LEARNING OBJECTIVES

To understand the
• Scope and complications of falls
• Causes of falls and fall risk
• Preventive strategies that can reduce falls

SCOPE OF THE PROBLEM AND COMPlications

Falls are a significant issue for individuals with intellectual and developmental disabilities (I/DD); each year, up to one third of individuals fall. About two thirds of these individuals experience multiple falls. Although the majority of falls do not result in injury, the more falls an individual has, the greater the chance of injury.

Approximately 15% of falls result in physical injury serious enough to warrant medical attention. About 10% of falls lead to minor injuries (e.g., head and soft tissue trauma, musculoskeletal sprains) and the remaining 3%–5% result in serious injuries (e.g., head trauma, hip and extremity fractures, spinal cord injury). Individuals with I/DD may not have the protective reflexes to prevent serious injuries when they fall.

As many as 43% of all injuries reported in individuals with I/DD are a result of falls. Injury due to falls represents one of the leading causes of liability claims against group homes and other care providers. Falls often lead to a fear of falling, which can result in reduced mobility and independence, particularly if a person loses confidence in the ability to perform everyday activities. As many as 50% of individuals who have fallen avoid activities—particularly activities that led to a previous fall—because of fear of further falls or injury. Falls can also lead to episodes of depression, particularly if a person experiences any loss of independence and mobility as a result. When individuals with I/DD fall, family members are affected as well. They often become worried and concerned about the safety of their loved one.

CIRCUMSTANCES OF FALLING

In individuals with I/DD, the majority of falls occur when individuals are going about their usual activities of daily living. Most falls occur in activity rooms, dining rooms, hallways, bathrooms, and outdoors. The most frequent activities at the time of falling include walking up or down stairs and steps; getting on and off buses and vans; falling
Falls in individuals with I/DD can be reduced by understanding

- Why falls occur
- What factors are associated with fall risk
- Which strategies reduce fall risk
- What actions can be taken to prevent falls

CAUSES OF FALLING

Falls have many different causes, and individuals with I/DD may have several predisposing risk factors. The relative contribution of each risk factor differs according to the individual's underlying medical condition, functional level, and environmental circumstances.

Falls in individuals with I/DD are typically caused by a combination of internal factors (e.g., acute and chronic disease states, adverse medication effects) and external factors (e.g., environmental hazards and obstacles interfering with mobility). The likelihood of falling increases with the number of risk factors a person has (see Understanding Fall Risk).

Internal factors resulting from the client’s physical or mental condition that contribute to the risk of falls include

- Poor vision and hearing
- Unsteady gait and balance
- Neurological disorders
- Seizures
- Cardiac or heart abnormalities
- Muscle weakness
- Arthritis
- Foot problems
- Low blood pressure
- Cognitive or mental impairment
- Thyroid abnormalities
- Medication side effects
- Dizziness
- Pain
Falls in Individuals with I/DD

- Fatigue
- Urinary frequency or incontinence
- Behavior problems

**External factors** associated with fall risk consist of environmental obstacles and design features that interfere with safe mobility. Some of these include

- Floor spills and clutter
- Slippery floor surfaces
- Wet outdoor walking surfaces
- Unstable or low chairs or beds
- Poor/dim lighting
- Lack of bathroom grab bars
- Low toilet seats
- Faulty stairs/steps
- Improper footwear
- Improper utilization or poor repair (worn tips, structural defects) of canes, walkers, and wheelchairs

The risk of the environment contributing to falls is greatest for individuals who have mobility problems because hazardous environmental conditions can interfere with safe mobility.

**FALL PREVENTION**

Preventing falls in individuals with I/DD should focus on minimizing fall risk and the risk of injurious falls while maximizing individual independence. The ability to prevent falls generally follows a step-by-step process (see Fall Prevention Protocol).

**Step 1: Fall Potential**

Is the client at risk of falling? Recall that many factors are associated with falls. The best way to determine a client’s fall potential and individual risk factors is to complete a fall risk assessment.

- Does the client have a history of falls? Ask all clients and their caregivers about the occurrence of falls during the preceding month. Detecting a recent history of falling is crucial because having one or more falls is a strong predictor of future falls.
- A fall risk assessment includes listing significant risk factors, reviewing the circumstances surrounding previous falls (if the client has fallen), and briefly assessing the client's mobility (see Fall Risk Intervention and Screening Tool).
It is important to recognize that fall risk prediction is imprecise. Some low-risk clients may fall, and some high-risk individuals may not. Effective risk assessment should enable staff to anticipate risks correctly more often than not, however.

Step 2: Identification of Risk

Following fall risk screening, it is important for all staff members to be aware of the client’s fall risk status. Simple reminders such as colored wrist bracelets for at-risk individuals or the use of colored stickers or tags placed on a client’s clothing can be used to communicate risk status. These identification methods remind staff that the client is at high risk for falls and should trigger interventions that reduce the risk of falls, such as supervision or assistance with ambulation.

Step 3: A Plan for Managing Fall Risk

Once a client’s potential or risk of falling has been identified, it is important to plan interventions or strategies aimed at reducing the likelihood of falling. Fall prevention strategies that are put into place should be based on the specific risk factors identified from the client’s fall risk assessment. Since risk or the occurrence of falls in clients with I/DD may have more than one cause, several interventions or strategies may be required. Strategies should address both internal and external risk factors.

Medical Strategies

Because falls and fall risk factors may be caused by underlying diseases, adverse medication effects, and resulting disabilities, all clients should be referred to their primary care provider for evaluation. Diagnosing and treating risk factors such as visual disorders, gait and balance impairment, muscle weakness, cognitive impairment, postural hypotension, and cardiovascular irregularities can greatly reduce fall risk. Also, discontinuing inappropriate or excessive medications and managing existing chronic diseases is important. Last, diagnosing and treating osteoporosis (i.e., weak bone strength caused by calcium deficits and prolonged periods of immobility or reduced weight-bearing activity) can help to reduce the risk of injurious falls, such as hip fracture.

Rehabilitative Approaches

Clients with impaired mobility may benefit from one or more rehabilitative strategies. These consist of exercise programs, proper footwear, and ambulation devices to assist with mobility.

- Exercise programs can be grouped into two broad categories: general physical activity (walking, aerobic movements, other endurance exercises) and specific physical activity (training geared specifically toward increasing balance and strength). To be effective, exercise needs to be tailored to the client’s physical capabilities and needs.
• All shoes and slippers worn by clients should fit properly (i.e., not too tight or loose) and their soles should be slip resistant. Balance is generally better with shoes that have thin, nonslip soles rather than footwear such as sneakers or running shoes with thicker soles that actually interfere with balance. Shoes and slippers with rubber or crepe soles provide adequate slip resistance on slippery floor surfaces such as linoleum. If foot problems (e.g., hammertoes, bunions, calluses, nail disorders) prohibit wearing proper footwear, individuals should be referred for podiatric care.

• Clients who have gait and balance disorders should be using canes or walkers to maintain or improve balance and mobility. Canes and walkers also furnish clients with a visual presence of support that instills confidence during ambulation, which in turn helps reduce fears of instability. As with canes and walkers, wheelchairs should be tailored to meet the specific needs of the individual. All such devices should be evaluated routinely to ensure they are being used safely and are in good working order. It is important for staff to understand the proper use of canes, walkers, wheelchairs, and crutches (see Mobility Aids).

Environmental Strategies

Hazardous environmental conditions, such as low seats, poor illumination, slippery floors, and faulty stairways, can increase fall risk by interfering with safe mobility. Likewise, clients with diminished functional capacity due to chronic diseases may experience difficulty maneuvering around unsafe environments, which can place them at fall risk. An environment can be modified to maintain safe mobility or to compensate for individual functional problems by

• Identifying and eliminating specific hazardous environmental conditions that increase the risk of falls or that are associated with falls (see Environmental Safety)

• Simplifying or maximizing mobility tasks that are specific to one or more identified risk factors by modifying the environment and existing furnishings (see Environmental Precautions).

Educational Strategies

A general lack of awareness about falls and fall risks is a major fall risk factor. Consequently, educational activities geared toward staff, clients, and family members are important.

Staff

The attitudes, knowledge, and everyday practices of staff members are key to reducing falls. Ways to support staff members in their efforts include

• In-service education aimed at informing staff about the magnitude and importance of the problem of falls, fall risk factors, and preventive strategies (see Reducing the Risk of Falling)

• Education aimed at increasing awareness of high-risk clients and the preventive strategies recommended for the individuals in each staff member’s care (see CAREing About Falls)
• Awareness of simple environmental safety measures, such as keeping floors dry and uncluttered

• Follow-up education on specific problems identified from analyzing fall incidents, and especially about any changes in a client’s plan of care

Making staff aware of fall preventive guidelines, protocols, and polices (see Fall Prevention Guidelines; Fall Prevention Protocol; Fall Prevention Program Policy) to help reinforce what should be done and when it should be done

Direct care staff can help promote client safety by

• Being aware of which clients are at fall risk

• Reporting any sudden change of condition (i.e., a change in client’s physical, behavioral, cognitive, or functional status) to supervisors

• Anticipating the needs of clients who are at fall risk and meeting their needs, such as providing safe supervision and assistance with walking and transferring

• Providing extra supervision for clients who are at particular fall risk, such as those who are new to a program (i.e., many clients are at risk during the first few days in a new setting), have postural hypotension or low blood pressure, and have urinary incontinence or elimination problems (i.e., clients may benefit from scheduled toileting programs or placing clients with urgency near toilets)

• Knowing the proper use of canes, walkers, wheelchairs, and crutches

Clients

The main purpose of fall preventive education for clients, especially those who are cognitively competent or capable of understanding safety education, is to increase their awareness of individual risk factors and to encourage them to call for assistance if they need it. Orienting clients to the care environment, staff, and routines is especially important for all new clients.

Family Members

Educate family caregivers about falls, about their loved ones’ risk of falling, and about what they can do to prevent falls (see Facts About Preventing Falls). This information is especially important during those times when the client is not in the care facility and is being cared for by the family.

• It is also the responsibility of family members to inform the care staff if their loved one is experiencing any physical or behavioral change that might increase the risk of falling.
Fall and Injury Prevention Devices

Even after instituting all reasonable fall prevention measures, some clients will remain at risk for falls. Clients with cognitive and/or mobility impairment, especially those who fail to ask for staff assistance with their everyday activities, are at particular risk. For these individuals, available strategies aimed at reducing the risk of falls or injuries include the use of exit alarms and hip protectors.

Exit Alarms

Because of multiple chronic diseases and resulting mobility impairments, some clients with I/DD may be so frail that they are at risk of falling by merely getting out of their chairs or wheelchairs. As a result, it is often necessary for the staff to provide these clients with assistance. Exit alarms are designed to warn staff that clients who should not be attempting to leave their chairs or wheelchairs unassisted are doing so. A variety of exit alarms are available:

- **Pressure-release alarms**—These alarms consist of pads, mats, or other devices that go on the chair or wheelchair seat. They sense changes in weight and pressure. If the client gets up, the alarm sounds.
- **Pressure-sensitive alarms**—These alarms consist of pads or mats placed on the floor in front of a chair or wheelchair that sound when stepped on.
- **Clip-on alarms**—These alarms consist of a small box that is attached to the chair or wheelchair and a clip that attaches to the client’s clothing. When the client gets up, the tab detaches from the box, sounding the alarm.
- **Leg cuff alarm**—This alarm consists of a small plastic-enclosed alarm unit and fabric band that wraps around the client’s thigh. When the client gets up, the alarm shifts from the horizontal to the vertical position, which activates the alarm.
- **Posture indicator alarm**—This alarm consists of a small adhesive transmitter patch that is applied to the client’s upper leg and a receiver alarm box. When the client tries to get up without assistance, the alarm box sounds.

(For more information on exit alarms, see the Guide to Exit Alarms CD-ROM from the Essential Falls Management Series.)

### Exit Alarm Criteria

An exit alarm is most effective when used for specific situations:

- Client experiences fall(s) from chair or wheelchair.
- Client experiences fall(s) while ambulating shortly after leaving chair or wheelchair.
- Client has impaired mobility or demonstrates unsafe chair or wheelchair transfers.
- Client has cognitive/communication problems and forgets to ask for assistance or cannot remember to follow safety instructions.
Hip Protectors

The likelihood of a fall-related hip fracture is greatest in clients who are experiencing a loss of bone strength (i.e., osteoporosis) and a reduction of soft tissue or fat covering the hip area. As a result, the hip’s ability to withstand an impact with a hard ground surface and protect against a hip fracture is diminished. Hip protectors are devices designed to protect the hip bones during a fall. In essence, hip protectors act to reduce the risk of hip fracture by absorbing the force of the fall (i.e., performing as shock absorbers) and/or diverting this force away from the hip bone (i.e., the energy of the fall is then absorbed by soft tissues and muscles surrounding the hip bone).

Hip protectors consist of two basic types:

- **Absorptive pad protectors**—These consist of soft foam pads that are held in place at the hips with specially designed, removable briefs or underwear (i.e., the pads are either sewn into or inserted inside pockets located over each hip). These lightweight, stretchy garments come in a range of sizes to ensure proper fit. Absorptive pad hip protectors are also available in sweat pants and shorts, which might be more comfortable for some clients; in addition to hip pads, these models include pads to protect the tailbone and knees against injury.

- **Energy-shunting protectors**—These consist of hard shields or shells contained in special pants (e.g., removable briefs or underwear). The shields or shells slip into pockets sewn over the hips. Similar to absorptive protectors, these garments come in a range of sizes to ensure proper fit.

The risk of hip fracture when falling while wearing hip protectors compared with a fall with no hip protector in place is significantly reduced. The best use of hip protectors is in clients who are at greatest hip fracture risk (e.g., those who are highly medicated; those who experience seizure disorder, balance impairment, cognitive impairment, or multiple falls; those who have brittle or weak bones). In addition to preventing hip fractures, hip protectors have other benefits: Clients at risk for hip fracture (i.e., those individuals with gait and balance impairment, brittle bones, and frequent falls) feel much more confident in their everyday activities when wearing hip protectors, while staff members feel more comfortable in allowing at-risk clients to move about freely.

(For more information about hip protectors, see the Guide to Hip Protectors CD-ROM from the Essential Falls Management Series.)

**Step 4: Post-Fall Assessment**

Despite the best efforts of staff and others, some clients will fall. The purpose of a post-fall assessment is to find out what caused the fall and to prevent future falls. The assessment follows a step-by-step approach (see Post-Fall Assessment). Important aspects of the post-fall assessment include the following:

- Evaluate for any fall-related injury and/or life-threatening medical problems that may have precipitated the fall. Immediately notify the client’s doctor if any injury or serious medical problem is suspected.
• For those clients who are medically stable, asking the individual about the circumstance of the fall or what happened can help determine the cause of the fall. Ask the client if he or she is feeling dizzy or weak. Did the individual trip or slip? Did the client’s legs give out? Ask what the client was doing at the time (e.g., getting up from a chair or wheelchair, going to the bathroom). Also, asking other staff who may have witnessed the event may provide valuable details about the fall (i.e., people around a fall can usually see a fall just before it happens).

• Check for and modify any environmental factors or hazards that may have contributed to the fall (e.g., slippery/wet floors, unstable furnishings, room clutter).

• Reassess fall risk, including a review of the client’s medications, functional status, ambulation device use, and cognitive status.

• Implement immediate interventions to prevent further falls (e.g., if a client fell while getting up from a chair, assistance with the activity and/or the use of an exit alarm might be appropriate for the short term). If falling occurs despite initial interventions, additional or different interventions may be needed; adjust the client’s care plan as necessary.

• Notify the client’s doctor for further evaluation of all falls that have occurred—with or without injury.

**Step 5: Monitoring**

After a fall, close monitoring of the client may be called for. Clients with recurrent falls may require closer monitoring than isolated or occasional fallers.

For those at-risk clients without falls, periodic follow-up of all interventions is useful to evaluate whether preventive strategies are working and acceptable to both the client and the staff. If interventions or care plans are successful, continue with current approaches; however, if a client continues to fall, reconsider current interventions and amend the care plan as necessary.

**CONCLUSION**

Preventing falls among individuals with I/DD is highly dependent on educating staff, clients, and family members about falls, identifying those most at risk of falling, and coordinating appropriate risk reduction strategies through an organized care process (see Components of a Successful Fall Prevention Program).