

INTRODUCTION

Falls are a major health problem among older adults in the United States. One of every three people over the age of 65 years living in the community falls each year, and this proportion increases to one in two by the age of 80 years.¹⁻³

Fall-related injuries in older adults often reduce mobility and independence and are often serious enough to result in a hospitalization and an increased risk of premature death.⁴ Studies among older persons in the community have found that about 10 percent of the fallers have a serious fall-related injury, including fractures, joint dislocations, or severe head injuries.⁵⁻⁷ Falling has also been found to be associated with subsequent admission to a nursing home.⁸

The costs of health care related to fall-related injuries and fractures, including hip fractures, are staggering. The total direct cost of all fall injuries in older adults in 1994 was \$20.2 billion and is estimated to reach \$32.4 billion by 2020.⁹ Medicare costs for hip fractures were estimated in 1991 to be \$2.9 billion.¹⁰ With an aging population and a growing number of hip fractures, these cost estimates are projected to rise to as high as \$240 billion by the year 2040.¹¹

The causes of falls are diverse and complex. Older adults often have several predisposing risk factors, many as a result of chronic diseases and age-related physiologic changes. The contribution of each risk factor depends on the medical and environmental factors themselves. Some of the common medical conditions that may contribute to falling and also tend to be more prevalent in older adults include impaired vision, dizziness, parkinsonism, transient ischemic attacks, hypotension, arrhythmia, incontinence, osteoarthritis, muscle weakness, osteoporosis, hypothyroidism, anemia, dehydration, depression, dementia, and polypharmacy. Some of the common environmental factors that may contribute to falling include hazardous floors, slippery bathtubs, low toilet seats, lack of grab bars, insecure carpets, and poor lighting. All older persons are at risk, regardless of activity level. While the majority of falls do not result in a serious injury, falls tend to recur, and the subsequent fear of falling often leads to restrictions in activity and functional decline.¹⁸

Several key risk factors for falling (such as balance impairment, muscle weakness, polypharmacy, and environmental hazards) are potentially modifiable.³ However, the interventions designed to address these risk factors share the same diversity. Likewise, the evidence for the effectiveness of any single intervention on the prevention of falls has been inadequate.¹² Since the risk of falling appears to increase with the number of risk factors,³ multifactorial interventions have been suggested as the most effective strategy to reduce falling. A few multifactorial interventions have shown some reduction in the risk of falling among elderly in the community,¹⁶ but more evidence on the reduction in the rate of falls is needed. While numerous interventions have been studied in the prevention of falls, results have been mixed and there is still uncertainty as to which interventions are clinically effective or cost-effective, or what kind or combination of interventions should be included in a program to prevent falls.

The prevention of falls is an important issue if it can prevent significant declines in function and independence and the associated increased costs of complications. To better understand which interventions may be beneficial in the Medicare population, the Centers for Medicare and Medicaid Services (CMS), as part of its Healthy Aging Project, commissioned an evidence-based systematic review of interventions aimed at preventing falls; the results of this review are detailed in this report.