

## The Facts: Trips & Falls<sup>1</sup>

Among people 65 years and older, falls are the leading cause of injury deaths and the most common cause of nonfatal injuries and hospital admissions for trauma. Each year in the United States, nearly one third of older adults experience a fall.

In 2003, more than 13,700 people 65 years or older died of fall-related injuries. Another 1.8 million were treated in emergency departments for nonfatal injuries related to falls. The total direct cost for falls among older adults in 2000 was about \$19 billion. Given the growing population of this age group, this cost is expected to reach \$43.8 billion by 2020.

To learn more about falls among older adults and what can be done to prevent them, check out the materials that follow.

- More than one third of adults 65 and older fall each year in the United States (Hornbrook et al. 1994; Hausdorff et al. 2001).
- Among older adults, falls are the leading cause of injury deaths. They are also the most common cause of nonfatal injuries and hospital admissions for trauma (CDC 2006).
- In 2004, 14,900 people 65 and older died from injuries related to unintentional falls; about 1.8 million people 65 and older were treated in emergency departments for nonfatal injuries from falls, and more than 433,000 of these patients were hospitalized (CDC 2006).
- The rates of fall-related deaths among older adults rose significantly over the past decade (Stevens 2006).

### What outcomes are linked to falls?

- Twenty percent to 30% of people who fall suffer moderate to severe injuries such as bruises, [hip fractures](#), or head traumas. These injuries can make it hard to get around and limit independent living. They also can increase the risk of early death (Alexander et al. 1992; Sterling et al. 2001).
- Falls are the most common cause of traumatic brain injuries, or TBI (Jager et al. 2000). In 2000, TBI accounted for 46% of fatal falls among older adults (Stevens et al. 2006).
- Most fractures among older adults are caused by falls (Bell et al. 2000).
- The most common fractures are of the spine, hip, forearm, leg, ankle, pelvis, upper arm, and hand (Scott 1990).
- Many people who fall, even those who are not injured, develop a fear of falling. This fear may cause them to limit their activities, leading to reduced mobility and physical fitness, and increasing their actual risk of falling (Vellas et al. 1997).
- In 2000, direct medical [costs](#) totaled \$0.2 billion (\$179 million) for fatal falls and \$19 billion for nonfatal fall injuries (Stevens et al. 2006).

### Who is at risk?

- Men are more likely to die from a fall. After adjusting for age, the fall fatality rate in 2004 was 49% higher for men than for women (CDC 2005).
- Women are 67% more likely than men to have a nonfatal fall injury (CDC 2006).

- Rates of fall-related fractures among older adults are more than twice as high for women as for men (Stevens et al. 2005).
- In 2003, about 72% of older adults admitted to the hospital for hip fractures were women (CDC 2005).
- The risk of being seriously injured in a fall increases with age. In 2001, the rates of fall injuries for adults 85 and older were four to five times that of adults 65 to 74 (Stevens et al. 2005)
- Nearly 85% of deaths from falls in 2004 were among people 75 and older (CDC 2006).
- People 75 and older who fall are four to five times more likely to be admitted to a long-term care facility for a year or longer (Donald et al. 1999).
- There is little difference in fatal fall rates between whites and blacks from ages 65 to 74 (CDC 2006).
- After age 75, white men have the highest fatality rates, followed by white women, black men, and black women (CDC 2006).
- White women have significantly higher rates of fall-related hip fractures than black women (Stevens 2005).
- Among older adults, non-Hispanics have higher fatal fall rates than Hispanics (Stevens et al. 2002).

### **How can older adults prevent falls?**

Older adults can take several steps to protect their independence and reduce their risk of falling. They can:

- Exercise regularly; exercise programs like Tai Chi that increase strength and improve balance are especially good.
- Ask their doctor or pharmacist to review their medicines—both prescription and over-the-counter—to reduce side effects and interactions.
- Have their eyes checked by an eye doctor at least once a year.
- Improve the lighting in their home.
- Reduce hazards in their home that can lead to falls.

### **How do we calculate costs?**

The costs of fall-related injuries are often shown in terms of direct costs.

- Direct costs are what patients and insurance companies pay for the treatment of fall-related injuries. These costs include fees for hospital and nursing home care, doctors and other professional services, rehabilitation, community-based services, use of medical equipment, prescription drugs, changes made to the home, and insurance processing (Englander et al. 1996).
- Direct costs do not account for the long-term effects of these injuries, such as disability, dependence on others, lost time from work and household duties, or reduced quality of life.

### **How costly are fall-related injuries among older adults?**

- A study of people 72 and older found that the average health care cost of a fall injury was \$19,440 (including hospital, nursing home, emergency room, and home health care, but not doctors' services) (Rizzo et al. 1998).

- The total direct cost of all fall injuries for people 65 and older in 2000 was slightly more than \$19 billion: \$0.2 billion (\$179 million) for fatal falls, and \$19 billion for nonfatal falls (Stevens et al. 2006).
- By 2020, the annual direct and indirect cost of fall injuries is expected to reach \$43.8 billion (in current dollars) (Englander et al. 1996).

## **How do these costs break down?**

### ***Age and sex***

- The costs of fall injuries tend to increase with age (Stevens et al. 2006).
- In 2000, the costs of both fatal and nonfatal falls were higher for women than for men (Stevens et al. 2006).
- Medical costs for women, who made up 58% of older adults in 2000, were two to three times higher than for men (Stevens et al. 2006).

### ***Type of injury and treatment setting***

- In 2000, nearly two thirds of the costs for nonfatal fall injuries were for those needing hospitalization. One fifth of costs were for injuries treated in emergency rooms (Stevens et al. 2006).
- Fractures were both the most common and most costly type of nonfatal injuries. Just over one third of nonfatal injuries were fractures, but they made up 61% of costs—or \$12 billion (Stevens et al. 2006).
- Hip fractures are the most frequent broken bones from falls. In the United States, 44% of direct health care costs for hip fractures are for hospitalization (Barrett-Connor 1995).
- Traumatic brain injuries and injuries to the hips, legs, and feet were the most common and costly fatal fall injuries in 2000. They made up 78% of fatalities and 79% of costs (Stevens et al. 2006).
- Injuries to internal organs caused 28% of deaths and accounted for 29% of costs from fatal falls (Stevens et al. 2006).

## Hip Fractures:

### What outcomes are linked to hip fractures?

- As many as 20% of hip fracture patients die within a year of their injury (Leibson et al. 2002).
- Most patients with hip fractures are hospitalized for about one week (Popovic 2001).
- Up to 25% of adults who lived independently before their hip fracture have to stay in a nursing home for at least a year after their injury (Magaziner et al. 2000).
- In 1991, Medicare costs for hip fractures were estimated to be \$2.9 billion (CDC 1996).

### Who is at risk?

- Women sustain about 80% of all hip fractures (Stevens et al. 2000).
- In 2003, 72% of hip fracture hospitalizations were among women (NCHS 2006).
- Among both sexes, hip fracture rates increase exponentially with age (Samelson et al. 2002). People 85 and older are 10 to 15 times more likely to sustain hip fractures than are people ages 60 to 65 (Scott et al. 1990).
- People with osteoporosis are more likely to sustain a hip fracture than those without this condition (Greenspan et al. 1994).

### How can hip fractures be prevented?

Hip fractures can be prevented by preventing falls. Fall prevention strategies include:

- Exercising regularly; exercise programs like Tai Chi that increase strength and balance are especially good.
- Having medicines reviewed—both prescription and over-the counter—to reduce side effects and interactions.
- Having yearly eye exams.
- Reducing fall hazards in the home.

The most effective way to prevent fall-related injuries, including hip fractures, is to combine these strategies (RAND 2003).

## **Nursing Home Falls:**

### **Why do falls occur more often in nursing homes?**

Falling can be a sign of other health problems. People in nursing homes are generally more frail than older adults living in the community. They tend to be older, have more chronic illnesses, and have difficulty walking. They also tend to have problems with thinking or memory, to have difficulty with activities of daily living, and to need help getting around or taking care of themselves (Bedsine et al. 1996). All of these factors are linked to falling (Ejaz et al. 1994).

### **What are the most common causes of nursing home falls?**

- Muscle weakness and walking or gait problems are the most common causes of falls among nursing home residents. These problems account for about 24% of the falls in nursing homes (Rubenstein et al. 1994).
- Hazards in the nursing home cause 16% to 27% of falls among residents (Ejaz et al. 1994; Rubenstein et al. 1994). Such hazards include wet floors, poor lighting, incorrect bed height, and improperly fitted or maintained wheelchairs (Rubenstein et al. 1994; Ray et al. 1997).
- Medications can increase the risk of falls and fall-related injuries. Drugs that affect the central nervous system, such as sedatives and anti-anxiety drugs, are of particular concern (Mustard et al. 1997; Ray et al. 2000).
- Other causes of falls include difficulty in moving from one place to another (for example, from the bed to a chair), poor foot care (Ray et al. 1997), poorly fitting shoes, and improper or incorrect use of walking aids (Tinetti 1987).

### **How can we prevent falls in nursing homes?**

Fall prevention takes a combination of medical treatment, rehabilitation, and environmental changes. The most effective interventions address multiple factors. Interventions include:

- Assessing patients after a fall to identify and address risk factors and treat the underlying medical conditions (Rubenstein et al. 1990).
- Making changes in the nursing home environment to make it easier for residents to move around safely. Such changes include putting in grab bars, adding raised toilet seats, lowering bed heights, and installing handrails in the hallways (Ray et al. 1997).
- Reviewing prescribed medicines to assess their potential risks and benefits and to minimize use (Cooper 1994; Cooper 1997).
- Providing patients with hip pads that can effectively prevent most hip fractures if a fall occurs (Kannus et al. 2000).
- Using devices such as alarms that go off when patients try to get out of bed or move without help (Rubenstein et al. 1994).

Exercise programs can improve balance, strength, walking ability, and physical functioning among nursing home residents. However, it is unclear whether such programs can reduce falls (Nowalk et al. 2001; Vu et al. 2005).

### **Do physical restraints help prevent falls?**

- Routine use of restraints does not lower the risk of falls or fall injuries. They should NOT be used as a fall prevention strategy (Capezuti et al. 1996).



- Restraints can actually add to the risk of fall-related injuries and deaths (Rubenstein et al. 1994). Limiting a patient's freedom to move around leads to muscle weakness and reduces physical function (Rubenstein et al. 1997).
- Since federal regulations took effect in 1990, nursing homes have reduced the use of physical restraints (Rubenstein et al. 1994). Some nursing homes have reported an increase in falls since the regulations took effect, but most have seen a drop in fall-related injuries (Ejaz et al. 1994).

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<sup>i</sup> <http://www.cdc.gov/ncipc/duip/preventadultfalls.htm>