

1 **Falls Prevention in Adults 65 Years and Over: A Call for Increased Use of an Evidenced-Based**
2 **Falls Prevention Algorithm**

3
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6
7 Abstract

8 Falls in adults 65 years and over have been recognized as an urgent national public health crisis. As a
9 result, the Centers for Disease Control and Prevention responded by creating a national initiative aimed at
10 preventing falls among community-dwelling adults 65 years and over. In this policy statement, we aim to
11 educate health care and public health professionals on the importance of fall screenings, fall risk
12 assessments, and interventions. Also, we aim to promote the inclusion of other members of the health care
13 team (in addition to primary care staff) in employing evidence-based algorithms to prevent falls.

14
15 Relationship to Existing APHA Policy Statements

16 No active existing APHA policy statement addresses this public health problem. However, there are
17 several related policy statements that mention the importance of falls prevention.

- 18 • APHA Policy Statement 201514: Building Environments and a Public Health Workforce to
19 Support Physical Activity Among Older Adults.
- 20 • APHA Policy Statement 200913: Building Code Development, Adoption, and Enforcement
21 Problems Affecting Injury Prevention in, and Usability of, Homes and Other Buildings.
- 22 • APHA Policy Statement 20215: A Call to Improve Patient and Public Health Outcomes of
23 Diabetes through an Enhanced Integrated Care Approach
- 24 • APHA Policy Statement 20212: Prevention of Lower Extremity Amputations due to
25 Nontraumatic Loss of Sensation and Loss of Circulation
- 26 • APHA Policy Statement 20191: Coordinated Nationwide Approaches to Promote Eye Health
27 and Reduce Vision Impairment
- 28 • APHA Policy Statement 20172: Supporting the Updated National Physical Activity Plan
- 29 • APHA Policy Statement 202011: Supporting and Sustaining the Home Care Workforce to
30 Meet the Growing Need for Long-Term Care
- 31 • APHA Policy Statement 202013: Strengthening the Dementia Care Workforce: A Public
32 Health Priority

33 Problem Statement

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34 Falls are the leading cause of injury-related deaths among adults 65 years and over[1] and lead to
35 premature mortality, loss of independence, and placement in assisted-living facilities.[2] According to the
36 Centers for Disease Control and Prevention (CDC), in 2018 27.5% (35.6 million) of adults 65 years and
37 over reported at least one fall in the past year, and 10.2% (8.4 million) reported a fall-related injury.[3,4]
38 Each year falls result in more than 32,000 deaths, with 3 million older adults requiring emergency room
39 treatment. Falls are one of the leading causes of traumatic brain injuries in adults 65 years and older[5],
40 and fall-related hip fractures account for at least 300,000 hospital admissions.[6] In addition to the
41 societal burden of falls, poor outcomes following a fall event disproportionately affect minorities and
42 those who are underinsured/uninsured. As reported in one study, Black and Asian patients are
43 approximately 14% to 39% more likely to die following an injury than White patients.[7] Another study
44 including 35 articles with data on injury outcomes noted that race/ethnicity and insurance status were
45 clearly related to disparate outcomes, with Black patients being 19% more likely to die than White
46 patients and uninsured patients being more than twice as likely to die as patients with private
47 insurance.[8] In 2015, the estimated medical cost for fatal and nonfatal falls was \$50 billion.[9] Falling
48 will likely continue to be a public health problem in the years to come in the United States with an aging
49 citizenry, notably “baby boomers.”[10] The financial burden could be lessened with appropriate
50 interventions. The interventions presented in this policy have been estimated to each avert millions of
51 dollars in health care system costs by preventing falls. For example, addressing vision problems can result
52 in a savings of \$237–\$423 million by mitigating falls in the at-risk population.[11] Addressing mobility
53 and balance issues could save upwards of \$315 million, and performing home hazards evaluations could
54 save \$442 million.[11]

55
56 Given that the causes of falls are multifactorial, every health care interaction involving an adult 65 years
57 and over is an opportunity to reduce fall risk. Some of the more common underlying causes are outlined
58 below and further highlight the need for all health care providers to be involved in mitigating fall risk.

59
60 Falls in adults 65 years and over are recognized by a variety of health care organizations and
61 governmental agencies as an urgent national public health crisis. The problem is so pronounced that the
62 Patient Protection and Affordable Care Act of 2010 mandated that “all marketplace health plans, and
63 many other plans must cover falls prevention measures for adults 65 years and over, living in a
64 community (non-medical) setting.”[12] In addition, Healthy People 2030 aims to decrease the rate of fall-
65 related deaths and reduce emergency department visits due to falls.[13]

66

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67 Most falls are preventable, but a substantial increase in education (among both patients and providers) is
68 required. The CDC has responded to this need by creating Stopping Elderly Accidents, Deaths & Injuries
69 (STEADI), a national initiative aimed at preventing falls among community-dwelling adults 65 years and
70 over.[14,15] The STEADI algorithm offers solutions for screening for fall risk along with fall assessment
71 tools, diagnostic testing, appropriate referral recommendations, inpatient and outpatient care, educational
72 materials for patients, and training programs for providers. STEADI has received mostly positive
73 endorsements[16]; despite the requirement of a fall risk screening in the Welcome to Medicare visit,
74 however, a thorough fall assessment and subsequent intervention is not required. Currently, the burden of
75 fall risk screening in adults 65 years and over seems to fall on the primary care provider or gerontologist,
76 but these annual wellness visits are largely underutilized in the health care system, with Medicare
77 reporting only an 18.7% use rate in 2016.[17] Education is a critical step toward increasing the usage rate
78 of evidenced-based falls prevention algorithms such as STEADI. In this policy, we aim to educate health
79 care providers on the importance of not only fall screening but also fall risk assessments and interventions
80 in community-dwelling adults. Using an algorithm such as STEADI can avert \$94–\$442 million in direct
81 medical costs annually.[11] In addition, we aim to promote the inclusion of other members of the health
82 care team in performing appropriate fall screenings, risk assessments, and interventions and employing
83 evidence-based algorithms to prevent falls. This policy statement covers only community-dwelling adults
84 65 years and over; it does not cover falls prevention among institutionalized adults or those residing in
85 nursing facilities.

86
87 Medications related to falls: The American Geriatrics Society updated its guidelines in 2015 citing
88 medications that should be used with caution in the elderly population.[18] In the guidelines, the society
89 identified medications that were associated with an increased risk of falls. The use of psychoactive
90 medications such as anticonvulsants, antidepressants, antipsychotics, benzodiazepines, opioids, and some
91 sedatives-hypnotics was noted to be linked to falls. Other medications including antihistamines,
92 medications affecting blood pressure, and muscle relaxants can cause dizziness, confusion, blurred vision,
93 or orthostatic hypotension, which can also lead to falls.[18,19] The society recommends that these
94 medications be used cautiously and that providers avoid using two or more medications from these
95 categories in combination. Despite these recommendations, the percentage of people who received at least
96 one medication linked to an increased fall risk increased from 57% in 1999 to 94% in 2017.[20]
97 Pharmacists can play a vital role in reducing nonessential medications that could contribute to fall
98 risk.[21] Health care providers should be aware of the reasons why the medications were prescribed,
99 specifically in cases of mental health issues. There is a bidirectional relationship between fall risk and the

100 prevalence of mental health issues. Mental health providers can act as an additional entry point to
101 screening for fall risk.

102
103 Physical inactivity: Physically inactive adults 65 years and over are more likely to experience falls and be
104 seriously injured than physically active adults.[22] In addition, adults 65 years and over who report
105 difficulties with functional abilities (e.g., vision impairment, difficulty concentrating, walking/climbing
106 stairs, performing errands alone, and dressing/bathing) experience a higher rate of falls.[4] The risk of
107 being a “recurrent faller” (two or more self-reported falls over a period of 36 months) is 39% greater
108 among older adults with lower physical activity levels.[22] Also, as aging occurs, several highly prevalent
109 changes, including decreases in functional performance, increase the risk of frailty and age-related loss of
110 muscle mass and strength (sarcopenia). There is substantial evidence that supports the benefits of physical
111 activity and exercise for the functional performance of older adults. A strong association has been
112 demonstrated between frailty and the structure and function of skeletal muscle.[23] The decline in skeletal
113 muscle, especially that of the lower limbs, greatly impacts mobility and stability,[23] which in turn
114 increases the risk of falls. The association between physical inactivity and falls is also seen in chronic
115 diseases associated with older age, including Parkinson’s disease, where physical inactivity is associated
116 with frequent falls.[22] Physical therapists play an important role in helping people improve their
117 flexibility, balance, physical strength, and gait by implementing exercise intervention programs. Balance
118 programs in particular may reduce the risk of falls by 24%.[23]

119
120 Dementia: Cognitive impairment (an impaired ability to remember, think, or make decisions that
121 interferes with doing everyday activities), ranging from mild cognitive impairment to dementia, is a risk
122 factor for falls in older adults.[24,25] One study showed that the prevalence of falls among people with
123 dementia is 50% to 80% within a 12-month period.[25] This risk is further increased if there are
124 additional problems such as vision impairment or mobility issues. Cognitive impairment is associated
125 with gait and balance challenges and an increased fear of falling, all of which lead to a higher risk of
126 falls.[26] Because of the increased prevalence of falls among older adults with cognitive impairment,
127 health care providers should discuss risk of falls and intervention opportunities with older adults and their
128 caregivers at every opportunity.

129
130 Metabolic disorders: People with a metabolic syndrome have a higher incidence of falls.[27] Diabetes, a
131 metabolic dysregulation of insulin production and/or insulin receptors, is at epidemic levels in the United
132 States. More than 10% of Americans (34.2 million) have diabetes, and approximately 30% of American
133 adults (88 million) have prediabetes.[28] Also, the prevalence of diabetes increases markedly with age.

134 Several complications related to the disease are known fall risks, including neuropathy, neuroarthropathy,
135 amputation, and vision impairment. In addition to diabetes, frailty (age-related physiological decline) and
136 sarcopenia (loss of muscle mass and strength) can lead to falls.[29] These conditions increase the risk of
137 falls when deterioration in muscle and nerve function, declining cardiopulmonary reserve, and loss of
138 executive function cause the person to not maintain balance. This effect is heightened among those with
139 diabetes because the lack of insulin, an anabolic hormone in muscle protein synthesis, plays a key role in
140 the progression of frailty and sarcopenia in patients with the disease.[29] As health care providers interact
141 with people with diabetes, identifying, educating, and referring to an appropriate provider for a fall risk
142 evaluation must be incorporated into clinical practice, especially for podiatric evaluations and vision/eye
143 health assessments.[30] Podiatric examinations may aid in early diagnosis of diabetes (e.g., presence of
144 diabetic peripheral neuropathy can be manifested by the loss of plantar sensation, two-point
145 discrimination, or inactive Achilles reflexes). An annual in-person, comprehensive dilated eye
146 examination can detect the earliest signs of diabetes and reduce a person's risk for severe vision loss from
147 diabetic eye disease by 95%.[31,32]

148
149 Gait disorders and neurological conditions: Gait and balance disorders are common in adults 65 years and
150 over, with a prevalence of 10% between the ages of 60 and 69 years.[33] Peripheral neuropathy, a highly
151 prevalent and morbid condition affecting 2% to 7% of the population, is the most common peripheral
152 neurological condition associated with an increased risk of falling.[33] Patients identified as having a gait
153 disorder should be assessed by a physical therapist to evaluate whether abnormal gait patterns can be
154 improved. Peripheral neuropathy leads to gait instability and also increases a patient's risk for foot
155 ulceration and amputation, warranting a referral to a podiatric physician.

156
157 Foot deformity: It is estimated that 20% to 45% of adults 65 years and over are affected by foot
158 problems.[34] Foot problems causing sensory loss, lower extremity pain, or instability while walking or
159 standing can be associated with decreased balance and unsteady gait, thereby contributing to fall risk.
160 Foot conditions such as bunions, lesser toe deformities, plantar fasciitis, arthritis, and reduced
161 strength/flexibility are common causes of foot pain. In addition, systemic diseases such as rheumatoid
162 arthritis and diabetes are particularly associated with foot joint tenderness, swelling, bunions, bony
163 erosions, flat feet, loss of foot sensation, and increased plantar midfoot pressures, which have all been
164 associated with an increased risk of falls.[34] To lessen pain, individuals typically will shift weight from
165 the deformed area of the foot to an area that is more comfortable. In adults 65 years and over, this simple
166 maneuver can increase instability, thereby leading to an increased risk of falls.[35] Podiatrists can
167 recommend foot orthoses that help improve biomechanics and postural stability[36] or offer surgical

168 correction of foot deformities. Referral to a podiatric physician has been recognized as an essential
169 component of falls prevention algorithms.

170

171 Lower extremity amputations: Most lower extremity amputations occur in adults 65 years and over and
172 are usually attributable to vascular disease or diabetes.[30] Patients with transtibial lower extremity
173 amputations have among the highest levels of risk of falling. The absence of an ankle joint and the
174 associated musculature can reduce the ability to clear the ground during the swing phase of gait, which
175 increases the risk of stumbling and falling.[37] The STEADI algorithm recommends an evaluation by a
176 podiatric physician who can assess balance and gait abnormalities and provide modified footwear, braces,
177 or orthotics to mitigate these ailments.[14] Referral to physical therapy in the immediate postoperative
178 period for gait, balance, and assistive device training is warranted in patients with a lower extremity
179 amputation.

180

181 Vision impairment: Decreased vision is a significant contributor to falls in adults 65 years and over. In
182 fact, the risk of falls doubles if an elderly adult has any level of vision impairment.[38] Mobility is greatly
183 affected by vision loss, whether resulting from changes in visual acuity, visual fields, depth perception, or
184 contrast sensitivity.[38] Even small changes in vision can increase the risk of a fall. This risk is especially
185 concerning because the number of adults with visual impairment and/or age-related eye disease is
186 expected to double in the next 30 years due to the aging of the U.S. population and the increase in
187 diabetes and other chronic diseases.[39] It is estimated that at least 40% of vision loss in the United States
188 is either preventable or treatable with timely intervention, yet many people are undiagnosed and
189 untreated. The diagnosis and treatment of eye diseases and vision problems can result in improved visual
190 function, decreased risk of falling, and health-related quality of life improvements among adults of all
191 ages.[40]

192

193 The CDC (non-STEADI fall prevention guidance) recommends that those at risk for falls have their “eyes
194 checked by an eye doctor at least once a year and be sure to update eyeglasses if needed.”[3] However, in
195 the CDC STEADI algorithm, all health care providers are guided to assess patient visual acuity using a
196 Snellen eye chart.[15] We would suggest that at a minimum, an annual in-person, comprehensive eye
197 examination by a doctor of optometry or ophthalmologist is a priority in adults 65 years and over,
198 regardless of the level of fall risk, and this visit should not be substituted with a Snellen eye test.

199 Unfortunately, the Snellen acuity evaluation fails to identify many visual parameters associated with the
200 most common eye diseases in the adult population 65 years and over (age-related macular degeneration,
201 cataracts, diabetic retinopathy, and glaucoma),[41] which have been strongly and consistently associated

202 with falls: poor contrast sensitivity, reduced depth perception, and visual field loss.[38] Left untreated,
203 these vision conditions may lead to challenges with medication compliance, keeping track of personal
204 information, driving, and reading, as well as loss of personal independence and decreased quality of
205 life.[42]

206
207 Built environment: The built environment includes all of the physical parts of where one lives and works
208 (e.g., homes, buildings, streets, open spaces, and infrastructure).[43] Identifying enablers and barriers for
209 maintaining safe home environments for adults 65 years and over and their caregivers reduces fall risk.
210 Poor lighting and the presence of stairs have been associated with increased falls. Unsafe environmental
211 features include sliding glass doors, tubs, shower curtains, tub seats, and towel bars near the entry.[44]
212 Shower seats, grab bars in the shower and near the toilet, ramps, and ground-floor bedroom and bathroom
213 locations have been found to promote safer homes. Doorways to bedrooms, toilets, and bathrooms in the
214 homes of adults 65 years and over should have enough space for a walker or a wheelchair to turn
215 around.[44] Likewise, toilet seats and washbasins should be adaptable in height. Accessibility is also
216 related to safety for caregivers as narrow working spaces and physical barriers make safe work techniques
217 or assistive devices and equipment difficult to use. Health care providers should be aware of these
218 considerations and educate patients on built environment considerations. Education on the built
219 environment can reduce falls, thereby reducing injury, which in turn can reduce morbidity and possibly
220 mortality.

221
222 Nutrition: Nutritional status in adults 65 years and over is a key predictor of both frailty and sarcopenia;
223 thus, optimizing nutrition in this population has the potential for preventing falls. Interventions to prevent
224 falls in this age group include reducing malnutrition and frailty and correcting nutritional deficiencies.[45]
225 Recommendations for nutrition should also take into consideration the individual's barriers and resources.
226 While food access and dietary intake are cornerstones to achieving this objective, interventions such as
227 food assistance programs, modified diets, and social support should be considered. Dehydration has also
228 been associated with an increased fall risk in adults 65 years and over, and some studies have therefore
229 recommended better ways to assess adults for dehydration as a preventive measure.[46] Inadequate
230 intakes of calcium, vitamin D, and protein may be associated with an increased risk of falls as well. The
231 STEADI algorithm recommends assessing vitamin D intake and subsequently supplementing vitamin D
232 in those who are identified as deficient.[15]

233
234 As noted above, the causes of falls are multifactorial. Every health care interaction with an adult 65 years
235 and over is an opportunity to reduce fall risk. Some of the more common underlying causes among adults

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236 65 years and over have been outlined above, and they further highlight the need for all health care
237 providers to be involved in mitigating fall risk by incorporating an evidenced-based fall algorithm.

238

239 Evidence-Based Strategies to Address the Problem

240 More than 90% of adults 65 years and over report seeing at least one medical provider annually, affording
241 the opportunity for all health care providers to play a crucial role in fall prevention.[47] All health care
242 providers can have an impact on those with an increased fall risk by encouraging and educating patients
243 to incorporate evidence-based falls prevention strategies. All providers should be aware of the multiple
244 causes of falls and should be prepared to engage and refer patients to an appropriate specialist to address
245 the identified fall risk. Health care professionals such as (but not limited to) podiatric physicians, eye
246 doctors (doctors of optometry or ophthalmologists), pharmacists, nutritionists, physical therapists,
247 chiropractors, occupational therapists, nurses, and primary care physicians/gerontologists are integral to
248 reducing falls. The CDC's STEADI algorithm provides a framework for providers to quickly screen
249 community-dwelling adults 65 years and older for fall risk, perform a fall risk assessment, and provide
250 recommendations for interventions if a patient is deemed at risk.[15] Other tools categorized as "falls
251 prevention" tools focus solely on screening or performing a falls assessment. Examples include the
252 Schmid Fall Risk and the Morse Fall Scale Assessment (STRATIFY). STEADI provides a
253 comprehensive algorithm addressing three aspects of falls prevention (screening, assessment, and
254 intervention). Some falls prevention tools include an aspect of screening and early assessment within one
255 tool, but to our knowledge STEADI is the only tool with three aspects of prevention included. STEADI
256 recommends screening annually using a simple three-question survey or the STEADI 12-question Stay
257 Independent Survey.[15] If patients are deemed "at risk," a fall risk assessment should then be performed.
258 Due to the range of conditions that can contribute to falls, STEADI recommends evaluating multiple risk
259 factors (e.g., gait/balance, vision, medications, home hazards, footwear, comorbidities) to identify where
260 the highest risk resides using evidenced-based tools where applicable. For example, to assess gait/balance
261 risk, STEADI recommends the Timed Up & Go (TUG) Test, the 4-Stage Balance Test, or the 30-Second
262 Chair Stand.[15] Finally, after a specific risk factor has been identified, STEADI recommends
263 interventions based on the patient's modifiable risk factors such as a physical therapy referral for
264 gait/balance training, a home hazards assessment by an occupational therapist, an
265 optometry/ophthalmology referral for a comprehensive eye exam, or a referral to a podiatric physician for
266 foot pain/deformities or footwear problems.

267

268 STEADI has been evaluated in several studies to show its effectiveness. A study evaluating STEADI's
269 strengths and weaknesses showed that the algorithm has a 73% to 80% sensitivity in predicting future

270 falls among community dwellers (the target population).[48] Another study revealed that STEADI was
271 able to predict future falls in people who were categorized as at low, moderate, or high risk for falls.[49]
272 STEADI has been successfully integrated in some primary care practices and large health systems such as
273 in New York (in 17 primary care clinics)[50] and Oregon,[51] but overall STEADI is underused, and little
274 has been done to incorporate this algorithm by other health care providers (e.g., specialists and allied
275 health providers). The Centers for Medicare & Medicaid Services (CMS) reported an 18.7% usage rate of
276 an annual wellness exam among beneficiaries, the exam where a fall risk screening is required.[17] The
277 education and inclusion of other health care team members in falls prevention has the potential to increase
278 utilization of valuable fall prevention tools and lessen the burden of falls. Once a patient has been
279 screened and deemed a fall risk, prevention strategies can be incorporated based on the patient's
280 modifiable risk factors. Given the known disparities with death rates associated with race and insurance
281 status following an injury,[7,8] there is reason to believe that prevention of a fall event could, in turn,
282 decrease the overall rate of death that occurs after an injury in the United States. Current literature
283 criticizes the lack of primary prevention strategies and policies aimed toward reducing injury outcome
284 disparities.[52] Widespread implementation of a multifactorial falls prevention algorithm such as
285 STEADI could serve as a major step toward reducing poor outcomes following injury by preventing the
286 initial injury from occurring in at-risk groups.

287
288 According to the U.S. Department of Health and Human Services Physical Activity Guidelines for
289 Americans, adults 65 years and over should engage in at least 150 minutes of moderate intensity exercise
290 weekly.[53] Adults who cannot engage in moderate intensity exercise because of chronic conditions
291 should aim to be as active as their abilities allow, including sitting less throughout the day, using a
292 stationary bike, or walking with assistance. Multicomponent group or home exercise regimens that
293 incorporate balance and strength training reduce the rate of falls by 29% to 32% and the risk of falling by
294 15%.[54] This positive effect is seen in people across the fall risk spectrum, making exercise one of the
295 most worthwhile interventions to benefit the greatest number of people. It is recommended that exercise
296 classes incorporate two or more types of exercise to achieve the greatest benefit.[54] Classes that include
297 aerobic, muscle strengthening, gait, balance, flexibility, and functional training demonstrate a significant
298 reduction in fall risk. Many physical activities, such as tai chi, have been shown to reduce fall risk and
299 risk of fracture in those considered at low risk for falling.[54] The American College of Rheumatology
300 and Arthritis Foundation have strongly recommended tai chi to manage osteoarthritic pain in adults,
301 which subsequently can encourage more normalized gait patterns.[55] A recent synthesis of high-quality
302 medical literature concluded that tai chi is an effective intervention toward reducing falls among
303 community-dwelling adults and may offer superior results relative to other exercise modalities.[56]

304

305 Certain medications (as described above) have been noted to increase the risk of falls in older adults;
306 however, despite this risk, these medications are routinely prescribed. The American Geriatrics Society
307 recently updated Beer’s criteria, which are used during medication reviews to avoid potentially harmful
308 medications in older adults (including those that may contribute to falls).[57] A medication review as a
309 stand-alone assessment has been shown to reduce falls in community-dwelling adults by approximately
310 6% [58] and may reduce all-cause mortality by 5% to 42%. [59]

311

312 Home safety assessments to improve the built environment have been shown to be effective in reducing
313 rates of falls and the risk of falling.[54] With more than 70 known fall hazards identified inside and
314 outside the home, safety assessments can be streamlined by using checklists of potential risks such as
315 poor lighting, floor mats/rugs, clutter, uneven floor surfaces, and medications. These assessments should
316 include recommendations for interventions such as referrals for equipment (e.g., grab bars, ramps, and
317 lighting) and should offer repair or removal of hazards when possible. Rates of falls and risk of falling
318 decrease by 21% to 31% when an occupational therapist (OT) performs the home safety assessment rather
319 than a non-OT.[54] Although OTs are a limited resource and more expensive, trained nonprofessionals
320 are not as effective as OTs in producing fall-rate reductions.[60] Therefore, it is recommended that home
321 safety assessments and interventions be performed by an OT. Even more “upstream” than a home
322 assessment is the utilization of design guidelines to reduce falls when new buildings are being
323 constructed.[61] Guidelines have recommended simple aides such as matte finishes on the floor and
324 walls, an accent wall to assist in wayfinding, and rounded corners on furniture, all of which can be easily
325 incorporated into building construction.[61]

326

327 The American Geriatrics Society, the British Geriatrics Society, and the Commonwealth of Australia all
328 recommend a foot examination with a referral to a podiatric physician as a valuable component of the fall
329 prevention algorithm.[62] A podiatric physician can offer an assessment of footwear, gait analysis,
330 strength and range-of-motion assessment, identification and treatment of foot deformities, assessment and
331 treatment of lower extremity neurological conditions (e.g., peripheral neuropathy), treatment of pain in
332 the lower extremity, and even surgical intervention when warranted. Adults receiving care from a
333 podiatric physician (including footwear advice, education, and foot orthotics) can expect a 36% reduction
334 in falls.[63]

335

336 In addition, eye doctors play a vital role in preventing falls. The STEADI algorithm currently
337 recommends that health care providers use a Snellen eye chart to assess visual acuity; however, efforts are

338 better allocated toward ensuring that patients at risk for falls receive annual in-person, comprehensive eye
339 examinations. The four most common causes of blindness (diabetes, glaucoma, cataracts, and age-related
340 macular degeneration) have the highest prevalence in this demographic. These conditions can be treated
341 to slow the progression of vision loss if detected early. The value of ensuring that adults 65 years and over
342 receive annual comprehensive eye care is essential and is supported by the CMS. In 2019, the CMS made
343 an important decision to create a new Merit-Based Incentive Payment System (MIPS) Improvement
344 Activity related to educating patients on the value of comprehensive eye exams.[64] The agency
345 highlighted that “comprehensive eye exams are relatively low-cost interventions and early detection of
346 conditions that can be identified through an eye exam may likely reduce more costly treatment later.”[65]
347 The agency also indicated that the improvement activity will have a positive impact on patient care and
348 promote health equity. All Medicare physicians can earn MIPS credit by educating patients on the need
349 for annual comprehensive eye examinations. For those people who are at risk of falling, a comprehensive
350 eye examination could be lifesaving.

351
352 All licensed health care providers require continuing education for maintenance of certification licensure.
353 Not only should providers be continuously reeducated on fall prevention during their relicensure period,
354 but the CDC should also make available through its training and continuing education online portal a
355 course titled “STEADI: Empowering Health Care Providers to Reduce Fall Risk.” The purpose of this
356 course would be to educate health care providers about falls among older adults and about steps that
357 providers can take to prevent falls. The ultimate goal is to reduce falls among those 65 years and over and
358 promote their health and independence.[14]

359
360 **Opposing Arguments/Evidence**

361 This cohort presents many challenges to the prescribed recommendations. Some challenges include but
362 are not limited to access to care, ability to perform testing, and willingness to obtain care. In a study
363 evaluating adherence to STEADI recommendations, 32% of adults did not recall any of the
364 recommendations given to them.[66] The authors found that the most common recommendation adhered
365 to was exercise and noted that no patients adhered to recommendations to have an eye exam, visit a
366 podiatrist, participate in physical therapy, or review their medications with a pharmacist.[66] The authors
367 noted that older adults were more willing to engage in recommendations when they felt they were
368 assisting in research efforts and working with students. Given that there is no shortage in the need for
369 research, this could be an opportunity to engage patients in adhering to recommendations as well as to
370 engage students.[66] Time constraints can be a major challenge to performing the full STEADI
371 evaluation. For instance, evaluating patients with dementia can be time consuming; these patients cannot

372 easily complete the self-assessment form or follow directions. Instead of the 12-question screening tool
373 provided by the STEADI initiative, some clinics have adopted a modified version consisting of the
374 following five questions asking whether the patient had (1) two or more falls in the past 12 months, (2)
375 one fall in the past 12 months with an injury, (3) one fall in the past 12 months along with gait and
376 balance problems, (4) any gait or balance problems, and/or (5) presented with an acute fall.[16]

377
378 Alternatively, the STEADI initiative recommends three key questions for fall risk screening: (1) Have
379 you fallen in the last year? (2) Do you feel unsteady when standing or walking? and (3) do you worry
380 about falling?[62] For a patient with dementia, addressing these questions with a caregiver who is
381 knowledgeable about the patient's health history may be warranted to ensure accuracy. Other challenges
382 include ineffective communication with clinic staff and workflow barriers such as cost, time, staffing, and
383 resources. In a study screening more than 300 patients in a primary care setting using the STEADI
384 algorithm, the authors decided to exclude patients with dementia because they noted that it was extremely
385 time consuming for the patients to complete the assessments.[51] Adults with dementia may be better
386 assessed by a neurologist or specialty care clinic, further supporting the ideal that falls prevention should
387 be a team effort by multiple providers when patients have multiple risk factors. Despite initial workflow
388 barriers such as time and staffing, the authors were able to successfully adapt STEADI into the clinical
389 setting and expand its use into multiple clinics, ultimately screening more than 800 patients in the initial
390 rollout.[51]

391
392 Further revision of electronic health record templates is required to optimize uptake and enable collection
393 and analysis of data for reimbursement and for reporting quality measures. Reimbursement and other
394 incentives are necessary for building a business case and achieving buy-in from health care system
395 leadership. If a patient referral is necessary, consideration of increased costs must be addressed, as this
396 population may have limited disposable income or limited access to covered providers. In addition, if
397 multiple risk factors are identified, incorporating a multispecialty team to prevent falls will increase
398 Medicare costs in cases in which patients may need multiple visits to providers to successfully mitigate
399 risk. If patients require a physical therapy program for balance or gait ailments, this may result in 10 or
400 more visits. The cost-effectiveness of multispecialty teams has been evaluated for other medical
401 conditions such as preventing amputations among adults with diabetes. These teams have been seen to
402 increase costs, and health systems in other countries have noted that they may not be cost-effective.[67]
403 Nonetheless, for complicated, multifactorial problems, a multispecialty team is considered the optimal
404 approach. Some authors have questioned the 65 and older threshold as being an arbitrary cutoff for when
405 fall screening should take place and instead call for fall risk screening to take place at younger ages.

406 Studies have noted that the incidence of falls may actually increase at the age of 45 years.[68] Although
407 STEADI has been almost exclusively studied in the 65 and older age group, there is reason to believe that
408 screening at an earlier age may offer more preventive benefits.[68]

409

410 Action Steps

- 411 • APHA calls on all professional societies to educate their members and promote use of an
412 evidenced-based algorithm such as STEADI that includes fall screening, assessment, and
413 interventions in their patients 65 years and over.
- 414 • APHA urges all accredited continuing education organizations to make STEADI-related
415 education available for continuing education credits.
- 416 • APHA urges all state licensing organizations (e.g., the Accreditation Council for Continuing
417 Medical Education, the American Osteopathic Association, the Commission for Continuing
418 Education Provider Recognition, the American Academy of Family Physicians, the American
419 Podiatric Medical Association, the American Optometric Association, state boards of pharmacy)
420 to include STEADI and other falls prevention education mandatory requirements for initial
421 licensing and recertification.
- 422 • APHA urges the American Optometric Association and the American Academy of
423 Ophthalmology to advocate for annual in-person, comprehensive eye examinations for all adults
424 65 years and over.
- 425 • APHA urges the CDC to change the STEADI algorithm to mirror the recommendation of the
426 CDC falls prevention webpage (“have your eyes checked by an eye doctor at least once a year
427 and be sure to update your eyeglasses if needed”) instead of using a Snellen eye chart for
428 screening.
- 429 • APHA recommends that Medicare, Medicaid, and private insurers include coverage with no or
430 low-fee cost sharing and reimbursement to providers for fall prevention exercise programs for
431 adults 65 years and over, including gait, balance, and functional training.
- 432 • APHA urges emergency departments and health care facilities that treat patients after an acute fall
433 to provide discharge instructions to obtain a comprehensive eye examination, a physical therapy
434 assessment, and a podiatric assessment to reduce the risk of future falls.
- 435 • APHA recommends that all health care providers educate patients with diabetes about the
436 multifactorial increased risk of falls among adults 65 years and over.
- 437 • APHA calls on all relevant member sections to work together to foster an integrated fall
438 prevention algorithm (i.e., STEADI) that incorporates multispecialty providers earlier in the fall

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- 439 assessment and intervention phases of the algorithm to ensure comprehensive assessment and
440 subsequent treatment of fall risks.
- 441 • APHA calls on all relevant member sections providing care and services to adults 65 years and
442 over to promote physical exercise programs focusing on strength, endurance, and cardiovascular
443 health. Outreach and education directed toward health promotion among adults 65 years and over
444 must include increased attention to physical activity and strength training.
 - 445 • APHA urges the American Podiatric Medical Association to advocate for all individuals 65 years
446 and over to have a podiatric screening using the STEADI risk screening questionnaire and
447 perform subsequent fall assessments/interventions based on modifiable risk factors.
 - 448 • APHA urges all insurers (e.g., Medicare, Medicaid, private insurers) to educate their covered
449 individuals 65 years and over regarding the Patient Protection and Affordable Care Act mandate
450 that all marketplace health plans and many other plans must cover fall prevention (with exercise
451 or physical therapy and vitamin D use) for those living in a community setting.
 - 452 • APHA recommends that the CDC regularly review and improve the current STEADI algorithm to
453 keep pace with changes and improvements in health care technology.
 - 454 • APHA recommends that the U.S. Food and Drug Administration and the National Institutes of
455 Health continue to assess the potential impacts of polypharmacy; relationships between
456 medications and falls, specifically medication classes (e.g., anticoagulants) or specific drug
457 combinations (e.g., opioids and benzodiazepines); and how to ensure that adults 65 years and
458 over are included in clinical trials for drugs in which they will constitute the intended population.
 - 459 • APHA encourages standardized building codes to ensure that homes are safe for people of all
460 ages, including seniors.
 - 461 • APHA urges universal design in all federally subsidized and state-subsidized housing to ensure
462 that housing units can be readily adapted to meet changing demographics.
 - 463 • APHA recommends collaboration with interest groups such as AARP to develop educational
464 programs supporting older adults in their use of the health care system to decrease their fall risk.

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