Clinical Practice Guideline: **Injury Prevention (Fall Risk Assessment in Elderly)**

Date of Implementation: **June 19, 2014**

Product: **Specialty**

GUIDELINES

Among portal of entry practitioners, screening all patients 65 or older for fall risk is considered best practice. Providing a direct intervention (e.g., lifestyle and/or dietary changes) for patients for whom the screening results indicated a need for intervention, will depend upon the practitioner's education, training, experience, and scope of practice. In the absence of such a direct intervention, providing a referral intervention (e.g., to the patient's medical physician) is considered necessary. The screenings described in this policy may be outside the education, training, experience, or scope of some practitioner types. In the context of best practices for these practitioners, a level of awareness that risk factors and/or signs/symptoms of fall risk are present is required and a subsequent referral for appropriate evaluation is necessary and within the purview of all.

INTRODUCTION

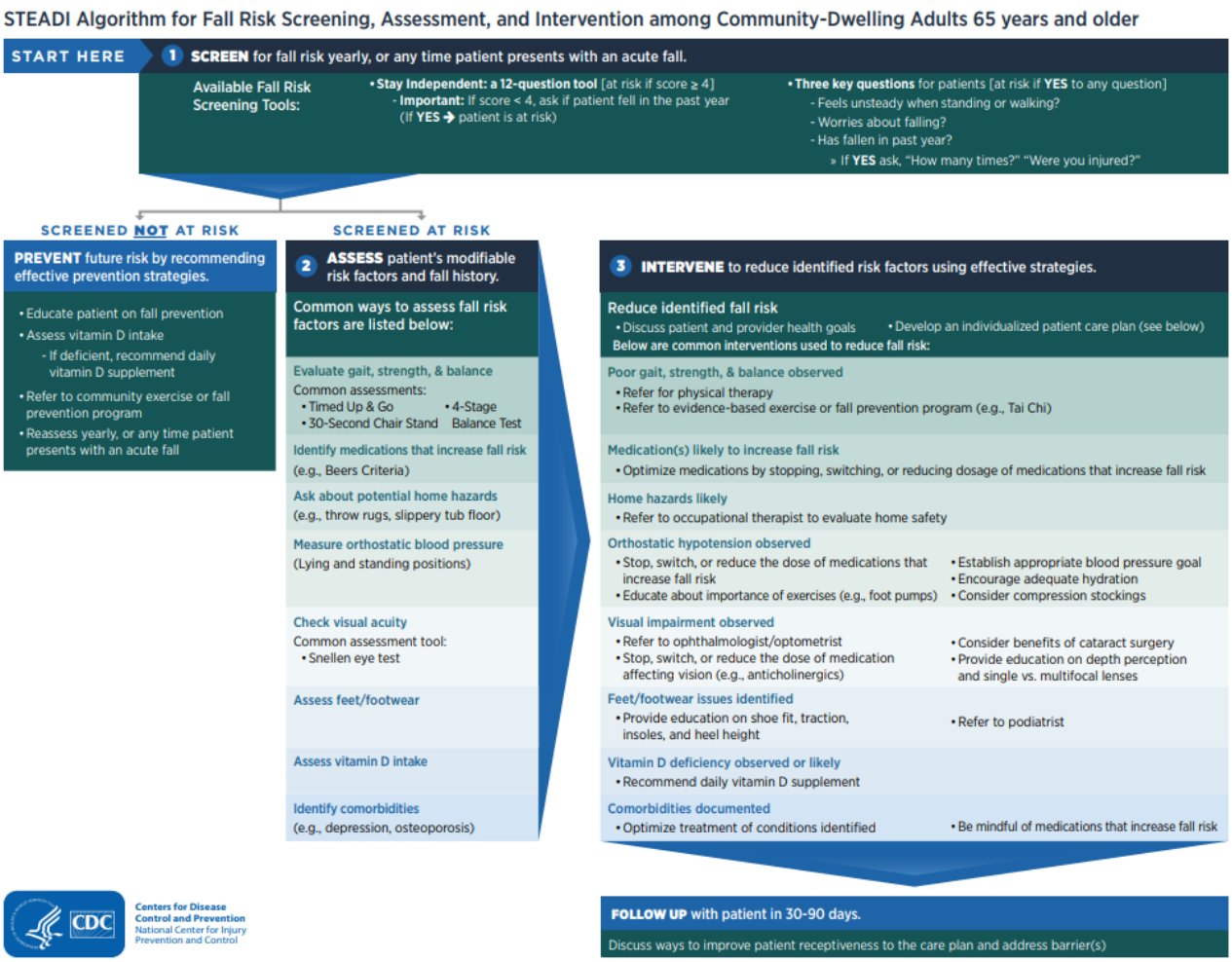
According to the Center for Disease Control and Prevention (CDC), unintentional injury is among the top 10 leading causes of death for all ages. Falls among adults age 65 and older are very costly. Each year about $50 billion is spent on non-fatal fall injuries and $754 million is spent on fatal falls. Each year, millions of older people—those 65 and older—fall. In fact, more than one out of four older people falls each year, but less than half tell their doctor. Falling once doubles your chances of falling again (CDC, 2018).

Fall prevention in older adults is a key area of injury prevention where practitioners can play an important role. Injuries as a result of falls can result in decreased quality of life, disability, and/or death in older adults.

Assessing Fall Risk

The Prevention of Falls Network Europe and Outcomes Consensus Group define a "fall" as "an unexpected event in which the participant comes to rest on the ground, floor or lower level." They recommend incorporating this definition when taking a fall history, by asking patients, "Have you had any fall including a slip or trip in which you lost your balance and landed on the floor or ground or lower level?" (Hauer 2006). The optimal interval for asking about falls has not been determined. However, the American Geriatrics Society recommend that clinicians ask their patients yearly about falls and balance or gait problems.

The National Center for Injury Prevention and Control (under the CDC) recommends the following *Algorithm for Fall Risk Screening, Assessment, and Intervention*.



The Stay Independent brochure referenced above can be found online:
https://www.cdc.gov/steadi/pdf/STEADI-Brochure-StayIndependent-508.pdf

The Agency for Healthcare Research and Quality (AHRQ) is under the U.S. Department of Health and Human Services (DHHS) and sponsors the United States Preventive Services Task Force (USPSTF), a leading independent panel of private-sector experts in prevention and primary care. The USPSTF conducts rigorous assessments of the scientific evidence for the effectiveness of a broad range of clinical preventive services, including screening and counseling.

A comprehensive review of the USPSTF rating process can be found in the *Preventive Care Services (CPG 140 – S)* clinical practice guideline or at the USPSTF website (https://www.uspreventiveservicestaskforce.org/Page/Name/grade-definitions).

According to the USPSTF 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 clinicians. Clinicians can reasonably consider a small number of factors to identify older persons at increased risk of falling. Age has a strong correlation to fall risk. Additionally, many clinical factors such as a history of falls and/or gait and balance problems (e.g., performing poorly on the Timed Up and Go or "TUG" test) would also flag patients for increased risk of falling.

Three key questions commonly found on fall risk screening tests that a practitioner can efficiently use to determine if further screening is necessary for at risk elderly patients include:

1. Has the person fallen in the last year?
2. Are they worried about falling? and
3. Do they feel unsteady?

Positive responses to any of these would warrant further evaluation for fall risk.

According to the American Geriatrics Society, older persons who have fallen should have their gait and balance evaluated and patients who perform poorly on or are unable to perform a standardized gait and balance test should be given a multifactorial fall risk assessment. The elements of a multifactorial risk assessment can include: a focused medical history (e.g., falls and medication review), physical examination (e.g., evaluation for postural dizziness/postural hypotension, visual acuity, feet, and footwear), functional assessments (e.g., cognitive screening) and an environmental assessment.

Commonly used tests to evaluate a patient's gait and balance for fall risk include but are not limited to the following:

- Timed Up & Go (TUG) Test – evaluates individual's ability to transfer in and out of a chair, measures gait speed, dynamic balance, and mobility;
- Get Up & Go Test – evaluates and assesses static and dynamic balance, gait, and mobility;
- Berg Balance Scale – rates an individual's ability to maintain balance while performing static and dynamic mobility related tasks;
- Dynamic Gait Index – rates the ability of an individual to perform challenging tasks during gait;
- Tinetti Performance Oriented Mobility Assessment (POMA) – task-oriented test that measures an adult's gait and balance abilities.

These tests may also give clues as to the person's cognition and ability to follow directions, etc.

Interventions

A 2018 systematic review funded by the AHRQ examined interventions designed to reduce falls in older adults (Guirguis-Blake et al., 2018). The following results were noted:

- The current evidence base demonstrates that exercise is associated with fewer people experiencing a fall and a reduced number of injurious falls in average- and high-risk older adults ("high-risk" meaning experienced a fall).
- Multifactorial interventions showed a 21% reduction in the incidence rate of falls with substantial heterogeneity but showed no effect on people experiencing a fall, people experiencing an injurious fall, or mortality. Trials are clinically and statistically heterogeneous.
- No specific effective exercise or multifactorial protocol has been replicated in larger population trials.
- Vitamin D, environment, and medication management interventions have either single trials showing no statistically significant effect or a few trials reporting mixed results.
- Single trials of cognitive behavioral, knowledge + environment, and exercise + environment + vision interventions showed moderate effectiveness in reducing falls and/or people experiencing a fall.
- Limitations – excluded neuro- population and other specific diagnosis.

Chiu et al. (2021) investigated the effectiveness of the Otago Exercise Programme (OEP) intervention on actual balance performance (i.e., static, dynamic, proactive, or reactive balance) and perceived balance ability (i.e., balance confidence or fear of falling) for older adults in a meta-analysis; the secondary aim was to examine which OEP protocol most improves balance in older adults. A total of 12 RCTs were included in the analyses. The OEP exerted significant effects on static balance, dynamic balance, proactive balance, and perceived balance in older adults. Subgroup analysis indicated that the group format for the OEP was more effective for improving static, dynamic and perceived balance than was the individual format. Sessions of >30 minutes were more effective in improving static and perceived balance than were sessions of ≤30 minutes. Authors concluded that the OEP is helpful for improving actual balance including static, dynamic, and proactive balance; enhancing confidence in balance control; and reducing fear of falling in older adults. Administrating the OEP in a group setting in >30-minute sessions may be the most appropriate and effective exercise protocol for improving balance.

Sadaqa et el. (2023) summarized the effects of community-based resistance, balance, and multi-component exercise interventions on the parameters of functional ability (e.g., lower extremities muscle strength, balance performance and mobility) in a systematic review of randomized controlled trials. Authors included RCTs that investigated the following

interventions: lower extremity strengthening, balance and multi-component exercise interventions on ambulatory community-dwelling adults aged ≥65 years. Results state that lower extremity strengthening exercises revealed significant effects on the strength of lower extremity, balance outcomes and mobility. Balance exercises reduce the rate of injurious falls, improve static, dynamic and reactive balance, lower extremity strength as well as mobility. Multi-component exercise training reduces medically-attended injurious falls and fallers, incidence of falls, fall-related emergency department visits as well as improves mobility, balance, and lower extremity strength. Authors concluded that physical exercises are effective in improving the components of balance, lower extremity strength, mobility, and reducing falls and fall-related injuries.

The U.S. Department of Health and Human Services (DHHS) also recommends that older adults engage in regular exercise. Specifically, exercise should include muscle-strengthening activities twice per week, as well as aerobic physical activity that is either of moderate intensity for a minimum of 2 ½ total hours per week or of vigorous intensity for at least 1 ¼ total hours per week. For older adults identified as at risk for falling (e.g., due to a recent fall or ambulatory difficulties), the DHHS also recommends balance training at least three days per week.

The CDC recommends 3 categories of interventions for fall risk prevention:

1. Exercise
2. Modifying the home to reduce hazards
3. Multifaceted (including medical screening for medications used and impaired vision)

Screening and Preventive Services Recommendations

USPSTF Recommendations

Grade B: *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.*

Grade C: *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.*

Grade D: *Adults 65 years or older: The USPSTF recommends against vitamin D supplementation to prevent falls in community-dwelling adults 65 years or older.*

Definitions:

Grade B Recommendation: The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.

Grade C Recommendation: The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.

Grade D Recommendation: The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.

PRACTITIONER SCOPE AND TRAINING

Practitioners should practice only in the areas in which they are competent based on their education, training, and experience. Levels of education, experience, and proficiency may vary among individual practitioners. It is ethically and legally incumbent on a practitioner to determine where they have the knowledge and skills necessary to perform such services and whether the services are within their scope of practice.

It is best practice for the practitioner to appropriately render services to a patient only if they are trained, equally skilled, and adequately competent to deliver a service compared to others trained to perform the same procedure. If the service would be most competently delivered by another health care practitioner who has more skill and training, it would be best practice to refer the patient to the more expert practitioner.

Best practice can be defined as a clinical, scientific, or professional technique, method, or process that is typically evidence-based and consensus driven and is recognized by a majority of professionals in a particular field as more effective at delivering a particular outcome than any other practice (Joint Commission International Accreditation Standards for Hospitals, 2020).

Depending on the practitioner's scope of practice, training, and experience, a patient's condition and/or symptoms during examination or the course of treatment may indicate the need for referral to another practitioner or even emergency care. In such cases it is essential for the practitioner to refer the patient for appropriate co-management (e.g., to their primary care physician) or if immediate emergency care is warranted, to contact 911 as appropriate.

See the *Managing Medical Emergencies (CPG 159 – S)* clinical practice guideline for information.

Practitioner Resources

Publicly available resources can be found at:

- Centers for Disease Control & Prevention (CDC): *STEADI (Stopping Elderly Accidents, Deaths & Injuries) Tool Kit for Your Medical Practice* http://www.cdc.gov/steadi/index.html
- iGeriatrics App. American Geriatrics Society – smart phone application. https://play.google.com/store/search?q=iGeriatrics or https://apps.apple.com/us/app/igeriatrics/id365560773

Member Resources

Publicly available resources can be found at:

- Centers for Disease Control & Prevention: *Patient & Caregiver Resources.* https://www.cdc.gov/steadi/patient.html
- Centers for Disease Control & Prevention: *Check for Safety: A Home Fall Prevention Checklist for Older Adults. https://www.cdc.gov/steadi/pdf/STEADI-Brochure-CheckForSafety-508.pdf*
- National Institutes for Health – *Real-Life Benefits of Exercise and Physical Activity* https://www.nia.nih.gov/health/real-life-benefits-exercise-and-physical-activity
- iGeriatrics App. American Geriatrics Society – smart phone application. https://play.google.com/store/search?q=iGeriatrics or https://apps.apple.com/us/app/igeriatrics/id365560773

References

Bischoff-Ferrari HA, Dawson-Hughes B, Orav EJ, et al. Monthly High-Dose Vitamin D Treatment for the Prevention of Functional Decline: A Randomized Clinical Trial. JAMA Intern Med. 2016;176(2):175-183. doi:10.1001/jamainternmed.2015.7148

Bolland MJ, Grey A, Gamble GD, Reid IR. Vitamin D supplementation and falls: a trial sequential meta-analysis. Lancet Diabetes Endocrinol. 2014;2(7):573-580. doi:10.1016/S2213-8587(14)70068-3

Centers for Disease Control and Prevention: STEADI (Stopping Elderly Accidents, Deaths & Injuries) Retrieved March 26, 2024 from https://www.cdc.gov/steadi/index.html

Center for Disease Control and Prevention.Older Adult Fall Prevention. Retrieved on March 26, 2024 from https://www.cdc.gov/falls/index.html

Chiu HL, Yeh TT, Lo YT, Liang PJ, Lee SC. The effects of the Otago Exercise Programme on actual and perceived balance in older adults: A meta-analysis. PLoS One. 2021;16(8):e0255780. Published 2021 Aug 6. doi:10.1371/journal.pone.0255780

Guirguis-Blake JM, Michael YL, Perdue LA, Coppola EL, Beil TL, Thompson JH. Interventions to Prevent Falls in Community-Dwelling Older Adults: A Systematic Review for the U.S. Preventive Services Task Force. Rockville (MD): Agency for Healthcare Research and Quality (US); April 2018. Available from https://www.ncbi.nlm.nih.gov/books/NBK525700/

Hauer K, Lamb SE, Jorstad EC, Todd C, Becker C; PROFANE-Group. Systematic review of definitions and methods of measuring falls in randomised controlled fall prevention trials. Age Ageing. 2006;35(1):5-10. doi:10.1093/ageing/afi218

Joint Commission International. (2020). Joint Commission International Accreditation Standards for Hospitals (7th ed.): Joint Commission Resources.

Lamb SE, Jørstad-Stein EC, Hauer K, Becker C; Prevention of Falls Network Europe and Outcomes Consensus Group. Development of a common outcome data set for fall injury prevention trials: the Prevention of Falls Network Europe consensus. J Am Geriatr Soc. 2005;53(9):1618-1622. doi:10.1111/j.1532-5415.2005.53455.x

Michael YL, Whitlock EP, Lin JS, et al. Primary care-relevant interventions to prevent falling in older adults: a systematic evidence review for the U.S. Preventive Services Task Force. Ann Intern Med. 2010;153(12):815-825. doi:10.7326/0003-4819-153-12-201012210-00008

Moreland B, Kakara R, Henry A. Trends in Nonfatal Falls and Fall-Related Injuries Among Adults Aged ≥65 Years - United States, 2012-2018. MMWR Morb Mortal Wkly Rep. 2020;69(27):875-881. Published 2020 Jul 10. doi:10.15585/mmwr.mm6927a5

National Institute on Aging. Prevent falls and fractures. 2017. Retrieved on March 26, 2024 from https://www.nia.nih.gov/health/prevent-falls-and-fractures

Sadaqa M, Németh Z, Makai A, Prémusz V, Hock M. Effectiveness of exercise interventions on fall prevention in ambulatory community-dwelling older adults: a systematic review with narrative synthesis. Front Public Health. 2023 Aug 3;11:1209319

Stevens JA, Corso PS, Finkelstein EA, Miller TR. The costs of fatal and non-fatal falls among older adults. Injury Prev. 2006;12(5):290-295. doi:10.1136/ip.2005.011015

USPSTF Guide: Prevention of Falls Among Community-Dwelling Older Adults; April 2018. Update in progress. Retrieved March 26, 2024 from: https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/falls-prevention-in-older-adults-interventions