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PREVENTING FALLS IN THE ELDERLY

ONE THIRD OF all U.S. adults ≥ 65 years of age fall each year. Falls are the leading cause of injury-related hospitalization and death for older Americans.¹ This group comprises 13% of the overall population, yet they account for 73% of all fall-related deaths. In 1999, more than 10,000 seniors died as a result of falls; 61% of these were among persons ≥ 75 years old. In 2000, falls accounted for 1.6 million hospitalizations. The direct medical care costs exceeded \$20 billion. This issue of the *CD Summary* summarizes U.S. and Oregon data on falls among those ≥ 65 years old, examines risk factors, and discusses prevention strategies.*

U.S. AND OREGON DATA

Nationally, men have higher fall death rates than women. Rates are highest for white men (39.9 per 100,000), followed by Asian/Pacific Islander men (37.0), white women (25.9) and American Indian/Native Alaskan women (23.1). Rates are also shown to increase exponentially with age. The rate for those 65 to 69 years of age is 7.3 per 100,000. By 85 years, the rate increases fifteen-fold to 110.2.

Oregon ranks 30th in the nation for fall deaths among the elderly. Although rates in Oregon are lower than the na-

tional average, Oregon and U.S. data are comparable. Gradual increases have been observed in both Oregon and U.S. rates. Since 1990, approximately 174 fall deaths occurred each year in Oregon. Similar to the U.S. as a whole, the death rates for Oregon men are higher than that of their female counterparts.

In Oregon, as in the U.S., fall death rates increase with age. In 2001, rates for seniors aged 85 and older are more than twenty-nine times higher than rates for those aged 65 to 69 (380.6 vs. 7.9).

LOCATION OF FALLS

In 2001, 7,394 hospitalizations were due to falls among the elderly in Oregon. The greatest number of these were falls on the same level caused by slipping, tripping, or stumbling (40%). Other common locations include falls on stairs or steps (4%), from beds (4%), ladders (2%), chairs (2%), and wheelchairs (1%). Women were three times more likely than men to fall from chairs and two times more likely to fall from beds. Men were four times more likely than women to fall from ladders.

RISK FACTORS

While some falls have single, apparent causes, most are multi-factorial in nature. Factors that increase the risk of falling include demographics, medical conditions, medications, and environmental factors.² As age increases, so does the risk of serious fall-related injury and hospitalization. Individuals 85 years of age are nearly 11-1/2 times more likely to be hospitalized than those aged 65 to 69 years. Whites are more likely to be injured in a fall than any other racial group. This is particularly true for white women. Possible reasons for these disparities include a lower number of reported falls and greater bone density among nonwhites.

Physical conditions such as decreased leg sensation, abnormalities of balance and gait, dizziness, weakness,

incontinence, and vision impairment or loss have been shown to be associated with an increased risk of falling. In addition, heart disease, stroke, Parkinson's, arthritis, low or high blood pressure, and diabetes all increase the risk of falling. Diminished mental capacity, such as that resulting from dementia or depression, may also increase fall risk as confusion, impaired judgment, and agitation often accompany these conditions.

Many elderly are prescribed sedatives, antidepressants, antipsychotics, blood pressure medications, pain medications, and antihistamines. These medications may reduce alertness, increase dizziness, cause syncope and/or other side effects increasing the risk of falling. Finally, environmental hazards such as loose rugs, stairs, curbs, uneven surfaces, and thick-soled shoes may pose considerable danger.

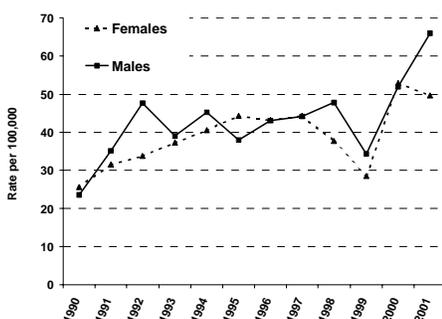
THE FALL RISK CYCLE

A history of a previous fall is also a risk factor for repeat falls. This is referred to as the fall risk cycle. As a result of being injured or traumatized by a fall, individuals enter an emotionally draining cycle which begins with the fear of repeat falling. This can easily progress to decreased activity, and changes in gait patterns and balance. These in turn lead to an increased risk of repeat falling. It is important for health care providers and care-givers to realize that the elderly patient who has been injured in a fall needs emotional support as well as medical attention.

Fall risk cycle



Fall death rates, age ≥ 65 years, Oregon, 1990–2001



* Gravity—it's the law!



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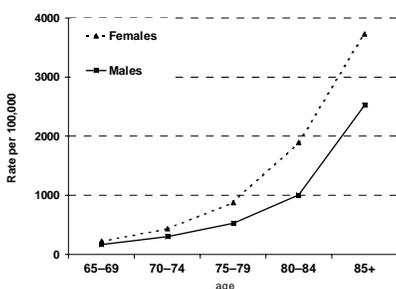
COMPLICATIONS OF FALLS

Fractures are the most serious complication associated with falls. Most common are fractures of the pelvis, hip, femur, vertebrae, humerus, hand, forearm, leg and ankle.³ Of these, hip fractures are the most serious and lead to the greatest number of health problems and death. In 2001, 4,315 hospitalizations in Oregon were due to hip fractures in the elderly. Women accounted for 73% of these admissions and men accounted for 27%.

Hip fracture rates also known to increase with age. Rates for those aged 85 and older are seventeen times higher than rates for those aged 65 to 69 (3,357.1 vs. 197.3 per 100,000). Women are at higher risk for hip fracture than men (see figure). Evidence also suggest that the physical toll is harsher for women than for men, as approximately 20% of women who experience a hip fracture die within a year after the fracture and another 20% lose the ability to walk independently.⁴⁻⁵

Hip fractures are costly. Direct treatment costs for hip fractures alone were in excess of \$70 million. This does not

Hip fracture hospitalization rates, Oregon, 2001



account for the cost of long-term, post-hospitalization care which is enormous, given that 71% were transferred to a skilled or intermediate care facility and only ten percent were routinely discharged.

PREVENTION

Falls are largely preventable and should not be regarded as an inevitable outcome of aging. Preventive action should involve multifaceted interventions that combine several strategies. Below are some strategies physicians, older persons and their care-givers can do to reduce the risks of falling.

- Provide information on gait training and advise patients on the appropriate use of assistive devices such as walkers and canes.
- Participate in regular exercise programs that emphasize balance and strength training.
- Routinely review medications to check for side effects and possible drug interactions.
- Screen for osteoporosis, postural hypotension, and other cardiovascular disorders, including cardiac arrhythmia. Treat diagnosed conditions.
- Consider bone strengthening medications such as hormone replacement therapy, calcium, vitamin D, and antiresorptive agents (e.g., raloxifene, alendronate, risedronate, or calcitonin) to reduce risk of fall-related fractures.
- Examine home environment for hazards. Remove clutter and small rugs from floors. Keep frequently used items in low, reachable cabinets; use

handrails and lights on stairs; install grab bars next to toilets and in showers, and improve overall lighting throughout the home.

- Recommend shoes that are supportive, thin, and have non-slip soles.
- Anatomically-designed external hip protectors may reduce the risk of hip fracture in frail elderly adults.⁶

CONCLUSIONS

The high frequency and fatal nature of falls in the elderly are major concerns. Because individuals over 65 years are the fastest growing segment of the population, more efforts should be directed toward education and prevention of fall-related injuries. Health care providers, public health workers, family, friends, and care-givers all have an important role in ensuring that our seniors are healthy and that their fall risks are minimized.

RESOURCES

For a handy patient brochure, *Check for Safety: a Home Fall Prevention Checklist for Older Adults*, please visit the National Center for Injury Prevention and Control's website at www.cdc.gov/ncipc/pub-res/toolkit/cksafety.pdf.

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