



Green & Healthy Homes Initiative®

# Preventing Falls with Healthy Homes: Creating a Safe Environment for Older Adults to Age-in-Place



October 2018

The Green & Healthy Homes Initiative (GHHI), founded in 1986, is a national 501(c)3 nonprofit, nonpartisan organization that provides evidence-based direct services and technical assistance to create healthy, safe and energy efficient homes to improve health, economic and social outcomes for low-income families while reducing public and private healthcare costs.

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Special thanks to Andrew Olson, Sarah Szanton, our partners at Habitat for Humanity of Greater Memphis for their contributions to this publication.

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## Executive summary

Falls are among the most significant sources of morbidity and mortality in the older adult population and can impact their ability to age-in-place. Given the tremendous burden on our healthcare system totaling about \$31 billion annually, there has been a push to find ways to prevent falls among older adults. Some efforts to prevent falls have considered home modification programs that address home environmental hazards, which are estimated to cause as much as half of all falls among older adults. Studies have shown that home-based fall prevention programs that include home modifications are effective in reducing falls among older adults.<sup>1</sup> Still, the home modifications included in these programs only address a few of the structural risk factors for falls among older adults.

A comprehensive ‘Healthy Homes’ model, which aims to make a home healthy and safe from hazards that can lead to trip and falls among older adults, could be an even more effective approach to fall prevention. This model includes:

1. An environmental assessment that identifies health and safety hazards such as lack of stairway rails and grab bars, obstacles and tripping hazards, and inadequate lighting that are present in the home.
2. The development of a scope of work that may include installing grab bars and sufficient lighting as well as removing obstacles and tripping hazards.
3. The execution of these home modifications specified in the scope of work that address the hazards.

However, developing and implementing this type of model requires extensive program infrastructure, cross-sector partnerships that include home environmental assessors, community-based contractors, and a sustainable business model with willing and reliable payers. With no certifications currently required, the incorporation of assessors and contractors would be seamless.

Recruiting payers is more difficult. To foster a successful “Healthy Homes” fall prevention program, there must be coverage for:

- the target population of older adults at-risk for a fall, which includes individuals who have already fallen and individuals who have not fallen but are at-risk.
- the environmental home assessment performed by an environmental assessor
- home modification equipment such as grab bars and toilet seats
- and the execution of the home modifications by a contractor

Currently, there are no entities that are both willing to and able to pay for a “Healthy Homes” fall prevention program that includes each of the above components.

There are several viable opportunities within the healthcare sector to support and sustain a comprehensive “Healthy Homes” fall prevention program. Medicare is a good option with its role in covering care for adults over the age of 65, the age group that is the most at-risk for fall. While the other components are largely not covered, there are several opportunities that could lead to coverage involving the potential expansion of the definition of durable medical equipment to include home modification equipment as well as the passage of the CHRONIC Act, which removes some of the barriers to implementation of a comprehensive fall prevention program. There is also potential for coverage under Medicaid as the Medicaid Waivers, Medicaid Rule Change, and Medicaid Managed Care Organizations enable coverage of environmental assessors, community contractors, and the services provided in a comprehensive “Healthy Homes” program. Still, there are some barriers to implementation that include eligibility criteria, the coverage of home modification equipment, and whether housing interventions are considered medical services. There are a few other opportunities for coverage of certain components of a “Healthy Homes” fall prevention program including hospital investment, accountable care organizations, and value-based care, that are largely under-developed.

Still, home modifications are effective in reducing both the risk of falls, and their associated costs, among older adults. In Baltimore City, the CAPABLE pilot program improved the ability to perform activities of daily living in 75% of participants, saving an average of \$30,000 in healthcare costs. More information on this program and the Habitat for Humanity of Greater Memphis Aging in Place Program” are included in this report as case studies.

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## Introduction

With healthcare costs rising in the U.S., many healthcare professionals are searching for ways to reverse this trend. As a result, there has been a tremendous paradigm shift in the healthcare sector from a mentality of treatment to one of prevention. Previously, the focus of many physicians and nurses was to treat their patients for any negative health outcomes that they experienced. Now, much of the focus has shifted towards preventing many of these health outcomes from occurring in the first place.

Health professionals have pointed to the social determinants of health as a mechanism for achieving prevention. Social determinants of health (SDOH) refer to the social and economic conditions, whose distribution in a population, influence individual and group differences in health status. SDOH can include factors such as access to education, healthy food, social and economic opportunity, and quality and affordable housing. The nature and extent of an individual's access to the above resources can positively or negatively impact their health outcomes. For example, studies have shown that little to no access to healthy food can dramatically increase an individual's risk of becoming obese. However, addressing the social determinants of health is not something that physicians, doctors and nurses are well-equipped to do. Instead, these efforts require cross-sector partnerships that can blend and braid resources that help to ensure that individuals are able to receive the support they need both in healthcare settings and in their communities.

*Preventing Falls with Healthy Homes: Creating a Safe Environment for Older Adults to Age-in-Place* is a policy report intended for individuals working in the public health, housing, and health care fields of the government, non-profit, and philanthropic sectors. By the end of this report, the audience will understand how a cross-sector partnership of housing, public health, and healthcare professionals can help maximize individual health and well-being. More specifically, the goal of this report is to serve as a guide for both designing a 'Healthy Homes' fall prevention program and understanding potential financial mechanisms for sustainably supporting this model. With this report, we hope to encourage governmental and non-governmental organizations to develop a 'Healthy

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Homes' fall prevention program as well as support the idea that the healthcare sector should consider providing coverage for improvements to housing.



## The Problem

The United States faces significant challenges from demographic changes and the associated demand on the healthcare system continues to grow. One of these challenges is finding a way for older Americans to successfully “age-in-place”. The term aging-in-place refers to the ability of older adults to live safely and independently in their homes, even as they age. According to a report published by the National Conference of State Legislatures and the AARP Public Policy Institute, nearly 90% of people over the age of 65 want to stay in their home for as long as possible and around 80% believe their current residence is where they will always live.<sup>2</sup> However, this becomes difficult to attain given the physical challenges associated with aging.



Older Americans are unable to successfully age-in-place when they have difficulties performing basic activities of daily living (ADLs). ADLs are basic self-care skills needed for an individual to properly care for oneself such as eating, dressing, bathing, toileting, continence, and mobility. Difficulty performing ADLs can be caused by poor and unsafe housing conditions, as well as a decline in functional mobility.<sup>3</sup> When older adults are unable to perform one or more ADLs, it becomes unsafe and costly for older individuals to live independently in their homes. In fact, compared to individuals with no limitations, adults that require help with ADLs as well as those that have limitations with walking, transfer and balance activities are 14 and 10 times more likely to report having two or more falls in the previous 12 months.<sup>4</sup>

*The CDC estimates that over 2.3 million older adults were treated in emergency departments and more than 662,000 of these individuals were hospitalized as a result of a fall, leading to healthcare costs totaling about \$31 billion.<sup>5,6</sup>*

While the difficulty with ADLs are a risk factor for trip and falls among older adults, there is also evidence that trip and falls can also lead to difficulty performing ADLs. As a result, many of these individuals are forced to seek alternate living arrangements and long-term care through assisted living facilities, nursing homes or family and community members.

The ability of older adults to age-in-place is determined by the safety of their home environment, which can directly impact the health of the occupant and their ability to perform ADL. Trip and falls, which are the leading cause of fatal and non-fatal injuries among older Americans, threaten their safety and independence and impedes their ability to age-in-place. About 1.45 million older adults live in housing that needs repair and/or rehabilitation and over 1.1 million elderly households report unmet needs for home modifications, compromising their safety and placing them at increased risk for trip and falls.<sup>7</sup>

Home environmental hazards are thought to contribute between one-third to one-half of all trip and falls, depending on both intrinsic risk factors and other situational variables.<sup>4</sup>

Thus, improving housing conditions and eliminating home-based health hazards can be effective in preventing falls and increasing a senior's ability to age-in-place.

## The Solution: Using “Healthy Homes” to Prevent Falls

Preventing falls among older adults through improved housing requires the use of the “Healthy Homes” frame-work. “Healthy Homes” is often considered to be the gold standard of health-based housing improvements and, according to the U.S. Department of Housing and Urban Development, the overarching concept that promotes safe, decent, and sanitary housing as a means for preventing disease and injury.<sup>8</sup> In 2013, The Federal Healthy Homes Work Group (HHWG), consisting of a collaboration between the Department of Agriculture, the Department of Commerce, the Department of Energy, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Housing and Urban Development, and the Department of Labor, established a set of criteria to further define:

“Healthy Homes” known as the “**8 Elements of a Healthy Home**”.<sup>9</sup> This set of criteria, which has been adopted across sectors and is now widely used, states that a Healthy Home is one that is:



1. Keep it Dry

2. Keep it Well Ventilated

3. Contaminant Free

4. Pest Free

5. Keep it Well Maintained

6. Keep it Safe

7. Keep it Clean

8. Energy Efficient

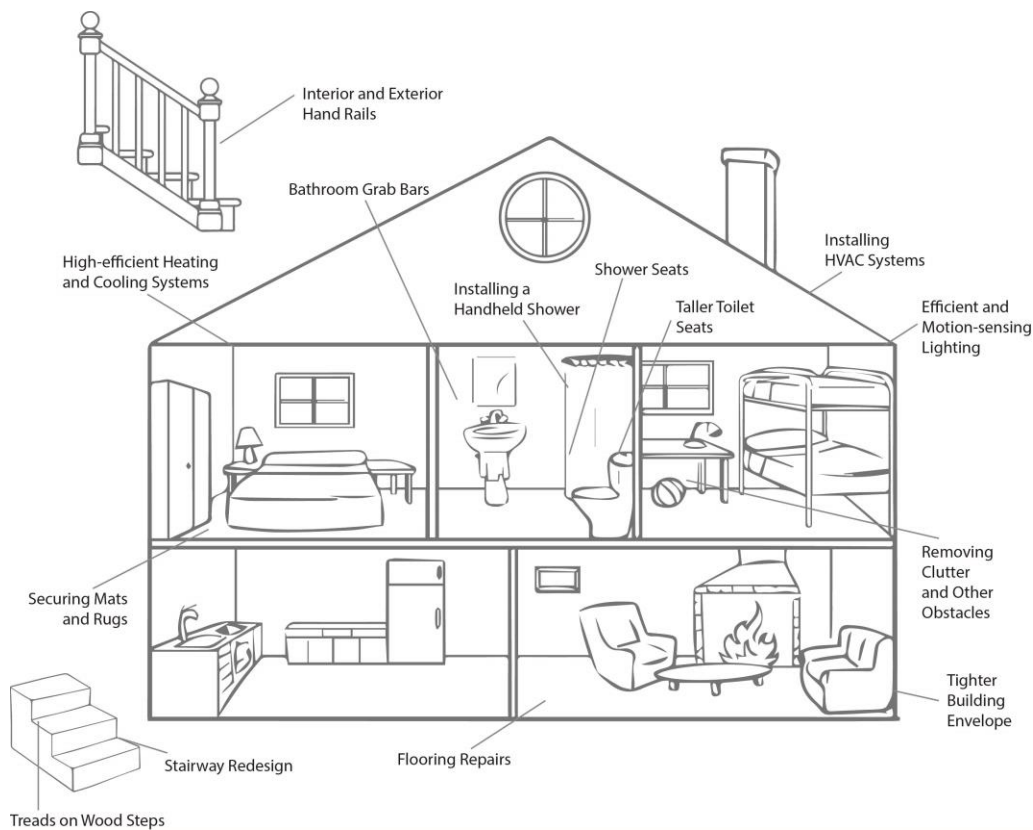
Each of these criteria has well-documented impacts on occupant health. The establishment of this formal definition provides a useful framework for improving health through housing, as any intervention that aims to achieve the goal of a “Healthy Home” can be referred to as a “Healthy Homes” intervention. With this “Healthy Homes” framework, the pathway from housing improvements to fall prevention among older adults becomes clear.

The first step in achieving a “Healthy Home” as a way to prevent falls is to perform an environmental assessment to identify any hazards present in the home. There are many home environmental hazards in the form of extrinsic and intrinsic risk factors that increase the risk of a trip or fall among older adults. Extrinsic risk factors are structural hazards that include obstacles and tripping hazards, poor stairway design, inadequate lighting, lack of stairway rails and bathroom grab bars, and lack of nonskid surfaces in bathtubs.<sup>4</sup> These factors can arise from compromises to five of the “8 Elements of a Healthy Home” (dry, clean, pest-free, safe, and well-maintained). While extrinsic risk factors can be found anywhere inside the home, the bathroom is a hotspot for home environmental hazards.

Extrinsic Risk Factors <sup>4</sup>	Intrinsic Risk Factors
Obstacles and tripping hazards	Medications
Poor stairway design	Diseases
Inadequate lighting	Balance
Clutter	Vision
Slippery floors	Cognitive problems like dementia
Unsecured mats and rugs	Medical Conditions
Lack of stairway rails and bathroom grab bars	Motor skills
Lack of non-skid surfaces in bathtubs	Muscle weakness

A report from the Centers for Disease Control estimates that the majority of falls (80%) occur in the bathroom with upwards of 200,000 Americans seeking treatment from emergency departments for bathroom related falls.<sup>10</sup> Intrinsic risk factors refer to conditions that increase the risk of falling for an individual and these factors can be a result of compromises to four of the “8 Elements for a Healthy Home” (contaminant-free, well-ventilated, well-maintained, and thermally-controlled). Poor indoor air quality and thermal stress are environmental conditions that can lead to respiratory and musculoskeletal issues, which are intrinsic risk factors for trip and falls among older adults.

A comprehensive environmental assessment for trip and fall hazards involves identifying structural deficiencies such as poor stairway design and inadequate lighting, but also includes the identification of any sources of poor indoor air quality or thermal stress such as a poorly functioning ventilation system or inadequate insulation.



There are currently no certifications necessary to assess trip and fall hazards specifically. However, there is a Healthy Homes Evaluator micro-credential certification administered by the Building Performance Institute (BPI) that certifies energy auditors and home contractors to simultaneously evaluate a home for health hazards while they also assess home performance, which includes the effectiveness and efficiency of ventilation systems, insulation, and heating and cooling systems.<sup>11</sup> With the Healthy Homes Evaluator micro-credential, energy auditors and building analysts possess the tools to properly check for the “8 elements of a Healthy Home”. Once, the environmental assessment is complete and the hazards are identified, a scope of work can be developed to address the hazards and achieve the quality standard of a “Healthy Home”. There are several home interventions that have been associated with fall prevention among older adults.

However, only a few of these home-based measures (bathroom grab bars, interior and exterior stair rails, shower seats, handheld shower, toilet seat, motion-sensor lighting, and treads on wood steps) are common, meaning that they are well-known fall prevention strategies (experts and other relevant advocacy organizations consistently cited these measures as effective ways to reduce falls) and they are relatively easy to access due to their relatively low cost and affordability.<sup>6,12-15</sup>

One study cited the average cost for grab bars, a shower seat, a handheld shower, and improved lighting to be \$148, \$45, \$58, and between \$37-\$67 respectively, with the average total cost totaling \$635 per participant.



While it is likely that there may be some variation in the true average cost of these interventions, it is also likely that the true average cost is not far off from these estimates.

Considering the breadth of home-based interventions that are available to prevent falls, there are limited studies that assess the effectiveness of each specific intervention. Instead, studies will often assess the effectiveness of multiple home modification interventions or they will combine home modifications with other interventions that are associated with preventing falls (e.g. exercise, education, and medication programs). Findings from a recent systematic review assessing the efficacy of fall prevention strategies by analyzing 159 randomized control trials with 79,193 participants suggest that a home safety assessment and, subsequently home modification interventions are significantly effective in reducing both the rate of falls (the total number of falls per unit of person time that falls were monitored) and the risk of falls (the chance that an individual falls) among older adults, especially among adults with the highest risk.<sup>1</sup> That same review also evaluated the efficacy of multifactorial home interventions, which differ from studies referenced above in that the home modification is only provided if there is a need for it that is identified in an individual risk assessment.<sup>1</sup> Multifactorial home interventions, which comprise of an individual assessment of intrinsic and extrinsic risk factors and the performance of a tailored treatment plan based on the identified risks, were found to reduce the number of falls in older adults living in the community but not the risk of falling among older adults.<sup>1</sup>

***Home modification interventions are significantly effective in reducing both the rate of falls (the total number of falls per unit of person time that falls were monitored) and the risk of falls (the chance that an individual falls) among older adults, especially among adults with the highest risk.***

It is clear based on the breadth of data available that modifications to the home can play a key role in preventing falls among older adults. However, the overall impact of a “Healthy Homes” approach to fall prevention is unclear because current home modification efforts only achieve 3 of the 8 elements of a Healthy Home (clean, safe, and well-maintained when fall prevention education is performed).

Achieving all 8 Elements of a Healthy Home often require structural improvements such as energy efficiency and other home performance improvements. Yet, these types of home performance improvements are not often included in fall prevention strategies because of the higher cost.

*An energy efficient home is primarily characterized by minimal energy usage, but can also result in improved air quality, increased thermal comfort, and a reduction in the prevalence of moisture.<sup>16,17</sup> Each of these three byproducts provide logical pathways to diminished risk of falls among older adults. Extreme heat can lead to heat cramps, heat exhaustion, and heatstroke, and several studies have identified older adults as among the most vulnerable to extreme heat events.<sup>18</sup>*

Several studies have shown an association between increasingly cooling temperatures and increased muscle deterioration as well as joint pain and stiffness among adults with arthritis.<sup>19–21</sup> Exposure to volatile organic compounds (VOCs), a common household air pollutant, can result in the following symptoms:<sup>22–24</sup>

- Headache
- Drowsiness
- Lead Service Provider
- Drowsiness
- Lethargy
- Confusion
- Dizziness
- Fatigue

Finally, moisture in a home can make the floors and surfaces more hazardous as well as increase the chances that an individual will slip and fall.

While it is possible for each of these pathways to impact falls risk, as of this writing, there have not been studies found that directly assess the viability of these energy efficiency pathways to impact falls risk among older adults. Broadening fall prevention efforts to include structural improvements that address home performance deficiencies that achieve all other elements of a Healthy Home could result in more significant reductions in risk and rate of falls as well as the associated costs.



## The Policy Landscape

Comprehensive evidenced-based fall prevention strategies among older adults can lead to tremendous savings throughout the U.S. healthcare system as Medicare, Medicaid, private insurers, and providers can benefit from the reduced burden of falls. Currently, most healthy homes modifications are paid for as out-of-pocket expenses by the patient. However, since many patients are unable to afford traditional healthcare, it is necessary for healthcare payers to invest in these strategies to maximize the benefits of fall prevention. The following sections explore challenges and opportunities to implementing a comprehensive “Healthy Homes” model for home-based fall prevention in the current policy landscape.

### Opportunities and Challenges in Medicare Investment

*As the primary payer and regulator for healthcare for older adults and by covering about 78% of falls-related medical costs, Medicare has the greatest influence on coverage for services directed towards preventing falls.<sup>25</sup>*

However, per the Social Security Act, Medicare requires that any service provided must be a “medical necessity”.<sup>26</sup> The concept “medical necessity” is defined as items or services “reasonable and necessary for the diagnosis or treatment of illness or injury or to improve the functioning of a malformed body member.” (42 U.S.C. 1395y [a]).<sup>26</sup> For an individual that has a history of falls, implementing home-based fall prevention strategies could be considered a medical necessity since the greatest risk factor for a fall is whether that individual has fallen previously. However, current policy is not interpreted in this way. For individuals who have not previously fallen, the “medical necessity” guideline creates an inherent tension between fall prevention and the services that Medicare is able to cover.

The first step of fall prevention through “Healthy Homes” is a comprehensive environmental home assessment which is not covered in current Medicare policy. Falls risk assessments are encouraged through Medicare’s Physician Quality Reporting Initiative (PQRI) but are not required, and the Patient Protection and Affordable Care Act (PPACA)

of 2010 instituted an annual preventive care visit while section 4103 of the PPACA mandates the development of a personal prevention plan both to be covered by Medicare.<sup>26</sup> However, none of these programs include an environmental home assessment, which is necessary for a targeted home modification plan. One partial solution would be through Medicare Part A, which covers skilled nursing facility care, hospice care, and some home health services.<sup>27,28</sup>

The following services are home health care benefits covered by Medicare Part A:<sup>27</sup>

- Part-time or intermittent skilled nursing care
- Physical therapy
- Speech-language pathology services
- Occupational therapy
- Medical social services
- Part-time or intermittent home health aide services

Home health care coverage through Medicare Part A requires that the patient be homebound, or physically unable to leave the home.<sup>27,28</sup> Furthermore, home health care must be provided by a Medicare-certified home health agency, and a doctor must certify that the patient is homebound.<sup>27,28</sup> According to Medicare, a patient is "homebound" if both of the following are true:<sup>27,28</sup>

- Under normal circumstances, the patient cannot leave home and doing so would require substantial effort.
- It is medically inadvisable for the patient to leave home without the help of another person, transportation, or special equipment.

In addition, home healthcare requires substantial follow-up and coordination by the referring physician, which may be unlikely in many circumstances due to physicians' busy schedules. If the patient is eligible, Medicare Part A covers the entire cost for covered home health care services except for durable medical equipment.<sup>27,28</sup> As a result, while none of the providers mentioned above are equipped to perform home environmental assessments, all of them can be trained to perform these services in their already covered

home visits for homebound individuals, especially since there are technically no certifications necessary.

For individuals, who are not homebound, Medicare Part B can also provide a mechanism to cover home environmental assessments.<sup>29</sup> Outpatient physical, occupational, and speech therapy pathology services can sometimes be covered under Medicare Part B if Medicare finds that these services are “medically reasonable and necessary”.<sup>29</sup> However, these services are only covered up until the cost limits, or “therapy caps”, are reached.<sup>29</sup> Nonetheless, these outpatient in-home therapy providers can also be trained to perform home environmental assessments for their Medicare Part B holders. The lack of coverage for comprehensive falls risk and environmental home assessments prevents the targeting of high-risk patients, and ultimately, impedes the ability to efficiently provide home modifications and other services to prevent trip and falls from occurring.

Another aspect of a home-based fall prevention strategy is the healthy homes modifications, which are also not often covered by Medicare. The biggest opportunity for coverage for healthy homes modifications is through durable medical equipment (DME). Medicare will cover 80% of the Medicare-approved amount, with the patient covering the remaining 20%, for DME that is ordered by the patient’s doctor and that meets device eligibility requirements.<sup>28,30</sup> For a device to be covered, it must be:<sup>28,30</sup>

- Durable (can withstand repeated use)
- Used for a medical reason
- Not usually useful to someone who isn't sick or injured
- Used in your home
- Prescribed by a doctor
- Has an expected lifetime of at least 3 years

Any device that does not meet all of these criteria cannot be covered by Medicare through Part B. DME that is covered include materials that improve mobility safety such as canes, walkers, and wheelchairs, as well as other medical equipment such as commode chairs, hospital beds, and oxygen equipment.<sup>30</sup> However, many healthy homes modification

equipment such as grab bars, elevated toilet seats, and bath seats, though they are effective in reducing risk and rate of falls among older adults, typically cannot be covered as DME, primarily because these modifications can also be useful for individuals who are not sick or injured.<sup>26</sup> This technicality also creates an inherent tension since ***the most efficient way for Medicare to save money on falls would be to prevent falls from occurring in the first place.*** While many fall prevention activities and equipment are and can be covered by Medicare, there is no mechanism in place that allows for the coverage of the best practices in home-based fall prevention.

Another challenge is the lack of a mechanism to allow Medicare coverage for independent contractors that perform healthy homes modifications. Current Medicare policy mandates that any activities performed must be prescribed by a healthcare provider to be covered. Currently, falls risk assessments are conducted by healthcare providers and have the potential for coverage. The best practice for environmental home assessments is for a BPI-certified risk assessor to complete the comprehensive home assessments. Typically, these assessors are not healthcare providers, and thus cannot submit claims to Medicare for their work nor can they prescribe a scope of work based on their assessment for targeted home modification activities. Community-based contractors have the same issue since they are also not considered healthcare providers.

*In order to achieve the greatest impact on the burden of falls among older adults, Medicare could develop a mechanism to allow for increased coordination among healthcare providers, risk assessors and contractors such that comprehensive risk and environmental home assessments as well as contractor-performed healthy homes modifications can also be covered.*

With the significant potential benefits that fall prevention can provide for the entire U.S. health system, a policy change with respect to Medicare is necessary to allow for the implementation of best practices in fall prevention that include coverage for healthy homes modifications. On February 9th, Congress passed the Bipartisan Budget Bill, which was signed by President Trump, that included legislation that removes some of the barriers to implementing home-based fall prevention programs and could be a sign that the needed

policy changes might be on the way.<sup>31</sup> The CHRONIC (Creating High-Quality Results and Outcomes Necessary to Improve Chronic Care) Act creates opportunities for Medicare Advantage (MA) plans, which are a type of health plan that provides coverage to managed healthcare, to better care for their enrollees.<sup>32</sup> Specifically, this legislation expands the role of the Value-Based Insurance Design model, which allows MA plans to offer supplemental and high-value benefits to individuals with CMS-specified chronic conditions.<sup>33</sup> It is now possible for benefits that are not primarily health-related to be covered, as long as there is “reasonable expectation of improving or maintaining the health or overall function of the chronically ill enrollee.”<sup>34,34</sup> For example, certain interventions such as grab bars and wheelchair ramps that have traditionally been considered non-medical benefits, may now have a path towards coverage.

Furthermore, Medicare Advantage plans now have greater flexibility to experiment with modified benefits packages, depending on the needs of their “chronically-ill enrollees.” Previously, the Centers for Medicare and Medicaid Services (CMS) required MA plans to offer all enrollees access to the same benefits at the same level of cost sharing.<sup>35</sup> Now, MA plans can tailor certain benefits to specific patient populations, which is a major step towards providing specialized healthy homes interventions to at-risk older adults as a way to prevent falls.<sup>34,34</sup> Thus, the flexibility and innovation in this bill might finally allow housing services, which have traditionally been considered social services, to be recognized as medical interventions.

While this legislation provides tremendous opportunity to coordinated care for vulnerable populations, specifically older adults, its practical applications depend on the regulations developed by administrators. Thus, it remains to be seen how much this new legislation will impact Medicare’s ability to cover healthy homes interventions in order to prevent falls. Still, there are several innovative programs around the country (such as the CAPABLE program<sup>i</sup>) that are making the case for the coverage of programs that include home modification by demonstrating the savings that can accrue on the entire healthcare system, but specifically Medicare.

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<sup>i</sup> A case study on this program can be found at the end of the report

## Opportunities and Challenges in Medicaid Investment

While Medicare is the primary payer of health services for older adults, Medicaid can also benefit from home-based fall prevention. Medicaid is currently the largest payer of long-term care. Conceptually, preventing an older adult from falling can extend the amount of time that individual can live independently.



***It is estimated that about 70 percent of adults over the age of 65 will at some point need long-term care services, so every additional year that an individual can live independently equates to an additional year that long-term care is not needed and a reduction in costs to Medicaid.***<sup>36,37</sup>

Beyond this, most of Medicaid's coverage of the older adult population is through long-term care. Medicaid supports care at least partly for almost two-thirds of all nursing homes.<sup>38</sup> To be eligible to receive long-term care through Medicaid, individuals must be either low-income or impoverished from exhausting their assets to pay for medical care expenses. For example, elderly and disabled nursing home residents that qualify for Medicaid through Supplemental Security Income (SSI) cash assistance program must contribute all of their income except a small personal needs allowance, ranging from \$30 to \$105 depending on the state.<sup>39</sup> For many families, qualifying for Medicaid may not be worth the cost, and so they may look to family members or friends to provide alternative methods for long-term care. For this reason, implementing fall prevention strategies through Medicaid's current system would likely not capture the entire population that are at risk of falling.

Still, Medicaid can play a role in implementing home-based fall prevention strategies for Medicaid beneficiaries living in nursing homes. According to the CDC, the average nursing home with about 100 beds reports between 100-200 falls per year with an average of 2.6 falls per person per year.<sup>40</sup> The CDC also estimates that 16-27% of nursing home falls are due to environmental hazards, such as inadequate lighting or slippery floors.

39 With the high prevalence of falls occurring in nursing homes, Medicaid, by covering such a substantial proportion of nursing home stays, can directly influence the implementation of “Healthy Homes” fall prevention strategies in nursing homes.

Beyond a clear financial incentive to invest in fall prevention strategies, Medicaid has the means, in terms of policy infrastructure, to provide evidence- and home-based fall prevention strategies. First, Medicaid Waivers act as vehicles that allow states to pursue new models of care in demonstration projects designed to increase access, value, and quality of healthcare. Home-based fall prevention strategies achieve each of these goals. States can apply for these waivers from CMS to implement projects that involve performing home-based fall prevention strategies to improve population health and simultaneously reduce costs.<sup>41</sup> Second, because of a rule change that was implemented in January 2014, non-clinicians can bill Medicaid for services that could once only be billed for by clinicians.<sup>42</sup> For example, a community fall risk assessor is now able to bill Medicaid for falls risk assessment services that were previously only provided by clinicians. However, while this rule change removes restrictions on who can bill Medicaid for services, it does not remove restrictions on what can be covered. Thus, the community falls risk assessor can bill for falls risk assessment because that service already falls on the list of CMS’s billable services.

Finally, many state Medicaid offices have contracted with Managed Care Organizations (MCOs) and allowed them the flexibility and control to determine how they want to

***The CDC also estimates that 16-27% of nursing home falls are due to environmental hazards, such as inadequate lighting or slippery floors.*** <sup>38</sup>

achieve higher quality, lower cost care.<sup>43</sup> Therefore, housing and home improvement providers, as well as environmental assessors and energy auditors, can collaborate with MCOs to target their older adult populations and provide home-based fall prevention strategies. As of March 2017, 38 states and the District of Columbia had at least one contract with an MCO, and as of January 2017, 12 states had submitted proposals for supportive housing services to CMS.<sup>44,45</sup> Each of these mechanisms (Medicaid Waivers, Medicaid Rule Change, and 2016 Managed Care Organizations) provide the means for Medicaid to pursue home-based fall preventions strategies, but eligibility and other criteria serve as a barrier to the its implementation.

*The most restrictive barrier is that housing services still are not considered medical services. While there is a workaround in value-based payments, until this policy changes, there will always be significant barriers to Medicaid coverage for home-based fall prevention strategies.*

### Opportunities with Dual-Eligibility

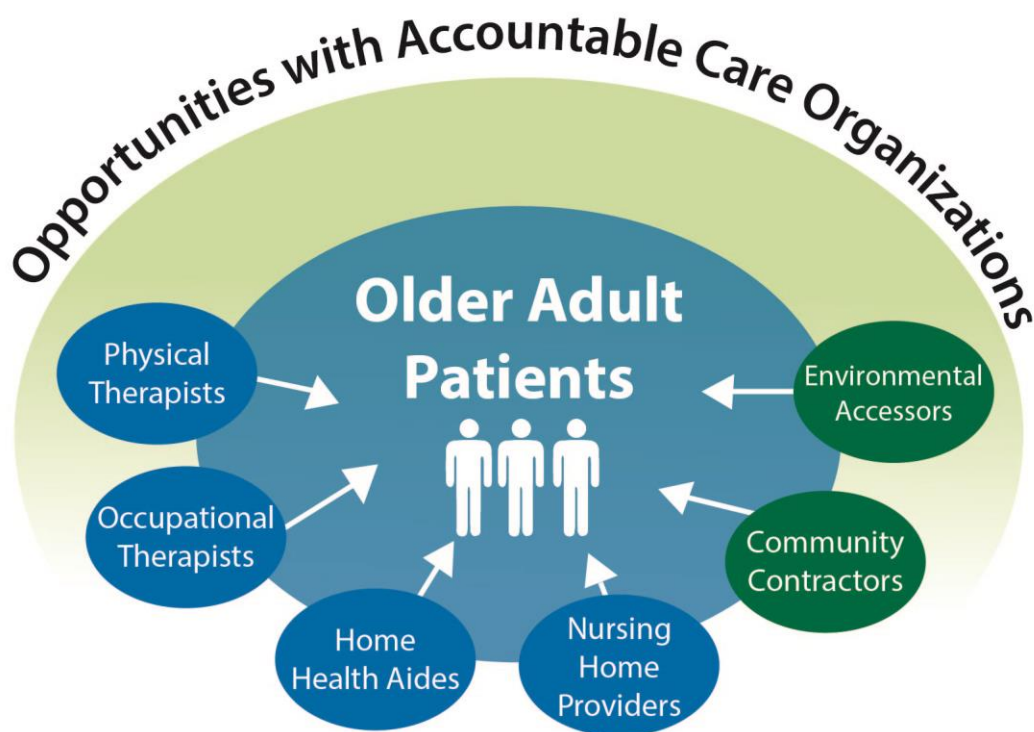
There are many individuals who are dual-eligible, which means that both Medicare and Medicaid cover them. In these cases, Medicare provides initial coverage with Medicaid covering any of the remaining balance. An additional option available to individuals with joint coverage is the Program for All-Inclusive Care for the Elderly (PACE) that was enacted in 2015.<sup>46</sup> This program targets individuals that are eligible for nursing home care and that need extensive geriatric care and allows them to receive care in the community instead of in nursing homes.<sup>47</sup> Organizations that provide services to this patient population can contract with Medicare and Medicaid to provide their services outside of nursing homes. This flexibility is designed to decrease the costs incurred to Medicaid and Medicare and can be useful in enabling the coverage of home-based fall prevention strategies.

### Opportunities with Accountable Care Organizations

Accountable Care Organizations (ACOs) provide another mechanism for coverage of home-based fall prevention programs. As a model of care that grew out of the Affordable



Care Act and are designed to improve patient outcomes and reduce cost, an ACO refers to a group of healthcare providers that work together to manage and coordinate care for a group of patients.<sup>48</sup> For example, a physician that treats a population of older adults can form an ACO with physical and occupational therapists, home health aides, and/or nursing home providers in order to provide comprehensive care to any of their patients that may suffer from a fall. Originally, ACO's were supported only under Medicare. However, Medicaid, recognizing the potential, also began approving requests to form ACO's.<sup>49</sup>



While there is potential for home-based fall prevention strategies to be covered under ACOs, there are significant barriers. Currently, ACO's still operate under the fee-for-service payment model, which does not encourage providers to pursue preventative measures.<sup>50</sup> Instead, ACO's attempt to improve care quality and reduce costs by offering incentives and bonuses to providers for keeping their patients healthy.<sup>50</sup> Since they share financial and medical responsibility for patient outcomes, it is in each healthcare provider's best interest to provide high quality care. Furthermore, only healthcare providers can formally enter an ACO contract, which creates another barrier to the implementation of a comprehensive "Healthy Homes" approach to fall prevention through an ACO.<sup>48</sup> This

prevents environmental assessors and contractors, who are important in the “Healthy Homes” fall prevention model, from formally collaborating with healthcare providers. Again, this nuance is another example of a barrier to the coverage of home-based fall prevention programs that arise because housing interventions are not considered a healthcare service.

### Opportunities in Hospital Investment

Fall prevention among older adults can benefit hospitals and health systems that provide care to Medicare patients. Falls, which are the most common cause of nonfatal trauma-related hospital admissions among older adults, result in more than 2.8 million injuries treated in emergency departments annually, including 800,000 hospitalizations.<sup>6</sup> It is estimated that every 13 seconds, an older adult is treated in the emergency room for a fall.<sup>51</sup> Unfortunately, this tremendous volume does not correlate to profits or a break-even amount. In 2015, hospitals only received 88 cents per dollar spent on Medicare patients, resulting in a combined deficit of \$41.6 billion.<sup>52,53</sup> This arrangement creates an incentive for hospitals and health systems to invest in fall prevention to reduce the number of Medicare patients entering the hospital.

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In addition, nonprofit hospitals have an additional incentive to invest in fall prevention with hospital community benefits. Section 9007 of the Affordable Care Act clarified that nonprofits hospitals have a responsibility to address the specific needs of the communities of which they serve.<sup>54</sup> In order to keep their nonprofit tax-exempt status, they are required to perform a community needs assessment every 3 years and implement strategies to address their community’s specific needs.<sup>54</sup> For nonprofit hospitals that serve a substantial proportion of older adults, investing in home-based fall prevention strategies can be a way to both save money and retain their nonprofit tax-exempt status.

## Potential Mechanism in Value-Based Care

Recently, there has been a shift from the fee-for-service healthcare delivery model to a more value-based care model. Under the fee for service model, hospitals and healthcare providers were paid based on the volume of patients for whom care was provided. This resulted in perpetually increasing healthcare costs as hospitals and healthcare providers had no incentive, beyond moral commitment, to provide sustainable and long-lasting care. Now, healthcare is moving toward a more value-

based care model, where healthcare providers would be rewarded based on their ability to provide high-quality care.<sup>55</sup> As mentioned earlier, value-based care can serve as a workaround to the failure of home-based fall prevention interventions to be considered medical services. Prescribing healthy homes interventions measures would be considered high-quality care, given its effectiveness at both preventing falls among older adults and reducing costs to the healthcare system. The primary obstacle to implementing a value-based care model is the payment mechanism. Many states have pursued the development of value-based payments.<sup>56</sup> However, there is still work to be done to develop payment models that account for non-medical services, cross-sector partnerships, and increased care coordination.<sup>57</sup>

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## Policy Recommendations

Healthy homes interventions are effective in preventing falls among older adults, but as of now, there are no policy mechanisms that provide unrestricted support for a “Healthy Homes” fall prevention model. Given its role as the primary payer for adults over the age of 65, much of the burden falls on Medicare to develop mechanisms that allow for healthy homes interventions. However, Medicaid can also play a significant role given its responsibility in covering long-term care for patients, many of whom have either suffered from or will suffer from a trip in fall. The following recommendations point to policy changes that can maximize comprehensive, home-based fall prevention efforts:

1. Medicare could require that providers perform a falls risk assessment, including a home environmental assessment for the patient’s annual Wellness visit.
2. Medicare could allow all home-based measures that reduce the risk of falls among older adults to be classified as DME that is eligible for reimbursement. This would require physicians to gain the ability to issue a prescription for home-based fall prevention measures, which would require both the item and the corresponding labor to have a billing number.
3. Medicare could implement a mechanism that allows non-medical personnel, including private contractors, to get paid for services that they provide under orders of physicians or nurse practitioners. In practice, this means that non-medical personnel need a way to earn a billing number that would enable reimbursement from Medicare. Medicare should consider the Healthy Homes micro-credential as the official certification needed for a contractor or environmental assessor to earn a billing number.
4. Similar to Medicaid waivers under sections 1115/1915 that states can apply to in order to test innovative service delivery, care coordination or payment mechanisms, there are also waivers under sections 402/222 that apply to Medicare. Any organization or individual can propose a Medicare waiver but must be approved by CMS or mandated through congressional legislation. Both Medicare and Medicaid waivers allow the coverage of innovative pilot projects designed to improve the quality and reduce the cost of healthcare for older adults.<sup>58</sup> Still,

while waivers are useful tools, they often take a lot of resources and time to get approved and operationalized.

5. State Medicaid offices could look to increase the amount of resources available for fall prevention strategies to reduce the burden of long-term care. They could direct insurance companies to devote more resources to fall prevention to reduce the burden of long-term care.
6. State Medicaid offices can include an amendment in their State Plan that directs insurance companies to mandate that all nursing homes implement “Healthy Homes” fall prevention strategies to reduce to risk and prevalence of falls in nursing homes. Each state’s Medicaid State Plan dictates the policies and procedures that must be adhered to in administering the Medicaid program and must be approved by federal CMS. Thus, state Medicaid offices and insurance companies would still need to negotiate with the federal government to allow the inclusion of fall prevention strategies as a reimbursable expense in the state plan as well as the requirement for nursing homes to implement “Healthy Homes” fall prevention strategies for patients that are at-risk.
7. Medicaid and Medicare could collaborate to ensure that dual eligible patients also gain access to home-based fall prevention services. This would require tremendous coordination amongst Medicaid and Medicare to determine which aspects of home-based fall prevention services are covered by each entity.
8. Nonprofit hospitals could pursue the investment of home-based fall prevention measures for their older adult patient population as a way of keeping their tax-exempt status. Beginning in 2008, the IRS has mandated that non-profit hospitals provide data on exactly what services are provided to the broader community that merit tax-exemption. Home-based fall prevention measures, as an evidence-based approach, can both improve the health of older adults in the community as well as provide hospitals with measurable data that can be shared with the IRS.
9. CMS could consider allowing any intervention or service that improves the health of patients to be a considered medical service that is eligible for reimbursement from Medicare or Medicaid. If this policy is adjusted, CMS must issue a notice

that alerts state Medicaid offices, providers, health plans, and patients of the change.

10. Private health insurers and MCO's could pursue the development of an alternate payment model that allows for coverage of home-based fall prevention measures through value-based payments. This payment structure for home-based fall prevention measures would, as evident through numerous studies, reduce trip- and fall-induced healthcare utilization and its related costs for the older adult population. Through the value-based payment arrangement, the amount of the reduction in healthcare utilization costs would then be eligible to be paid to the service provider(s), which could be a hospital, physician, or a third-party contractor, that were directly responsible for the reduction in costs. In the case of home-based fall prevention strategies, the service providers that would become eligible to receive value-based payments could include environmental assessors that evaluate the home for hazards, contractors that complete the home interventions, and in-home educators that advise patients on specific strategies to reduce their risk of falling. This recommendation is a promising one but depends on the structure of the value-based contracts between MCOs and the service providers, which can be difficult to negotiate.





## Case Studies

### **Case Study: Community Aging in Place, Advancing Better Living for Elders (CAPABLE)**<sup>59,60</sup>

This program, funded by the Center for Medicare and Medicaid Innovation, began in Baltimore, Maryland and served almost 300 participants in its pilot phase. The program targeted older adults, who were over the age of 65, had trouble performing ADLs, were eligible to for Medicare and Medicaid, lived in a house, and did not suffer from cognitive impairment, and strived to improve their ability to age in place. Through the program, participants received ten home visits over a five-month period (four from a registered nurse and six from an occupational therapist). Beyond these clinical services, based on a risk assessment of the living conditions and the individual's own goals for improved functioning at home, the therapist worked with a contractor to install grab bars and handrails, to make additional safety repairs around the home, and to purchase assistive items such as a shower seat and a heating pad. With no out-of-pocket costs for the clients, the program spent about \$2,825 per participant. Overall the pilot program saw 75% of the participants improve their ability to perform ADL and ultimately, saved Medicare an average of \$20,000 over two years and Medicaid an additional \$10,000 in health care costs per participant.



**Study: The Habitat for Humanity of Greater Memphis Aging in Place Program**

The Habitat for Humanity of Greater Memphis Aging in Place (AIP) program has directly impacted the life of 400 seniors—allowing them to live safely in their own homes longer, with the dignity and respect they deserve. The program provides accessibility modifications, safety interventions, roof repairs, and other critical structural repairs to seniors that would not have had the resources to address their housing issues. In fact, one-third of the seniors believe they would have had to leave their homes and of those, 33% said they would have had to leave immediately and 50% would have had to leave their home within the next three years. Self-reported data of the first 216 participants show a 75% reduction in the number falls post intervention. In addition, the AIP program demonstrates the importance of comprehensive home interventions as 66% noticed an improvement in their breathing health and 99% of clients have reported significant utility savings, allowing them to spend more on medications and other essential expenses. The repairs and modifications completed through the AIP program can prevent a senior homeowner who is unable to physically or financially repairs their home, from prematurely going into a tax-subsidized nursing home or assisted living facility, at a cost of \$42,000-\$82,000 per year.



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