CDC STEADI:

Best Practices for Developing an Inpatient Program to Prevent Older Adult Falls after Discharge

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

STEADI Stopping Elderly Accidents, Deaths & Injuries

www.cdc.gov/steadi

CDC STEADI:

Best Practices for Developing an Inpatient Program to Prevent Older Adult Falls after Discharge

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DISCLAIMER

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

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INTRODUCTION:

Why focus on fall prevention?

Each year more than one quarter of Americans aged 65 and older (older adults) report a fall.[1] While not all falls result in injury, fall injuries can result in functional decline, decreased quality of life, and even death.[2] The risk of a fall among recently hospitalized older adults is substantially increased in the first 30 days after discharge.[3]

The Centers for Disease Control and Prevention's (CDC) STEADI (Stopping Elderly Accidents, Deaths, and Injuries) initiative was developed for clinicians in outpatient care settings. STEADI provides tools to screen older adults for fall risk, assess fall risk factors, and intervene to reduce fall risk. Combining components of STEADI with early mobilization of older adults in an inpatient setting may reduce the risk of falls in hospitalized older adults during and after their hospital stay.

The STEADI Algorithm for Fall Risk Screening, Assessment, and Intervention outlines steps to implement the three core elements of the initiative (screen, assess, and intervene) and can be adapted for different clinical practice settings. Clinicians in an inpatient setting at University of California San Francisco (UCSF) adapted STEADI for patient care to reduce falls during and after a hospital stay. This guide, ***CDC STEADI: Best Practices for Developing an Inpatient Program to Prevent Older Adult Falls after Discharge***, highlights 10 steps used by UCSF to integrate a STEADI safe mobility and fall prevention program into their inpatient workflow and clinical practice. The goal was to prevent falls during hospitalization, set the stage for better collaboration with external providers for post-discharge care, and reduce risk of falls after hospital stays.

The Centers for Medicare and Medicaid Services (CMS) incentivizes hospitals to prevent falls in hospitalized and recently discharged patients. CMS's Hospital Readmissions Reduction Program reduces payments to hospitals with excess readmissions within 30 days of discharge. This policy covers several diagnoses, including injuries related to falls.[4] The effort to reduce fall-related readmissions has created a need for careful attention to both preventing in-hospital falls and promoting mobility during hospitalization to reduce functional decline and fall risk after discharge.[5]

Effective programs to reduce falls in hospitals often promote mobility during hospitalization.[6] For example, the American Geriatric Society's CoCare Hospital Elder Life Program (AGS CoCare HELP), designed to reduce delirium, includes components for ambulation and has been shown to decrease falls in the inpatient setting.[7] The Age-Friendly Health System Initiative promotes caring for older patients and engaging family caregivers and providers across healthcare settings. It encourages mobility and use of age-friendly medications for older adults to maintain function and promote positive health outcomes.[6]

Falls in hospitals commonly occur in older patients who present with baseline functional difficulties, develop delirium while hospitalized, and/or are prescribed psychoactive medications.[8,9] Additionally, hospitalized patients spend significant amounts of time in their rooms (88% of admitted hours) with the majority of that time spent in bed (95%).[5,10] Immobility in the inpatient setting is associated with hospitalization-associated disability (HAD)—a state of increased vulnerability following hospitalization—linked with increased risk of functional decline, poor functional outcomes after discharge, medical adverse events, and hospital readmission.[5,11] To minimize inpatient falls, hospitals may use physical restraints and bed alarms to limit patient mobility. Thirty percent of older adult patients experience HAD and encounter new issues with mobility and self-care upon returning to their home after a hospital stay.[12] Promoting safe mobility interventions during hospitalization to reduce HAD and fall risk after discharge may entail a shift in culture and hospital care procedures in healthcare delivery.

Patients who fall when hospitalized are more likely to fall again after discharge.[13] Patients who fail to recover from HAD within the 30-day post-discharge period are more likely to experience persistent disability and greater mortality.[12] There are evidence-based strategies to prevent HAD by identifying and addressing modifiable risk factors, such as addressing reduced mobility while in the hospital and modifying medications associated with fall risk. Implementing fall prevention programs for older adults during hospitalization may reduce hospital-associated functional decline. Those programs present an opportunity to link patients to primary care and community resources to reduce falls in the vulnerable post-discharge period.

Screening for fall risk can help identify modifiable risk factors for falls such as gait and balance impairment or inappropriate medication use. Certain strategies, such as referral to physical therapy (PT) and medication management to stop, switch, or reduce the number and/or dose of medications associated with increased fall risk, can then be incorporated into inpatient care to address risk factors. Incorporating fall risk screening and assessment into existing electronic health record (EHR) systems may enhance uptake and use of the screening and assessment tools by healthcare providers in the hospital setting. This allows for the best inpatient care to reduce falls while hospitalized and sets the stage for better outcomes after discharge.

This guide, ***CDC STEADI: Best Practices for Developing an Inpatient Program to Prevent Older Adult Falls after Discharge***, offers inpatient teams and healthcare systems a framework for promoting safe mobility and managing older patients' post-discharge fall risk. The guide was developed by fall prevention experts who were among the first to adopt CDC's STEADI for hospitalized older adults.[14-17]

The guide provides information on 10 steps with tactics to implement a STEADI safe mobility and fall prevention program in an inpatient setting to prevent falls during hospital stays and after discharge.

CHAPTER ONE:

Developing a hospital-based STEADI safe mobility and fall prevention program

A STEADI safe mobility and fall prevention program will consist of three main components: screening, assessment, and intervention (see: www.cdc.gov/steadi).

1 SCREEN FOR FALL RISK (TABLE 1)

The purpose of screening is to identify a patient at increased risk of falling. Ideally, this screening would be done on admission or as soon as possible once the patient is clinically stable. Using standardized screening tools may provide an enhanced opportunity to identify older adults at risk of falling while hospitalized and after discharge. Recommended tools include:

- CDC's *Stay Independent* checklist (a self-assessment screening for fall risk factors)[18]
- **Three Key Questions:**
    1. Have you fallen in the past year?
    2. Do you feel unsteady when standing or walking?
    3. Are you worried about falling?[15]
- Agency for Healthcare Research and Quality (AHRQ) STRATIFY Risk Assessment Tool (identifies fall risk factors in hospitalized patients)

Table 1: Summary of older adult fall risk screening tools

SCREENING TOOLS	CRITERIA FOR A POSITIVE SCREEN
Stay Independent checklist	Score of 4 or more If score < 4, but the patient fell in the past year ➡ considered at risk
Three Key Questions: • Have you fallen in the past year? • Do you feel unsteady when standing or walking? • Are you worried about falling?	"Yes" response to at least one question
STRATIFY Risk Assessment Tool	Score of 2 or more

2 ASSESS AT-RISK INDIVIDUALS TO IDENTIFY THEIR SPECIFIC FALL RISK FACTORS (TABLE 2)

Older adults often have several risk factors for falls, and multiple assessments may be required to identify them. Commonly used fall risk factor assessments include:

- Assessing gait disorders using gait, strength, and balance tests[19]
  - Timed Up and Go (TUG) Test
  - 30-Second Chair Stand Test
  - 4-Stage Balance Test
- Assessing medications to identify those that increase fall risk[20]
  - The American Geriatrics Society Updated Beers Criteria lists specific medications that increase fall risk, such as psychoactive medications and highly anticholinergic medications.[21]
  - Polypharmacy (taking multiple medications) can also increase fall risk.
  - CDC has resources to educate providers on medications that increase fall risk:
    - Medications Linked to Falls
    - SAFE Medication Review Framework
- Measuring Orthostatic Blood Pressure[22]
- Checking visual acuity[23]
- Assessing feet/footwear for shoe fit, traction, supportive insoles, and heel height[24]
- Assessing vitamin D intake[25]
- Identifying comorbidities that increase fall risk, such as cognitive impairment, Parkinson's disease, cardiac issues, depression, urinary incontinence[26,27]

3 INTERVENE TO ADDRESS MODIFIABLE FALL RISK FACTORS AND PROMOTE SAFE MOBILITY USING EFFECTIVE STRATEGIES (TABLE 2)

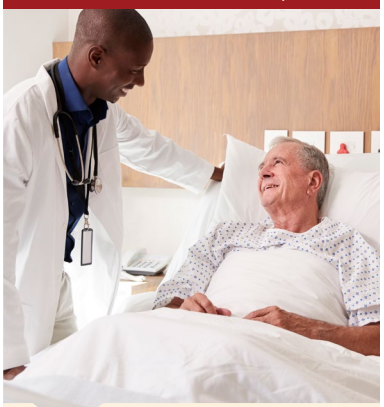
DURING HOSPITALIZATION

- Refer to PT for gait and balance training and to determine appropriateness for a gait aid.
  - Consider referral upon discharge for continued outpatient PT
- Optimize medications to eliminate or reduce those that may increase fall risk.[28-30]
- Treat orthostatic hypotension.[22,31]
- Assess and manage identified chronic conditions such as cognitive or neurological disorders, cardiovascular disorders, or musculoskeletal conditions.[26,27,32]
- Recommend vitamin D supplementation, if deficient.[25,33]
- Talk with older patients (and their caregivers) about fall risk, and work with them to develop a personal fall prevention care plan that they want to follow.[34]
  - Many older adults see falling as an inevitable part of the aging process and are happy to learn falls can be prevented.
  - Messaging that emphasizes staying independent may be better received than warning against potential injuries.

FOR DISCHARGE

- Refer to community fall prevention programs for gait and balance exercises.[35,36]
- Refer to occupational therapy (OT) for a home safety assessment.[37-38]
  - *This may be a covered Medicare benefit.*
  - If OT assessment is not available, review potential home hazards with patient and family.[39]
    - CDC's *Check for Safety* brochure has a fall prevention checklist for older adults and offers suggestions on how to make the home safer, such as by removing throw rugs, adding grab bars in bathrooms, and placing night lights in dark corners.
- Include recommendations in the patient's discharge summary for the primary care provider (PCP) to refer to specialists (e.g., ophthalmologists, podiatrists, PT, OT).[23,24]
- Ensure all patients have a follow-up care plan in the discharge summary and share with PCP.
  - Include fall prevention care plan to help reduce risk of falls.[36,40]

Provider Tips



- Older adults at risk for falls may be covered under Medicare benefits for inpatient PT.
- Medication review and assessment can be conducted at admission, during hospitalization, and at discharge.
- When talking to older patients, use positive messaging to identify fall prevention strategies that meet both the provider's and patient's health goals.
- Maximize patient and caregiver involvement in fall prevention efforts during hospital stay and after discharge. Consider including patient education and community resource tools in the patient online portal.

Table 2: Older adult fall risk factors and examples of associated assessment tools and intervention strategies*

FALL RISK FACTOR	ASSESSMENT TOOL	INTERVENTION STRATEGIES
History of falling	Ask where, when, and the circumstances of previous falls (e.g., indoor versus outdoor, at home versus public place, daytime versus nighttime, and activity at the time of fall)	• Use circumstances of a fall to guide further assessments and interventions » For example, a fall in the home should trigger a home safety assessment by OT or at least use of CDC's *Check for Safety* brochure » A fall that occurs when a patient stands up from sitting or lying should trigger medication review and orthostatic blood pressure assessment
Gait, strength, or balance impairment	Conduct Timed Up and Go (TUG), 30-Second Chair Stand, and/or 4-Stage Balance Test	• Refer to PT if patient fails test (e.g., TUG >12 seconds, inability to complete number of chair stands for sex and age in 30-Second Chair Stand test, inability to hold at least a 10-second tandem stance in 4-Stage Balance Test) • Consider additional inpatient PT evaluation • Refer to community fall prevention or exercise program if available (e.g., Tai Chi, Stepping On)
Medications that increase fall risk	Conduct a comprehensive medication review to look for use of 4 or more medications or presence of psychoactive medications; highly anticholinergic medications; or any medication that can cause dizziness, sedation, orthostatic hypotension, blurred vision, or confusion	• Evaluate the appropriateness of all medications and attempt to stop, switch, or reduce number and/or dose of medications when possible • Aim to reduce medications linked to falls and total number of medications if there is no valid indication for their continued use, weighing the risks and benefits of each medication For example, a hospital stay is an opportunity to start a taper in a monitored setting of benzodiazepines or other medication that increases fall risk.
Orthostatic hypotension	Assess for drop of 20 or more points on measurement of systolic blood pressure when taken after lying five minutes, and then standing one minute and three minutes	• Treat the underlying cause of hypotension when possible • Consider changing to an antihypertensive medication with less potential for orthostasis, or reduce dosage of antihypertensives when possible • Recommend foot pumping (heel to toe) 20 times before standing • Encourage adequate fluid intake (~50 oz. daily) • Recommend standing slowly and waiting a minute or two before walking • Consider compression stockings • Recommend PT if other strategies are ineffective
Comorbidities that increase fall risk	Review medical history for comorbidities that increase fall risk (e.g., cardiovascular disease, depression, incontinence, Parkinson's disease, arthritis) Conduct a physical exam to assess for cognitive impairment or movement disorders.	• Optimize management of comorbidities • Identify untreated or under-treated health conditions that may contribute to fall risk • Review all medication regimens routinely, and evaluate continued need for any medications taken routinely

FALL RISK FACTOR	ASSESSMENT TOOL	INTERVENTION STRATEGIES
Vitamin D deficiency	Assess vitamin D intake	• Determine whether vitamin D supplement is needed • For patients with osteoporosis, ensure adequate vitamin D level before beginning therapy for osteoporosis
Visual impairment	Assess visual acuity with Snellen eye chart Assess for use of bifocals when outside of home	• Refer for vision exam (optometry or ophthalmology) if Snellen result is 20/40 or worse. In the referral, note that the patient is at increased risk of falls • Recommend use of single-distance lenses and avoidance of bifocals when walking outside to reduce risk of falling • Consider benefits of cataract surgery, if indicated
Feet and footwear issues	Assess for decreased sensation, foot deformities, and unsuitable footwear (e.g., flip flops, slippers, high heels, or walking barefoot)	• Assess underlying cause of neuropathy or physical deformities • Counsel on the benefits of footwear that fits securely around the feet and provides traction • Counsel on the benefit of using supportive insoles and limiting high heels • Refer to podiatry, if indicated
Home hazards	Complete a home safety checklist or have an occupational therapist conduct a home safety assessment	• Recommend interventions to improve home safety (e.g., remove loose electrical cords and throw rugs, improve lighting) • Refer to OT to evaluate home safety

** This table offers examples of assessment tools and intervention strategies and is not intended to be an exhaustive list.*

CHAPTER TWO

Steps to create a hospital-based STEADI safe mobility and fall prevention program

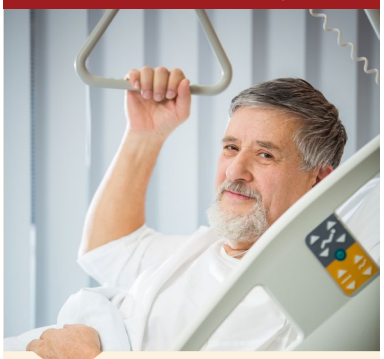
OVERVIEW

Many hospital systems have made fall prevention for hospitalized patients a priority. However, in-hospital fall prevention programs may purposefully or inadvertently limit patient mobility, which can increase HAD.[5] Rather than limiting mobility, a fall prevention program may benefit from fostering increased patient mobility, identifying fall risk factors, and implementing strategies to reduce risk of falls during hospitalization and after discharge.

The following 10 steps, adopted by the UCSF clinical team, can be followed to incorporate a STEADI safe mobility and fall prevention program into an inpatient setting:

1. Assess existing inpatient fall prevention activities and readiness for change
2. Identify inpatient champions and interprofessional fall prevention team members
3. Obtain leadership support
4. Identify and link with external partner resource
5. Adapt electronic health record tools
6. Identify team members' tasks
7. Train team members
8. Develop implementation and monitoring plans
9. Identify reimbursement and quality improvement opportunities
10. Document the individualized care plans for your patients

Provider Tip



A case study from the University of California San Francisco is available at the end of this guide to highlight specific examples and lessons learned from the STEADI safe mobility and fall prevention program implementation in a hospital setting.

STEP 1: ASSESS EXISTING INPATIENT FALL PREVENTION ACTIVITIES AND READINESS FOR CHANGE

Most inpatient units already participate in fall prevention measures.[12] However, some measures may need to shift from those that limit mobility to those that encourage safe mobility.

TACTICS:

CONDUCT AN ENVIRONMENTAL SCAN

- Explore what providers, nursing staff, care managers, quality improvement team members, and others are already doing to prevent falls among hospitalized older adults.
- Determine who is currently involved in fall prevention, which components (screening, assessment, or intervention) of a fall prevention program are currently implemented, and which components are well received by staff and patients.
- Assess the culture of both the overall hospital and individual units.
- Explore readiness of individual units and staff to adapt to new initiatives or clinical practices.
- Explore potential barriers that teams might face in changing the culture of fall prevention.

Provider Tips

QUESTIONS TO CONSIDER WITHIN AN ENVIRONMENTAL SCAN:

- Is the culture of an individual unit adaptive to new initiatives?
- What organizational barriers to implementing a new fall prevention program need to be addressed?
- Who will lead the fall prevention team in individual units?
- What data related to falls and fall prevention are currently being gathered? How are data shared?
- Do staff need education about how mobility is better for patient care and preventing falls than bedrest?
- What worries do staff have about encouraging patient mobility and how does this impact the patients' risk of falls?
- What resources are available to staff to mobilize patients safely?
  - ›› Are assistive devices and equipment readily available in target units?
- What happens when a patient falls?
  - ›› Will there be corrective actions for team members caring for a patient who falls?

STEP 2: IDENTIFY INPATIENT CHAMPIONS AND INTERPROFESSIONAL FALL PREVENTION TEAM MEMBERS

Safe mobility champions from a variety of professions (rehabilitation, nursing, medicine, pharmacy, and others as relevant) can support and encourage culture and practice change around fall prevention in a hospital.[14-16] A champion can be a physician, nurse, physical therapist, or other staff member who is passionate about preventing falls. Champions must have the skills to manage the safe mobility and fall prevention program. They can recruit safe mobility and fall prevention team members and work collaboratively with staff from individual units. The team, including champions, can advocate for optimizing patients' functional independence and mobilization and help prevent functional decline while patients are in the hospital.

TACTICS:

IDENTIFY A SAFE MOBILITY AND FALL PREVENTION PROGRAM TEAM CHAMPION

Consider the following personnel as potential champions:

- A quality improvement leader
- Physical therapist, occupational therapist, or pharmacist with geriatric certification
- A geriatrician, geriatric nurse practitioner, or other geriatrics-trained provider

Provider Tip

Choose members and champions of the safe mobility and fall prevention team from different clinical areas. They can assist in changing the interdisciplinary hospital culture and practice around safe mobility and fall prevention.

CHOOSE SAFE MOBILITY AND FALL PREVENTION PROGRAM TEAM MEMBERS

Potential members may include:

- Physicians
- Advanced practice providers
  - Nurse practitioners
  - Clinical nurse specialists
  - Physician assistants
- Pharmacists
- Occupational and/or physical therapists
- Discharge planners
- Rehabilitation team members
- Direct care nurses
- Patient care assistants or aides
- Patient representatives or patient advocates
- Nurse managers/educators
- Case managers/social workers
- Nutritionist or dietary services
- EHR analysts
  - Health Information Technology (HIT) specialists
- Individuals who can assist with procuring assistive devices and supplies as needed

Example

ROLE OF AN ELECTRONIC HEALTH RECORD (EHR) ANALYST:

- Create system alerts to identify at-risk patients
- Adapt evidence-based tools (e.g., Timed Up and Go) to the local EHR
- Develop order sets and other EHR tools to make fall screening and intervention easy for providers to use
- Develop reporting tools to easily track fall screenings and interventions
- Use predictive analysis to assess patients and recommend appropriate interventions (e.g., suggesting early referrals for ophthalmology or rehabilitation evaluation)
- Be available during implementation to revise/optimize EHR tools based on provider feedback
- Include referrals to community partners through discharge instructions

STEP 3: OBTAIN LEADERSHIP SUPPORT

Encouraging a STEADI safe mobility and fall prevention program that aligns with the hospital's organizational priorities may improve programmatic success and sustainability. Safe mobility and fall prevention activities often overlap with other hospital initiatives that focus on population health or healthcare quality and safety. This overlap may be an opportunity to collaborate with organization leaders to braid support across programs and strengthen overall patient care.

TACTICS:

REVIEW ORGANIZATIONAL VISION STATEMENTS AND INITIATIVES

Include wording in your plan that aligns with your organization's major goals.

KEEP UP TO DATE ON EXISTING QUALITY MEASURES

Consider using a quality measure to calculate rates of falls and fall-related injuries.

WORK WITH HOSPITAL LEADERSHIP TO PRIORITIZE QUALITY OUTCOME MEASURES

Identify quality measures that can help guide development and improvement of an inpatient STEADI safe mobility and fall prevention program.

- Inform leadership at every stage to increase awareness of all major developments and overall success.

Provider Tip

The Patient Safety Indicator 08 (PSI-08) is an existing inpatient fall measure. PSI-08 measures patient death or serious disability associated with a fall while being cared for in a healthcare facility.[41]

Example

QUALITY MEASURES

- Number of times each patient is out of bed per shift
- Episodes of individual patient ambulation per shift
- Daily activity of each patient as measured by an accelerometer
- Number of times a patient fall with injury occurred
- Percentage of older adults screened for fall risk upon admission (out of total number of older adults admitted)
- Percentage of older adults who received further assessment (out of all older adults who screened as at risk for falls)
- Percentage of at-risk patients given a discharge fall prevention care plan (out of all older adults who screened as at risk for falls)
- Percentage of safety stand-down discussion (pauses from work to discuss fall protection safety) completed after a fall event to identify contributing factors and recurrent patterns

STEP 4: IDENTIFY AND LINK WITH EXTERNAL PARTNER RESOURCES

Safe mobility and fall prevention efforts can be initiated while a patient is in the hospital. For post-discharge fall prevention, the team can assist patients in connecting with their PCP and community resources for follow up. Fall prevention activities may be available in the community. Consider developing patient handouts to link patients with community organizations and resources. Consider whether patient handouts are written at the appropriate reading level and the need to translate them into other languages. Certain handouts are available in Spanish on CDC's STEADI website (www.cdc.gov/steadi).

TACTICS:

MAXIMIZE USE OF TECHNOLOGY

- Consider creating a list of community resources in your EHR to include in a patient's discharge summary.
  - ›› Explore resources that offer virtual interactions or classes.
- Include fall risk reduction recommendations in the discharge summary as a priority for PCP follow up.
- Consider integrating communication with community providers into the EHR system to allow appointment scheduling and follow up prior to patient discharge.

Examples

COMMUNITY RESOURCES

- Fall prevention classes (e.g., Stepping On; check with your local Area Agency on Aging for available classes)
- Balance and strength training classes (e.g., Tai Chi: Moving for Better Balance—often available at senior centers and local YMCAs)
- Medicare Advantage wellness programs that include classes tailored for fall prevention (e.g., Silver Sneakers or Silver and Fit with access to balance and strength training classes)
- Outpatient PT and OT
- Community pharmacists who can identify medications that increase fall risk and intervene to reduce medication risk using the STEADI-Rx tools
- Community resources for appropriate footwear (e.g., diabetic shoes) and podiatrists
- Low vision resources (e.g., affordable corrective eye wear)

Resources

Sources of information for community fall prevention resources:

- Administration for Community Living
- Aging and Disability Resource Centers
- Community centers
- Local Area Agencies on Aging
- Local YMCAs
- National Council on Aging
- Physical and occupational therapists' organizations
- Senior centers
- Senior service providers
- State and local chapters of AARP

STEP 5: ADAPT ELECTRONIC HEALTH RECORD TOOLS

Most hospital units have an EHR system. Modifying the EHR to incorporate the STEADI safe mobility and fall prevention program can increase uptake.

TACTICS:

ASSESS WHAT IS AVAILABLE IN YOUR EHR PLATFORM

Talk with your EHR team to see what fall prevention modules are available in your system. Examples of fall prevention modules include:

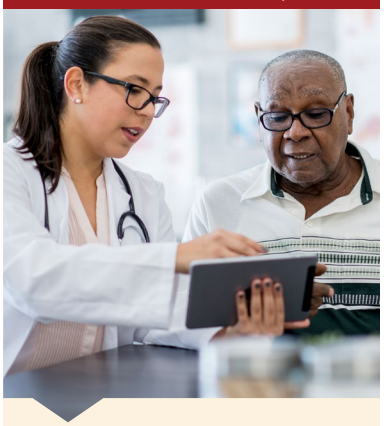
- Epic® Clinical Program
- GE Centricity™ Users Group Module
- Evident® STEADI program

CREATE A BEST PRACTICE ADVISORY (BPA) ALERT

BPA alerts in the EHR allow staff to automate referrals for fall risk evaluations and identify and flag patients that have previously fallen while hospitalized.

If your EHR does not have a fall prevention module, consider working with your information technology team members to design EHR tools, screening forms, assessment forms, note templates, and order sets that are tailored to your safe mobility and fall prevention program and your EHR interface.

Provider Tip



Consider also modifying the online patient portal to include patient education and community resource materials (e.g., STEADI patient education materials)

Tips

EHR MODIFICATIONS

- Customizing EHR tools while safe mobility and fall prevention processes are being developed can ensure seamless integration.
  - Consider including forms for easy recording of post-fall patient events, necessary assessments in care, and patient and system level interventions
- Examples of EHR modules and capabilities that can be utilized, modified, or added:
  - Easy-to-use documentation (drop down lists and/or templates for notes)
  - Forms for recording fall screening results
  - Forms for recording results of fall assessments (e.g., TUG scores, orthostatic blood pressure)
  - Capability to review, modify, and update medications
  - Capability to order relevant blood tests and other diagnostic tests
  - Capability to provide timely feedback to PCPs and generate referrals to specialists, physical and occupational therapists, and community fall prevention programs
  - Decision support and current fall prevention best practice tools
  - Coding for reimbursement and to meet quality improvement requirements. (Note: Information collected for patient care can also provide the data needed for quality reporting purposes. Avoid duplicate data collection.)
  - Ability to communicate between providers and others in the healthcare system (e.g., how is each person on the interprofessional team notified when a patient is at increased fall risk and who on the team can assess/implement their role in the effort to prevent falls

STEP 6: IDENTIFY TEAM MEMBERS' TASKS

Adopting a team-based approach to implementation is recommended given the complexity of safe mobility and fall prevention. In some cases, multiple team members can perform the same task. Many tasks do not need to be performed by a physician.

TACTICS:

IDENTIFY SAFE MOBILITY AND FALL PREVENTION PROGRAM TEAM MEMBERS WHO WILL BE RESPONSIBLE FOR SPECIFIC TASKS

Assign tasks based on role and expertise.

ESTABLISH A DIRECT COMMUNICATION CHANNEL BETWEEN THE SAFE MOBILITY AND FALL PREVENTION PROGRAM TEAM MEMBERS AND OTHER STAFF

- Regular communication can allow for identification of barriers or shortcomings of the program and provide an opportunity for continued quality improvement.
- Communication among staff can also help strengthen the program and collaborative work towards establishing a hospital culture facilitating safe mobility and fall prevention efforts.

Table 3: Suggested tasks for safe mobility and fall prevention program team members*

TEAM MEMBER	SUGGESTED TASKS
STEADI safe mobility champion (from any profession)	• Proactively encourage early mobilization of patients to reduce fall risks during hospitalization • Work with team to incorporate the safe mobility and fall prevention program into the patient care workflow • Work with available unit-based or hospital educators to establish a training program for current and future employees • Be available to troubleshoot issues during implementation • Provide feedback to team members • Monitor and report results of program implementation • Communicate with hospital leadership about the program • Assign and train staff to discuss fall prevention strategies with patients and caregivers
Nurse and/or Certified Nursing Assistant (CNA)	• Screen patients for fall risk using a screening tool (e.g., *Stay Independent* checklist, three key questions, STRATIFY Risk Assessment Tool) • Perform gait testing (e.g., Timed Up and Go (TUG) Test, 30-Second Chair Stand Test, or 4-Stage Balance Test) • Check orthostatic blood pressure • Educate patients about orthostatic hypotension and related fall risk • Discuss fall prevention strategies with patients and caregivers • Perform vision assessment (e.g., Snellen eye chart) • Counsel about using single distance lenses when walking outside (i.e., avoid bifocals) • Assess feet and footwear • Conduct cognitive assessment (e.g., Mini-Cog) • Ensure each patient has optimal independence in instrumental activities of daily living (IADLs) and activities of daily living (ADLs) during hospital stay • Mobilize patient at least three times a day as tolerated • Give patient appropriate STEADI patient educational materials • Follow up during their hospital stay to ensure patients are making progress as part of fall prevention care plan

TEAM MEMBER	SUGGESTED TASKS
Physician Nurse practitioner Physician assistant Clinical nurse specialist	• Take a fall history, including circumstances of previous falls • During physical exam include an observation of gait to identify medical issues that could increase fall risk (e.g., cardiac or neurologic disease) • Review results of fall risk assessments performed by other team members • Avoid prescribing and manage medications that increase fall risk (collaborate with pharmacists) • Order appropriate labs and imaging specific to fall risk • Recommend and provide referrals specific to fall risk • Discuss fall prevention strategies with patients and caregivers • Engage patients and caregivers in developing and implementing individual fall prevention care plans • Avoid issuing bed rest orders or discontinue them as soon as not clinically indicated • Discontinue tethers (IV lines, urinary catheters, etc.) as soon as not clinically indicated • Recommend community exercise or fall prevention programs
Pharmacist	• Review medications to identify those that increase fall risk • Notify safe mobility and fall prevention program team of any medications that might increase fall risk and set up alerts to providers for those medications • Make recommendations for dose reduction or safer alternatives for medications that increase fall risk • Raise awareness about medication-related fall risks • Discuss fall prevention strategies with patients and caregivers
Physical therapist	• Assess or inquire about baseline functional status • Discuss fall prevention strategies with patients and caregivers • Perform detailed gait and balance testing • Design a rehabilitation care plan or exercise program to improve mobility and balance during hospitalization • Educate patients about community-based fall prevention programs, such as Tai Chi classes or Stepping On
Occupational therapist	• Discuss fall prevention strategies with patients and caregivers • Educate patients about home trip hazards (e.g. throw rugs, stairs) • Recommend fall prevention safety features (e.g., grab bars, lighting, railings) • Educate patients and caregivers about behavioral and functional changes that impact fall risk

** This table offers examples of team members and potential tasks and is not intended to be an exhaustive list.*

STEP 7: TRAIN TEAM MEMBERS

Every hospital has a system for training staff. Working with each unit to add safe mobility and fall prevention training to existing staff training will help ensure consistent uptake.

TACTICS:

ASSESS TRAINING NEEDS

Consider if the team will be trained together, or if staff members will be trained individually.

OBTAIN SUPPORT FROM TEAM MEMBERS

Host a special program launch with team training to build team support and engagement for the program.

MAKE TIME FOR TRAINING

Consider including safe mobility and fall prevention training as part of regularly scheduled meetings.

PLAN AND IMPLEMENT THE TRAINING SESSIONS

- Train staff and providers on the importance of daily mobilization to prevent functional decline and falls.
- Train staff and providers on changes to patient care workflow and EHR fall prevention tools.
- Train staff to screen patients for fall risk.
- Train staff to perform assessments (e.g., TUG, orthostatic blood pressure, feet and footwear evaluation).

PROVIDE TRAINING AS PART OF ALL NEW EMPLOYEE ON-BOARDING

Requiring new team member training contributes to the sustainability of the program and inclusion into the culture of care within the hospital.

PROVIDE REFRESHER TRAINING SESSIONS FOR CURRENT STAFF

Consider online modules or videos for re-training current team members on a regular basis.

STEP 8: DEVELOP IMPLEMENTATION AND MONITORING PLANS

Every inpatient unit operates a little differently. Adjusting the current patient care workflow to incorporate the STEADI safe mobility and fall prevention program is easier than creating a new workflow. Staff uptake may improve if the initiative is streamlined to fit within a unit's existing workflow.

TACTICS FOR IMPLEMENTATION:

FOCUS ON PRIORITIES

Include steps of the STEADI safe mobility and fall prevention program that address an urgent gap in your hospital and inpatient units.

ENGAGE THE ENTIRE SAFE MOBILITY AND FALL PREVENTION TEAM TO DETERMINE FEASIBILITY

Consider including discharge planners and rehabilitation team members for their skill sets in implementing new programs. Have a broad discussion to determine what is feasible for your hospital.

DEVELOP PATHWAYS THAT ARE INITIATED AND DRIVEN BY NURSES

This includes order sets and pathways, such as nurse-driven PT referral for patients screened at risk for falling, in order to facilitate action by other members of the team.

START SMALL

Start by piloting your program in one or two inpatient units to identify and address potential barriers before expanding. Consider testing the patient care workflow with champion providers before releasing the program to all providers.

SEEK FEEDBACK

Regularly gather input from all team members on what is and what is not working well. Use the input to improve the program early in the implementation process.

IMPLEMENT PROCESSES TO ENCOURAGE COMMUNICATION AND FEEDBACK

Ensure availability of proper communication channels among team members and between team members, clinical champions, and healthcare providers throughout the organization. Consider using incentives to increase uptake among team members. Provide information to team members on their successes in compliance and outcomes to build commitment to the program.

ADDRESS POTENTIAL CHALLENGES AND BARRIERS

Identify and address barriers to implementing a safe mobility and fall prevention program. Explore current fall prevention culture and facilitate a shift, if applicable, from limiting patient mobility to encouraging early and safe mobilization.

EXAMINE OUTCOMES

Use the successes from your pilot sites to encourage more sites to participate while keeping leadership informed on how successes are improving patient care.

TACTICS FOR DEVELOPING A MONITORING PLAN:

OBTAIN COMMITMENT FROM AN EHR ANALYST

The EHR analyst can provide regular feedback about adherence and outcomes.

USE A STANDARDIZED QUALITY IMPROVEMENT APPROACH

The Plan-Do-Study-Act (PDSA) method includes steps that may be repeated for continual process improvement.[42]

DETERMINE A PROCESS FOR MONITORING IMPLEMENTATION

Monitor the safe mobility and fall prevention program to ensure it aligns with your health system's strategic priorities. Consider adding patient monitoring and opportunities for patient feedback during the hospital stay and after discharge.

SCHEDULE REGULAR MEETINGS FOR THE SAFE MOBILITY AND FALL PREVENTION PROGRAM TEAM

Discuss recent PDSAs, review feedback, and determine needed changes. Consider including multidisciplinary hospital-wide presentations to discuss joint fall prevention efforts.

DETERMINE INPATIENT TEAM MEMBERS' SATISFACTION WITH THE PROGRAM

Survey inpatient team members to determine satisfaction with the program and to offer improvement suggestions.

DETERMINE PATIENT AND CAREGIVER SATISFACTION WITH THE PROGRAM

Survey patients and caregivers to determine satisfaction with the program. If available, explore using the hospital's Patient and Family Advisory Council to discuss program impact and patient satisfaction.

DEMONSTRATE THE IMPACT OF THE PROGRAM

Use the EHR to record and query outcome measures (e.g., falls, fall-related injuries, fall-related hospitalizations within three months of initial hospital discharge).

SET TARGETS FOR IMPROVEMENT THAT ARE FEASIBLE AND MEASURABLE

Prepare to address each of the core components of STEADI: screen, assess, intervene, and follow up.

Examples

TARGETS FOR PROGRAM IMPROVEMENT

Screening targets:

- Increase safe mobility and fall screening for hospitalized patients over age 65 by 30% over the next year.
- Include a "short-term win" target such as screening 100 older adults for fall risk over the next quarter.

Assessment targets:

- Assess 80% of screened at-risk patients for orthostatic hypotension.
- Assess 90% of screened at-risk patients with a TUG Test, 30-Second Chair Stand Test, or 4-Stage Balance Test.

Intervention and follow-up targets:

- Develop a care plan for 80% of at-risk patients.
- Reduce use of sedative/hypnotic medications in at-risk patients by 30%.
- Increase referral to physical therapy during and after hospital stay for at-risk patients by 70%.

TACTICS FOR EVALUATING A PROGRAM'S LONG-TERM SUSTAINABILITY AND FIDELITY

EVALUATE PROGRAM PROCESSES

As the program evolves, ensure availability of champions to continue the effort.

AIM HIGHER

Routinely review quality metrics with the program team and update targets as necessary.

UPDATE LEADERSHIP

Meet with hospital leadership routinely to report on outcomes and confirm ongoing support.

Examples

MEASURES TO ASSESS IMPLEMENTATION PROGRESS:

- Number of patients aged 65 and older seen annually
- Number and percentage of patients aged 65 and older who:
  - Are screened for fall risk
  - Screen as at risk for falls
- Number and percentage of patients at risk of falling aged 65 and older who:
  - Receive a gait and balance assessment
  - Have a gait and balance disorder as determined by a standardized test
  - Are referred to PT
  - Are referred to an evidence-based exercise or fall prevention community program
  - Are referred to other medical specialists (e.g., OT, ophthalmology)
  - Stop taking a medication that increases fall risk
  - Have vitamin D deficiency and are recommended to take vitamin D
  - Have orthostatic blood pressure and are treated for it
  - Have a falls plan as part of their discharge summary

STEP 9: IDENTIFY REIMBURSEMENT AND QUALITY IMPROVEMENT OPPORTUNITIES

TACTICS:

IDENTIFY REIMBURSABLE SAFE MOBILITY AND FALL PREVENTION SERVICES INCLUDING SPECIFIC INPATIENT CODES

The most relevant inpatient care services include:

- Time-based coding for care coordination and education with patients and their caregivers
- Evaluation and Management (E/M) codes for diagnosis and management of specific fall risk factors:
  - Gait disturbance
  - Vision exam/vision impairment
  - Hypotension and orthostasis
  - Foot problems
  - Cognition and neurologic diseases
  - Cardiac arrhythmias, valve disease
  - Depression and other mood disorders
  - Urinary incontinence
  - Management of medications that increase fall risk
  - Acute encephalopathy

CONSIDER ASSIGNING A TEAM MEMBER TO LEAD THE QUALITY IMPROVEMENT EFFORTS

Safe mobility and fall prevention activities can be incorporated into an existing quality dashboard.

STEP 10: DOCUMENT THE INDIVIDUALIZED CARE PLANS FOR YOUR PATIENTS

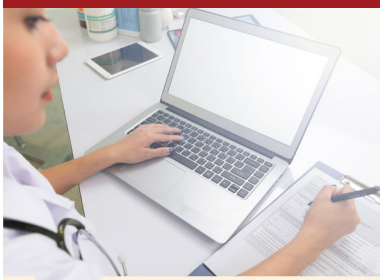
Once the team has developed a fall prevention care plan that is feasible for an individual patient, documenting the plan allows all participants (provider, team, patient, and caregiver) to successfully implement each element. Reducing fall risk often takes weeks or months. Therefore, communicating with and recommending follow-up care with a PCP can help fall prevention efforts continue after discharge.

Examples of good care plan elements include:

- Establishing patient goals for safe mobility and reducing fall risk. List the patient's and family's priorities for fall risk reduction so that they can remember why they are engaging in these activities (e.g., ability to walk the dog, continue babysitting grandchildren, live independently).
- Creating a checklist of recommended interventions, including reason for the intervention (e.g., gait disturbance, impaired vision) and contact information for the patient to obtain more information on referrals and additional resources.
- Identifying red flags that should be shared with the PCP or that let the patient know they should notify their PCP (e.g., pain with exercise, dizziness, adverse symptoms due to medication reduction).
- Providing the PCP with detailed fall prevention information either by phone, in EHR messaging, or in the discharge summary.
- Using the EHR problem list to briefly summarize the patient's fall risk and recommended interventions, which can be viewed across specialists and settings.

Consider prioritizing elements in the care plan to assist patients with identifying where to start and include timelines to assist with completion. Discuss interventions with your patient to find out which they are willing or able to adopt (see *Pocket Guide for Preventing Falls in Older Adults* for strategies for talking with older adults about falls), and tailor the plan to ensure feasibility.

Provider Tip



Research shows older adults prefer positive messages on aging and health.

Aim to work with older adults to identify their life goals and behavioral changes that will help them meet their goals.

Example: Ann's goal is to continue gardening. Therefore, we are focusing on strategies that improve leg strength, vision, and orthostatic blood pressure to enhance independence and prevent falls. Each strategy works to help her maneuver in and around her garden.

Summary

Every inpatient unit is unique, and there is no one-size-fits-all way to design and implement a safe mobility and fall prevention program. The core components of a hospital-based STEADI safe mobility and fall prevention program are to screen, assess, and intervene. Promoting early mobility during hospitalization can limit risk of developing hospitalization-associated disability, which is directly correlated to functional decline and poor functional outcomes after discharge. Assessing older adults' fall risk and intervening with evidence-based strategies may reduce risk of falls during the hospital stay and after discharge.

A fall prevention care plan can be included in the discharge summary to provide patients, their caregivers, and their PCP's with adequate instructions to enhance fall prevention efforts. Developing a fall-risk-informed workflow, utilizing the EHR, training all team members, and building a structure that encourages follow-up with the patient's PCP can enable your organization to positively impact patient quality of life, reduce falls, and enhance independence. Promoting early and frequent mobility throughout hospital stays may help enhance efforts to prevent fall during and after hospital stays.

This guide, ***CDC STEADI: Best Practices for Developing an Inpatient Program to Prevent Older Adult Falls after Discharge***, highlights 10 steps to integrate a STEADI safe mobility and fall prevention program into inpatient workflow and clinical practice. The goal is to prevent falls during hospitalization, set the stage for better collaboration with external providers for post-discharge care, and reduce risk of falls after hospital stays.

CASE STUDY

University of California San Francisco

After hearing about the successful implementation of STEADI-based programs in outpatient settings, clinicians and researchers at the University of California San Francisco (UCSF) were enthusiastic to assess whether elements of STEADI could be adapted for use in an inpatient setting. Starting in 2016, UCSF enlisted a multidisciplinary team, including doctors, nurses, and physical therapists, to test the implementation of a STEADI safe mobility and fall prevention program in their academic inpatient setting.

Given that each health system is unique and the inpatient setting has distinctive challenges, the team chose to focus on implementing the steps that could be applied and tested at UCSF, including those that were difficult to implement but would enhance patients' long-term outcomes if the team were successful in embedding these practices. These challenges and successes are presented below (Table 4).

Table 4: University of California San Francisco Case Study on Developing a Hospital-Based STEADI Safe Mobility and Fall Prevention Program

	ACTION	INITIAL OUTCOME AND STUDY MODIFICATIONS	EVALUATION	FUTURE CONSIDERATION
SCREEN for fall risk	Expanded inpatient falls screen to include the STRATIFY tool (bundled an inpatient and post-discharge fall prevention protocol).	Incorporated extensive training around STRATIFY screening including an online training module, staff education at meetings, flyers for staff, and discussions during clinical morning rounds with nurses. Staff quickly adopted use of the tool.	Nurse compliance with the STRATIFY screening tool improved quickly from 93% in month one, to 99% in month two, and has remained consistent for 2 years.	Bundling new patient workflows with existing processes to enhance education and adherence to protocols.
	Incorporated the STEADI three key questions for fall risk screening into the nursing admission assessment.	Due to low adherence in completing the admission assessment questions initially, the screening questions were incorporated into the required EHR documentation fields with real-time feedback and encouragement to individual nurses with lower compliance scores.	Compliance improved from 53% pre-intervention to 99% 3 months post-intervention. Lesson learned: Certain patient populations (e.g., patients admitted to ICU) were unable to complete the STEADI protocol or the three key questions.	Two-way real time feedback between frontline staff and the implementation team can enhance compliance and identify barriers in harder to reach populations.

	ACTION	INITIAL OUTCOME AND STUDY MODIFICATIONS	EVALUATION	FUTURE CONSIDERATION
ASSESS modifiable risk factors	Involved PT to test for balance and mobility using one of three tests (TUG or gait velocity, 30-Second Chair Stand Test, or 4-Stage Balance Test) during inpatient stay and within 18 hours of discharge to assess for deconditioning during hospitalization.	Completed extensive PT education using staff meetings, handouts and flyers, as well as one-on-one training session with the PT STEADI lead. The EHR PT documentation note was standardized to track balance and mobility tests.	About 15–25% of older patients initially screened as at risk for falls received an evaluation within 18 hours of discharge. It was difficult to anticipate when a patient would be discharged and thus difficult to coordinate the PT evaluation.	Discharge can be difficult to predict, so consider adding a standardized nursing tool to assess for functional decline daily. Nurses may use AMPAC-6 clicks daily to generate functional assessment scores.
INTERVENE using effective clinical strategies	Created discharge summary that informed the patient's PCP of patient's post-discharge high fall risk and suggested recommendations for further outpatient interventions (including PT, Tai Chi, vision assessment, etc.).	Easily added fall prevention recommendations to the discharge summary. The challenge was that the patient's PCP needed to be listed correctly in the EHR in order for the note to be routed correctly.	Future plans are in place to survey PCPs to determine if they receive this information and find it useful, and what actions they take as a result.	PCPs are integral in following up with high-risk patients. Systematically identifying the correct PCP contact from patient, caregiver, or EHR system can be challenging but imperative.
	Updated UCSF's "Your Health Matters" patient education brochure given at discharge to incorporate STEADI fall prevention recommendations. Translated into three languages to match the UCSF patient population's needs: Spanish, Chinese, and Russian.	Easily added fall prevention recommendations to the existing successful workflow for giving patients post-discharge education materials.	No data has been tracked to date of how often these recommendations are included in discharge materials or what patients and caregivers think of the materials.	Reviewing materials annually helps keep content current. Track patient use of content and revise materials accordingly.

	ACTION	INITIAL OUTCOME AND STUDY MODIFICATIONS	EVALUATION	FUTURE CONSIDERATION
Customize EHR system	Created a BPA in the EHR allowing nurses to place referrals for PT evaluations for at-risk patients.	This BPA was well received by nursing staff as it empowered them to easily activate inpatient fall precautions and PT referrals for appropriate patients. The previous physician-triggered process was tedious and did not allow for nurses to trigger a referral.	This BPA allowed for 89% of patients who screened as at risk for falls to complete the appropriate PT evaluation.	Utilize EHR to alert and empower staff to complete other appropriate steps effectively.
	Created a BPA in the EHR for physician notification when a medication that increases fall risk was prescribed on discharge.	The EHR integration was bulky and required many steps for a physician to change a medication. It was difficult to streamline this process or track data compliance or effectiveness. Some limitations in the EHR can increase burden in workflows.	On a provider follow-up survey, the question, "The discharge medication review process is an effective tool to assist me in identifying medications that increase falls risk in older adults at discharge," had mixed results, with 50% disagreeing and 50% agreeing with the statement.	Implement frequent training and retraining of the EHR system to enhance workflow for frontline workers. Seek input and feedback from frontline workers to improve the process.

STRATIFY (Agency for Healthcare Research and Quality STRATIFY Risk Assessment Tool); STEADI (Stopping Elderly Accidents, Deaths & Injuries); ICU (Intensive Care Unit); TUG (Timed Up and Go Test); PT (physical therapy); EHR (electronic health record); AMPAC-6 (Activity Measure for Post-Acute Care); PCP (primary care provider); BPA (Best Practice Advisory).

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Online Resources (in alphabetical order)

AARP: State and local chapters www.aarp.org/states

Administration for Community Living Falls Prevention Resources acl.gov/FallsPrevention

Age-Friendly Health System Initiative www.ihi.org/Engage/Initiatives/Age-Friendly-Health-Systems/Pages/default.aspx

Agency for Healthcare Research and Quality (AHRQ) STRATIFY Risk Assessment Tool www.ahrq.gov/patient-safety/settings/hospital/fall-prevention/toolkit/stratify-scale.html

American Geriatric Society's Co-Care Hospital Elder Life Program (AGS CoCare HELP) help.agscocare.org

American Geriatrics Society Updated Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults geriatricscareonline.org/ProductAbstract/american-geriatrics-society-updated-beers-criteria-for-potentially-inappropriate-medication-use-in-older-adults/CL001

Centers for Medicare and Medicaid Services (CMS) Hospital Readmissions Reduction Program www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program

Mini-Cog mini-cog.com/about/using-the-mini-cog

National Council on Aging Falls Prevention www.ncoa.org/healthy-aging/falls-prevention

STEADI (Stopping Elderly Accidents, Deaths, and Injuries) initiative www.cdc.gov/steadi

STEADI Algorithm for Fall Risk Screening, Assessment, and Intervention www.cdc.gov/steadi/pdf/STEADI-Algorithm-508.pdf

STEADI Check for Safety Brochure www.cdc.gov/steadi/pdf/STEADI-Brochure-CheckForSafety-508.pdf

STEADI gait, strength, and balance tests:

- Timed Up and Go (TUG) Test www.cdc.gov/steadi/pdf/STEADI-Assessment-TUG-508.pdf
- 30-Second Chair Stand Test www.cdc.gov/steadi/pdf/STEADI-Assessment-30Sec-508.pdf
- 4-Stage Balance Test www.cdc.gov/steadi/pdf/STEADI-Assessment-4Stage-508.pdf

STEADI Measuring Orthostatic Blood Pressure Assessment www.cdc.gov/steadi/pdf/STEADI-Assessment-MeasuringBP-508.pdf

STEADI Medications Linked to Falls www.cdc.gov/steadi/pdf/STEADI-FactSheet-MedsLinkedtoFalls-508.pdf

STEADI Patient Educational Material www.cdc.gov/steadi/patient.html#tabs-2-1

STEADI Pocket Guide Preventing Falls in Older Adults www.cdc.gov/steadi/pdf/STEADI-PocketGuide-508.pdf

STEADI Referral Form: Fall Prevention Patient Referral www.cdc.gov/steadi/pdf/STEADI-Form-PatientReferral-508.pdf

STEADI-Rx Tools for community pharmacists www.cdc.gov/steadi/steadi-rx.html

STEADI SAFE Medication Review Framework www.cdc.gov/steadi/pdf/STEADI-FactSheet-SAFEMedReview-508.pdf

STEADI Stay Independent checklist www.cdc.gov/steadi/pdf/STEADI-Brochure-StayIndependent-508.pdf

The YMCA Healthy Living resources www.ymca.net/healthy-living

Centers for Disease
Control and Prevention
National Center for Injury
Prevention and Control

STEADI Stopping Elderly Accidents, Deaths & Injuries

www.cdc.gov/steadi