A New Approach to Screen for Fall Risk: Prevention is KEY!
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Falls don't "just happen," and people don't fall because they get older. Falling is not a “side effect” of aging. Often, there are multiple causes or risk factors associated with a fall. As the number of risk factors rise, so does the risk of sustaining a fall. Many falls are linked to one’s physical condition or medical issues, such as chronic disease. Other causes could be safety hazards in the home or community environment. Below is a list of common risk factors linked to falling:

- ****Dizziness:** Almost 45% of all ER visits in primary health care are due to dizziness, which is a significant risk factor for falls. The cause of dizziness is often benign and multifactorial. The most common cause of dizziness is benign paroxysmal positional vertigo (BPPV) and the second most frequent cause is multisensory dizziness, defined as dizziness attributed to deterioration of multiple sensory receptor systems.
- ****Asymmetric vestibular (inner ear) function:** It is important to know and understand the functioning of the inner ears and whether or not they are functioning equally on both sides.
- **Sensory problems:** If your senses don't work well, you might be less aware of your environment. For instance, numbness in your feet may cause you to be unaware of where you are stepping.
- **Muscle weakness, balance and gait (how you walk):** Older people with weak muscles (especially the legs and glutes/buttocks), poor balance, or difficulty walking are more likely to fall than are those who maintain their muscle strength, as well as their flexibility and endurance. Be sure to maintain a regular exercise program!
- **Blood pressure changes such as when you get up from lying down or sitting:** This condition -- called postural/orthostatic hypotension -- might result from dehydration, or certain medications. It might also be linked to diabetes, neurological conditions such as Parkinson's disease, or an infection.
- **Confusion:** For example, if you wake up in an unfamiliar environment, you might feel unsure of where you are. If you feel confused, wait for your mind to clear or until someone comes to help you before trying to get up and walk around.
- **Medications and their side effects.** Many side effects of medications include dizziness, confusion, lethargy, blood pressure changes, etc. which can increase risk. Those who consume > 4 prescription medications have a greater risk of falling. Check with your doctor to see if the medications you are taking can cause dizziness or unsteadiness and he/she will be able to advise you.
- **Delayed reflexes/reaction time compared to when you were younger:** The increased amount of time it takes you to react may make it harder to catch your balance if you begin to fall.
- **Foot problems and Footwear:** Backless shoes and slippers, high-heeled shoes, and shoes with smooth leather soles are examples of unsafe footwear that could cause a fall.

- **Poor night vision:** One reason is that it may take a while for your eyes to adjust to see clearly when you move between darkness and light.

A New Fall Screen Approach for Medical Providers
I would like to address the first two items denoted by asterisks above. You may have found yourself asking, "What is multi-sensory dizziness?" or "What is asymmetric vestibular function?" Let's discuss multisensory dizziness first. To maintain balance, we utilize sensory information from three senses: **vision**, pressure sensors in our feet and joints (**somatosensation**), and our inner ear (**vestibular system**). If any of these senses are not working properly or are not communicating with our brain, we can become dizzy; hence multi-sensory dizziness. Now let us discuss asymmetric vestibular function by breaking down the words. **Asymmetry**: not the same on both sides. **Vestibular:** another word for your inner ear. **Function:** work or operate in a particular way.

- **Putting it all together:** Recent research by *Hansson et al.* found that asymmetric vestibular function is overrepresented in elderly person that had sustained hip and wrist fractures. This evidence suggests that assessing for vestibular asymmetry could predict falls among elderly patients with multi-sensory dizziness. That being said, for the medical provider, there are simple bedside vestibular tests like the Headshake Test or Head Impulse Test (HIT) that add valuable information on predicting falls. In the event that one of these tests is positive for vestibular asymmetry, your provider may refer you to physical therapy for vestibular rehabilitation and balance training.

What Should You Do if You Fall?
Again, be sure to discuss your falls with your primary care doctor because it could be a sign or symptom of a new medical problem that warrants attention, such as an infection or a cardiovascular disorder. It could also be suggestive of your current treatment regime requiring adjustment such as with Multiple Sclerosis or Parkinson's disease. Your doctor may also recommend that you see a physical therapist that is trained in vestibular and balance therapy to assist in identifying the possible causes of your imbalance and falls.

Use these Strategies to Reduce Falls in the Home:
- Remove loose throw rugs
- Remove clutter on the floor or stairs
- Avoid carrying heavy or bulky things up or down stairs
- Use or install stair railings
- Use or install grab bars in the bathroom
- Put night lights in hallways and near the restroom to improve vision at night

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References:

- National Institute of Health; Senior Health: Falls and Older Adults. http://nihseniorhealth.gov Accessed 10/14/13.
- Home and Recreational Safety. Center for Disease Control. http://www.cdc.gov/HomeandRecreationalSafety/Falls/index.html Accessed 10/14/13.
- Hansson EE., Magnusson M. **Vestibular asymmetry predicts falls among elderly patients with multi-sensory dizziness**. *BMC Geriatr* 2013, **13**:77.
- Kristinsdottir EK, Jarnlo GB, Magnusson M. **Asymmetric vestibular function in the elderly might be a significant contributor to hip fractures.** *Scand J Rehabil Med.* 2000 Jun;32(2): 56-60.

- Kristinsdottir EK, Nordell E, Jarnlo GB, Tjader A, Thorngren KG, and Magnusson M. **Observation of vestibular asymmetry in a majority of patients over 50 years with fall-related wrist fractures.** *Acta Otolaryngol.* 2001 Jun;121(4): 481-5.