Vestibular Rehabilitation SIG

American Physical Therapy Association/Neurology Section

In this Issue:

Message from the Chair

Susan L. Whitney, PT, PhD, NCS, ATC, FAPTA
Vestibular SIG Chair

We all need to get onboard the train and be utilizing G codes for our billing NOW!

The Centers for Medicare Services (CMS) was mandated by the US government to collect information from physical therapists regarding function and condition of the person, therapy services provided, and outcomes on patient function on claim forms by the Middle Class Tax Relief Act of 2012. This collected information will be used to modify payment for outpatient therapy services in the future. All of us have to be collecting this new information (the G codes with the appropriate modifiers) by July 1, 2013 or we will no longer be paid for services provided to persons who are covered by Medicare Part B.

The policy applies to physical therapy services provided in hospitals, critical access hospitals, comprehensive outpatient rehab facilities, rehab agencies, private PT offices, skilled nursing facilities, home health agencies and PTs who work for physicians.

We are all required to report G codes which include: Mobility and walking around; changing and maintaining body position; carrying, moving and handling objects, self-care, and "other" for Physical

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For more information go to:
http://www.neuropt.org/go/special-interest-groups/vestibular-rehabilitation

Functional Limitation Reporting
The New G-Codes

by Kenda Fuller, PT

Where did this come from?

The Middle Class Tax Relief Act of 2012 resulted in a CMS mandate to collect information regarding beneficiaries on the claim form by January 1, 2013. By July, 2013 CMS will deny payment if these codes are not included in billing. The intent is to describe function and condition and therapy services furnished as well as outcomes achieved from treatment affecting patient function. These G codes are non-payable but required for billing, there is no reimbursement associated with use of code.

These should be combined with the current, payable CPT codes to describe clinical services provided same day including evaluation and intervention codes. Include PQRS if you are participating

Reporting is specific to traditional Medicare both primary and secondary. Medicare Advantage Plans are not included in the reporting.

Functional Limitation Reporting allows therapists to use the functional tools of choice and strongly reiterates that professional judgment of the clinician is acceptable.

The 5 reporting categories for Physical Therapy are**:**

1. Mobility

2. Changing and maintaining body position

3. Carrying, moving and handling objects

4. Self care

5. Other.

These categories are derived from the ICF Classification System. The matrix describing the codes is listed on page 3

Choose one category to describe initial evaluation status, and level of severity. The severity goal that you intend to achieve in the next 10 visits is recorded at the same visit. The final level of functional limitation will be recorded again at discharge. Discharge reporting is not to be performed if the patient self discharges prior to the formal discharge visit.

A subsequent limitation may be reported if care continues after you end documentation of the primary limitation. When you begin the second or subsequent limitation, you begin the process again as you did for the primary limitation.

Two codes with modifiers are to be reported each period. The first code and the second code in the category you select are to be used for each visit until the discharge. A separate code is used when the patient is ready for discharge. At the discharge report, the goal status at discharge and the actual discharge status are reported.

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G-Codes for Claims-Based Functional Reporting for CY 2013

Mobility: Walking & Moving Around	
G8978	current status, at therapy episode and at reporting intervals.
G8979	projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
G8980	discharge status, at discharge from therapy or to end reporting
Changing & Maintaining Body Position	
G8981	current status, at therapy episode outset and at reporting intervals
G8982	projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
G8983	discharge status, at discharge from therapy or to end reporting
Carrying, Moving & Handling Objects	
G8984	current status, at therapy episode outset and at reporting intervals
G8985	projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
G8986	discharge status, at discharge from therapy or to end reporting
Self Care	
G8987	current status, at therapy episode outset and at reporting intervals.
G8988	projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
G8989	discharge status, at discharge from therapy or to end reporting
Other PT/OT Primary Functional Limitation	
G8990	current status, at therapy episode outset and at reporting intervals
G8991	projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting.
G8992	discharge status, at discharge from therapy or to end reporting
Other PT/OT Subsequent Functional Limitation	
G8993	current status, at therapy episode outset and at reporting intervals
G8994	projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting.
G8995	discharge status, at discharge from therapy or to end reporting

Continued on page 5.

CSM 2013 Re Cap

Video Analysis of Eye Movements in Individuals With Peripheral and Central Vestibular Disorders

by Laura Morris PT, NCS VRSIG Website Coordinator

This session on analyzing eye movements seen clinically was facilitated by Susan Whitney, PT, DPT, PhD, NCS, FAPTA; Susan Herdman, PT, PhD, FAPTA; and Michael Schubert, PT, PhD. The case vignettes included BPPV, central lesions, and peripheral and central vestibular disorders. The cases presented were very brief with the primary focus on the eye movement videos themselves. There was tremendous audience participation, as the session utilized a voting system called "***Poll Everywhere***", in which the participants used text messaging or a website link to answer multiple choice questions posed by the presenters. The questions were aimed at identifying the eye movement itself or determining the differential diagnosis. The technology allowed the results from the participants' voting to be immediately displayed in real time, which facilitated more detailed discussion when not all votes were unanimous and allowed for a better understanding of the diagnoses presented. The opportunity to review eye movements that were so varied and interesting and discuss the disorders that caused them made for an excellent educational session. We thank the presenters for such a fantastic seminar!

CSM 2013 Pre-conference course: Typical and Atypical BPPV

Lisa M. Eaton, DPT, OCS
Cascade Dizziness and Balance PT, Seattle, WA

Janet Helminski, PT, PhD and Janet Callahan, PT, MS, NCS jointly taught the CSM 2013 pre-conference course "Differential Diagnosis and Treatment of Typical and Atypical BPPV". The "two Janets" presented a great deal of material, including case studies with videos and many 'clinical pearls' during the 8-hour course.

One of the most interesting updates was related to the statistics regarding the canal distribution of BPPV: 41-65% unilateral PC, 20% multi-canal, 21-33% LC and 17% AC. For many, these numbers reflected a much different picture of what we have come to believe about the frequency of BPPV in the different canals. As technology is improving, diagnosis of BPPV is improving as well. Based on these statistics, it also shows that successfully treating BPPV requires more extensive skill with diagnosis and treatment.

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CALL FOR NEWSLETTER ARTICLE WRITERS!!!

Do you want to get involved with your SIG? Consider writing an article for the newsletter!! You can write on a topic of your choosing or an appropriate topic could be assigned to you. If you are interested in getting involved with the newsletter, please contact Betsy Grace Georgelos at Elizabeth.grace@uphs.upenn.edu or Debbie Struiksma PT, NCS at dstruiksma77@aol.com.

Functional Limitation Reporting

(continued from page 2)

Severity Modifiers

There are 7 severity modifiers. Documentation must include the tool used and the method to determine the severity modifier. Knowing the method will insure consistency in reporting improvement. If services are not intended to address functional limitation; (BPPV may fall into this category), use "Other" G code and a 0% severity modifier (CL)

Modifier	Impairment Limitation Restriction
CH	0 percent impaired, limited or restricted
CI	At least 1 percent but less than 20 percent impaired, limited or restricted
CJ	At least 20 percent but less than 40 percent impaired, limited or restricted
CK	At least 40 percent but less than 60 percent impaired, limited or restricted
CL	At least 60 percent but less than 80 percent impaired, limited or restricted
CM	At least 80 percent but less than 100 percent impaired, limited or restricted
CN	100 percent impaired, limited or restricted

Documentation

Documentation must include the assessment tool that was used and the rational for using it. You may include the actual tool in the medical record. The severity code selection must also be included in the documentation. The functional tool used should be converted to a percentage of severity so that the same calculation of severity is used throughout the episode of care.

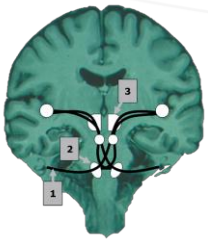
For each date of service that functional reporting is required, you must document in the medical record the specific G Code, the severity modifier and why you chose the coding. You may document the tool or tools used to justify your selection and you may include use of your clinical judgment.

More information and details related to G- Codes and Vestibular Rehabilitation will be provided via an upcoming webinar. Stay tuned!

Kenda Fuller, PT

southvalleypt.com

Look for more information regarding G-Codes and Severity Modifiers on the Neurology Section website under VRSIG NeuroPT.org



http://brain.oxfordjournals.org/content/131/10/2538/F1

San Diego CSM 2013 Re Cap

Vestibular Disorders of Central Origin: Creating Clinically Based Evidence

Anne Galgon PT, PhD, NCS VRSIG Vice Chair

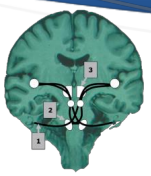
On January 23, 2013 in San Diego, the Vestibular SIG presented a case series program to explore clinical experts decision-making for the management of individuals with central vestibular disorders. The program was developed due to frequent requests by the SIG membership for more content related to the management of central vestibular disorders. Members have expressed that educational courses on vestibular disorders tend to focus on distinguishing between peripheral and central disorders, but then generally limit intervention to peripheral vestibular disorders. In these courses, central disorders tend to be placed into a single management strategy group. The purpose of this presentation was to discuss the differences and similarities' in management of individual cases with three common central pathologies that may demonstrate vestibular involvement: stroke, multiple sclerosis, and brain injury. The clinical experts that presented case studies included Jeffrey Hoder PT, DPT, NCS, Herb Karpatkin PT DSc, NCS, and Kim R. Gottshall PhD, PT, ATC.

The first clinical expert, Jeffrey Hoder[a] presented overview information on central vestibular pathways, highlighting common disorders, followed by a case presentation of a 67-year-old woman with the diagnosis of a lateral medullary stroke. During the background presentation, Jeff presented a review of the central structures and pathways of the central vestibular system from the vestibular nuclei superiorly to the cortex via the thalamus, and inferiorly through the spinal cord. He then discussed the differences in clinical presentations associated with an acute vestibular nuclei lesion, acute lesion of the posteriolateral thalamus, and cerebellar lesions. Posterior inferior cerebellar artery (PICA) and anterior inferior cerebellar artery (AICA) syndromes were compared[1]. He reported on the high sensitivity of diagnosing a stroke as the cause of an acute vestibular presentation based upon a clinical oculomotor exam including: a negative head impulse test, directional changing nystagmus with eccentric gaze and a skew deviation[2]. There was considerable description of the comparing and contrasting of the losses of subjective postural vertical and lateropulsion associated with both lateral medullary (Wallenberg's Syndrome or Lateral Medullary Syndrome) and posteriolateral thalamic lesions (Pusher's syndrome) [3-5]. Severity ratings and recovery rates of lateropulsion in stroke patients[4] and treatment options[6] were discussed in the context of the right lateral medullary case study. This patient was treated in an inpatient rehabilitation hospital initially for 41 days and then readmitted for a second admission shortly after with a new occurrence of left sided weakness and a diagnosis of a subdural hematoma. Table 1 presents the clinical measures of this patient at each admission and discharge. In both admissions functional training, vestibular and ocular exercise and balance activities were part of her physical therapy. However, on the second admission she received body weight supported treadmill training as well. The rationale for adding this modality was to provide better trunk control and orientation, decrease the patient's fear of fall, and to decrease the effort required by the therapist during ambulation training. The natural time course related to the recovery of postural control in individuals with Wallenberg's Syndrome is generally very good[3,4], averaging 2-3 to recover from an inability to stand with eyes open to no evidence of imbalance with eyes closed. Jeff was able to demonstrate for this case that by incorporating body supported therapy with vestibular rehabilitation, he may have shortened that time frame for recovery. Body weight supported devices or suspension systems may be a wonderful complement to practice and challenge postural dysfunction of disorientation to vertical that is related to central vestibular disorders.

Table 1 Outcome Measurements of a 67-year-old woman with right lateral medullar stroke and subsequent subdural hematoma.

	Admission # 1	Discharge #1	Admission #2	Discharge #2
Total FIM	82	96	71	91
Motor FIM	55	64	40	63
Bed Mobility	Min A	Independent	Mod A	Independent
Transfers	Min A	Supervision	Mod A	Supervision
Ambulation	Mod A, RW 20 feet Inconsistent self correction to upright	Sup to Min A, RW 150 feet Stairs: 2 flights Supervision and NBQC	Mod A, RW 20 feet No self correction to upright	Contact guard, RW 150-200 feet Stairs: 2 flights Occasional Contact guard
Berg balance score	NT	NT	24/56	40/56
Length of stay		41 days		21 days

The second clinical expert, Herb Karpatkin, presented a case of a 47-year-old woman with multiple sclerosis (MS). He discussed the incidence of vestibular impairments within the MS patient population [7-9] and the indications for vestibular rehabilitation [10-11]. This patient was evaluated and treated in an outpatient clinic. She presented with an initial onset of vertigo 2 weeks prior to evaluation, an 18-year history of MS, and a severity rating of 3.5 on the Expanded Disability Status Scale. Her presentation was complicated by history of optic neuritis, and left lower extremity weakness, spasticity, slowly progressing gait and balance difficulties and fatigue. Her vestibular evaluation revealed directional changing gaze-evoked nystagmus, diplopia, head movement provoked dizziness and instability along with increasing symptoms and instability directly related to her fatigue. Table 2 presents the clinical measures of this patient taken at initial examination and discharge. Interventions included VORx1 and x2 training with progression of speed head movements, duration, and postural control demands, progressive balance and ambulation training with head movements and left lower extremity stretching and strengthening. One of the interesting elements of this case study was that Herb accounted for fatigue in assessing the physical performance measurements as well as during the interventions. He would collect baseline measures of balance and gait, and then utilize the 6-minute walk test (6MWT) prior to reassessing the same measures to establish how fatigue affected walking and balance performance.



San Diego CSM Re Cap: Vestibular Disorders Continued

During intervention, the exercise intensities and durations were individually tailored to avoid over fatigue. He adjusted his prognosis and education to account for the long-standing impairments in this individual and the progressive nature of the disease.

Table 2: Outcome Measurements of a 47-year-old woman with Multiple Sclerosis and dizziness

Measurement	Initial examination	Discharge
Dizziness handicap Inventory	49/100	22/100
Berg balance score		
• Pre 6MWT	52/56	55/56
• Post 6MWT	48/56	52/56
Dynamic Gait Index		
• Pre 6MWT	21/24	23/24
• Post 6MWT	16/24	20/24
6MWT total distance	687 feet	812 feet
• 1st 2 minutes	256 feet	291 feet
• 2nd 2 minutes	232 feet	271 feet
• 3rd 2 minutes	199 feet	250 feet
Length of stay		8 weeks

The third clinical expert, Kim Gottshall, presented a case of a 24-year-old male Navy SEAL who sustained a head injury secondary to a fall from a helicopter. She discussed auditory, vestibular and facial nerve signs associated with transverse petrous temporal bone fractures[12] and indications for vestibular rehabilitation in individuals with traumatic brain injury. As a result of the fall, this individual had multiple skull fractures (left temporal bone, left mastoid, and right suboccipital fractures), a subarachnoid hemorrhage, a left rib fracture and right pulmonary contusion that resulted in complaints of hearing loss, head movement provoked dizziness, loss of gaze stability and instability. He received extensive testing including vestibular function testing and posturography, with both a sensory organization testing (SOT) and head-shaking SOT. These tests revealed left-sided peripheral vestibular involvements (reduced caloric response, spontaneous right beating nystagmus and positive head thrust test on the left) and central involvement (abnormal saccadic accuracy and velocities). Standardized clinical measures that Kim utilized included the Dizziness Handicap Inventory (DHI), the Activities of Balance Confidence Scale (ABC), the Functional Gait Assessment (FGA), and the High-level Mobility Assessment Tool (HiMAT). The client was treated across inpatient and outpatient therapy settings within a multidisciplinary traumatic brain injury rehabilitation center over a 9-week period. Vestibular rehabilitation included VOR, COR depth perception, somatosensory exercises, positional exercises, core stabilization exercise, dynamic balance and gait activities and aerobic conditioning. In addition, his training included high technology dynamic visual, vestibular and cognitive interaction activities, including use of Dynavision D2, virtual reality[13] and inVision Tunnel[14]. This individual's personal goal was to return back to active duty at his prior level of activity and participation. Unfortunately, at the end of interventions, he was only able to return back to his unit with limited duties. The primary limitation to return to the full duty was loss of hearing, not vestibular dysfunction. There were several interesting factors in this case study. The patient was a young person who needed to return to a very high level of function and activities for his extremely specialized role within the military. His traumatic head injury resulted in a mixed presentation peripheral and central involvement and secondary traumas that required a comprehensive work up and diagnosis, the management of a multidisciplinary team, and an extremely high intensity of training for him to meet the functional demands of his job. The Naval Medical Center had the resources to provide more extensive testing to make an accurate diagnosis and the technology devices to really challenge this individual.

At the end of the presentation Anne Galgon[d] summarized the similarities and differences the management of these patients with central vestibular involvement. Each therapist utilized the available resources within their clinical site to comprehensively examine for oculomotor, vestibular, balance, and gait impairments. Additionally, they used standardized measures to assess severity and change over the course of care. There were differences in the test and measures, as well as the extent of testing done, based on those available resources, which ranged from an inpatient University hospital to private practice outpatient clinic to a comprehensive head trauma management system. From the examination results, each clinician used an impairment-based approach and functional training to optimize each patient's outcome. There approaches were comparable to interventions used for patients with peripheral vestibular disorders, with different expectations for progression and recovery based upon knowledge and understanding of the underlying pathology. Interventions were then tailored to the individual needs, severity, complexity, the prognosis and the prior level of function of each patient. In each of these cases, the patient had a good response to interventions that were provided.

Compensation to vestibular involvements and improvement in function were evident in all three cases. The exact nature with which the central nervous system compensates to central vestibular disorders is still not completely understood and may differ from compensation seen with peripheral vestibular disorders[15]. Therefore, clinical research into the recovery of function after a central vestibular insult and the effectiveness of interventions is still warranted. It was evident that clinical presentation, the prognosis and the plan of care was impacted by the lesion and disease process, as well as the individuals personal and environmental factors involved in each case. As a result, all of the presenters agreed that lesion-specific and disease-specific research was highly recommended, and central vestibular involvement should not be grouped into a single diagnostic entity. Additionally, the presenters agreed that clients should be treated with an understanding that management of symptoms may be required over a long term following discharge. The Vestibular SIG webpage also has a podcast, which re-caps this presentation. Go to http://www.neuropt.org/special-interest-groups/vestibular-rehabilitation/podcasts to listen.

References:

1. Furman JM, Whitney SL. Central causes of dizziness. Physical Therapy. 2000; 80(2): 179-87.

2. Kattah JC, Talkad AV, Wang DZ, Hsieh YH, Newman-Toker DE. HINTS to diagnose stroke in the acute vestibular syndrome: three-step bedside oculomotor examination more sensitive than early MRI diffusion-weighted imaging. Stroke. 2009;40:3504-3510.

3. Brandt T, Dieterich M. Perceived Vertical and Lateropulsion: Clinical Syndromes, Localization, and Prognosis. Neurorehabil Neural Repair 2000; 14 (1): 1-12.

4. Dieterich M, Brandt T. Wallenberg's Syndrome: lateropulsion, cyclorotation, and subjective visual vertical in thirty-six patients. Ann Neurol, 1992; 31: 399-408.

5. Karnath HO, Johannsen L, Broetz D, Küker W. Posterior thalamic hemorrhage induces "pusher syndrome." Neurology 2005; 64:1014-1019

6. Karnath HO, Boetz D. Understanding and treating "pusher syndrome." Phys Ther.2003 ;83:1119–1125.

7. Alpini D, Caputo D, Pugnetti L, Giuliano DA, Cesarani A. Vertigo and multiple sclerosis: aspects of differential diagnosis Neurol Sci. 2001 Nov;22 Suppl 2:S84-7.

8. Frohman EM, Kramer PD, Dewey RB, Kramer L, Frohman TC. Benign paroxysmal positioning vertigo in multiple sclerosis: diagnosis, pathophysiology and therapeutic techniques. Mult Scler. 2003;9:250-5.

9. Zeigelboim BS, Arruda WO, Mangabeira-Albernaz PL, Iório MC, Jurkiewicz AL, Martins-Bassetto J, Klagenberg KF. Vestibular findings in relapsing, remitting multiple sclerosis: a study of thirty patient. Int Tinnitus J. 2008;14:139-45.

10. Hebert JR, Corboy JR, Manago MM, Schenkman M. Effects of vestibular rehabilitation on multiple sclerosis-related fatigue and upright postural control: a randomized controlled trial. Phys Ther. 2011; 91:1166-83.

11. Zeigelboim B, Liberalesso P, Jurkiewicz A, Klagenberg K. Clinical benefits to vestibular rehabilitation in multiple sclerosis. Report of 4 cases. Int Tinnitus J. 2010;16:60-5.

12. Goodwin WJ, Temporal bone fractures Otolaryngol Clin North Am. 1983; 16(3):651-659.

13. Rabago CA, Wilken JM. Application of a mild traumatic brain injury rehabilitation program in a virtual reality environment: a case study, J Neurol Phys Ther. 2011;35:185-193.

14. Gottshall KR, Hoffer ME. Tracking recovery of vestibular function in individuals with blast-induced head trauma using vestibular-visual-cognitive interaction Tests. J Neurol Phys Ther, 2010; 34: 94-97.

15. Becker-Bense S, Buchholz H-G, Best C, et al.Vestibular compensation in acute unilateral medullary infarction: FDG-PET study, *Neurology* 2013;80;1103.

Neurology Section Spring Elections Coming Soon!

Melissa Bloom, PT, DPT, NCS
VR SIG Nominating Committee

The VR SIG Nominating Committee is excited to present a slate of qualified candidates who have offered their time and service to the SIG. Elections are held electronically and will begin in April. Look for updates from the Neurology Section regarding how to submit your ballot. You will also receive information regarding detailed profiles on each nominee.

We would like to sincerely thank all of the candidates for their interest in serving the Vestibular Rehab SIG and we would like to wish them all good luck. We encourage everyone to submit their vote!

2013 Nominees Are:

Vice Chair
Anne Galgon PT, PhD, NCS
Lexi Miles PT

Nominating Committee
Lisa Dransfield PT, DPT, MA
Meleah Murphy PT, DPT

Volunteering as VR SIG officer is an excellent opportunity for involvement in the APTA leadership and to grow as a clinician.

Message from the Chair

(Continued from page 1)

Therapy services. The information about these G codes can be collected in many ways.

Kenda Fuller, PT, a member of the Vestibular SIG team, is an expert in payment. She has been working on a webinar that will highlight how she and her group of physical therapists in an out-patient vestibular practice are utilizing current measures such as the dynamic gait index, gait speed, and even the Dizziness Handicap Inventory to document the severity of the patient. Please watch on our website for the posting of this information in the very near future.

The use of the G codes is MANDATORY and are non-payable. You must have a G code and a modifier on the claims form plus the projected status at the onset of care, at least every 10th visit, and at discharge. The modifiers are used to help the reviewers determine the level of severity and/or complexity of the functional limitation. The scales that are being developed on a 7-point scale based on reliable and valid measures of change in the literature. Your clinical judgment needs to be utilized when you chose the severity modifier.

APTA has some wonderful resources to answer the basic questions at: http://www.apta.org/Payment/Medicare/CodingBilling/FunctionalLimitation/FAQ/

would strongly suggest that your facility chose some tools that you will use, practice with them and be ready for the required submissions by July 1, 2013. This is not on option for anyone so we are encouraging all of you to learn more about the G codes and what they mean to your practice. The Vestibular EDGE task force has moved some of their measures forward to APTA but you need to be deciding soon what measure(s) you will use for your practice setting.

My guess is that we will all struggle for a while with these new changes. The CMS has provided us with a 6 month grace period to get our practices in order and I encourage you to choose your measures and get your system ready for the mandated changes required for payment of physical therapy services.

Susan L. Whitney, Chair, Vestibular SIG

Congratulations!

Janet Helminski PT, PhD wins the Vestibular Rehab SIG "Best Article Award!"

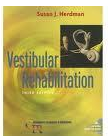
Dr. Janet Helminski won the 2013 "Best Article Award" for her article titled, *Differential Diagnosis and Treatment of Anterior Canal Benign Paroxysmal Positional Vertigo*. Dr. Helminski has 30 years of experience as a Physical Therapist and graduated from Marquette University. In 1998, she received a Doctor of Philosophy in Neuroscience, Department of Neurobiology and Physiology, Northwestern University Institute for Neuroscience in Oculomotor Control. She is currently a professor in the College of Health Sciences at Midwestern University. She began treating vestibular patients in 1998 and most recently is developing an outpatient vestibular program at the Midwestern University Faculty Practice. Her areas of interest are typical and atypical BPPV and central adaptation of the vestibular system. Congratulations, Janet!

2013 Vestibular Rehabilitation SIG Business Meeting Give-Aways

We again had lots of fun at the Vestibular Rehabilitation SIG business meeting at CSM this year and gave away many wonderful prizes to fortunate attendees through our **Raffle Giveaways.** Every attendee received a raffle ticket upon entering the meeting and many fantastic items were awarded to some very lucky attendees. We would like to acknowledge and send a sincere ***thank you*** to the individuals and companies who generously contributed to the Raffle giveaways this year.

- MicroMedical Technologies for the **Micromedical InView Goggles.** (http://www.micromedical.com)
- Visual Health Information for **the 4 balance and vestibular kits and 2 geriatric VHI kits.** (http://www.vhikits.com)
- Fay Horak for the BESTest DVD.

- IOS Press for the one year **online subscription of Journal of Vestibular Research.**
- Plural Publishing, Inc. and Gary Jacobson for the book ***"Balance Function Assessment and Management".*** (http://www.pluralpublishing.com/publication_bfaam.htm)
- Oxford University Press for the three books
  1. "***Vestibular Disorders: A case study approach to diagnosis and Treatment*** **3rd Ed" by Furman, Cass, and Whitney**,
  2. "***Neurology of Eye Movements*****, Third Volume" by Leigh and Zee**
  3. "***The Vestibular System A Sixth Sense*****" by Goldberg, Wilson, Cullen, Angelaki, Broussard, Buttner-Ennever, fukushima, Minor**.
- FA Davies for 2 copies of the book *"**Vestibular Rehabilitation, 3rd Edition**"* by Susan Herdman



CSM 2013 Pre-conference course (continued from page 4)

Throughout the course, "Key Points" along with extensive case studies were presented to explore and guide clinical decision-making.

- **Each Canal Is Unique**

  The vertical and horizontal orientation of each canal in space is obviously different. Based on mathematical models, we know the canals are not flat, but rather curvilinear within the plane of orientation. There is also significant variability in the radii of the curvature of the canal. All of this is important to consider, particularly with patients whose BPPV is not resolving as expected. Inherent anatomical variation, whether a sharper bend in the ampullary arm or the diameter of the canal itself, can impact the effectiveness of treatment.

- **Plane of the canal determines the axis of nystagmus**

  Each canal is connected to a pair of ocular muscle. The connection is what is responsible for the characteristic nystagmus presented with each variation of BPPV.

- **Neurologic examination prior to positional testing is important to differentially diagnose other causes of "vertigo-like" symptoms**

  "Vestibular-like" symptoms can come from a variety of causes. In a study of patients admitted to the ED for dizziness, 33% had otologic/vestibular causes, 21% cardiovascular, 12% respiratory, and 11% neurologic causes. There were 6 other categories also represented (Newman-Toker, 2008). This highlights the need for caution when evaluating someone with acute vestibular symptoms. Using the "HINTS" acronym (Kattah, 2009), 3 steps in the examination process produce better results in identifying an acute stroke with vestibular symptoms than a MRI:

  1) **H**ead **I**mpulse = normal
  2) Gaze evoked **N**ystagmus = direction changing with eccentric gaze
  3) **T**est of **S**kew = skew deviation

  As physical therapists increasingly have a role in the primary care process, it is critical to perform a thorough evaluation with a clear understanding of the differential diagnosis for both vestibular and non-vestibular causes of vertigo and imbalance.

- **Always take time to evaluate both sides with positional testing**

  In evaluating a patient for BPPV, the history is a critical element in the differential diagnosis. Positional testing is then used to get more specific information about the canal(s) involved. Standards for performing the Dix-Hallpike test (DHT) include: use of Frenzel goggles or video oculography, avoid the use of vestibular suppressants for 24 hours before testing and maintain each position for 45 seconds. Research has shown it takes 30 sec for otoconia to transverse 90° of a canal so patience with testing and treating in each position is very important to success. Re-evaluate the success of the treatment after 24+ hours to avoid a fatiguing response. Since 20% of BPPV is likely to involve multiple canals, it is important to test all canals before treating.

  Additionally, if you strongly suspect PC-BPPV and your initial DHT is negative, continue to perform the rest of the positional tests. Recheck the DHT and a previously hidden positive response may be found. If multiple canal BPPV is present, it was recommended in this course to treat only one canal per session.

- **Dix-Hallpike test differentiates between PC and AC-BPPV**

  The Dix-Hallpike test is well established as the standard assessment tool for PC-BPPV. In the DHT, key features of PC-BPPV are: primarily torsional and upward nystagmus which has a 1-40 sec latency, lasts less than 60 sec and fatigues with repeated positioning.

  To use the DHT for diagnosing AC-BPPV, you are looking for: positive tests in both head right and head left positions and nystagmus that is primarily down-beating. There may be a slight torsional quality to the nystagmus, in which case the direction of the torsion is toward the involved ear. There is less latency with AC-BPPV because of the location of the

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ampulla, usually 1-5 sec. Nystagmus should last less than 60 sec and have a fatigable response with repetition. If AC-BPPV is suspected and the DHT test is negative in both left and right positions, the deep DHT in a straight head hanging position (with 60deg of extension) should be performed. This will achieve greater verticality to the ampullary arm and allow the otoconia to clear the curve of the AC. Expect a large burst of down-beating nystagmus if the test is positive.

- **Particle repositioning maneuvers are effective in the treatment of PC-BPPV**
  Research studies support the use of particle repositioning as the treatment of choice for PC-BPPV. There are some critical steps that increase the success of CRM. During the modified Epley maneuver, a 180 deg turn is needed to get from the initial head rotated position (position B) to the sidelying position (position D). In the sidelying position (D) the head must be slightly elevated off the table to decrease the risk of conversion to AC-BPPV. Finally, each position must be held for **at least** 30 sec to allow for the otoconia to settle. As the patient is being moved through the positions, the pattern of nystagmus gives indication of whether the treatment is successful or not. The nystagmus should be the same throughout the maneuver. If the direction of the nystagmus reverses, the CRM is not successful. At this point, there is no need to finish the maneuver. Sit the patient up and start again.

  The use of the Semont maneuver to treat PC-BPPV was also discussed. One of the keys to success using this technique is to get enough speed to make the 180 degree whole body swing in less than 1.5 seconds. Janet Hemlinski showed a video of her performing this test with an accelerometer attached to the patient. The difference between "not fast enough" and "fast enough" is very subtle. This clearly takes practice if you are interested in using this procedure in your clinic.

  Three variations of CRMs were presented for treating AC-BPPV: modified liberatory maneuver (Herdman, 2007), neck extension (Kim and Amedee, 2002, Crevits, 2005) and forward particle repositioning maneuver (Faldon and Bronstein, 2008). The key concern for treating AC-BPPV is being able to clear the curve of the AC. The modified liberatory maneuver may not provide enough cervical extension to achieve this. Forward particle repositioning maneuver is recommended if the involved side is known.

- **Test LC in both recumbent position in the transverse plane and sitting the in pitch plane**
  The lateral canal tends to have less anatomical variation and be smaller than the vertical canals. Characteristic signs of LC-BPPV include: horizonatal nystagmus provoked by head position changes, with little to no latency and lasting less than 60 sec. Unlike vertical canal BPPV, LC-BPPV does not fatigue with repeated positioning. Additionally, we must consider whether the otoconia position results in geotropic or apogeotropic nystagmus. In the case of LC-BPPV, diagnosis and localization of the involved side is achieved with two positional tests instead of one. Start with the supine roll test to identify the location of debris in the transverse plane. As you move the patient's head between left and right, there is a null point somewhere slightly off vertical where there will be no nystagmus. The side of the null point indicates the side of the problem. For example, if the null point is 20deg to the right, then the right LC is likely involved. The bow and lean test and the forward roll test were both presented as pitch plane tests to help further localize LC-BPPV. Using both transverse plane and pitch plane tests improves the ability to determine geotropic vs. apogeotropic BPPV and to localize the problem to a particular side.

- **Treatment of LC-BPPV**
  There are a number of treatment options for treating variations of LC-BPPV. For geotropic LC-BPPV, the preferred treatment is a 270deg log roll (Rajguru et all 2005) starting on the involved side. Patient is then instructed to sleep on the uninvolved side. For treating apogeotropic LC-BPPV the Cupulolith Repositioning Maneuver (Kim, Jo, Chung, Byeon and Lee, 2011) is the preferred. Patient is then instructed to sleep on the uninvolved side.

The course was a valuable experience for therapists with a range of experience. Treating BPPV is the bread-and-butter of vestibular rehab therapists. Continuing to perfect this skill and incorporate new insight gained from current research is critical to making PTs the healthcare provider of choice for managing this problem.