**Clinical Practice Guideline:** **Videonystagmography (VNG)**

**Date of Implementation:** **July 13, 2006**

**Product:** **Specialty**

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## POLICY

American Specialty Health – Specialty (ASH) clinical committees have determined that Videonystagmography (VNG) for the diagnosis and monitoring during rehabilitation of vestibular disorders such as benign paroxysmal positional vertigo, has diagnostic utility, is professionally recognized and poses no health and safety risk. When used for other purposes, VNG has insufficient evidence to establish clinical effectiveness, does not have an established benefit:risk profile, poses a health and safety risk through substantial risk of both substitution harm and labeling effects, and is considered to be scientifically plausible. For more information, see ASHA policy *Techniques and Procedures Not Widely Supported as Evidence Based – CPG 133.*

## PROCESS AND DEFINITIONS

When developing, reviewing, and approving clinical policy, ASH peer-review committees consider whether the technique/procedure:

- Is established as having diagnostic utility by:
  - Scientific information published in an acceptable peer-reviewed clinical science resource, and
  - The consensus opinion of the Evidence Evaluation Committee (EEC) when available;
- Is professionally recognized by:
  - Inclusion in the educational standards accepted by the majority of the professions' educational institutions,
  - Wide acceptance and use of the practice, and
  - Recommendations for use made by healthcare practitioners practicing in the relevant clinical area;
- Poses a health and safety risk; and
- Is plausible or implausible
  - A belief, theory, or mechanism of health and disease that can be explained within the existing framework of scientific methods, reasoning and available knowledge is considered plausible.
  - A treatment intervention or diagnostic procedure that requires the existence of forces, mechanisms, or biological processes that are not known to exist within the current framework of scientific methods, reasoning and available knowledge is considered implausible.

**Substitution harm (indirect harm):** Compromised clinical outcomes caused by:

- Utilizing a specific diagnostic or therapeutic procedure when the safety, clinical effectiveness, or diagnostic utility is either unknown or is known to be unsafe, ineffective, or of no diagnostic utility, *instead of* a diagnostic or therapeutic procedure known to be safe, be clinically effective, or to have diagnostic utility; or
- The utilization of a diagnostic or therapeutic procedure that is substantially less effective or safe than another procedure with established safety, and clinical effectiveness or utility.

**Labeling effects (non-specific harm):** The harm that results from identifying in a patient a condition or a finding that is not clinically valid.

**Safe:** The terms "safe" and "safety," are used only with specific reference to the absence of direct harm. Direct harm would include any injury to a patient caused by the mechanical, thermal, biological, chemical, pharmacological, electrical, electromagnetic, or psycho-dynamic properties of a diagnostic or therapeutic procedure, and as such, the procedure would be considered unsafe.

**Direct harm:** Any injury to a patient caused by the mechanical, thermal, biological, chemical, pharmacological, electrical, electromagnetic, or psycho-dynamic properties of a diagnostic or therapeutic procedure.

**Benefit versus risk profile:** The relative effectiveness or utility of a therapeutic intervention or diagnostic procedure versus its potential for direct harm.

- Positive (benefits outweigh risks),
- Negative (risks outweigh benefits), or
- Equivocal (available information is inconclusive).

## Description/Background

Videonystagmography (VNG) involves testing the nystagmus or eye jerks using a video camera. A patient typically wears a specialized pair of goggles with a miniaturized camera lens attached that record and analyze ocular stability and movements during a variety of motions. Additionally, hot and cold air may be funneled into the ear to assess the balance mechanism related to the specific areas of the brain that control their functions. Many use VNG to diagnose and assist in rehabilitating vestibular disorders such as balance problems related to vestibular dysfunction [e.g., benign paroxysmal positional vertigo (BPPV)]. Other practitioners use VNG to identify cerebello-vestibular dysfunction (CV), which proponents attribute to causing many conditions, including learning disabilities, phobias, anxiety, scoliosis, and movement disorders.

Advocates of this broadened use claim VNG analysis combined with neurophysiological examination can allow a greater understanding of the underlying dysfunction and provide for a more specific treatment protocol to treat behavioral conditions such as attention deficit/hyperactivity disorder (ADHD).

VNG is not considered to cause direct harm as a result of specific diagnostic or treatment effects. However, its experimental and investigational use, as described above, may cause indirect harm by delaying appropriate diagnostic testing and treatment (substitution or labeling effects).

**Evidence and Research**

A review of the literature supports the use of VNG to diagnose and assist in measuring the results while rehabilitating vestibular-related disorders such as BPPV. Although no clinical studies of VNG's validity as a diagnostic tool were located, it is clear from the medical literature that VNG is an accepted and useful tool for evaluating vestibular disorders (Maslovara et al., 2014; Chen et al., 2000; Frisina et al., 2000; Oas, 2001; Perez, 2003; Uneri and Turkdogan, 2003; Vitte et al., 1995). However, the research literature does not support VNG's broader use as a diagnostic tool for any other conditions such as ADHD, phobias, etc. (Levinson, 1988; Levinson, 1989; Levinson, 1990; Polatajko, 1985; Polatajko, 1987).

***References***

Chen, C. W., Young, Y. H., & Wu, C. H. (2000). Vestibular neuritis: three-dimensional videonystagmography and vestibular evoked myogenic potential results. Acta Otolaryngologica, 120(7), 845-848.

Frisina, A., Piazza, F., & Quaranta, N. (2000). [Infrared videonystagmography in vestibular diagnosis]. Acta Biomedica Ateneo Parmense, 71(5), 193-199.

Levinson, H. N. (1988). The cerebellar-vestibular basis of learning disabilities in children, adolescents and adults: hypothesis and study. *Perceptual and Motor Skills, 67*(3), 983-1006.

Levinson, H. N. (1989). A cerebellar-vestibular explanation for fears/phobias: hypothesis and study. *Perceptual and Motor Skills, 68*(1), 67-84.

Levinson, H. N. (1990). The diagnostic value of cerebellar-vestibular tests in detecting learning disabilities, dyslexia, and attention deficit disorder. *Perceptual and Motor Skills, 71*(1), 67-82.

Maslovara S, Vešligaj T, Butković Soldo S, Pajić-Penavić I, Maslovara K, Mirošević Zubonja T, Soldo A. Importance of accurate diagnosis in benign paroxysmal positional vertigo (BPPV) therapy. Med Glas (Zenica). 2014;11(2):300-6.

Oas, J. G. (2001). Benign paroxysmal positional vertigo: a clinician's perspective. *Annals of the New York Academy of Sciences, 942*, 201-209.

Perez, N. (2003). Vibration induced nystagmus in normal subjects and in patients with dizziness. A videonystagmography study. *Revue de Laryngologie Otologie Rhinologie (Bord), 124*(2), 85-90.

Polatajko, H. J. (1985). A critical look at vestibular dysfunction in learning-disabled children. *Developmental Medicine and Child Neurology, 27*(3), 283-292.

Polatajko, H. J. (1987). Visual-ocular control of normal and learning-disabled children. *Developmental Medicine and Child Neurology, 29*(4), 477-485.

Uneri, A., & Turkdogan, D. (2003). Evaluation of vestibular functions in children with vertigo attacks. *Archives of Diseases in Childhood, 88*(6), 510-511.

Vitte, E., Semont, A., Freyss, G., & Soudant, J. (1995). Videonystagmoscopy: its use in the clinical vestibular laboratory. *Acta Otolaryngologica Supplement, 520 Pt 2*, 423-426.