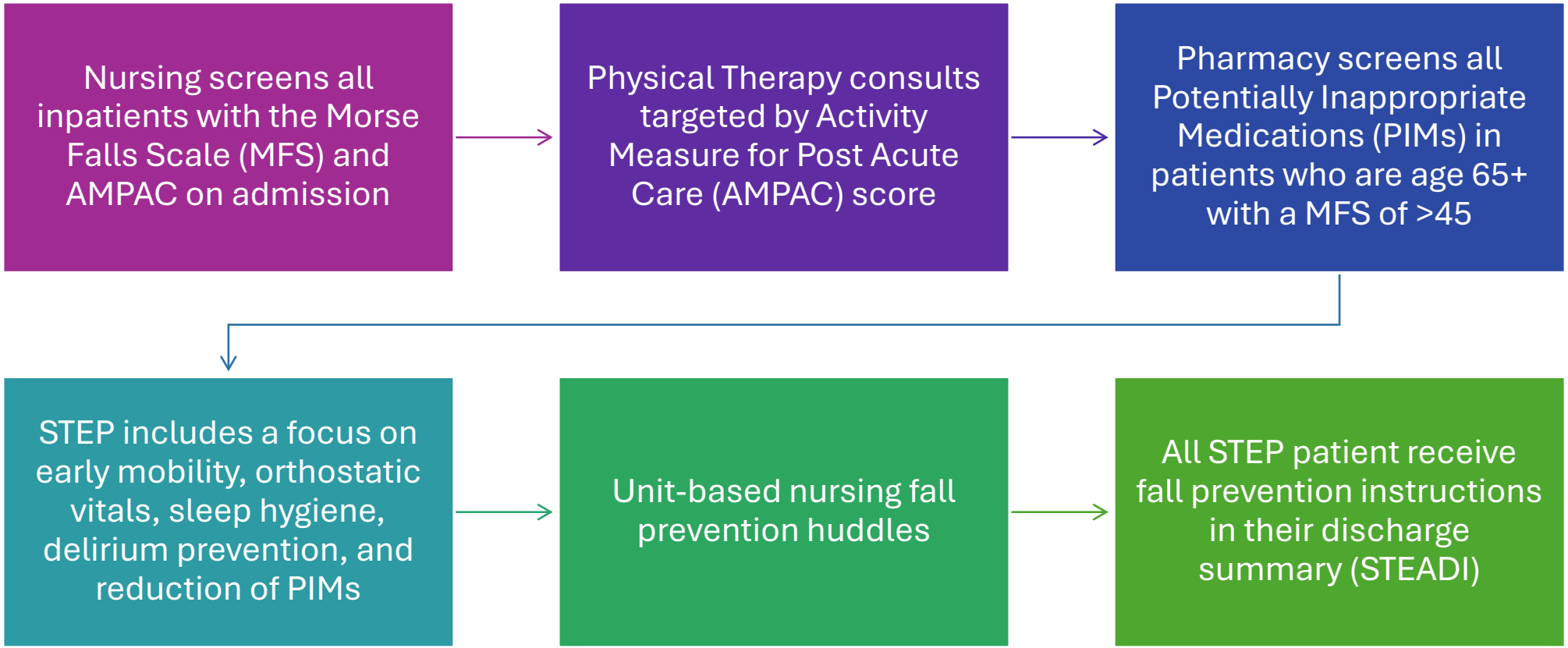


Fatigue	"Are you fatigued throughout the day?“ (yes=1pt)
Resistance	“Can you walk up a flight of stairs?” (no=1pt)
Ambulation	"Can you walk a block?“ (no=1pt)
Illness	Does the patient have 5 or more of the following illnesses: HTN, DM, cancer (other than a minor skin cancer), chronic lung disease, h/o MI, CHF, angina, asthma, arthritis, h/o stroke, CKD? (yes=1pt)
Loss of weight	"Have you lost weight unexpectedly in the past 6 months?" or if weights documented in EMR, have they lost more than 5% body weight (yes=1pt)

STEP Non-Elective Workflow



STEP Interventions for Fall Prevention



Check for Safety

A Home Fall Prevention Checklist for Older Adults

STEADI
Stopping Elderly Accidents, Deaths & Injuries

Use this checklist to find and fix hazards in your home.

STAIRS & STEPS (INDOORS & OUTDOORS)

Are there papers, shoes, books, or other objects on the stairs?

- [ ] Always keep objects off the stairs.

Are some steps broken or uneven?

- [ ] Fix loose or uneven steps.

Is there a light and light switch at the top and bottom of the stairs?

- [ ] Have an electrician put in an overhead light and light switch at the top and bottom of the stairs. You can get light switches that glow.

Has a stairway light bulb burned out?

- [ ] Have a friend or family member change the light bulb.

Is the carpet on the steps loose or torn?

- [ ] Make sure the carpet is firmly attached to every step, or remove the carpet and attach non-slip rubber treads to the stairs.

Are the handrails loose or broken? Is there a handrail on only one side of the stairs?

- [ ] Fix loose handrails, or put in new ones. Make sure handrails are on both sides of the stairs, and are as long as the stairs.

FLOORS

When you walk through a room, do you have to walk around furniture?

- [ ] Ask someone to move the furniture so your path is clear.

Do you have throw rugs on the floor?

- [ ] Remove the rugs, or use double-sided tape or a non-slip backing so the rugs won't slip.

Are there papers, shoes, books, or other objects on the floor?

- [ ] Pick up things that are on the floor. Always keep objects off the floor.

Do you have to walk over or around wires or cords (like lamp, telephone, or extension cords)?

- [ ] Coil or tape cords and wires next to the wall so you can't trip over them. If needed, have an electrician put in another outlet.

KITCHEN

Are the things you use often on high shelves?

- [ ] Keep things you use often on the lower shelves (about waist high).

Is your step stool sturdy?

- [ ] If you must use a step stool, get one with a bar to hold on to. Never use a chair as a step stool.

BEDROOMS

Is the light near the bed hard to reach?

- [ ] Place a lamp close to the bed where it's easy to reach.

Is the path from your bed to the bathroom dark?

- [ ] Put in a nightlight so you can see where you're walking. Some nightlights go on by themselves after dark.

BATHROOMS

Is the tub or shower floor slippery?

- [ ] Put a non-slip rubber mat or self-stick strips on the floor of the tub or shower.

Do you need some support when you get in and out of the tub, or up from the toilet?

- [ ] Have grab bars put in next to and inside the tub, and next to the toilet.

Inpatient Fall Prevention Quality Measurement

- GSV Data Review & CMS requires reporting Inpatient Falls with Injury

- Needed to create a Dashboard with an age filter per GSV which has allowed for easier monitoring of Falls with Injuries
  - Also allows us to report on Restraint use, Delirium, Postoperative Deconditioning which are risk factors for falls
  - Length of Stay also impacted by falls, which is a high hospital priority

Metric
Inpatient Falls with Injuries Rate
CAUTI Rate
CLABSI Rate
VAE (ventilator associated events) Rate
C. diff infection Rate
Restraint use
30 Day readmissions
Mortality
Postoperative Delirium Rate
Postoperative Deconditioning
Average Length of Stay
CMI Adjusted Length of Stay

STEP Improves Outcomes and is Sustainable

Improved Outcomes

Frailty Identification and Care Pathway: An Interdisciplinary Approach to Care for Older Trauma Patients

Elizabeth A Bryant [1], Samir Tulebaev [2], Manuel Castillo-Angeles [1], Esther Moberg [1], Steven S Senglaub [1], Lynne O'Mara [1], Meghan McDonald [1], Ali Salim [1], Zara Cooper [3]

Decreased Delirium

Fewer Readmissions

Compliance Sustainability

Frailty Interdisciplinary Pathway: Compliance and Sustainability in a Level I Trauma Center

Lynne O'Mara [1], Katherine Palm, Manuel Castillo-Angeles, Elizabeth Bryant, Esther Moberg, Katherine Armstrong, Nikita Patel, Samir Tulebaev, Meghan McDonald, Diane Tsitos, Zara Cooper

Frailty screening compliance >92%

68.2% compliance to all pathway

Dashboard Results: Fall incidence trends lower in STEP patients than non-STEP patients

Frontline geriatric nurse champions improve patient outcomes across service lines and disseminate knowledge locally and nationally

Nurse Champion-Led Falls Quality Improvement

Burn Trauma Surgery

- Decreased inpatient falls in older adults 43% following development and implementation of safety huddle pilot
- Created and implemented of a post-fall debrief tool

General Surgery

- Decreased overall inpatient falls 38% following implementation of fall prevention safety huddle pilot

Medicine

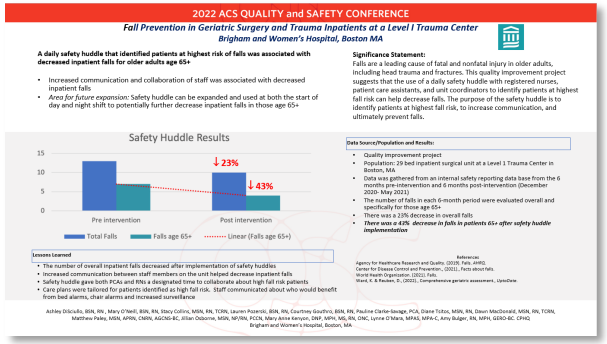
- Reduced medically unnecessary telemetry in hospitalized older adults
- Implemented a mobility assistant project

Vascular

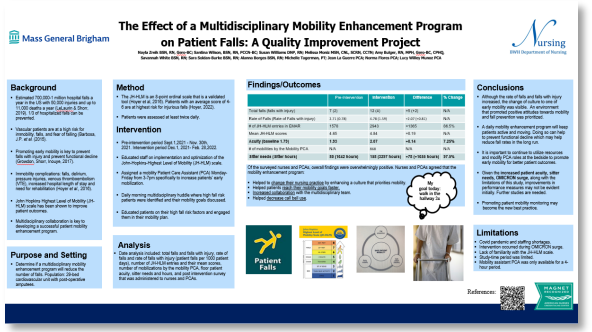
- Implemented a multidisciplinary mobility program

• Nurse Champion Knowledge Dissemination

ACS Quality and Safety Conference 2022

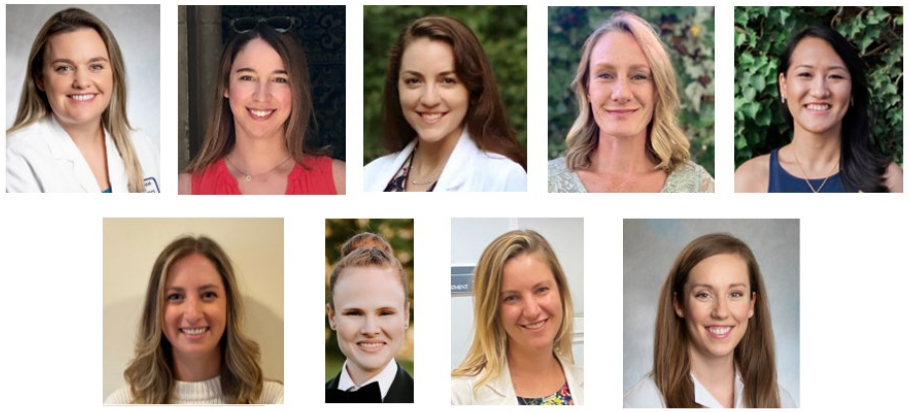


Best Poster Presenter Award Society of Vascular Nursing Annual Conference 2022



Nurses Improving the Care of Healthsystem Elders (NICHE) Conference 2023

Geriatric Champion Program



Inaugural BWH Geriatric Champion Program 2022

- More than 8000 surgical pts/yr age 65+ at our institution (45%)
- National geriatric population greatly exceeds geriatrician capacity, often leaving non-geriatric trained providers as primary clinicians
- Clinical staff have limited geriatric training, PAs are frequently at the forefront of care older adult surgical patients
- It was imperative to consider new and sustainable programming to improve PA geriatric knowledge and champion efforts to advance the care for older adult surgical patients

Tideswell™ at UCSF

Geriatric Champion Program (GCP) Curriculum Outline

Geriatric Champion Program

Sessions 1-5

Didactic Sessions focused on Geriatric 5Ms*

Sessions 6-11

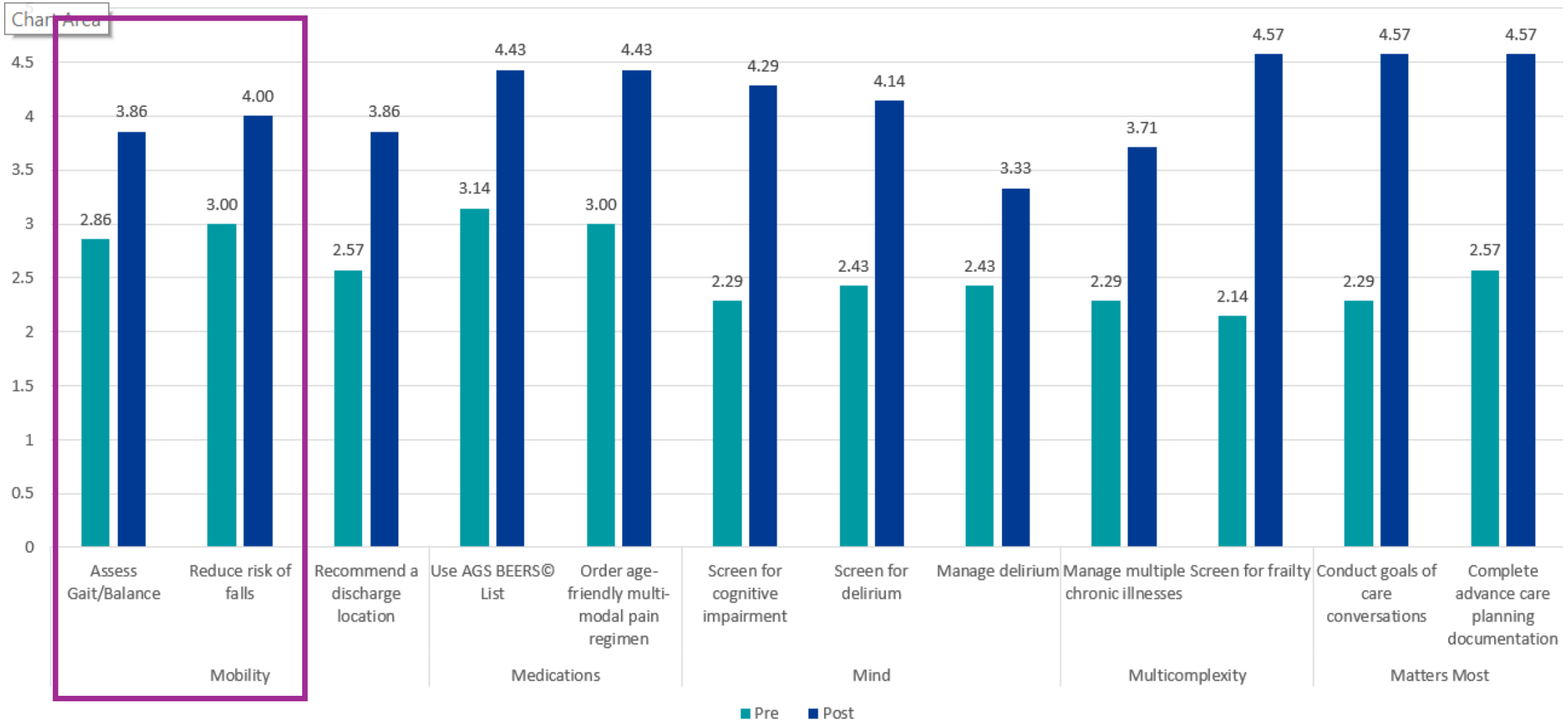
Didactic Sessions on QI Processes and QI Project Implementation

Session 12

Final Presentations to Hospital Leadership

**Mobility, Mentation, Matters Most, Multicomplexity, Medications*

GCP Improved the Level of Comfort in Caring for Older Adults



Curriculum Results

83% felt overall coursework was “just right”

86% found session content “relevant” or “highly relevant to their work”

100% felt that the QI project was “very easy” or “somewhat easy” to implement

100% felt QI coursework was “just right”

Sustain and Innovate

Learn more

To transform care for older adults

Recognizing the Brigham's Superior Treatment of Elders Pathway (STEP) Program's power to transform geriatric care for seniors, the West Health Institute is partnering with Brigham and Women's Hospital, a leader in geriatric care, to establish the West Health Accelerator at Mass General Brigham, a new multi-year, multimillion-dollar initiative that will raise the standard of care for older adults in a hospital setting or system.

Contact Information

Elizabeth Goldberg, MD, ScM
Megan Bounds, MPH

EG: Principal Investigator, Goldberg Lab
MB: Clinical Sciences Prof, Dept of Emergency Med

Associate Professor
University of Colorado Anschutz Medical Campus

Emergency Medicine Attending, University of Colorado Hospital, UCHealth

Past President, Academy of Geriatric Emergency Medicine,
Society for Academic Emergency Medicine

Elizabeth.Goldberg@cuanschutz.edu
Megan.Bounds@cuanshutz.edu
SoMe: @LizGoldbergMD
Linkedin | bluesky

Ted Johnson, MD, MPH

Chair, Emory Family and Preventive Medicine
Emory PA Program

Fellow, American Geriatrics Society
Professor
Emory University School of Medicine

Sponsoring Physician, Emory Integrated Memory Care

Program Co-Director, Emory HRSA
Geriatric Workforce Enhancement Program

tmjohns@emory.edu
@baldheadted
LinkedIn | BlueSky | Twitter

Lynne O'Mara, MBA, PA-C

Senior Administrator of Inpatient Operations, OCOO
Clinical Program Manager, Center for Geriatric Surgery
Advance Practice Provider Scholar, Department of Surgery
Brigham and Women's Hospital

E-Care Clinical Director, West Health Accelerator
Mass General Brigham

President, Geriatric Medicine PAs (GMPA)
Medical Liaison from the American Academy of Physician Associates to American Geriatrics Society
American Academy of Physician Associates (AAPA)

lmomara@bwh.Harvard.edu
Linkedin | twitter

References

1. Center for Disease Control (CDC). STEADI – Older Adult Fall Prevention. 2024. https://www.cdc.gov/steadi/hcp/clinical-resources/index.html#cdc_listing_res5-fact-sheets. Accessed March 10, 2025.
2. Agency for Healthcare Research and Quality (AHRQ). Falls. 2025. https://www.ahrq.gov/topics/falls.html. Accessed March 10, 2025.
3. Center for Disease Control (CDC). Older Adult Fall Prevention. 2024. https://www.cdc.gov/falls/data-research/facts-stats/index.html. Accessed March 10, 2025.
4. U.S. Preventive Services Task Force. Falls Prevention in Community-Dwelling Older Adults: Interventions. 2024. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/falls-prevention-community-dwelling-older-adults-interventions. Accessed March 10, 2025.
5. Inouye SK, Studenski S, Tinetti ME, Kuchel GA. Geriatric syndromes: clinical, research, and policy implications of a core geriatric concept. J Am Geriatr Soc. 2007 May;55(5):780-91. doi: 10.1111/j.1532-5415.2007.01156.x. PMID: 17493201; PMCID: PMC2409147.
6. Tinetti ME, Speechley M, Ginter SF. Risk factors for falls among elderly persons living in the community. N Engl J Med. 1988 Dec 29;319(26):1701-7. doi: 10.1056/NEJM198812293192604. PMID: 3205267.
7. Bhasin S, Gill TM, Reuben DB, Latham NK, Ganz DA, Greene EJ, Dziura J, Basaria S, Gurwitz JH, Dykes PC, McMahon S, Storer TW, Gazarian P, Miller ME, Travison TG, Esserman D, Carnie MB, Goehring L, Fagan M, Greenspan SL, Alexander N, Wiggins J, Ko F, Siu AL, Volpi E, Wu AW, Rich J, Waring SC, Wallace RB, Casteel C, Resnick NM, Magaziner J, Charpentier P, Lu C, Araujo K, Rajeevan H, Meng C, Allore H, Brawley BF, Eder R, McGloin JM, Skokos EA, Duncan PW, Baker D, Boult C, Correa-de-Araujo R, Peduzzi P; STRIDE Trial Investigators. A Randomized Trial of a Multifactorial Strategy to Prevent Serious Fall Injuries. N Engl J Med. 2020 Jul 9;383(2):129-140. doi: 10.1056/NEJMoa2002183. PMID: 32640131; PMCID: PMC7421468.
8. National Council on Aging. You Have the Power to Prevent a Fall. 2016. https://www.ncoa.org/article/you-have-the-power-to-prevent-a-fall/. Accessed March 10. 2025.
9. Mock LL, Parmelee PA, Kutner N, Scott J, Johnson TM 2nd. Content validation of symptom-specific nocturia quality-of-life instrument developed in men: issues expressed by women, as well as men. Urology. 2008 Oct;72(4):736-42. doi: 10.1016/j.urology.2008.04.014. Epub 2008 Aug 5. PMID: 18684494.
10. Johnson, T.M., II, Vincenzo, J.L., De Lima, B., Casey, C.M., Gray, S., McMahon, S.K., Phelan, E.A. and Eckstrom, E. (2025), Updating STEADI for Primary Care: Recommendations From the American Geriatrics Society Workgroup. J Am Geriatr Soc. https://doi.org/10.1111/jgs.19378.

References

11. Goldberg EM, Marks SJ, Resnik LJ, Long S, Mellott H, Merchant RC. Can an Emergency Department-Initiated Intervention Prevent Subsequent Falls and Health Care Use in Older Adults? A Randomized Controlled Trial. Ann Emerg Med. 2020 Dec;76(6):739-750. doi: 10.1016/j.annemergmed.2020.07.025. Epub 2020 Aug 25. PMID: 32854965; PMCID: PMC7686139.
12. Department of Health and Human Services, Centers for Medicare & Medicaid Services. Medicare and Medicaid Programs and the Children's Health Insurance Program; Hospital Inpatient Prospective Payment Systems for Acute Care Hospitals and the Long-Term Care Hospital Prospective Payment System and Policy Changes and Fiscal Year 2025 Rates; Quality Programs Requirements; and Other Policy Changes. *The Federal Register*. 2024; 89 FR 68986. https://public-inspection.federalregister.gov/2024-17021.pdf Accessed February 28, 2025.
13. Institute for Healthcare Improvement. Age-Friendly Health Systems. https://www.ihi.org/networks/initiatives/age-friendly-health-systems. Accessed February 28, 2025.
14. The American College of Surgeons. Best Practices Guidelines, Geriatric Trauma Management. 2023. https://www.facs.org/media/ubyj2ubl/best-practices-guidelines-geriatric-trauma.pdf. Accessed February 28, 2025.
15. The American College of Surgeons. Geriatric Surgery Verification. 2025. https://www.facs.org/quality-programs/accreditation-and-verification/geriatric-surgery-verification/. Accessed February 28, 2025.
16. HealthinAging.org. Tip Sheet: The 5Ms of Geriatrics. 2020. https://www.healthinaging.org/tools-and-tips/tip-sheet-5ms-geriatrics. Accessed February 28, 2025. \
17. O'Mara L, Palm K, Castillo-Angeles M, Bryant E, Moberg E, Armstrong K, Patel N, Tulebaev S, McDonald M, Tsitos D, Cooper Z. Frailty Interdisciplinary Pathway: Compliance and Sustainability in a Level I Trauma Center. J Trauma Nurs. 2021 Jan-Mar 01;28(1):59-66. doi: 10.1097/JTN.0000000000000546. PMID: 33417405.
18. Bryant EA, Tulebaev S, Castillo-Angeles M, Moberg E, Senglaub SS, O'Mara L, McDonald M, Salim A, Cooper Z. Frailty Identification and Care Pathway: An Interdisciplinary Approach to Care for Older Trauma Patients. J Am Coll Surg. 2019 Jun;228(6):852-859.e1. doi: 10.1016/j.jamcollsurg.2019.02.052. Epub 2019 Apr 5. PMID: 30959106.
19. Centers for Disease Control (CDC). Check for Safety: A Fall Prevention Checklist for Older Adults. 2017, https://www.cdc.gov/steadi/pdf/steadi-brochure-checkforsafety-508.pdf . Accessed March 10. 2025.
20. The West Health Accelerator at MGB. 2025. https://westhealthacceleratoratmgb.org/.Accessed February 28, 2025.