

**CS #01.FALLS.2010****Home Health Integrating Multifactorial Falls Evaluation and Interventions**

Mrs. JF is an 81 year old right-handed female who fell while walking her dog and fractured her left wrist and thumb. She was hospitalized and was discharged to home with a short arm thumb spica cast. After discharge from the hospital her physician requested that a Home Health Agency evaluate her functional needs due to the impairment in her left arm and her fear of "falling and breaking a hip". The referral also requested evaluation and intervention re: her modifiable falls risk factors.

Mrs. JF had at least one other fall in the six months before this injury, where she stumbled on uneven ground. She felt her balance had declined in the last few months before she broke her wrist. She lives with her husband in a one story home and does laundry in the basement. There are three steps to enter the home.

Her husband has a neurological condition and she is his primary caregiver. Prior to the fall Mrs. JF provided stand by assistance for him with dressing, bathing, and transportation. She did all meal prep, housekeeping, bill paying and shopping. They do have an adult daughter, son-in-law and grandson who live nearby and can provide some assistance.

Her medical history includes: Diabetes mellitus with peripheral neuropathy, Vitamin D deficiency, depression, lumbar spinal stenosis, cataracts, hypertension, hyperlipidemia, hypothyroidism and osteoporosis.

**Current Medications**

Atenolol, 100 mg daily.  
Acetaminophen 1000 mg 4 times daily.  
Aspirin 325 mg daily.  
Calcium plus vitamin D, which is supposed to be daily but she takes only occasionally.  
Conjugated estrogen intravaginally.  
Plendil 10 mg daily.  
Levothyroxine 75 mcg daily.  
Lisinopril 40 mg daily.  
Lorazepam as needed up to twice daily up to 1 mg.  
Metformin 500 mg twice daily.  
Fluoxetine 20 mg daily.  
Actonel 35 mg weekly.  
Simvastatin 10 mg daily.

**Home Health:****Multifactorial falls assessment risk factors identified (typically one nursing visit, one OT visit, two PT visits):**

1. Medical conditions (diabetes mellitus with peripheral neuropathy, Vitamin D deficiency, depression, lumbar spinal stenosis, cataracts).
2. Medications (multiple - including antihypertensives and psychotropics)
3. Orthostatic B/P with symptoms

4. Vision screen: has bilateral cataracts, wears bifocals
5. Decreased balance confidence and fear of falling with daily activities and independent daily activities which has resulted in activity restriction.
6. Abnormal sensory integration test in standing on compliant surface (foam cushion from sofa) with eyes closed.
7. Abnormal Functional forward reach of 7 inches.
8. Decreased stepping reactions forward and backward requiring assistance to prevent fall.
9. Decreased leg strength; Manual Muscle Testing (MMT) 3+ hip extensors and plantar flexors, 4-hip abductors and knee flexors.
10. Abnormal gait pattern along with abnormal Dynamic Gait Index (DGI) of 15/24 indicating risk of falls with walking. Individual task impairments: slow pace with decreased steps and foot clearance, imbalance with head and body turns, must stop before stepping over object, two feet to a step on stairs using railing.
11. Timed Up and Go was 22 seconds indicating risk of falls. Qualitative: slow with rising, imbalance with turn, path deviation.
12. Home hazards: lack of equipment for bathroom safety, decreased lighting in hallway and stairs.

**Plan of care with focused interventions:**

1. Medication recommendations: ask primary MD to review multiple psychotropics. Educate patient regarding potential falls risk due to sedation, impaired alertness/concentration.
2. Recommend Ophthalmology exam with consideration of cataract surgery. If glasses are still needed after the surgery, use distance only glasses for walking.
3. Educate patient how to improve lighting and reduce glare. Discuss tripping hazards indoors and outdoors due to depth perception and contrast impairments. Educate about stairs and steps, consider using colored tape on edge of steps, always using a railing. Recommend she use a cane indoors and outdoors, discuss uneven sidewalks and other surfaces, curbs and inclines. Recommend that she remove clutter, throw rugs, cords and other items that could cause tripping in walking paths.
4. Educate patient about neuropathy and risk for falls. Reinforce the need to improve vision because she needs to rely on it more. Discuss that she should use a bath seat and handheld shower because of increased risk with eyes closed. Recommend she use a cane to increase sensory input.
5. Educate patient about orthostatic symptoms and the risk for falls. Teach her how to use hand and foot pumps before rising and to get up slowly. Encourage adequate fluid intake. Discuss the use of mild support stockings recommended for diabetes.

6. Physical therapy for individualized balance and strength training. Recommend use of challenging balance exercises in standing and walking that are progressed over a long enough period of time to be effective. The therapist develops patient-centered interventions to improve balance and strength and instructs the patient on the exercises - providing follow-up as necessary. Recommend using evidence-based interventions, one example is the Otago Exercise Program (Campbell, et al. and Robertson, et al.). It is recommended that the patient be transferred to a Medicare part B provider to continue the program once she no longer meets Medicare Part A eligibility criteria.
7. Physical therapy for sensory integration training for balance due to impaired vestibular use. Educate patient about functional problems with poor lighting or eyes closed, fast turns, compliant or uneven surfaces, and inclines.
8. Physical therapy for gait training with single point cane, indoors and outdoors.
9. Occupational therapy for task redesign and training reinforcing educational concepts around impaired function due to left wrist and thumb cast, impaired vision, neuropathy, orthostatic symptoms, leg weakness and decreased vestibular use. Make recommendations for chore help. Recommend meals on wheels for one meal a day. Educate patient on care of her left arm and how to avoid edema. Educate patient about decreased limits of stability and how to support herself while reaching and the use of a reacher.
10. Home safety modifications: Improve bathroom safety with grab bars, bath bench, and handheld shower. Increase lighting in hallways and stairs. Add rail or post by steps entering the house.

<http://apps.who.int/classifications/icfbrowser/>

**Going Beyond Diagnosis® ICF Code Set for Home-based Fall Evaluation and Intervention with Examples of Current Provider Interventions**

<b>BODY FUNCTIONS</b>				
<b>ICF</b>	<b>Category Description</b>	<b>Potential Clinical Presentations</b>	<b>Evidence-based Intervention(s)</b>	<b>Outcome Measures</b>
b110	Consciousness functions	direct observation, patient report, medication warning labels	referral to PCP re: psychotropic medications, antihypertension medications	absence of clouding of consciousness
b114	Orientation functions			
b1266	Confidence	patient report of decreased balance confidence	interventions which broaden pt repertoire of techniques to move about and accomplish tasks	patient report of increased balance confidence and activities
b140	Attention functions	direct observation, patient report, medication warning labels, history of depression	referral to PCP re: psychotropic medications, Education of patient regarding divided attention.	observed or reported episodes of lethargy, lack of alertness, loss of balance with multitasking.
b144	Memory functions			
b147	Psychomotor functions	direct observation, patient report, medication warning labels, history of depression, slow score on TUG, decreased stepping reactions.	referral to PCP re: psychotropic medications, balance and gait training emphasizing reactive balance.	observed or reported episodes of slow reaction times especially with balance perturbations. Decrease time with TUG, improve stepping reactions.
b156	Perceptual functions			
b164	Higher-level cognitive functions			
b176	Mental function of sequencing complex movements			

b210	Seeing functions	assess acuity	referral for ophthalmology consult, additional lighting, education about compensatory techniques.	vision adequate for task and spontaneous use of compensatory techniques
b215	Function of structures adjoining the eye			
b230	Hearing functions			
b235	Vestibular functions	score on CTSIB, score on functional reach test, score on DGI items with head and body turns.	exercises for balance training emphasizing vestibular use.	score on CTSIB, scores on DGI with head and body turns, pt's report of dizziness or loss of balance
b240	Sensations associated with hearing and vestibular function	monitor for patient report of vertigo		
b260	Proprioceptive function			
b265	Touch function	neuropathy	Education about compensatory techniques, observation of skin, foot protection.	Patient report
b280	Sensation of pain			
b410	Heart functions			
b420	Blood pressure functions	postural BP reading	referral to PCP re: medications, instruction re: techniques to use to reduce BP drop during position changes ; See interventions in Fall Prevention BPIP	improved postural BP readings
b455	Exercise tolerance functions			
b710	Mobility of joint functions			
b715	Stability of joint functions			

b730	Muscle power functions	Manual Muscle test rating	exercise for leg strengthening	improved MMT rating
b735	Muscle tone functions			
b740	Muscle endurance functions			
b755	Involuntary movement reaction function	Stepping reactions	instruction re: compensatory strategies including hazard mitigation and use of mobility device, balance and gait training emphasizing reactive balance.	spontaneous use of compensatory strategies, improved stepping reactions.
b760	Control of voluntary movement functions			
b770	Gait pattern functions	DGI score, qualitative assessment of gait, TUG score	provision and training in use of mobility device, gait pattern training	spontaneous use of compensatory strategies, improved DGI score
b780	Sensations related to muscles and movement functions	CTSIB score	sensory integration training in standing and walking.	Improved CTSIB score

<b>BODY STRUCTURES</b>				
<b>ICF</b>	<b>Category Description</b>	<b>Potential Clinical Presentation</b>	<b>Evidence-based Intervention(s)</b>	<b>Outcome Measures</b>
s110	Structure of brain			
s2204	Lens of eyeball	cataracts by history, problems with depth perception and contrast by patient report and history of tripping.	referral for ophtalmology consult, trianing in compensatory techniques for impaired functional vision.	if appropriate, cataract surgery, decreased episodes of tripping
s120	Spinal cord and related structures			
s710	Structure of head and neck region			
s750	Structure of lower extremity	hx osteoporosis	continue medication and weightbearing activities/exercises	medication compliance and ongoing participation in Wbing activities
s760	Structure of trunk	hx osteoporosis	continue medication and weightbearing activities/exercises	medication compliance and ongoing participation in Wbing activities

<b>ACTIVITIES and PARTICIPATION</b>				
<b>ICF</b>	<b>Category Description</b>	<b>Potential Clinical Presentation</b>	<b>Evidence-based Intervention(s)</b>	<b>Outcome Measure</b>
d155	Acquiring skills			
d160	Focusing attention	observe for balance problems with divided attention	Patient education about multitasking and balance.	No loss of balance due to divided attention
d177	Making decisions			
d230	Carrying out daily routine	patient report due to limitations of using left arm, balance impairments and decreased balance confidence	re-establish routine incorporating new techniques, devices	daily routines are completed timely with incorporation of compensatory strategies and devices
d410	Changing basic body position	BP changes with position changes, monitor for signs of vertigo	incorporate BP techniques	reduction in BP change, spontaneous use of techniques (pumps)
d415	Maintaining a body position	abnormal CTSIB	Sensory Integration training in standing	Improved score on CTSIB
d420	Transferring oneself	TUG (transfer aspect), direct observation, patient report, decreased leg strength	incorporate devices, dynamic balance training, strength training	independent, controlled transfer from multiple surfaces, improved TUG score, increased leg MMT
d430	Lifting and carrying objects	direct observation, patient report, impaired vision	incorporate assistive devices, compensatory techniques, dynamic balance training.	able to carry items and maintain balance using cane or railing with using backpack or over the shoulder bag

d450	Walking	TUG, DGI, qualitative gait, direct observation, patient report	use cane, handholds, clear pathways, balance and gait training	improved TUG and DGI scores, spontaneous use of cane while moving about, decreased reports of imbalance
d460	Moving around in different locations	direct observation, patient report	use cane, handholds, clear pathways, balance and gait training	improved TUG and DGI scores, spontaneous use of cane while moving about, decreased reports of imbalance
d465	Moving around using equipment	direct observation, patient report	use cane, handholds, clear pathways	improved TUG score, spontaneous use of cane while moving about
d530	Toileting	direct observation, patient report	use assistive devices and incorporate into existing routines	independent toileting with devices as needed
d540	Dressing	direct observation, patient report	use assistive devices and incorporate into existing routines	incorporation of devices and strategies, no BP change during lower body dressing
d510	Bathing	direct observation, patient report	use grab bars, bath bench, hand held shower and incorporate into ADL routine, training in compensatory techniques.	independent bathing using assistive devices
d660	Caring for others	patient report, direct observation	recruit/hire assistance to meet husbands needs that daughter is unable to provide	acquisition of hired assistance and/or controlled performance of caregiving tasks while incorporating compensatory strategies

d650	Caring for household objects (d6506:taking care of animals)	patient report, direct observation	incorporate use of cane and safe ambulation with dog walking, ask daughter to walk dog at night.	incorporation of compensatory strategies/devices while walk, feeding and caring for dog
d640	Doing housework	patient report, direct observation	recruit/hire assistance to assist with household tasks that daughter is unable to provide	acquisition of hired assistance and/or controlled performance of caregiving tasks while incorporating compensatory strategies
d630	Preparing meals	patient report, direct observation	incorporate seated positions in meal prep routine, use of cane while working in kitchen, meals on wheels recommendation, additional recommendations for kitchen	Receiving meals on wheels and/or chore assistance, incorporation of compensatory strategies/devices during meal prep

<b>ENVIRONMENTAL FACTORS</b>				
<b>ICF</b>	<b>Category Description</b>	<b>Potential Clinical Presentation</b>	<b>Evidence-based Intervention(s)</b>	<b>Outcome Measures</b>
e115	Products and technology for personal use in daily life	direct observation, patient report	provide or recommend obtaining devices and instruct in use, recommend changes to environment to decrease falls risks	Improved function and safety with use of devices and environmental changes
e120	Products and technology for personal indoor and outdoor mobility and transportation	direct observation, patient report	training to use handheld shower, bath seat, grab bars, cane outside, installation of rail or post at outside steps	Improved function and safety with use of devices and environmental changes
e310	Immediate family	patient report	instruction to family re: assistance needs and risk reduction strategies	family provides assistance
e320	Friends	patient report	recruit assistance	friends provide assistance
e340	Personal care providers and personal assistants		hire choreworker	chore help with tasks not covered by family and friends
e355	Health professionals			
e360	Health related professionals			
e465	Social norms, practices and ideologies	patient report	elicit pt expectations, norms in relation to role as caregiver for spouse and pt openness to receiving assistance	

e575	General social support services, systems and policies	patient report	educate patient about local resources	
e580	Health services, systems and policies	patient report	ensure PCP, other providers and hospital chart include v15.88 dx. Educate patient about what is covered by home health services	

Palmetto GBA ICF Code Set for Home-based Fall Evaluation and Intervention