Both nurses and nurse aides were inserviced on 10/28/10 by Mary Arms and Deborah Fitzpatrick to assess the safety devices/fall prevention devices used by the resident to see if they are on the bed/person or are in the specified location in the room and are operational. The MAR should be initialed to indicate devices are in place and operational.

Nursing staff were inseviced on resident supervision and accident prevention on 10/28/10 by Deborah Fitzpatrick and Mary Arms. Nurses should make rounds between med passes at a minimum. If working with a CMA the nurse should make rounds on all the patients the CMA is giving medication to. The CMA should make rounds between med passes also and assist the nurse aides in providing direct patient care if necessary. Nurse aides should make rounds between turn and change. Staff were inserviced that if residents are exhibiting unsafe behavior such as climbing out of bed, the nurse should be notified, the physician should be notified and someone should stay with the resident until precautions can be put in place to protect the resident.

Health Care Excel began inservice training for all staff on facility wide falls prevention program on 11/2/10. One hundred and five (105) employees attended over a three day period (November 2, 3 and 11 of 2010). See Addendum #2 for education material.

Inservicing began for all Licensed Nurses on December 3, 2010 concerning fall risk and side rail assessments policies, why these assessments are necessary, how to complete the assessments, when they should be completed and who should complete them. These inservices will be completed on December 6, 2010 by Mary Arms.

4. Alarm pads and personal alarms are available and their availability is monitored at shift change. A form will be filled out when an alarm is used so that it can be restocked. This will be monitored by the stock control employee Madge Arnett. Any problems will be corrected immediately and monitored through CQI.

   A safety device audit form was developed and implemented to monitor the proper use of safety devices as ordered. A calendar was developed to include all residents who have safety/fall prevention devices. Three residents per shift per floor or twelve (12) per day will be audited to ensure that the proper safety device is in place and is operational. These audits are being completed by Administration/Nursing Administration. This audit will continue daily for six (6) weeks. If no problems are identified the audit will decrease to six (6) residents per week for 6 months. These audits will be completed by Deborah Fitzpatrick, Robyn Akers, Mary Arms, Anna Caldwell and charge nurse/s as designated.

The facility QA subcommittee meets Monday through Friday. Residents selection for review includes or will include all new residents (charts are reviewed for 14 days), residents who are exhibiting behavior that increases their risk for falls such as getting out of bed unassisted and all accident/incident reports.

The subcommittee will also review quarterly fall risk and side rail assessments and will re-evaluate resident safety issues.

The charts of all new residents or residents returning from a hospital stay will be audited during the morning CQI meeting to ensure that side rail and fall risk assessments were completed timely and accurately, that the physician was notified if necessary to alter treatment to prevent injury and that physician orders were implemented. Mary Arms Anna Caldwell, or designated charge nurse will complete this.

Ten (10) resident records (5 per floor) will be audited weekly for 6 weeks to ensure that side rail and fall risk assessments are updated as necessary and the physician is notified if it is necessary to alter treatment based on these assessments. If no problems are identified then the audits will decrease to 4 records (2 per floor) per month for 6 months. Mary Arms, Anna Caldwell or designated charge nurse will complete this.

Break times are being monitored daily to ensure that adequate staff remains in patient care areas to provide resident supervision. This will be completed by the charge nurse, DON, ADON or Assistant Administrator.

A physician call log was implemented at the suggestion of Dr. Hardin (Medical Director) to monitor physician notification as well as physician response time. Nurses are to log each time they call a physician. The call log will be compared to the nurse's notes and the physician order sheets to verify physician notification and that orders have been carried out as ordered. These audits will be completed by a designated charge nurse, Anna Caldwell or Mary Arms.

A maximum of 4 calls will be audited daily (2 calls per floor) from the call log by the DON, ADON or Charge Nurse for 6 weeks. Any problems identified will be corrected immediately and will be monitored through CQI.

If no problems are identified we will continue to monitor 4 calls weekly (2 calls per floor) for 6 months.

In addition 10 charts (5 from each floor) will be randomly audited on a weekly basis to ensure that calls are being logged and that physicians are being notified of changes in resident condition. This will continue for 6 weeks. This will be done by the DON, ADON,

or Charge nurse. If no problems are identified the audit will decrease to 6 charts per month for 6 months.

Written orders will be compared to the call log for 6 weeks. Nursing Administration will monitor.

The narcotic sheets will be audited bi-weekly for three (3) months by the DON/ADON and/or designee for improper wasting of narcotics. All instances of wasted narcotics on the narcotic sign out sheets will be compared to the Wasted Narcotic Incident Reports.

During this audit the DON will randomly select 6 residents (3 from each floor) and count narcotics with the nurse to monitor proper counting procedures.

If no significant problems are identified then the monitoring will continue on a monthly basis.

A meeting was held with Dr. Hardin on November 24, 2010 to discuss his participation in CQI and oversight in quality of care.

The results of all audits will be reported monthly to the Medical Director and quarterly through CQI by Robyn Akers.

5. DOC 12/07/10

or Charge nurse. If no problems are identified the audit will decrease to 6 charts per month for 6 months.

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5. DOC 12/07/10

If no significant problems are identified then the monitoring will continue on a monthly basis.

A meeting was held with Dr. Hardin Medical Director November 24, 2010 to discuss his participation in the CQI process and providing oversight in quality of care.

The results of all audits will be reported monthly to the Medical Director and quarterly through CQI by Robyn Akers.

5. DOC 12/07/10

MD

F-225/N07 Attachment #1-1

Narcotic Wasting

Policy: To prevent the potential for misuse of wasted narcotics

1. Anytime it becomes necessary for a nurse to waste a narcotic, the wasting of the pill must be witnessed by two nurses.
2. The two nurses must fill out a Wasted Narcotic Incident Report.
3. A detailed explanation must be included on the wasted narcotic incident report, along with the primary nurses signature that wasted the medication, and the witnessing nurses signature.
4. Prior to the end of the nurses shift, the nurse's should call and notify the DON or ADON that a medication had to be wasted.
5. The DON/ADON will review the residents narcotic record and the incident report for discrepancies and review the number of incidents involving the primary nurse or the witnessing nurse.
6. If any discrepancies are noted or repeated wasting, the DON or ADON will notify APS and the OIG for possible misappropriation of resident property.

11/19/2010

A 1-2

Wasted Narcotic Incident Report

Resident Name_____Room_____

Date_____Time_____

Medication Wasted_____

Primary Nurse Wasting Narcotic_____

Nurse Witnessing the Wasting_____

Why was the Narcotic Wasted?_____

_____

_____

Note: The DON or ADON must be notified prior to the end of your shift.

Date the DON or ADON was notified_____Time of Notification_____

Who notified the DON/ADON_____

DON/ADON Review of Record_____Date/time of review_____

Any Discrepancies Noted_____

Number of Incident Reports involving wasted narcotics involving this nurse_____

Misappropriation of Resident Property

(Taken from The Abuse Reporting Policy for this facility)

Misappropriation of resident property is defined as patterned or deliberate misplacement, exploitation, or wrongful, temporary or permanent use of a resident's belongings or money without the resident's consent.

Examples:

- Using a resident's medication for someone other than the person that it was ordered for.
- Stealing from a resident.

~~EMPLOYEE'S INSERVICE~~

DEPARTMENT Nsg.

DATE 11-19-10

MEETING HELD ON:(DAY) Fri FROM Various Times TO

MEETING AREA Nsg. Station SUBJECT(S) COVERED Narcotic Wasting, Incident Report, DON Notification Follow-Up & Investigation

TOTAL NO. EMPLOYEES PRESENT

EMPLOYEE SIGNATURES:

Sheila Pruitt LPN	R. Osborne LPN
Mora Jacob LPN	M. [illegible] LPN
Robert Thompson	J. Burchett LPN
Crystal Cantrell LPN	J. Wireman LPN
Tamera Caudill LPN	L. Miles LPN
[illegible] RN	Ora Lee Tuttle LPN
[illegible] RN	Drucilla Howell
[illegible] LPN	Charlotte Jewell RN
Christy Moore RN	
M. [illegible]	
J. Blackburn LPN	
B. [illegible] LPN	
R. Clark CMT	
K. Howard RN	

CONFERENCE CONDUCTED BY: [illegible] DON

F323/N219 Addendum #2

EMPLOYEE'S INSERVICE

DEPARTMENT Nursing

DATE 11-2-10

MEETING HELD ON:(DAY) Tues FROM 7:00 TO 8:00pm

MEETING AREA Classroom SUBJECT(S) COVERED Falls

. TOTAL NO. EMPLOYEES PRESENT 20

EMPLOYEE SIGNATURES:

Mary Armstrong
Tammy Cassell LPN
Kelly Love CNA
Linda Hannah
Amanda Adams
Mary Mack
Sheila Bratcher LPN
Teresa Plank CMA
Kathy Wesley
Bonnie Carlton
Lisa Burris
Opalle Griffith
Deana Gibbs
Jessica Click
Stephanie Curtis
Lindsey Carroll
Krystal Howard
Karen Jordan
Sheila Harmon
Patsy Huffman

CONFERENCE CONDUCTED BY: Mary Bardin from Health Care Excell

EMPLOYEE'S INSERVICE

DEPARTMENT Nursing

DATE 11-2-10

MEETING HELD ON:(DAY) Tues FROM 9 30 p TO 10 30 p

MEETING AREA Class Room SUBJECT(S) COVERED Falls

. TOTAL NO. EMPLOYEES PRESENT

EMPLOYEE SIGNATURES:

Jessica Tackett
Enrique Blevins
Anita Wilson
Stephanie Stapleton
Tabetha Blackburn
Heather Myers
Tanya Patel

CONFERENCE CONDUCTED BY: Mary Bordin from Health Care Excel

EMPLOYEE'S INSERVICE

DEPARTMENT All Staff

DATE 11-3-10

MEETING HELD ON:(DAY) Wed FROM 2:00 TO 3:00

MEETING AREA Class Room SUBJECT(S) COVERED Falls

. TOTAL NO. EMPLOYEES PRESENT 39

EMPLOYEE SIGNATURES:

Christy Moore RN
Marie Pennington ADC
Cheryl Elkins
Jerri Davies
Jillian Mallett
Brandy Cooper
Amanda Sparks
Amanda Slade
Kitty Hannon
Amanda Sparks
Kathy Meadows
Rebecca Easterling
Linda Howard
Susan Noble
Rachelle Bloome LPN
Melissa Mannock
Tammy Mills
Brenda Lemaster LPN
Miranda Cooper
Martha Conley
Kelsey Lyons
Melody Conley
Janet Blanton
Lisa Stewart
Casey Hall
Donna Hinkle
Veronica Conley
Joni Puckett
Frances Burchett LPN

CONFERENCE CONDUCTED BY: Mary Bardin from Health Care Excel Mary Bardin

See reverse Page

James Adams

Samantha Seton

Reverse Page

11/3/10

Dana Spencer

Frances Forrester

Julia Hamilton

Michelle Cheek

Jennifer Dotson

Gladys Dickerson

EMPLOYEE'S INSERVICE

DEPARTMENT All Staff

DATE 11-3-10

MEETING HELD ON:(DAY) Wed FROM 3:00 TO 4:00

MEETING AREA _____ SUBJECT(S) COVERED Falls

_____. TOTAL NO. EMPLOYEES PRESENT 34

EMPLOYEE SIGNATURES:

Carolyn Bond Activities
Amy Nicole Lyon RN
Odya Keeta - Medical Records
Jessica Pennington - Dietary
Kendra Conley - Dietary
Roxanne Curtis Dietary
Brittany Pregeon
Jeanne Markwardt
Kathy A Tillis
Madge Arnett CMA
Jamie Lazenby
Jammy Ratliff
Laurie Morgan
Tonya Rice
Laquita Herbert
Priscilla Hamby CMA
Misty Pennington, BSW
Tracy Sellers AA
Samantha McDowell
Adrian Harrison
Tara Rice CNA
Jamie Jarvis CMA
Darlene Combs CMA
Cynthia Bonner CNA
Delmatasteeves CNA
Belinda Ashcraft
Jennifer Pennington

CONFERENCE CONDUCTED BY: Mary Bardin from Heath Care

Excel MaryBardi Brande Dockett LPN
Sharon Howard
Nella Castle
Mona Jacobs Lpn
Heloise Keogh
Sabrina Gipson

~~EMPLOYEE'S INSERVICE~~

DEPARTMENT All

DATE 11/11/10

MEETING HELD ON:(DAY) Fridays FROM 2pm TO 3pm

MEETING AREA Classroom SUBJECT(S) COVERED Balance & falls . TOTAL NO. EMPLOYEES PRESENT

EMPLOYEE SIGNATURES:

2Pm LeAnn McCoy, CNA
A Caldwell

3Pm Mary Barnett
Sheila Hearse
Robyn Akins

Mary Bardin HCE

CONFERENCE CONDUCTED BY: Mary Bardin, HCE

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Balance and Falls

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Balance and Falls

By Lauren Robertson, MPT

LEARNING OBJECTIVES

Upon completion of this course, you will be able to:

- Describe the factors associated with falls and fall-related injuries in older adults.
- Discuss nursing and therapy interventions in the evaluation and treatment of falls.
- Describe the main components of balance evaluation.
- Identify the sensory systems that contribute to balance and postural control.
- Describe age-related changes that may adversely affect balance.

> Balance is a multidimensional process and is the result of interactions between the individual, the task, and the environment. You will need to evaluate and treat each individual doing various tasks in different environments.
> —ANNE SHUMWAY-COOK

Most of us take balance for granted in our own lives and in the lives of the people around us. We think about balance only when a client falls, and then only in terms of filling out paperwork or deciding on the proper treatment or restraint. If pressed, most of us would have trouble defining balance—what makes balance good and what happens when balance declines, leading to falls and loss of independence. To fully serve our clients, it is essential that we learn about balance and how to reduce our client's risk for falls.

The first section of this course describes risk factors and the costly effect of falls in the older adult population. The second section describes the main components of a balance examination and what parts of the nervous and musculoskeletal systems contribute to balance, and outlines a method for performing a balance evaluation. A case study is included to demonstrate the use of these evaluation techniques in the clinical setting.

It is amazing that we easily balance the mass of our bodies on two small—almost delicate—feet. In many older adults, and in those with balance impairments, the body becomes an unwieldy tower of uncontrolled levers that seems suddenly incapable of sustaining itself in the upright position. Assessing a person with a balance deficit can be complicated and confusing. Even armed with the latest research, it takes practice and patience to integrate this research into the clinical setting.

PART 1: Risk, Incidence, and Prevention of Falls

WHAT IS BALANCE?

Balance is the ability to maintain the body's center of mass over its base of support (Shumway-Cook & Woollacott, 2001). Good balance exists because multiple body systems interact flawlessly and automatically, providing accurate and exact feedback to our nervous system. Sensory inputs from touch, pressure, pain, sight, and sound flow into the central nervous system and are processed at multiple locations in the brain. Motor commands that originate in the brain move rapidly down motor nerves to the muscles to control movement. Voluntary motor commands are relatively slow, those that control automatic movements are faster, and those that control reflexes are lightening quick.

To maintain proper balance, our nervous system instantaneously processes, assesses, and re-assesses motor and sensory input. Information about the strength, force, timing, and speed of movement is rapidly processed. Sensory information from receptors in the eyes, inner ears, joints, muscles, and skin provide important sensory information for balance.

Cognitive factors such as fear of falling and dementia, the effects of medications, and our general medical condition affect balance. Determining the cause of a balance disorder requires knowledge of each of these systems and the ability to identify the factors that contribute to the balance deficit. A thorough balance evaluation looks systematically at each of these factors and directs the examiner to an effective and specific treatment plan.

RISK FOR FALLS

As balance becomes gradually more impaired, the risk of falling increases. Falls are a major problem in older adults and in those with neurologic disorders. Healthcare professionals should routinely ask older clients whether they have fallen within the last year and the circumstances and frequency of the falls. Advancing age and multiple impairments (and medications used to treat those impairments) increase the risk of falls (Tinnetti, 1994). Most falls occur during walking and 53% are due to trips (Blake et al., 1998).

Assessment of **fall risk** should include input from rehab therapists, nurses, doctors, clients, and family members. Fall risk factors include:

- Lack of current or previous physical activity
- Muscle weakness or balance problems
- The inability to break the impact of a fall
- Functional limitations
- Cognitive impairment or dementia
- Use of psychoactive medications
- Some combinations of medications
- Environmental factors (e.g., tripping hazards)
- Having fallen previously; having more than one chronic disease
- Having had a stroke
- Parkinson's or other neuromuscular disease
- Urinary incontinence
- Visual difficulties (Stevens & Olson, 2000)

A **multi-factorial assessment** should be completed if your client has a history of falls or has abnormal gait or balance. This includes evaluation of:

- Gait, balance and mobility
- Muscle weakness
- Osteoporosis risk
- Perceived functional ability
- Fear of falling
- Visual impairment
- Cognitive impairment
- Neurological status
- Urinary incontinence
- Home hazards
- Cardiovascular examination and medication review (National Institute for Clinical Excellence, 2004)

Other factors contributing to falls include the use of more than four medications, poorly maintained or improperly fitting wheelchairs, poor transfer techniques, and suboptimal care (Ray, 1997). Tinetti and others (1995) have postulated that "geriatric syndromes" involving intermittent episodes of falling, urinary incontinence, and delirium resulting from impairments in multiple systems can lead to functional decline and increased risk of falls.

In October 2004 researchers at Johns Hopkins University studied the effect of medication changes on the risk of falls among residents of three nursing homes who fell during 2002–2003. The study looked at medication changes that occurred 1 to 9 days before the fall. The results indicated that the short-term risk of single and recurring falls may triple within two days after a medication change (NCIPC, 2007a).

Although the cause of falls is multi-factorial, evaluation can be simplified by examining internal and external factors. **Internal (personal) risk factors** include cardiovascular, neuromuscular, orthopedic, perceptual, and psychiatric or cognitive impairments. **External (environmental) risk factors** include medications, appliances, assistive devices, environmental hazards, and level of care.

RISK FACTORS FOR FALLS	
INTERNAL (personal) Risk Factors	**Considerations**
Cardiovascular	Dysrhythmias
Neuromuscular	Lower-extremity weakness, loss of movement, functional decline, hypotension, CVA, Parkinson's, stroke, neurologic disorders, seizure disorder, syncope, unsteady gait, chronic/acute conditions
Orthopedic	Joint pain, arthritis, hip fracture, limb amputation, osteoporosis, foot disabilities
Perceptual/sensory	Impaired hearing, impaired vision, somatosensory deficits/neuropathies, dizziness/vertigo, sensory deterioration
Psychiatric or cognitive	Delirium, cognitive decline, dementia, Alzheimer's disease, depression, wandering, confusion/disorientation, fear of falling
Medication side effects	Hypotension, muscle rigidity, impaired balance, extrapyramidal symptoms (tremors, uncontrolled movements), decreased alertness
EXTERNAL (environmental) Risk Factors	**Considerations**
Medications	Psychotropics, cardiovascular meds, diuretics, antidepressants, antianxiety/hypnotics, ETOH/drug abuse, medication changes
Appliances and devices	Pacemaker, cane/walker/crutch, restraints, poorly

	fitting wheelchair
Environmental hazards	Glare, poor lighting, slippery floors, uneven surfaces, patterned carpets, foreign objects, recent move into or within a facility, proximity to aggressive clients, time of day, time since meal, type of activity, walking in a crowded area, reaching, bladder/bowel urgency
Other	Suboptimal care, fall in last 30 days, multiple diagnosis, history of falls, sleep disorders, performing more than one task at a time

INCIDENCE OF FALLS

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 (NCIPC, 2006).

In 2003 economists in North Carolina worked with analysts from the Centers for Disease Control and Prevention (CDC) to estimate the direct medical costs of falls among adults ages 65 years and older in the United States. The study found that in 2000 direct medical costs totaled $0.2 billion for fatal falls and $19 billion for nonfatal fall-related injuries. Of the nonfatal injury costs,

- 63% ($12 billion) were for hospitalizations,
- 21% ($4 billion) were for emergency department visits, and
- 16% ($3 billion) were for treatment in outpatient settings. (NCIPC, 2007a)

Medical expenditures for women—who made up 58% of the older adult population in 2000—were 2 to 3 times higher than for men for all medical treatment settings. Fractures accounted for just 35% of nonfatal injuries but 61% of costs. Fall-related injuries among older adults, especially among older women, are associated with substantial economic costs. The magnitude of this economic burden underscores the critical need to implement cost-effective fall interventions (NCIPC, 2007a).

More than one-third of adults 65 and older fall each year. Of those who fall, 20% to 30% suffer moderate to severe injuries that make it hard to get around or live alone and increase the chance of early death. Older adults are hospitalized for fall-related injuries 5 times more often than they are for injuries from other causes (NCIPC, 2007b).

A recent study of people 72 and older found that the average healthcare cost of a fall injury was $19,440 (including hospital, nursing home, emergency room, and home health care, but not doctors' services). By 2020, the annual direct and indirect cost of fall injuries is expected to reach $43.8 billion (NCIPC, 2007b).

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. 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 (NCIPC, 2007b).

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 (NCIPC, 2007b). Less than half of all older adults who suffer hip fractures will regain their prior level of function (Shumway-Cook et al., 2005).

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. Injuries to internal organs caused 28% of deaths and accounted for 29% of costs from fatal falls (NCIPC, 2007b).

Older adults who fall once are 2 to 3 times as likely to fall again within a year. Approximately 25% to 35% of community-dwelling people over the age of 65 fall one or two times each year (Shumway-Cook, 1997). Often, people don't know how or why they fell. Many do not recall a fall that happened 3 to 12 months earlier. In a one-year study involving a sample of 336 people living in the community, Tinnetti found that over 30% of the subjects fell at least once (Tinnetti, 1998). Studies have shown that the risk of falling increases with the number of risk factors present (Tinnetti, 1994). Factors such as sedative use and cognitive impairment, although low in prevalence, are associated with a very high risk of falling (Tinnetti, 1988).

In people over the age of 65 who are living independently, the incidence of falls is approximately 30%, more than half of which happen at home. The incidence rises to 50% in those over the age of 80 (Steinweg, 1997). In people below the age of 75, falls are most often associated with factors associated with normal aging such as loss of strength, visual changes, loss of flexibility and decreased reflexes. Over the age of 85, the effects of multiple medical conditions and the medications used to treat them become more of a factor (Tinnetti, 1994).

Falls in Nursing Homes

In 2003, 1.5 million people 65 and older lived in nursing homes. Each year, a typical nursing home with 100 beds reports 100 to 200 falls, and many others may go unreported. As many as 3 out of 4 people in nursing homes fall each year, twice the rate of falls for older adults living in the community (NCIPC, 2007c).

Patients often fall more than once—an average is 2.6 falls per person per year. About 35% of fall injuries occur among residents who cannot walk. About 5% of adults 65 and older live in nursing homes. But people in nursing homes account for about 20% of deaths from falls in this age group (NCIPC, 2007c).

About 1,800 people living in U.S. nursing homes die each year from falls. About 10% to

20% of nursing home falls cause serious injuries; 2% to 6% cause fractures. Falls can make it hard for a person to get around, cause disability, and reduce quality of life. Fear of falling can cause further loss of function, depression, feelings of helplessness, and social isolation (NCIPC, 2007c).

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, have difficulty with activities of daily living, and need help getting around or taking care of themselves. All of these factors are linked to falling (NCIPC, 2007c).

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. Hazards in the nursing home cause 16% to 27% of falls among residents. Such hazards include wet floors, poor lighting, incorrect bed height, and improperly fitted or maintained wheelchairs (NCIPC, 2007c).

Medications can increase the risk of falls and fall-related injuries in nursing homes. Drugs that affect the central nervous system, such as sedatives and anti-anxiety drugs, are of particular concern. Other causes of falls include difficulty in moving from one place to another (for example, from the bed to a chair), poor foot care, poorly fitting shoes, and improper or incorrect use of walking aids (NCIPC, 2007c).

Routine use of restraints does not lower the risk of falls or fall injuries. **Restraints should not be used as a fall prevention strategy.** Restraints can actually add to the risk of fall-related injuries and deaths. Limiting a patient's freedom to move around leads to muscle weakness and reduces physical function (NCIPC, 2007c). Since federal regulations took effect in 1990, nursing homes have reduced the use of physical restraints. Some nursing homes have reported an increase in falls since the regulations took effect, but most have seen a drop in fall-related injuries (NCIPC, 2007c).

MULTI-DISCIPLINARY ISSUES

Targeting risk factors for falls and designing interventions requires a multi-disciplinary approach. Proper intervention has been shown to reduce falls up to 50% in high-risk groups with three or more falls the previous year (Ray, 1997).

Applying a multi-disciplinary approach to the assessment of falls means that therapy, nursing, nursing assistants, and other staff members must communicate regularly and thoroughly to discuss clients at risk for falls. Unfortunately, in many nursing homes and other long-term care settings, budget constraints have led to the dismantling of interdisciplinary team meetings, contributing to inadequate assessment and inconsistent tracking of mobility problems. To improve communication, Tinetti and colleagues (1994, 1995) have divided fall risk factor assessment responsibilities between nursing and therapy as shown below.

RESPONSIBILITIES FOR ASSESSMENT OF RISK FACTORS	
Risk	**Intervention**
Assessed by a Nurse	
Postural hypotension: drop in systolic blood pressure ≥20 mm Hg or to <90mmHg on standing	Monitor blood pressure in sitting and standing, assess medications that affect blood pressure; assess medical conditions that affect blood pressure. Behavioral recommendations such as ankle pumps, hand clenching, raise head of bed; assess medications that may contribute to hypotension, decrease dosage
Use of any benzodiazepine or other sedative/hypnotic agent including antipsychotic, antianxiety, antidepressant, cardiovascular medications and diuretics	Educate about the use of sedative-hypnotic agents; consider nonpharmacologic treatment of sleep problems; tapering and discontinuation of medications
Use of four or more prescription medications	Review of medications with primary physician; decrease medications; assess medication interactions that may affect balance
Inability to transfer safely	Transfer training; environmental changes such as grab bars, handrails, and transfer poles
Environmental hazards such as clutter, poor lighting, poorly arranged furniture	Removal of hazards; safer furniture
Incontinence	Treatment of incontinence; assess medications that may cause incontinence
Assessed by a Physical or Occupational Therapist	
Gait impairment or abnormalities	Gait and balance training; lower-extremity and trunk strengthening; appropriate assistive device
Foot disabilities; peripheral neuropathies	Proper footwear; podiatric evaluation
Inability to transfer safely	Transfer training; appropriate assistive devices, grab bars, transfer poles (Saf-T-Pole)
Balance deficits	Balance training, proper assistive device, lower-extremity and trunk strengthening
Impairment in strength or ROM affecting balance	Strength and balance training; address deficits in ROM, especially in lower extremities; rehabilitation nursing assistant program for ongoing exercise program
Poorly maintained or improperly fitting wheelchairs and/or assistive devices	Maintain wheelchairs and assistive devices in good working order; remove restraints and reposition client every 2 hours as required by law to encourage mobility and prevent skin

	breakdown
~~Postural hypotension: drop in~~ systolic blood pressure ≥20 mm Hg or to <90mmHg on standing	~~Monitor blood pressure in sitting and standing.~~ Behavioral recommendations such as ankle pumps, hand clenching, raise head of bed; discuss with nurse or doctor medications that may contribute to hypotension

PREVENTING FALLS

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

- Assessing your client after a fall to identify and address risk factors and treat the underlying medical conditions.
- 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.
- Reviewing prescribed medicines to assess their potential risks and benefits and to minimize use.
- Providing clients with hip pads that can effectively prevent most hip fractures if a fall occurs.
- Using devices such as alarms that go off when clients try to get out of bed or move without help.
- 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. (NCIPC, 2007c)

Hip Protectors and Hip Fractures

Kannus and colleagues, in a Finnish study of 1,427 older adults in 22 community-based healthcare centers, investigated the effectiveness of an anatomically designed external hip protectors in reducing the risk of hip fractures in older adults. Participants were ambulatory (with or without assistance), 70 years or older, and had at least one of the following risk factors for hip fracture:

- Previous fall or fracture
- Impaired balance or mobility
- Use of walking aids
- Impaired cognition
- Impaired vision
- Poor nutrition
- Disease or medication known to predispose people to falls or fractures (Kannus, 2000)

Whenever they were on their feet, participants wore a stretchy undergarment containing a pair of KPH hip protectors that were designed to fit over the greater trochanters and proximal femurs. During the study, there was a significant reduction in both hip and pelvic fractures in the hip-protector group. Thirteen subjects in the hip-protector group had a hip fracture, as compared with 67 subjects in the control group; two subjects in the hip-protector group had pelvic fractures, as compared with 12 subjects in the control group (Kannus, 2000).

The results indicate that, among ambulatory elderly adults who are at an increased risk for hip fracture, the risk of fracture can be reduced by 60% by the use of an anatomically designed external hip protector (Kannus, 2000).

Personalized Intervention Programs

Intervention programs are most effective when they are designed to reach those with the greatest risk of falling. Personalized attention, environmental changes, and medication review can reduce falls among nursing home residents. Exercise, medication assessment, and education about risk factors can reduce falls among community-dwelling older adults. Although vigorous exercise reduces the risk of fall-related fractures among healthy seniors, people with physical limitations may require special exercise programs.

Clinical screening tests can accurately identify seniors who are more likely to fall. Physical activities that improve strength, balance, and coordination reduce the risk of falls and fall-related injuries. Progressive resistance training increases strength and improves mobility among frail individuals living in nursing homes. Modifying the home environment (e.g., installing grab bars inside and rails outside and removing tripping hazards) may reduce fall risk. If a person falls, hip pads can effectively prevent most hip fractures. Newly developed flooring material can reduce the impact of a fall by 15%.

In nursing homes, reducing environmental hazards, increasing the safety and fit of wheelchairs, careful use of psychotropic drugs, and focusing on each client's needs greatly reduces the number of falls. Calcium, along with vitamin D, is critical at all ages to maintain healthy bone. For older adults who may have already lost bone mass, providing adequate calcium intake (through diet or supplements) may not be sufficient to prevent bone loss or reduce hip fracture risk.

PART 2: Assessment and Evaluation

BALANCE ASSESSMENT

A comprehensive balance assessment is an integral part of the initial evaluation and should be undertaken when a balance deficit is suspected. The balance assessment includes (1) subjective assessment, (2) functional mobility and gait assessment, (3) musculoskeletal evaluation, and (4) assessment of movement strategies and sensory systems used for balance (Shumway-Cook & Woollacott, 2001).

Subjective Assessment

The subjective assessment gives you a general overview of nonobjective and nonmedical factors that contribute to loss of function. This includes medical history, recent history of falls, and review of medications—especially those medications that may contribute to loss of balance.

- **Medical/family history.** Medical history focuses on diseases and disorders that lead to weakness or loss of feeling, such as peripheral neuropathy, vascular disorders, and visual deficits. Pay attention to pain and/or swelling in the extremities, which can lead to decreased sensory input.
- **Recent history of falls.** Question your client about recent episodes of falling including where the fall occurred, type of surface, type of lighting, time of day, footwear, tasks being performed at time of fall, and general surroundings. Repeated falls can be strikingly similar in circumstance; for example, a person may fall only when getting out of bed in a darkened room, only in a crowded setting, or only on uneven surfaces.
- **Review of medications.** Review your client's medications, paying particular attention to medications that affect blood pressure, cardiac function, and cognition, or that cause dizziness or lightheadedness.

Functional Mobility and Gait Assessment

A number of reliable assessment tools is available for the evaluation of functional mobility and gait tasks. Choose an assessment tool based on ease of use and how applicable it is to the client population in your setting. What follows is a sampling of functional mobility and gait tests, which are by no means a comprehensive list. Consult the reference section of this course for more information on gait and mobility tests.

The examination of functional mobility and gait is an important part of the balance assessment. The purpose of functional mobility and gait tests is to evaluate how a person performs on functional tasks that depend on postural control (Shumway-Cook & Woollacott, 2001). A variety of objective and repeatable functional tests are available, which provide a baseline for documenting improvement. For simplicity, the various functional tests can be divided into two categories: functional mobility tests and functional gait tests.

FUNCTIONAL MOBILITY

A functional mobility assessment quantifies mobility skills, testing the ability of your client to perform specific daily tasks such as gait, sit to stand, turning, reaching, retrieving ~~an item from the floor, turning 360 degrees,~~ transfers, and stair climbing. The tests are designed to provide a framework for the assessment of functional mobility; they only generally predict the risk of falls but do not fully identify the underlying cause of the balance impairment. Functional mobility tests include the Berg Balance Test, the Functional Reach Test, ~~the~~ Get Up and Go Test, and the Tinetti Balance and Mobility Assessment.

Berg Balance Test

The Berg Balance Test was developed by Katherine Berg in 1989 and is a widely-used test of functional mobility and balance—especially with the ambulatory elderly. The Berg test is intended to objectively evaluate a client's ability to safely perform several common daily living tasks and to assess fall risk. It is scored on a scale of 0 to 56, based on the client's ability to perform fourteen mobility tasks:

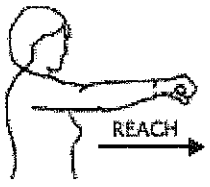
- Sit to stand and stand to sit
- Unsupported sitting and standing
- Transfer from bed to chair
- Stand eyes closed
- Stand feet together
- Stand one foot in front of the other
- Functional reach
- Retrieve an object from the floor
- Single-leg stance
- Look over shoulder
- Turn 360 degrees
- Alternate foot on stool

Functional mobility and balance assessment tools such as the Berg test provide a baseline for noting improvement (good for insurance reports and Medicare) and allow you to focus on gross areas of weakness and dysfunction. The Berg test is only one part of a balance assessment. It gives a good general impression regarding fall risk and has good test-retest and inter-rater reliability (Shumway-Cook & Woollacott, 2001).

Research by Shumway-Cook and colleagues, done in 1997, showed that the Berg test is a good indicator of fall risk in older adults living in the community (Shumway-Cook & Woollacott, 2001). Common sense tells us that a high score on the Berg test indicates a low risk of falling and a low score indicates a high risk of falling. As the Berg score declines, fall risk increases nonlinearly, with scores below 36 of 56 showing a fall risk of almost 100% (Shumway-Cook & Woollacott, 2001).

Functional Reach Test

The Functional Reach Test was first developed by Pamela Duncan and colleagues in 1990. It is a quick and simple, single-task dynamic test that defines functional reach as "the maximal distance one can reach forward beyond arm's length, while maintaining a fixed base of support in the standing position" (Duncan et al., 1990). It is a dynamic rather than a static test and measures a person's "margin of stability" as well as ability to maintain balance during a functional task. The test has been shown by Duncan to be predictive of falls in older adults (Duncan et al., 1990).



Functional reach is tested by placing a yardstick or tape measure on the wall, parallel to the floor, at the height of the acromion of the subject's dominant arm. The subject is asked to stand with the feet a comfortable distance apart, make a fist, and forward flex the dominant arm to approximately 90 degrees. The subject is asked to reach forward as far as possible without taking a step or touching the wall. The distance between the start and end point is then measured using the head of the metacarpal of the third finger as the reference point (Duncan et al., 1990).

FUNCTIONAL REACH NORMS		
Age	**Men**	**Women**
20-40	16.73 inches	14.64 inches
41-69	14.98 inches	13.81 inches
70-87	13.16 inches	10.47 inches
Source: Duncan et al., 1990.		

Get Up and Go Test

The Get Up and Go Test was developed by Mathias and Nayak as a tool to screen for balance problems in older adults (Shumway-Cook & Woollacott, 2001). The test involves rising from a chair, walking 3 meters, turning, and returning to the chair. The subject is graded on a scale of 1 to 5, with 1 being normal and 5 being severely abnormal. A score of 3 or higher indicates an increased risk for falls (Shumway-Cook & Woollacott, 2001).

A variation is the Timed Up and Go Test (TUG), which times how long it takes to complete the test from start to finish. Shumway-Cook and Woollacott found that neurologically intact adults were able to complete the test in less than 10 seconds (Shumway-Cook & Woollacott, 2001).

Shumway-Cook and colleagues modified the TUG by adding a cognitive task (counting backward by threes) and a manual task (carrying a full cup of water). They found that that the performance of an additional task increased the time needed to complete the TUG test. Using a cutoff time of 14 seconds, they found that older adults who took more than 14 seconds to complete the test had a high risk for falls (Shumway-Cook, Brauer, and Woollacott, 2000).

Kristensen used the TUG test to assess fall risk in 59 clients following hip fracture surgery. He found that 95% of the subjects who fell had a score of ≥ 24 seconds on the TUG test (Kristensen, Foss & Kehlet, 2007).

Tinetti Tests

The Performance Oriented Mobility Assessment (POMA) was developed by Mary Tinetti, a physician and researcher at Yale University. It is divided into two parts: balance tests and gait tests. Along with the Berg Balance Test, it is one of the most widely used mobility and gait assessment tests. The first part of the tool, the Tinetti Balance Test, is scored on a scale of 0 to 16; it assesses sitting balance, sit to stand, standing balance,

standing balance when nudged, standing balance with eyes closed, balance while turning, and stand to sit.

The second part to the tool, the Tinetti Gait Test, is scored on a scale of 0 to 12; it assesses initiation of gait, step length, height, symmetry, and continuity, deviation from a straight path when walking, and trunk sway and stance when walking.

When taken together the maximum score on the Tinetti tests is 28; a client who scores between 19 and 24 is at risk for falls and a client who scores below 19 is at high risk for falls.

FUNCTIONAL GAIT

Very few nursing homes or clinics have a working protocol for assessing and measuring functional gait. Is it functional to be able to walk from the couch to the bathroom? How about the ability to walk inside the house but not outside? Is functional gait measured by distance, time, or energy expenditure? There is much confusion and disagreement in the clinical setting regarding even a basic definition of functional ambulation.

This difficulty is compounded by cutbacks in Medicare and managed care reimbursement that have left therapists with less time to do comprehensive evaluations. Any successful clinical test must be reliable, reflect a functional task, and be fast to administer. Tests that concentrate on or include gait activities include (but are not limited to) the Tinetti Gait Assessment Scale, the Dynamic Gait Test, the Three-Minute Walk Test, and the Performance-Oriented Mobility Test.

In many clinics, there is no working definition at all for functional gait, and often an arbitrary distance such 150 feet is chosen to equate with community ambulation. Less than these distances might be considered household ambulation. How do you argue effectively for longer hospital or nursing home stays if an insurance company wants to discharge a client before you think it is safe for the client to return home? More critically, on what basis do you make your argument? Is the client unsafe to return home due to poor endurance, risk of falls, poor safety? How do we determine if these factors warrant a longer hospital or rehabilitation stay?

A number of studies have looked at the relationship between walking speed and walking impairment. Bernardi and colleagues examined the physiologic cost of walking by measuring energy, cardiac and ventilatory output, and determined that walking speed was the best single measure of impairment (Shumway-Cook & Woollacott, 2001).

Questions such as these are beginning to be addressed by researchers. In their excellent book, *Motor Control: Theory and Practical Applications,* Anne Shumway-Cook and Marjorie Woollacott suggest that, in order to be considered an independent community ambulatory, a person must be able to do the following distance- and time-based tasks (Shumway-Cook, 2001):

- Walk 300 meters (1000 feet)

- Attain a speed of 80 m/min for 13 to 27 m (the time it takes to cross a street with a green light)
- Negotiate a 7- to 8-inch curb with or without an assistive device
- Turn the head while walking without losing balance

The above functional tasks take into account several variables, including distance, speed, and possible disruption of balance caused by turning the head or stepping onto a curb.

The Three Minute Walk Test is a quick and easy gait test that is practical in the clinical setting. It can be used upon admission to establish a baseline for gait. This test was originally developed to test functional gait in clients with neurologic dysfunction (Shumway-Cook & Woollacott, 2001).

During this test, your client is asked to walk a predetermined course at a comfortable, self-selected pace, using whatever assistive device is chosen when walking outside the home. The client is allowed to rest but the clock continues running during any rest stops. The following items are measured:

- Heart rate before and after the walk
- Distance covered
- Number of stops
- Number of deviations from the 15-inch wide path

Upon completion, note the total distance traveled in 3 minutes. An average older adult with no neurologic impairment should be able to walk about 727 (± 148 feet) in 3 minutes compared to 323 (± 166) feet for a group that included fallers (Shumway-Cook & Woollacott, 2001).

Shumway-Cook and Patla suggest that mobility is affected by more than speed, terrain, and distance. In a preliminary study, they grouped community-dwelling older adults (≥ 70 years) into physically able (able to walk 1/2 mile or climb stairs without assistance) and physically disabled. Eight environmental conditions or "dimensions" affecting community mobility were examined. These included distance, temporal factors, light and weather conditions, physical loads, terrain, attentional demands, postural transitions, and traffic density. The results suggest that environmental factors need to be considered when assessing and addressing mobility impairments (Shumway-Cook and Patla, 2002).

Musculoskeletal Assessment

The musculoskeletal portion of the balance evaluation includes assessment of the following items:

- Strength
- Range of motion (ROM)
- Pain
- Posture

- Abnormal tone

STRENGTH

The traditional method for measuring strength is to ask the client to perform a series of movements against resistance and rate the response on a scale of 0 to 5 (Magee, 2002).

MUSCLE TESTING

Grade	Movement
0	No movement palpated
1	Slight contraction but no joint motion
2	Complete range of motion with gravity eliminated
3	Complete range of motion against gravity
4	Complete range of motion with moderate resistance
5	Complete range of motion against maximal resistance

Source: Magee, 2002.

The drawback of this type of strength testing is that it tests muscles in isolation and not in closed-chain or weightbearing positions or in positions that cause imbalance. Studies have shown that 5/5 strength is not necessary for good balance. Strength in the anterior tibialis muscle can be impaired, even severely impaired, according to a manual muscle test and still not adversely affect balance, although a study by Whipple (1987) found that nursing home residents with a history of falls had severe impairment in ankle strength, with the anterior tibialis the most severely impaired.

A second drawback of manual muscle testing is that the findings are not considered valid in the person with abnormal tone. Strength tests that are functional in nature, such as standing on one leg to test the gluteus medius muscle of the stance leg or performing a semi-squat, are better indicators than individual muscle tests for balance deficit.

Manual muscle testing should be used to identify gross muscle weakness, keeping in mind that balance may be more adversely affected by abnormalities in the sequence and timing of muscle contraction than by localized muscle weakness (Shumway-Cook & Woollacott, 2001).

RANGE OF MOTION (ROM)

Decreased range of motion has been shown to affect balance, especially if the decrease leads to postural compensations that affect the ability of the person to react quickly to losses of balance. For example, a loss of range or shortening of the Achilles tendon can cause the heel to be lifted slightly off the ground in upright standing. Body weight then shifts forward to the front part of the foot, shortening the base of support and leading to decreased proprioceptive input from the heel.

A person may compensate by bending slightly forward at the waist to bring the heel back to the ground. This compensation decreases dorsiflexion in the ankle and affects the ability to react to small losses of balance by decreasing sway about the ankle. The ankle becomes effectively locked into position, and when a loss of balance occurs the person is unable to compensate. If this is the only finding, then the answer is relatively simple: an exercise program to increase ankle ROM should be effective.

PAIN

The presence of pain may disrupt the normal function of the involved joints and cause movement changes such as limping or shifting the body weight to the unaffected side. Pain may also interrupt normal sensory and proprioceptive feedback from the affected joint and affect the ability of the person to react appropriately to perturbations.

POSTURE

Identify the presence of postural abnormalities such as kyphosis, scoliosis, and loss of ROM in the postural muscles of the low back, hips, legs, and ankles. As with other musculoskeletal disorders, postural alignment problems may cause compensations that affect balance—especially the ability to react quickly to loss of balance.

ABNORMAL TONE

Evaluate the presence of abnormal tone such as flaccidity or spasticity, especially if key joint ROM or strength is adversely affected. The presence of abnormal tone can cause a variety of problems that affect balance. These include loss of sensation, loss of strength, shifting of weight away from or onto the affected side, loss of timing or incorrect timing of muscle contractions, and loss of ability to react quickly to disruptions of balance.

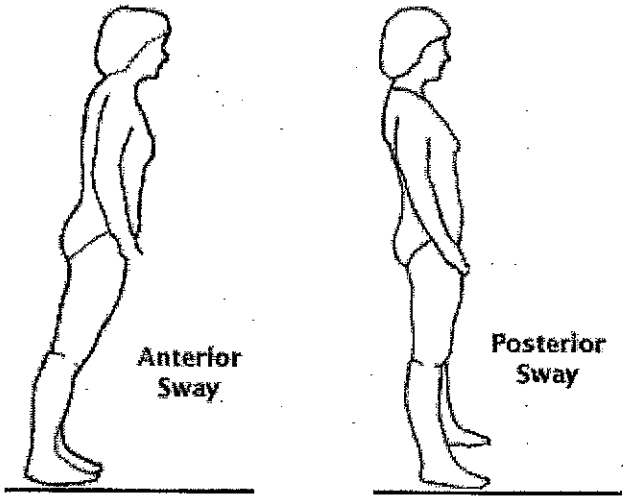
Movement Strategies

According to the Systems Approach to motor control, the nervous system uses preprogrammed strategies or synergies to simplify movement. The central nervous system (CNS) takes advantage of pathways that link together groups of muscles in a flexible and repeatable sequence. This linking or packaging of muscle groups allows the brain to respond to an infinite variety of circumstances by drawing on muscle responses that have been successful in the past. This linking or packaging of muscles in a repeatable sequence is called a **movement strategy**.

Utilizing a movement strategy simplifies the way the nervous system accesses a motor reaction in response to sensory input. Strategies are automatic reactions that have evolved over time, taking into account biomechanical and environmental constraints. Strategies that are successful for maintaining balance are stored so that the CNS is not forced to start from scratch each time a loss of balance occurs. Strategies are automatic reactions, slower than reflexes but much faster than voluntary movements. Three anterior-posterior movement strategies have been identified: the ankle, hip and stepping strategies.

ANKLE STRATEGY

The nervous system employs the ankle strategy in response to small losses of balance and to adjust balance in quiet standing. The ankle strategy is also called ankle sway and uses the length of the foot as a lever to correct for minor losses of balance. In the ankle strategy, activation of the leg muscles is from the floor up, or distal to proximal. A small loss of balance in the forward direction causes contraction of the gastrocnemius, hamstrings, and lower-back muscles, in that order, to bring the body back into balance.



The ankle strategy that is used in response to small perturbations is also called ankle sway.

A small loss of balance in the backward direction causes contraction of the anterior tibialis, quadriceps, and lower abdominal muscles, in that order, to bring the body back into balance. Our bodies are constantly using this strategy to adjust for minor losses of balance. For example, you would use the ankle strategy to maintain balance when standing on a bus, to correct for losses of balance and to prevent yourself from falling as the bus changes speed. You might also use the ankle strategy to maintain your balance on a very soft surface such as thick grass or a piece of foam.

HIP STRATEGY

The hip strategy describes movement about the hip in response to larger losses of balance or when the support surface does not allow the use of the ankle lever, such as on an icy surface or when the surface is shorter than the length of the foot. In the hip strategy, activation of muscles is from the trunk down, or proximal to distal. A loss of balance in the forward direction causes contraction of the lower-back and hamstring muscles, in that order, to regain balance.

When the hip strategy is used, the muscles of the lower leg (anterior tibialis and gastrocnemius) are almost silent. Studies have shown that when a walker is used, the body largely abandons the ankle strategy and relies heavily on the hip strategy for balance. This dependence on the hip strategy for balance paradoxically may lead to a decrease in ankle sway and contribute to further decline in balance arising from loss of ankle strength and flexibility. For this reason the pros and cons of walker use must be carefully considered

before a walker is recommended for fulltime use.

STEPPING STRATEGY

The third strategy employed by the nervous system for balance is the stepping strategy. This strategy is used when the loss of balance exceeds the area of stability and the person is forced to step or fall.

SENSORY SYSTEM EFFECTS ON BALANCE

Perhaps the most confusing part of a balance evaluation is the part that examines the sensory system and its contribution to balance. The sensory system includes the eyes, ears, vestibular apparatus (inner ear), somatosensory system (touch and proprioception), taste, and smell. The parts of the sensory system that contribute directly to balance are the **visual**, **vestibular**, and **somatosensory** (touch and proprioception) systems. The use of multiple systems in balance allows us to learn new movements quickly and to fine-tune and easily repeat familiar movements.

The sensory system receives input from the environment through specialized receptors located in the sensory end-organs in the eyes, vestibular apparatus of the inner ear, muscle spindles, Golgi tendon organs, and touch receptors in the skin. Sensory input is transmitted to the spinal cord via afferent nerve fibers and then to the brain via spinal nerve tracts such as the spinothalamic tract (pain and temperature) and the dorsal column medial lemniscal tract (fine touch, muscle and tendon position sense).

Sensory input provides a continuous flow of information to the CNS, which in turn utilizes this incoming information to make decisions about movement. The CNS sifts, compares, weighs, stores, and processes sensory input and uses this information to alter the force, speed, and range of a movement.

Vision

Vision is a critical part of our balance system. It allows us to identify objects and determine their movement and tells us where we are in relation to other objects (object-to-object orientation). When we use vision to gather information about the position of our body in the environment or to determine the position of one body part *vis à vis* another, then vision is providing proprioceptive information to the CNS as well (visual proprioception).

Vision works in conjunction with the vestibular system, comparing information about velocity and rotation from the vestibular system with actual visual information. The visual system is a combination of both central and peripheral vision, although some research has suggested that peripheral vision is more important for postural control and balance than central vision (Shumway-Cook & Woollacott, 2001).

The visual system may provide inaccurate information to the nervous system. For example, a person sitting at a stoplight in a car may think she has started to move when

the car next to her starts to move. The visual system "goes along" with the movement of the neighboring car and tells the brain that both cars are moving. The CNS mediates this sensory conflict by instructing the leg to slam on the brake to stop the car from moving forward. As soon as the foot touches the brake the somatosensory and vestibular systems realize that the car is, in fact, not moving. For a split second, input from the visual system was given preference by the brain, even though the information turned out to be inaccurate.

Visual input may also be inaccurate due to diseases or disorders that affect the visual system, such as diabetic retinopathy, cataracts, macular degeneration, injuries, or stroke.

Vestibular Input

The vestibular system is responsible for processing information about movement with respect to gravity—specifically, rotation, acceleration/deceleration, and head stabilization during gait. The vestibular system works in conjunction with the visual system to stabilize the eyes and maintain posture during walking (vestibulo-ocular reflex). Vestibular disorders cause a feeling of dizziness and unsteadiness. Vestibular dysfunction also affects the ability of the CNS to mediate intersensory conflicts such as that in the example given above.

Somatosensory Input

Somatosensory input consists of touch and proprioception. Input from these two sensory sources provides critical feedback to the CNS regarding positioning in space, body sway, and changes in terrain. The sensory input from touch and proprioception allows the muscles to make constant, automatic adjustments to maintain balance and avoid falls.

In the example where the person in the stationary car slams on the brake, only to realize through somatosensory input that her car has not moved, the feeling that the car is moving when it is not is an example of a visual intersensory conflict; the conflict is resolved quickly by pressing on the brake and feeling that the car has not moved.

Sensory Disruption and Loss

The disruption or loss of sensory input in the visual, vestibular, and/or somatosensory systems can affect balance in a number of ways. How balance is affected depends on several factors, including the extent of the nervous system damage, the number and extent of sensory losses, and the availability of the other senses for compensation. In many instances, more than one sensory system is impaired, as in the case of a person with a peripheral neuropathy and visual impairment (common with diabetes and stroke). But, just as an individual with impaired vision develops a keener sense of hearing, a person with any sensory loss will attempt to compensate by using the unaffected or less-affected senses to improve balance.

SENSORY LOSS

The way balance is affected by loss of sensory input depends on the extent and nature of the sensory loss. Recall that the senses most associated with balance are somatosensory (touch and proprioception), visual, and vestibular. Of these, the somatosensory system plays the biggest role in balance, so losses associated with peripheral neuropathies, stroke, and other neurologic disorders can have a profound effect on balance.

A person with sensory loss (e.g., bilateral lower-leg peripheral neuropathy) who does not receive normal sensory input from the sensory receptors in the feet and ankles will attempt to compensate by depending more on visual and vestibular input for balance. If there is significant sensory loss in the feet, a person will be unable to adjust easily to changes in the support surface during tasks such as walking on grass or uneven surfaces, or even walking in shoes with soft soles.

A person with impaired vision from a stroke or cataracts will depend less on vision and more on touch and vestibular feedback for balance. In this case, choice of assistive device, hand railings for touch, and proper lighting are important. A person with a visual impairment may perform well in a clinical setting but have difficulty with balance in more complex visual situations that demand rapid visual interpretation of multiple visual cues. For example, a person may be safe walking in a quiet, well-lit hallway but be unable to negotiate a busy, noisy hallway filled with people and equipment.

Vestibular damage or loss can also have a profound effect on balance and postural control. Vestibular impairment can cause problems with gaze stabilization, including blurred vision, problems with balance and posture, and vertigo (Shumway-Cook & Woollacott, 2001).

IMPROPER SENSORY SELECTION

Sensory loss may lead to inflexible or improper sensory weighting. A person may depend on one particular sense for postural control even if that sense leads to further instability (Shumway-Cook & Woollacott, 2001). You may notice a person walking with head down, carefully watching every step. In this case, vision is the dominant sense being used for balance. Retraining would involve improving the use of somatosensory and vestibular input to reduce dependence on visual input.

Abnormal Internal Representations

Individuals' perceptions of their limits of stability are difficult to assess and understand. Illness and injury, including stroke, clearly affect confidence and may alter perceived stability limits. A person's stability may be affected by fear of falling, even when the physical ability exists to perform a task safely. Conversely, individuals may not have an accurate idea of the limits of their stability and thus have little warning when loss of stability is occurring, leading to falls.

Sensorimotor Adaptation

The nervous system has a powerful ability to compensate for actual or perceived

disabilities. Once an injury has occurred, the nervous system immediately goes to work attempting to compensate for neurologic changes, weakness, and loss of function. But the brain doesn't always choose the best (or even a good) compensation; it chooses the fastest and most efficient in an attempt to continue functioning. One of the immediate goals of therapy is to help the nervous system develop strategies and compensations that minimize musculoskeletal damage and maximize function.

AGE-RELATED CHANGES IN BALANCE

Many changes in balance relate to normal aging. Some changes (e.g., slowed gait, decrease in lower-extremity strength, decreased ROM) can be easily addressed with a daily exercise program. Other changes (e.g., declining visual ability, including loss of visual acuity, declining visual fields, light-dark adaptation, increased sensitivity to glare, loss of peripheral vision and depth perception) are more complex and may require assessment by another healthcare professional such as an optometrist or ophthalmologist.

Age-related changes in balance are the result of changes in every system in our bodies:

- **Neurologic** changes include slowed response to losses of balance, decreased righting responses, and abnormal sensory selection or weighting (i.e., overuse of vision or underuse of proprioception).
- **Orthopedic** changes include loss of ankle sway, leading to an increase in the use of the hip and stepping strategies and lower-foot swing height.
- **Psychomotor** changes include loss of confidence (changes in the perceived limits of stability) and a propensity to fall in new or novel situations, perhaps due to impaired anticipatory mechanisms.
- **Sensory** changes include abnormal sensation (e.g., peripheral neuropathies, abnormal tone, effects of drugs, visual disturbance such as hemianopsia) and a reduction in the function of the vestibular system of the inner ear (Shumway-Cook and Woollacott, 2001).

ASSESSMENT AND EVALUATION: A CASE EXAMPLE

CASE

Last year an 80-year-old woman named Elizabeth Jones was seen in outpatient physical therapy several weeks after back surgery. During the subjective assessment, Ms. Jones explained that she often "stumbled" and had fallen recently, hitting her chin on the kitchen counter. She said she had experienced "unbearable" pain in her right hip and leg and numbness in her right foot for more than a year prior to her back surgery but the pain has subsided somewhat following surgery.

She reports the pain is "still significant" and she continues to have decreased sensation in her right foot. She is taking more than four prescription medications, including narcotics for pain. She has lost 14 pounds since the surgery.

Ms. Jones lives independently in a one-story home with her partner. A sloping sidewalk leads to her front door and there are sloping gravel pathways around the yard. When she was discharged following surgery, Ms. Jones returned home with a wheeled walker but received no physical or occupational therapy. She reports ongoing weakness and instability and said she is not using the walker.

Are there any factors from the background information and subjective findings that you feel contribute to a balance deficit or put her at risk for further falls? For example,

- Is she at risk for falls because of her living situation?
- Is the ongoing back and leg pain a possible factor?
- Do you think the numbness in her right foot is a problem?
- Is she at risk for falls because of her age?
- Is she safe to walk around outside her house on the sloping pathways?
- Are you concerned about her medications?

OBJECTIVE FINDINGS

Berg Test: 40 / 56
Three-minute walk test: 525 ft, no assistive device
Strength:

- 5 / 5 throughout left lower extremity
- Right lower extremity
    - Ankle dorsiflexion = 4 / 5
    - Ankle plantarflexion = 4 / 5
    - Knee extension in sitting = 3 / 5 with R hip pain
    - Knee flexion in sitting = 3 / 5 with R hip pain
    - Hip flexion in sitting = 3 / 5 with R hip pain
    - Hip flexion in standing = 2 / 5 with R hip pain
    - Hip abduction in sitting = 2 / 5 with R hip pain

ROM: Normal
Pain: Low back, right hip into the right leg increasing with weightbearing

Evaluation

Are there factors from the objective findings you think contribute to her balance deficit? For example,

- Are the results of her 3-minute walk test an area of concern?
- Does the score of 40/56 on the Berg test indicate that she is at risk of falling?
- Do you think her decreased right lower extremity strength contributes to a

balance problem?

- Are you concerned that she is not using any assistive device when walking?

ANKLE, HIP AND STEPPING STRATEGIES

On firm surface with shoes removed:

- **Ankle:** decreased ankle sway, pronounced loss of balance to the right, requiring assistance to maintain balance, gradually improved with practice
- **Hip:** decreased, loss of balance to the right, assistance needed to prevent falling
- **Stepping:** decreased on right side, pronounced loss of balance requiring assistance to prevent falling

On compliant surface (couch cushion) with shoes removed:

- **Ankle:** severe loss of balance to the right, uncontrolled sit to prevent falling, gradually improved with practice
- **Hip:** severe loss of balance to the right
- **Stepping:** unable to perform

Evaluation

Do the results from the ankle, hip, and stepping strategies assessment indicate any problems with balance? For example,

- Do you think her decreased ankle sway contributes to her balance deficit?
- Is her tendency to lose her balance to the right connected to her back pain?
- Do you think her inability to stand on a cushion is a significant problem?

SUMMARY

Important findings:

- Decreased strength in the right lower extremity—especially hip abduction and hip flexion in standing
- Loss of balance during performance of the ankle, hip, and stepping strategies, severe loss of balance on compliant surface (couch cushion)
- Increased hip pain in standing
- 40/56 on the berg balance test
- Ongoing use of narcotics for pain

The results of Ms. Jones balance evaluation suggest she is at risk for falls due to decreased strength and sensation in her right hip and leg—possibly due to almost 18 months of back pain and sciatica prior to surgery. The weakness and sensory changes in the right leg and ankle may affect her

ability to adjust to losses of balance and to adjust her balance on compliant surfaces such as carpeting and grass.

Ms. Jones has a low score on the Berg Test (40/56)—recall a score of 36 indicates a fall risk of almost 100%. She has significant weakness in her hip abductors, muscles that stabilize the trunk in standing. A more detailed assessment of ankle strength should be performed—particularly the small muscles of her right hip and leg. There may also be problems with the timing of the muscle contractions in the lower leg and trunk, although this is difficult to see with the naked eye. The main problem appears to be centered on decreased ankle, lower leg, and low-back strength and sensory changes.

If Ms. Jones were given a traditional exercise program with seated or supine leg strengthening exercises, she would have little chance to correct these problems. A treatment program could focus on closed-chain balance activities (in standing) that emphasize ankle and lower-extremity strengthening, and balance reactions (especially ankle sway). The program could include standing barefoot on a level surface with eyes open, then with eyes closed, repeated on a piece of layered foam.

Changing the surface (layered foam) and conditions (eyes closed) creates gradually more challenging exercises and work the smaller, intrinsic muscles of the ankle, legs, and trunk. Standing on a compliant surface—such as a layered piece of foam—reduces somatosensory input and forces the visual and vestibular systems to work hard to compensate for the diminished input. Standing on layered foam also provides Ms. Jones a way to stretch her feet and lower legs in a closed-chain position. Ms. Jones was also instructed to begin an assisted walking program that included walking on grass, inclines, and uneven surfaces.

Mrs. Jones also began a traditional exercise program that included trunk extension and rotation exercises, Achilles tendon stretches, and exercises to strengthen her abdominal and trunk muscles. One year after her back surgery, Ms. Jones has remained free of falls and continues to live independently at home with her partner. She has installed decorative iron handrails along the paths outside her home and grab bars in her bathroom. She no longer uses narcotic pain medications.

CONCLUSION

There are many factors to consider when assessing a client with a balance deficit. Problems with balance and falls are especially evident in people who have had a recent illness that has affected strength, cognition, or motor control. In the hospital setting, a person may experience a transient balance deficit due to pain, surgery, medications, or

weakness. There may also be a worsening of functional-but-shaky balance after hospitalization, leading to increased fear, risk of injury, and loss of confidence.

Therapists and nurses in every setting will interact at some point with a person who has a transient or permanent balance disorder. It is hoped that you have gained an understanding of the many factors to consider when completing a therapy or nursing assessment on a person with a balance deficit. The traditional method of testing balance (Romberg or Tandem Romberg) by standing on one foot or placing one foot in front of the other is clearly inadequate because it fails to assess all of the systems involved with balance.

Therapists and nurses can be advocates for the client by recognizing the need for a more comprehensive balance evaluation. A referral to a clinic that specializes in balance disorders is often helpful. A thorough evaluation of medications and environmental factors that may adversely affect balance is critical—especially in older adults. Surprisingly, this may not be a regular part of the nursing or medical evaluation. An interdisciplinary approach allows practitioners to gather a complete picture of contributing factors and leads to effective and successful intervention.

The purpose of a complete balance evaluation is to help the medical professional design an effective treatment program. The goal is to prevent costly falls and to improve functional independence in the person with the balance disorder.

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See Attached Inservice dated 12/3/10.

~~EMPLOYEE'S INSERVICE~~

DEPARTMENT Nsg.

DATE 12/3/10

MEETING HELD ON:(DAY) 12/3/10 to 12/6/10 FROM _____ TO _____

MEETING AREA Nurses Station SUBJECT(S) COVERED Clean Utility Supplies, Ma Room Supplies, Pharmacy EDK Supplies, Stock Room Key, Fall Risk Assessment, Side Rail Assessment, Stock Control Policy. TOTAL NO. EMPLOYEES PRESENT _____

EMPLOYEE SIGNATURES:

Rachelle Osborne LPN
K Wireman LPN
Y Burchett LPN

Inservice 12-3-10

1. Supplies are stocked on each floor in two different locations.
   *Medication Room Supplies- These supplies are the ones that the nurse's use for medication pass, oxygen meters, alarms, EDK box's, ect.

   *Clean Utility Room Supplies- These supplies are for use by the nurse aides and nurses. They include personal items such as soap, shaving cream, razors, A & D ointment, toothbrushes, combs, lotion, mouth wash, extra briefs, etc. There is also nursing supplies such as suction catheters, O2 supplies, neb supplies, ect.

   The drawers/cabinets are labeled with the contents on the outside. There is also a list posted in the medication room and the utility room of the supplies that are located in each room.

   In the event that you should run out of supplies after hours, a key to the main stock control room is located at each nurse's station in the drawer. The stock control room is located on the first floor of the facility near the time clock. You are to sign supplies out on a clip board that is lying on the desk. If you need further assistance in locating a supply, please notify stock control, director of nursing or the administrator.

2. Pharmacy provides us with a small amount of emergency drugs for our convenience when new orders are obtained until the residents prescription arrives at the facility each night.

   The medications are in 3 utility box's located on the cabinet in the medication room. One box is an injectable box. The contents is located on the outside of the box. One box is the p.o. medication box and one box is the IV box. Inside each box is a form to fill out when you use an item.

After you fill out the form, fax it to pharmacy and place it back in the EDK box.

---

3. Inside the medication room is a personal alarm, a chair pad alarm and a bed pad alarm. When you use one of these pads you need to fill out the form to communicate it to stock control. If you use one of the alarms during normal business hours, please contact stock control for replacement at extension 115.

4. Located at each nurse's station is a log of pad alarms and chair pad alarm. The log contains the residents name and the number of the alarm assigned to their use.

5. In the event that a resident is placed in precaution and uses an alarm in their chair, the chair and the alarm pad must be sanitized before it can be taken out of the room. This prevents the spread of infections.

6. If an aide notices a change in the residents mental or physical condition, you should notify the nurse immediately. It is the nurse's responsibility to assess the resident and notify the physician of the change in condition.

Note: If an item is not available, please obtain the key to the main stock room at the Nurse's station.

Medication Room Supplies

Drawers

O2 Meters

X-mas Tree Adapter(To connect neb to flow meter)

Syringes

Cabinet

Accu check strips

Lancets

Gluco-Chlor Wipes

Alcohol Gel

Alcohol Preps

5 oz & 9 oz drinking cups

paper med cups

plastic med cups

wooden spoons

box's of syringes(3cc, 12 cc, insulin, TB)

Sharp containers (sm. & lg.)

EDK box

P.O. med box

Injectable Medication Box

IV box

Note: Individual residents on IV medications, will be stored in the cabinet or the refrigerator.

Nourishment Room

Ensure in cans for med pass

Glucernia in cans for med pass

Safety Devices

Pad Alarm

Personal Alarm

Chair Pad Alarm

Clean Utility Room Supplies

Lab Tray (Nurses Station)

Lab Supplies

Hemmocult Cards

Treatment Cart *(Extra Treatment Supplies

ABD Pads are located in the Cabinet)

Aquacel

Gauze

Sterile Gauze

Kling

Telfa Pads

Hypafix

Tape

Opsite

Normal Saline

Steri Strips

Bandaid

Periguard

Lantiseptic

Granulex

Masks

Urologicals (Clean Utility Room)

Insertion Tray (cabinet)

Straight Cath Tray (cabinet)

Bed Side Drainage Bag (drawer)

Catheters (drawer, various sizes)

Graduate (Shelf)

Enema Bags (Shelf)

Incontinent Supplies

Briefs (cabinet)

Depends

Pads

Personal Supples (Shelf)

A & D ointment

Alcohol Gel

Combs

Deodorant

Denture Cups

Mouthwash

Toothbrush & Toothpaste

Body Wash

Lotion

Razors

Shaving Cream

Toothette

Bath pan & bed pan

Urinal

Clean Utility Room Supplies

Oxygen Supplies

O2 Cannula's (drawer)

Neb Mask (drawer)

Neb Apparatus (drawer)

Humidifier Bottle (cabinet)

Sterile H2O (cabinet)

Suction Catheter (cabinet)

Yankauer (cabinet)

Suction Canister (cabinet)

Vacuum (cabinet)

X-mas tree (med room drawer) This connects the neb tubing or bi-pap to the flow meter.

Neb Bags (drawer)

Ear Cuffs (drawer)

Specimen Trap (Lab Supplies at the nurses station)

Note: If a supply is not available, obtain the key to the main stock room at the nurse's station.

Inservice 12/3/10

Fall Risk Assessment

Part of the admission process will be to screen residents for the potential for falls.

The process begins with the care plan team meeting with the family on the day of admission. The family will be asked about the history of falls. (ie: How did the fall occur, the time of day, behaviors, etc.)

The admitting nurse will be responsible for completing the fall risk assessment and the side rail assessment. It must be complete within 24 hours of the admission.

Readmissions must be complete on the day of readmission.

Quarterly updates of the Fall Risk Assessment and Side Rail Assessment will be the responsibility of the floor supervisor or ADON.

The fall risk assessment evaluates:

- The resident's orientation (person, place and time) and the potential for wandering.
- The resident's history of falls.
- The resident's ability to ambulate and the resident's elimination pattern.
- The resident will be screened for orthostatic hypotension.
- The resident's medication.
- The resident's predisposing disease.

Page 2 of the fall assessments addresses the resident's age and other fall risk factors.

Side Rail Assessment

This assessment must be completed within 24 hours of admission and on the day of readmission.

The assessment evaluates the resident for:

- Desire for side rails
- Fluctuating levels of consciousness/cognitive deficits
- Visual deficits
- Ability to get in and out of bed
- History of falls
- The use of side rails for positioning
- History of postural hypotension
- Possibility the resident may climb over the side rails
- Evidence the resident may have the desire or reason to get out of bed.
- Is the resident on any medications that would require safety precautions.
- Is there a risk if the side rails are used.

Do side rail alternatives/interventions create more risks than side rail use?

The side rail assessment also offers interventions that may be tried.

During morning meeting, new admissions and readmissions will be reviewed for completion of the side rail assessments and fall risk assessments.

SIDE RAIL EVALUATION

❑ Admission___ ❑ Re-admission___ ❑ Quarterly___ ❑ Annual___ ❑ Significant Change___ ❑ Other_____

INSTRUCTIONS: For each evaluation type (Admission, Annual, etc.) identify the corresponding number in the space provided on the right (i.e. Admission 1). Check (✓) Yes or No for each evaluation factor. **If Yes, summarize on Side Two.** Complete the Summary of Findings corresponding to each evaluation number using the Intervention Codes at the top of the page.

EVALUATION FACTORS Date	1	2	3	4
1. Has resident expressed a desire to have side rails raised while in bed for their own safety and/or comfort? If yes, explain_____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
2. Does the resident have fluctuations in levels of consciousness or a cognitive deficit? If yes, explain _____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
3. Does the resident have any visual deficits? If yes, explain_____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
4. Is the resident able to get in/out of bed?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
5. Is the resident able to get out of bed safely?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
6. Does the resident have a history of falls?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
7. Is the resident having problems with balance or poor trunk control? If yes, explain _____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
8. Does the resident use the side rails for positioning or support?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
9. Does the side rail help the resident rise from a supine position to a sitting/standing position?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
10. Does the resident have a history of postural hypotension?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
11. Is there a possibility the resident will climb over the side rails?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
12. Is there evidence (reason to believe) the resident has (or may have) a desire or reason to get out of bed? If yes, explain_____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
13. Does the resident receive any medications that would require safety precautions? Is yes, explain _____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
14. Is there a risk to the resident if side rails are used? If yes, explain_____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
15. Do the side rail alternatives/interventions create more risks than side rail use? If yes, explain_____	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No

NAME–Last	First	Middle	Attending Physician	Record No.	Room/Bed

BRIGGS.

SIDE RAIL EVALUATION

INTERVENTIONS

- Physical and/or occupational therapy consult
- Restorative care to increase mobility/ independence
- Trapeze
- Low bed
- Comfortable bed
- Soft mat on the floor
- Comfortable bed environment
- Frequent monitoring
- Put to bed when fatigued
- Meaningful/pleasurable activities
- Reminders to use call light
- Regular toileting
- Bedside commode
- Urinals/bedpans

1. SUMMARY OF FINDINGS

_____

_____

BIMS Summary Score (00-15)_____ CAM® Score (00-08)_____ PHQ-9® Total Severity Score (00-30)_____

Based off of Summary of Findings:

Side Rails: ❑ Left ❑ Right ❑ Bilateral ❑ None Half Rails: ❑ Left ❑ Right ❑ Head ❑ Foot ❑ None

❑ The resident has requested to have side rails while in bed

❑ Side rails are indicated and serve as an enabler to promote independence ❑ Side rails are not indicated at this time

Intervention number(s) utilized:_____

Interventions and Care Plans have been: ❑ Implemented ❑ Re-evaluated ❑ Updated (date):_____/_____/_____

❑ Family/Responsible party notified (date):_____/_____/_____ ❑ Physician notified (date):_____/_____/_____

Signature/Title:_____ Date:_____/_____/_____

2. SUMMARY OF FINDINGS

_____

_____

BIMS Summary Score (00-15)_____ CAM® Score (00-08)_____ PHQ-9® Total Severity Score (00-30)_____

Based off of Summary of Findings:

Side Rails: ❑ Left ❑ Right ❑ Bilateral ❑ None Half Rails: ❑ Left ❑ Right ❑ Head ❑ Foot ❑ None

❑ The resident has requested to have side rails while in bed

❑ Side rails are indicated and serve as an enabler to promote independence ❑ Side rails are not indicated at this time

Intervention number(s) utilized:_____

Interventions and Care Plans have been: ❑ Implemented ❑ Re-evaluated ❑ Updated (date):_____/_____/_____

❑ Family/Responsible party notified (date):_____/_____/_____ ❑ Physician notified (date):_____/_____/_____

Signature/Title:_____ Date:_____/_____/_____

3. SUMMARY OF FINDINGS

_____

_____

BIMS Summary Score (00-15)_____ CAM® Score (00-08)_____ PHQ-9® Total Severity Score (00-30)_____

Based off of Summary of Findings:

Side Rails: ❑ Left ❑ Right ❑ Bilateral ❑ None Half Rails: ❑ Left ❑ Right ❑ Head ❑ Foot ❑ None

❑ The resident has requested to have side rails while in bed

❑ Side rails are indicated and serve as an enabler to promote independence ❑ Side rails are not indicated at this time

Intervention number(s) utilized:_____

Interventions and Care Plans have been: ❑ Implemented ❑ Re-evaluated ❑ Updated (date):_____/_____/_____

❑ Family/Responsible party notified (date):_____/_____/_____ ❑ Physician notified (date):_____/_____/_____

Signature/Title:_____ Date:_____/_____/_____

4. SUMMARY OF FINDINGS

_____

_____

BIMS Summary Score (00-15)_____ CAM® Score (00-08)_____ PHQ-9® Total Severity Score (00-30)_____

Based off of Summary of Findings:

Side Rails: ❑ Left ❑ Right ❑ Bilateral ❑ None Half Rails: ❑ Left ❑ Right ❑ Head ❑ Foot ❑ None

❑ The resident has requested to have side rails while in bed

❑ Side rails are indicated and serve as an enabler to promote independence ❑ Side rails are not indicated at this time

Intervention number(s) utilized:_____

Interventions and Care Plans have been: ❑ Implemented ❑ Re-evaluated ❑ Updated (date):_____/_____/_____

❑ Family/Responsible party notified (date):_____/_____/_____ ❑ Physician notified (date):_____/_____/_____

Signature/Title:_____ Date:_____/_____/_____

NAME–Last	First	Middle	Attending Physician	Record No.	Room/Bed

FALL RISK ASSESSMENT

INSTRUCTIONS: Upon admission and quarterly (at a minimum) thereafter, assess the resident status in the eight clinical condition parameters listed below (A-H) by assigning the corresponding score which best describes the resident in the appropriate assessment column. Add the column of numbers to obtain the Total Score. If the total score is 10 or greater, the resident should be considered at HIGH RISK for potential falls. A prevention protocol should be initiated immediately and documented on the care plan.

	PARAMETER	SCORE	RESIDENT STATUS/CONDITION	ASSESSMENT DATE ▶ 1	2	3	4
A.	MENTAL STATUS	0	**ORIENTED** x 3 (time, place, person)				
		1	**DISORIENTED** x 1				
		2	**DISORIENTED** x 2				
		4	**DISORIENTED** x 3				
		4	**WANDERS**				
B.	HISTORY OF FALLS (Past 3 months)	0	**NO FALLS** in past 3 months				
		2	**1 - 2 FALLS** in past 3 months				
		4	**3 OR MORE FALLS** in past 3 months				
C.	AMBULATION/ ELIMINATION STATUS	0	**REGULARLY CONTINENT**				
		2	**REQUIRES REGULAR ASSIST WITH ELIMINATION**				
		4	**REGULARLY INCONTINENT**				
D.	VISION STATUS	0	**ADEQUATE** (with or without glasses)				
		2	**POOR** (with or without glasses)				
		4	**LEGALLY BLIND**				
E.	GAIT/BALANCE/ AMBULATION Indicate appropriate point value for each item that applies.	0	Gait/Balance normal				
		1	Balance problem while standing/walking				
		1	Decreased muscular coordination/jerking movements				
		1	Change in gait pattern when walking (i.e., shuffling)				
		1	Requires use of assistive devices (i.e., cane, w/c, walker, furniture)				
F.	SYSTOLIC BLOOD PRESSURE	0	**NO NOTED DROP** between lying and standing				
		2	Drop **LESS THAN 20 mm Hg** between lying and standing				
		4	Drop **MORE THAN 20 mm Hg** between lying and standing				
G.	MEDICATIONS		Respond below based on the following types of medications: Anesthetics, Antihistamines, Antihypertensives, Antiseizure, Benzodiazepines, Cathartics, Diuretics, Hypoglycemics, Narcotics, Psychoactives, Sedatives/Hypnotics.				
		0	**NONE** of these medications taken currently or within last 7 days				
		2	**TAKES 1 - 2** of these medications currently and/or within last 7 days				
		4	**TAKES 3 - 4** of these medications currently and/or within last 7 days				
		1	If resident has had a change in medication and/or change in dosage in the past 5 days = score 1 additional point.				
H.	PREDISPOSING DISEASES		Respond below based on the following predisposing conditions: Hypotension, Vertigo, CVA, Parkinson's disease, Loss of limb(s), Seizures, Arthritis, Osteoporosis, Fractures, Multiple Sclerosis.				
		0	**NONE PRESENT**				
		2	**1 - 2 PRESENT**				
		4	**3 OR MORE PRESENT**				
TOTAL SCORE			**Total score above 10 represents HIGH RISK**				

ASSESS	SIGNATURE/TITLE/DATE	ASSESS	SIGNATURE/TITLE/DATE
1		3	
2		4	

NAME–Last	First	Middle	Attending Physician	Record No.	Room/Bed

FALL RISK ASSESSMENT

❑ SOC ❑ ROC ❑ Recert
❑ Other _____

INSTRUCTIONS: If patient is over 65 years old and has any one of the following, the patient is a fall risk. Implement fall prevention program.

❑ Person is 65 years old or older, **PLUS** one of the following:

- ❑ A previous fall
- ❑ Upper or lower body weakness
- ❑ Problems with balance/gait
- ❑ Takes 4 or more medicines, or
- ❑ any one medicine such as a hypnotic or sedative, OTC sleep aid, tranquilizer, antipsychotic or antidepressant
- ❑ Any cognitive impairment
- ❑ Wears glasses/vision problems
- ❑ More than one life-time condition, such as osteoporosis, heart failure, asthma or emphysema, cancer, kidney disease, diabetes, Parkinson's/other neuromuscular disorder
- ❑ Postural hypotension
- ❑ History of stroke or other cardiac condition
- ❑ Incontinence
- ❑ Gets up at night to void
- ❑ Use of thick, soft-soled or ill-fitting shoes

❑ Fall risk assessment findings have been reviewed with patient and/caregiver and recommendation given

❑ Patient/Caregiver has been oriented to the Fall Prevention Patient Teaching booklet and follow-up planned

❑ Reviewed patient medications that may potentiate fall risk:

- _____
- _____
- _____
- _____

❑ Other:

_____

_____

_____

Staff Signature/Title:_____ Date:_____

PATIENT NAME – Last, First, Middle Initial | ID#

Falls Risk Assessment Policy

Policy: It is the policy of this facility that all new admissions be assessed for fall risk.

1. The interdisciplinary care plan team will meet with residents and families on the day of admission to determine the history of falls/injury and identify other potential risk factors for injury.
2. The physician will be notified after the initial care plan meeting of any risk factors.
3. An initial individualized care plan will be created to better meet the resident's needs.
4. A referral to therapy services will be made following the initial care plan meeting if deemed necessary by the physician.
5. For new admissions, the admitting nurse will complete a Fall Risk Assessment and a Side Rail Assessment within 24 hours.
6. When a resident returns from the hospital, the admitting nurse will review the Fall Risk Assessment and the Side Rail Assessment and update them at that time.

Side Rail Assessment Policy

Policy: It is the policy of this facility that all new admissions be assessed for side rail use.

1. The admitting nurse will assess the resident for the desire to use side rails or if side rails would be beneficial to aid them with their bed mobility.
2. Side rails may be used at the resident's request to increase the resident's sense of security (i.e. if he/she has a fear of falling, his/her movement is compromised, or he/she is used to sleeping in a larger bed.)
3. Side rails may be used if assessment has determined that they are needed to help manage a medical symptom or condition, or to help the resident reposition or move in bed and transfer, and no other reasonable alternatives can be identified.
4. The resident will be assessed for safety hazards related to side rail use.
5. The side rail assessment will be updated with every readmission and on a quarterly basis.
6. The side rail assessment will be completed within 24 hours for new admissions and immediately upon return to the facility for readmissions.

Updated: 12/06/10

Stock Control Policy

Policy: Supplies used in the usual routine are readily available in the utility room.

Supplies not normally stocked or special items which include but are not limited to mattresses, raised edge mattresses, additional personal alarms and bed/chair pad alarms, bi-pap machines, and floor pads are available upon request.

A personal alarm, bed pad alarm and chair pad alarm is in the medication room for use after hours or on weekends. Fill out the attached form and place it in the the stock control clerks mail box. If the alarm is used during normal business hours, contact the stock control clerk at ext. 115.

In the event that you should run out of supplies after hours, a key to the main stock control room is located at each nurse's station in the drawer. The stock control room is located on the first floor of the facility near the time clock. You are to sign out supplies on a clip board that is lying on the desk.

If you need further assistance in locating a supply, please notify stock control, Director of Nursing, Assistant Administrator or Administrator.

Contact the physician if there is a change in the residents condition to obtain an order before the application of any new equipment.

Clean Utility Room Supplies

Lab Tray (Nurses Station)

Lab Supplies

Hemmocult Cards

Treatment Cart *(Extra Treatment Supplies

ABD Pads are located in the Cabinet)

Aquacel

Gauze

Sterile Gauze

Kling

Telfa Pads

Hypafix

Tape

Opsite

Normal Saline

Steri Strips

Bandaid

Periguard

Lantiseptic

Granulex

Masks

Urologicals (Clean Utility Room)

Insertion Tray (cabinet)

Straight Cath Tray (cabinet)

Bed Side Drainage Bag (drawer)

Catheters (drawer, various sizes)

Graduate (Shelf)

Enema Bags (Shelf)

Incontinent Supplies

Briefs (cabinet)

Depends

Pads

Personal Supples (Shelf)

A & D ointment

Alcohol Gel

Combs

Deodorant

Denture Cups

Mouthwash

Toothbrush & Toothpaste

Body Wash

Lotion

Razors

Shaving Cream

Toothette

Bath pan & bed pan

Urinal

Clean Utility Room Supplies

Oxygen Supplies

O2 Cannula's (drawer)

Neb Mask (drawer)

Neb Apparatus (drawer)

Humidifier Bottle (cabinet)

Sterile H2O (cabinet)

Suction Catheter (cabinet)

Yankauer (cabinet)

Suction Canister (cabinet)

Vacuum (cabinet)

X-mas tree (med room drawer) This connects the neb tubing or bi-pap to the flow meter.

Neb Bags (drawer)

Ear Cuffs (drawer)

Specimen Trap (Lab Supplies at the nurses station)

Note: If a supply is not available, obtain the key to the main stock room at the nurse's station.

Note: If an item is not available, please obtain the key to the main stock room at the Nurse's station.

Medication Room Supplies

Drawers

O2 Meters

X-mas Tree Adapter(To connect neb to flow meter)

Syringes

Cabinet

Accu check strips

Lancets

Gluco-Chlor Wipes

Alcohol Gel

Alcohol Preps

5 oz & 9 oz drinking cups

paper med cups

plastic med cups

wooden spoons

box's of syringes(3cc, 12 cc, insulin, TB)

Sharp containers (sm. & lg.)

EDK box

P.O. med box

Injectable Medication Box

IV box

Note: *Individual residents on IV medications, will be stored in the cabinet or the refrigerator.*

Nourishment Room

Ensure in cans for med pass

Glucernia in cans for med pass

Safety Devices

Pad Alarm

Personal Alarm

Chair Pad Alarm