Prior Authorization Review Panel
MCO Policy Submission

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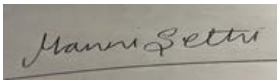
Plan: AmeriHealth Caritas Pennsylvania	**Submission Date**: 4/1/2024
Policy Number: ccp.1359	**Effective Date:** 2/2018 **Revision Date:** March 1, 2024
Policy Name: Video head impulse testing	
Type of Submission – Check all that apply: **New Policy** **X Revised Policy*** **Annual Review – No Revisions** **Statewide PDL**	
***All revisions to the policy must be highlighted using track changes throughout the document.** **Please provide any clarifying information for the policy below:** See tracked changes below.	
Name of Authorized Individual (Please type or print): Manni Sethi, MD, MBA, CHCQM	**Signature of Authorized Individual:** 

Video head impulse testing

Clinical Policy ID: CCP.1359

Recent review date: 2/2024

Next review date: 6/2025

Policy contains: Dizziness; head impulse testing; vestibular function; vertigo.

AmeriHealth Caritas Pennsylvania has developed clinical policies to assist with making coverage determinations. AmeriHealth Caritas' clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered by AmeriHealth Caritas Pennsylvania when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. AmeriHealth Caritas' clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. AmeriHealth Caritas Pennsylvania's clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, AmeriHealth Caritas Pennsylvania will update its clinical policies as necessary. AmeriHealth Caritas Pennsylvania's clinical policies are not guarantees of payment.

Coverage policy

Video head impulse testing is clinically proven and, therefore, may be medically necessary to evaluate horizontal semicircular canal function, when all of the following criteria are met (Alhabib, 2017; American Speech-Language-Hearing Association, 2022; Bhattacharyya, 2017; Fife, 2017):

- The member has symptoms of a vestibular disorder (e.g., dizziness, vertigo, imbalance, falls without other medical explanation).
- History and clinical evaluation, including the standard head impulse test, is inconclusive.
- The test results will aid in determining the appropriate medical or surgical treatment for disorders of auditory, balance, and other neural systems.

Limitations

Video head impulse testing is not medically necessary as an initial, sole screening test for dizziness (Cohen, 2017; Mezzalira, 2017).

Alternative covered services

- Computerized dynamic posturography.
- Electronystagmography or videonystagmography.
- Caloric testing.
- Rotation testing.

- Qualitative vestibular assessment.
- Scleral search coil method.
- Specialty referral.
- Standard of care diagnostic testing (e.g., audiometry, visual acuity examination, radiography, and blood work).

Background

Dizziness (including vertigo) affects approximately 15% to 30% of the general population, and its prevalence rises with age. The most common causes of dizziness are vestibular disorders (Neuhauser, 2016; Piker, 2016). Congenital or acquired conditions resulting from disease or injury to the vestibular system may reduce vision and depth perception and alter balance and coordination (American Speech-Language-Hearing Association, 2022).

A battery of non-instrumented tests (direct observation) and instrumented tests using both static and dynamic measures may be performed at the bedside or in an office setting to discern the etiology of vestibular dysfunction (American Speech-Language-Hearing Association, 2022). Within the context of the individual's medical history, diagnostic testing is performed to differentiate peripheral and central etiologies based on response to visual fixation and the presence and direction of nystagmus, which is a vision condition characterized by involuntary, rapid, and repetitive horizontal, vertical, or circular movement of the eyes (American Academy of Ophthalmology, 2022).

Standard and video head impulse tests

The standard head impulse test, also known as a head thrust test, impulse rotational test, or vestibulo-ocular reflex test, is used to assess horizontal semicircular canal function (Halmagyi, 2017). During a standard, non-instrumented head impulse test, the clinician rotates the patient’s head abruptly and unpredictably in the vertical axis of the head while the patient keeps a fixed gaze on a target. A patient with vestibular impairment will move his or her eyes with the head, forcing a corrective eye movement (saccade) at the end of each head impulse to return to the target. Results may demonstrate a problem with semicircular canal function on the same side to which the head was turned prior to the corrective refixation response.

The standard procedure is noninvasive, safe, easy, and uses stimuli in the physiological range of everyday head movement, but it lacks objective documentation. The video version images the eye using sophisticated eye tracking and head velocity transducers, providing an objective record of eye movement and head movement during head impulses.

The Food and Drug Administration gave the first approval to sell a video head impulse testing system in the United States to GN Otometrics, manufacturer of the ICS Impulse, in February 2013 (GN Otometrics North America, 2013).

Findings

We identified three systematic reviews (Abouzayd, 2017; Alhabib, 2017; Verbecque, 2017), four prospective non-randomized comparative studies (Cohen, 2017; Eza-Nunez, 2016; Mezzalira, 2017; Ross, 2016), one retrospective comparative study (Skoric, 2017), and three evidence-based guidelines (American Speech-Language-Hearing Association, 2022; Bhattacharyya, 2017; Fife, 2017) for this policy.

The comparative diagnostic efficacy of video head impulse testing and other vestibular function tests is based on retrospective and prospective nonrandomized cohort studies of low to moderate quality (Abouzayd, 2017;

Alhabib, 2017; Verbecque, 2017). Caloric testing, cervical vestibular evoked myogenic potentials, un-instrumented head impulse tests, head shaking tests, and rotational chair tests were the most common comparators. Few studies compared video head impulse testing to the scleral search coil method, considered a gold standard for accurate measurement of high velocity eye movements but is cumbersome to perform and non-portable.

Results suggest video head impulse testing provides distinct and complementary diagnostic information in the work up of persons with vestibular complaints when the clinical examination is inconclusive (Abouzayd, 2017; Alhabib, 2017; Verbecque, 2017). Limited evidence suggests quantifying eye movement with video head impulse testing may improve the ability to detect unobservable, covert saccades that occur during head impulses compared to its non-quantitative counterpart (Alhabib, 2017; Cohen, 2017).

There is an absence of evidence-based guidelines regarding which diagnostic algorithms should be applied to which patients among clinically heterogeneous populations who present with dizziness. Evidence-based guidelines agree that quantitative vestibular tests may be useful in evaluating vestibular disorders that may not be evident from the history and clinical examination (American Speech-Language-Hearing Association, 2022; Bhattacharyya, 2017; Fife, 2017). The choice of tests should be based on a case-by-case strategy according to each patient's symptoms and their suspected origin, and equipment availability.

In 2019, we updated the references, and the policy ID was changed from CP# 09.01.16 to CCP.1161.

In 2020, no policy changes are warranted.

In 2021, we updated the references. No policy changes are warranted.

In 2022, we added several large reviews, including:

- A systematic review of seven studies (n = 235) compared older adults with and without cognitive impairment. Video head impulse testing was unable to correlate cognitive decline with vestibulo-ocular reflex measurements in different frequency ranges of the semicircular canals (Bosmans, 2021).
- A meta-analysis of five studies (n = 253) of persons with benign paroxysmal positional vertigo or healthy controls found that video head impulse testing was valuable in diagnosing the condition, by detecting video-ocular reflex gains of the lateral, posterior, and anterior semi-circular canals on the affected side (Elsherif, 2021).
- A systematic review of 16 studies (n = 933) of persons with vestibular neuritis and controls determined the ability of video head impulse testing to diagnose the condition is high. Authors conclude the test is a useful complement or alternative to caloric and rotational tests as an indicator of lesions of vestibular canal functioning, especially at the time of onset (Manzari, 2021).
- A systematic review/meta-analysis of 11 studies (n = 2,670) of patients with chronic dizziness showed video head impulse testing altered results in 21% of patients, compared with 55% altered after (gold standard) caloric testing. While video head impulse does not substitute for caloric testing, authors declare it to be complementary in assessing patients with dizziness (Vallim, 2021).
- An inter-rater reliability review of 171 patients presenting with acute vestibular syndrome showed the video head impulse test was highly accurate in differentiating vestibular neuritis from stroke. Authors conclude the test may be a feasible and effective tool to screen patients for potentially underlying stroke in the emergency setting (Machner, 2021).

In 2023, a systematic review/meta-analysis of 20 studies revealed no post-operative vestibular dysfunction changes in pediatric cochlear implant patients according to video head impulse testing (Wu, 2022). Another review of 11 studies indicated moderate effectiveness of head impulse tests, with or without additional tests,

in diagnosing vertigo (Ooi, 2022). A separate study (n = 327) found discrepancies in 21% of cases between head impulse and caloric tests in vertigo diagnosis, often with positive caloric and negative head impulse test results (Li, 2022).

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In 2024, we found a systematic review and meta-analysis that examined the use of video head impulse testing as a diagnostic procedure for Menière's disease, an inner ear disorder. It compared the use of video head impulse test and the caloric test in diagnosing inner ear disorders. Twelve studies were ultimately reviewed (n = 708). It found that while 64% of patients showed abnormalities in the caloric test, only 28% had abnormal results in the video head impulse test, with approximately 47% exhibiting a specific pattern of normal video head impulse test but abnormal caloric test results. This indicates that both tests are useful but measure different aspects of ear function, with the video head impulse test providing a quick and detailed look at the ear's response to rapid movements (Tamanini, 2023).

References

On January 7, 2024, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “Head Impulse Test” (MeSH), “reflex/diagnosis” (MeSH), “Head impulse test,” “head thrust test,” “impulse rotational test,” and “vestibulo-ocular reflex test." We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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Policy updates

1/2018: initial review date and clinical policy effective date: 2/2018

1/2019: references updated. The policy ID was changed from CP# 09.01.16 to CCP.1161.

3/2020: references updated.

3/2021: Policy references updated.

3/2022: Policy references updated.

3/2023: Policy references updated.

3/2024: Policy references updated.