Name of Policy:
Evoked Potential Studies

Policy #: 395
Category: Medical

Latest Review Date: June, 2013
Policy Grade: Active Policy but no longer scheduled for regular literature reviews and updates.

Background/Definitions:
As a general rule, benefits are payable under Blue Cross and Blue Shield of Alabama health plans only in cases of medical necessity and only if services or supplies are not investigational, provided the customer group contracts have such coverage.

The following Association Technology Evaluation Criteria must be met for a service/supply to be considered for coverage:

1. The technology must have final approval from the appropriate government regulatory bodies;
2. The scientific evidence must permit conclusions concerning the effect of the technology on health outcomes;
3. The technology must improve the net health outcome;
4. The technology must be as beneficial as any established alternatives;
5. The improvement must be attainable outside the investigational setting.

Medical Necessity means that health care services (e.g., procedures, treatments, supplies, devices, equipment, facilities or drugs) that a physician, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury or disease or its symptoms, and that are:

1. In accordance with generally accepted standards of medical practice; and
2. Clinically appropriate in terms of type, frequency, extent, site and duration and considered effective for the patient’s illness, injury or disease; and
3. Not primarily for the convenience of the patient, physician or other health care provider; and
4. Not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient’s illness, injury or disease.
**Description of Procedure or Service:**
Evoked potentials are the electrical signals generated by the nervous system in response to sensory stimuli. The sensory system involved and the sequence of activation of different neural structures determines the timing and location of these signals. Because of their low voltage, evoked potentials generally are not discernible without computer averaging to differentiate them from ongoing EEG activity and other sources of electrical noise. Typically, it is necessary to present the stimulus repeatedly, averaging the time-locked brain or spinal cord responses to a series of identical stimuli, while allowing unrelated noise to average out. In the clinical setting, evoked potential studies are an extension of the neurological exam. They help reveal the existence and often suggest the location of neurological lesions. Evoked potentials are most useful when they detect clinically silent abnormalities that might otherwise go unrecognized, or when they assist in resolving vague or equivocal symptoms and findings. Evoked potential studies are tests of function. The findings usually are not etiologically specific. These types of evoked potentials are routinely performed: somatosensory, visual, and brainstem auditory.

**Somatosensory Evoked Potentials (SSEP or SEP)**
Somatosensory evoked potentials consist of a series of waves that reflect sequential activation of neural structures along the somatosensory pathways. The noninvasive clinical studies are performed by the repetitive, submaximal, electrical stimulation of a sensory or mixed sensorimotor peripheral nerve and recording the averaged responses from electrodes placed over proximal portions of the nerve stimulated, plexus, spine, and scalp. Amplitude, peak and interpeak latency measurements with side to side comparisons are used to assess abnormalities. SEP are used to aid in the determination of a diagnosis. SEP can also be performed by stimulating the skin in dermatomal areas (DSEP). The evoked potential response depends on the functional integrity of the nerve that is stimulated. SEP are an extension of the electrodiagnostic evaluation and are used to evaluate nerves that cannot be studied by conventional nerve conduction studies, including electromyography. An abnormal SEP points to a problem in the nerve conduction mechanism that carries the impulse to the brain. However, the SEP abnormality is not disease specific; an abnormal SEP indicates impairments associated with certain disorders. An abnormal SEP signifies an impaired pathway, helps to localize it, and provides a prognostic guide. The SEP does not provide any indication about the nature of the underlying pathological processes.

SEP are altered by impairment of the somatosensory pathway which may occur as a result of both diffuse (e.g., disease of myelin, hereditary system degenerations, coma) or local disorders (e.g., tumors, vascular lesions). SEP abnormalities can be detected in a variety of different settings. The electrophysiologic findings should be interpreted in the clinical context in which they are obtained (e.g., assessing functional integrity, diagnostic purposes, determining the course of neurological disorders, determining pathological involvement. SEP are helpful in evaluating ill-defined complaints. SEP may detect clinically silent brain lesions in multiple sclerosis suspects. Although SEP abnormalities alone are insufficient to establish the diagnosis of MS, the diagnosis can be established when there are other objective findings, such as brain plaques on MRI, clinical lesions by history and physical exam, and/or positive CSF findings (as determined by oligoclonal bands detected by established methods such as isoelectric focusing, different from any such bands in serum, or by an increased IgG index). A physician assesses the patient and determines a preliminary differential diagnosis. SEP testing may then be performed
by a trained technologist under the direct supervision of a physician. Direct supervision implies that a physician is in close proximity to the patient undergoing testing, is immediately available to provide the trained technician with assistance and direction if necessary, and is responsible for determining the SEP studies that are appropriate.

Recordings of SEP can be normal even in patients with extreme sensory deficits due to the presence of multiple, parallel, afferent somatosensory pathways. This procedure is often performed to investigate patients with MS; various coma states, such as those from post-traumatic injury or post-anoxia; suspected brain death; and to indicate the extensiveness of lesion damage in spinal cord injuries. The return of a cortically-generated response to stimulation of a nerve below the injured portion of the cord indicates an incomplete lesion and, therefore, may offer a better prognosis.

SEP testing is typically performed bilaterally. Depending on the clinical situation being investigated, several nerves in one extremity may have to be tested and compared with the opposite limb. The physician’s SEP report should indicate which nerves were tested, latencies at various testing points, and an evaluation of whether the results were normal or abnormal.

**Visual Evoked Potentials (VEP)**

Visual-evoked potentials (VEP), also known as visual-evoked responses (VER), are brain waves resulting from light stimuli. VEP are used to track visual signals from the retina to the occipital cortex. With electrodes placed at occipital and parietal locations of the scalp, a checkerboard pattern is projected on a screen and rapidly reversed 100 times at a rate of once or twice per second. The procedure is performed on each eye. Occasionally, checkerboard pattern testing is difficult to use in infants or older patients, so a stroboscopic flash stimulus is used. This type of testing is severely limited due to the great variability of responses among normal persons and its relative insensitivity to clinical lesions. Visual neural impulses from either method are recorded as they travel from the eye to the occipital cortex. VEP are abnormal in patients with optic neuritis or multiple sclerosis.

**Brain Stem Auditory Evoked Potentials (BAEP)**

Brain stem auditory evoked potentials (BAEP), also known as auditory evoked potentials (AEP) or brain stem auditory evoked responses (BAER), are brain waves resulting from sound stimuli. A brief stimulus such as a sharp click is given to one ear through an earphone, while hearing in the opposite ear is masked with white noise to prevent its stimulation by transcranially conducted sound. After the acoustic stimulus, signals are generated in the auditory nerve and brainstem.

Depending on the amount of time elapsed between the click stimulus and the auditory evoked response, potentials are classified as early (0 to 10 msec), middle (11 to 50 msec), or late (51 to 500 msec). The early potentials reflect electrical activity at the cochlea, eighth cranial nerve, and brain stem levels. The latter potentials reflect cortical activity. In order to separate evoked potentials from background noise, a computer averages the auditory evoked responses to 1000 to 2000 clicks. Early evoked responses may be analyzed to estimate the magnitude of hearing loss and to differentiate among cochlea, eighth nerve, and brainstem lesions.
Sensitivity and specificity reports for these tests vary. There is no clearly established measure of comparison in the medical literature, making comparisons across studies difficult. Interobserver differences, the variety of tests employed, the presence of symptoms that may influence patient outcomes, such as pain, and the presence of abnormal imaging studies in asymptomatic patients, and the subjectivity of the physician’s interpretations may all lead to variances in sensitivity and specificity results. Despite these variances, electrodiagnostic testing is commonly used to assist in diagnosing disorders involving the nerves, muscles, and neuromuscular junction.

**Policy:**
**Effective for dates of service on or after June 22, 2010:**

**Somatosensory evoked potentials (SEP, SSEP) or dermatosensory evoked potentials (DSEP):**

**Somatosensory evoked potentials (SEP, SSEP) or dermatosensory evoked potentials (DSEP) meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for any of the following indications:

- Unexplained myelopathy;
- To localize the cause of a central nervous system deficit seen on exam, but not explained by lesions seen on CT or MRI;
- To identify clinically silent brain lesions in multiple sclerosis (MS) suspects in order to establish the diagnosis, where MS is suspected due to presence of suggestive neurologic symptoms plus one or more other objective findings (brain plaque on MRI, clinical lesions by history and physical examination, and/or positive CSF as determined by oligoclonal bands detected by established methods such as isoelectric focusing, different from any such bands in serum, or by an increased IgG index);
- To manage persons with spinocerebellar degeneration (e.g., Friedreich’s ataxia, olivopontocerebellar (OPC) degeneration);
- To assess any decline which may warrant emergency surgery in an unconscious person with a spinal cord injury who shows specific structural damage to the somatosensory system and is a candidate for emergency spinal cord surgery;
- To evaluate a person with suspected brain death.

**Somatosensory evoked potentials (SEP, SSEP) or dermatosensory evoked potentials (DSEP) do not meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage and is considered **investigational** for all other indications, including but not limited to:

- SEP in conscious persons with severe spinal cord or head injuries, as the standard neurologic exam is the most direct way to evaluate any deficits;
- SEP in the diagnosis or management of amyotrophic lateral sclerosis (ALS);
- SEP in the diagnosis of cervical spondylitic myeloradiculopathy;
- SEP in the diagnosis or management of acquired metabolic disorders (e.g., lead toxicity, B12 deficiency);
- SEP in the diagnosis of thoracic outlet syndrome;
- SEP for the diagnosis of carpal tunnel syndrome/ulnar nerve entrapment;
- **SEP** for radiculopathies and peripheral nerve lesions where standard nerve conduction velocity studies are diagnostic.

**NOTE**: Depending on the clinical condition being investigated, it may be medically necessary to test several nerves in one extremity and compare them with the opposite limb.

**Documentation Requirements**: The physician’s SEP report should note which nerves were tested, latencies at various testing points, and an evaluation of whether the resulting values are normal or abnormal.

**Visual evoked potentials (VEP)**:
**Visual evoked potentials (VEP) meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for any of the following indications:

- To identify persons at increased risk for developing clinically definite multiple sclerosis;
- To diagnose or monitor multiple sclerosis (acute or chronic phases);
- To localize the cause of a visual field defect, not explained by lesions seen on CT or MRI, metabolic disorders, or infectious diseases;
- To evaluate signs and symptoms of visual loss in persons who are unable to communicate (e.g., unresponsive persons, etc).

**Visual evoked potentials (VEP) do not meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage and are considered **investigational** for all other indications, including for routine screening of infants.

**Automated visual evoked potentials (VEP) do not meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage and are considered **investigational**.

**Brain stem auditory evoked response (BAER)**:
**Brain stem auditory evoked response (BAER)**, also known as brainstem auditory evoked potentials (BAEP) or auditory evoked potentials (AEP) **meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage for any of the following indications:

- To diagnose suspected acoustic neuroma;
- To assess recovery of brainstem function after a lesion compressing the brainstem has been surgically removed;
- To localize the cause of a central nervous system deficit seen on exam, but not explained by CT or MRI;
- To diagnose and monitor demyelinating and degenerative disease affecting the brain stem (e.g., central pontine myelinolysis, olivopontocerebellar (OPC) degeneration);
- To evaluate infants and children who have suspected hearing loss that cannot be effectively measured or monitored through audiometry;
- To screen infants and children under age 5 for hearing loss;

**NOTE**: For purposes of neonatal screening, only limited auditory evoked potentials or limited evoked otoacoustic emissions are considered medically necessary. Neonates who
fail this screening test are then referred for comprehensive auditory evoked response testing or comprehensive otoacoustic emissions.

- To assess brain death or profound metabolic coma in selected cases where diagnosis or outcome is unclear from standard tests (e.g., EEG);
- To diagnose post-meningitic deafness in children.

**BAER does not meet** Blue Cross and Blue Shield of Alabama medical criteria for coverage and is considered **investigational** when:

- as a test to identify persons at increased risk for developing clinically definite multiple sclerosis (CDMS).

**Comprehensive auditory evoked response testing** and **comprehensive otoacoustic emissions do not meet** Blue Cross and Blue Shield of Alabama’s medical criteria for coverage are considered **investigational for neonatal screening**.

**Miscellaneous Indications:**
The following studies and indications do not meet Blue Cross and Blue Shield of Alabama’s medical criteria and are considered **investigational:**

- AEP to determine gestational age or conceptual age in pre-term neonates;
- Cognitive evoked potentials, also known as auditory or visual P300 or P3 cognitive evoked potentials, to diagnose cognitive dysfunction in persons with dementia (e.g., Alzheimer’s disease and Parkinson’s disease) or to identify the etiology of depression in persons with chronic demyelinating disease;
- Event-related potentials for the diagnosis of attention deficit/hyperactivity disorder or post-traumatic stress disorder, or assessment of brain injury, or evaluation of comatose persons;
- Gustatory evoked potentials for diagnosing taste disorders;
- Motor evoked potentials, other than for intraoperative use with SSEP;
- Cortical auditory evoked response (CAER) for the diagnosis of depression, attention deficit/hyperactivity disorder, autism, or any other indication;
- Vestibular evoked myogenic potentials (VEMP).

Blue Cross and Blue Shield of Alabama does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Cross and Blue Shield of Alabama administers benefits based on the members' contract and corporate medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.
**Key Points:**

**Somatosensory Evoked Potentials (SEP)**

SEP may be useful in studying disorders of the brain and brainstem, spinal cord, dorsal roots, and peripheral nerves. They are often helpful in localizing the anatomic site of somatosensory pathway lesions. SEP abnormalities are not disease specific, but can indicate afferent conduction impairments associated with certain disorders. They are useful in identifying clinically inapparent abnormalities and lesions causing only vague or equivocal signs or symptoms. The American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM) had a subcommittee that published a report on clinical uses of SEP. Some of the conditions that may affect the somatosensory pathway include the following:

- Brain and brainstem disorders, such as brain death, coma, myoclonus, multiple sclerosis, other demyelinating diseases, Friedreich’s ataxia, spinocerebellar degeneration;
- Spinal cord disorders, such as spinal cord trauma, subacute combined degeneration, cervical spondylotic myelopathy, syringomyelia, hereditary spastic diplegia, metabolic disorders (such as chronic renal failure or juvenile diabetes), vascular spinal cord lesions, spinal cord tumors, myelomeningocele, tethered cord syndrome;
- Disorders of the dorsal roots, such as lumbosacral spinal stenosis resulting in chronic compression;
- Disorders of the peripheral nervous system, such as peripheral neuropathy, traumatic plexopathies, hereditary neuropathies, diabetic neuropathies, inflammatory polyradiculoneuropathies, infectious disorders, toxic neuropathies;
- Lesions affecting myelin, such as multiple sclerosis.

SEP have been utilized to evaluate other peripheral nerve disorders such as acute inflammatory demyelinating polyradiculoneuropathy and focal neuropathies, such as entrapment neuropathies, carpal tunnel syndrome, lateral femoral cutaneous neuropathy, medial and lateral plantar neuropathy, saphenous neuropathy, intercostals neuropathy, trigeminal neuropathy, and plexopathy. SEP have also been utilized to evaluate nerve root dysfunction, such as acute radiculopathies, ventral rootlet, and root. However, the diagnostic utility of SEP for these conditions remains controversial. The AANEM reported that the available evidence is not convincing that SEP for these indications provide information that cannot be obtained with conventional nerve conduction studies or needle electromyography.

**Visual Evoked Potentials (VEP)**

VEP are abnormal in nearly all patients with a definite history of optic neuritis. The pattern-shift VEP is a sensitive indicator of optic nerve demyelination and can reveal asymptomatic and clinically undetectable lesions. Thus, 70% to 80% of patients with definite MS but no history of optic neuritis or visual symptoms have abnormal VEP. Many patients with abnormal VEP have normal neuro-ophthalmological exam results. Pattern-reversal VEP are highly sensitive to demyelinating lesions but are not specific for MS. Some other causes of abnormal VEP include ocular disease, such as major refractive error, lens and media opacities, glaucoma, and retinopathies; compressive lesions, such as extrinsic tumors and optic nerve tumors; noncompressive lesions, such as demyelinating disease, ischemic optic neuritis, nutritional and toxic amblyopias, and Leber’s hereditary optic atrophy; diffuse central nervous system disease, such as adrenoleukodystrophy, spinocerebellar degenerations, and Parkinson’s disease.
Evidence-based guidelines from leading medical professional organizations and public health agencies have not recommended VEP screening of infants.

**Evoked Potentials and Multiple Sclerosis**
The Quality Standards Subcommittee of the American Academy of Neurology published an evidence-based review on the usefulness of evoked potentials in identifying clinically silent lesions in patients with suspected M.S. The diagnosis of MS remains primarily clinical, requiring evidence of white matter lesions disseminated in space and time. Some patients with suspected MS not fulfilling clinical dissemination criteria (MS suspects) have abnormal evoked potentials (EP) that identify clinically unsuspected lesions. Current diagnostic criteria allow MS suspects to be reclassified into definite MS categories if EP identifies clinically silent lesions. The identification of clinically unsuspected lesions is one major reason clinicians use EP in MS suspects. These patients are felt to be more likely to have MS and are at higher risk for developing MS-related disabilities. It will be important to identify these high-risk patients if early therapies are demonstrated to be effective in preventing or delaying disability in patients with MS. They looked at nine studies with almost 900 patients and made these recommendations: VEP are recommended as probably useful to identify patients at increased risk for developing clinically definite MS (CDMS). SEP are recommended as possibly useful to identify patients at increased risk for developing CDMS. Evidence is insufficient to recommend BAEP as a useful test to identify patients at increased risk for developing CDMS.

Some of the studies show a statistically significant association between abnormal SEP and an increased risk of CDMS. In these studies, patients with suspected MS with abnormal SEP were 2.4 to 3.9 times as likely to develop CDMS as patients with normal SEP. SEP provided improvements in predicting CDMS ranging from 4.6% to 12.7%. Reported sensitivities varied from 36% to 63%.

Studies also demonstrated a statistically significant association between abnormal VEP and an increased risk of CDMS. In these studies, patients with suspected MS were 2.5 to 9 times as likely to develop CDMS as patients with normal VEP. VEP sensitivities ranged from 25% to 83%. VEP improved the ability to predict which MS suspects will develop CDMS by as much as 29%.

**Evoked Potentials in Psychiatry**
Guse and Love (2005) looked at the usefulness of evoked potential testing in psychiatry. They reported that there are no data to suggest a role for SEP, including DSEP, in the evaluation of behavioral health disorders. The usefulness of evoked potential testing in psychiatry, including SEP, is still under investigation.

**Brainstem Auditory Evoked Potentials (BAEP)**
The clinical utility of BAER over standard auditory testing is due to several of BAER’s characteristics. BAER is resistant to alteration by systemic metabolic abnormalities, medications, or pronounced changes in the state of consciousness of the patient. There is a close association of BAER waveform abnormalities to underlying structural pathology. BAER has been proven effective for differentiating conductive from sensory hearing loss, for detecting
tumors and other disease states affecting central auditory pathways (e.g., acoustic neuromas, subclinical lesions in MS), and for noninvasively detecting hearing loss in patients who cannot cooperate with subjective auditory testing (i.e., infants, comatose patients). BAER is the test of choice to assess hearing in infants and young children. It is most useful for following asphyxia, hyperbilirubinemia, intracranial hemorrhage, or meningoencephalitis or for assessing an infant who has trisomy. BAER is also useful in the assessment of MS or other demyelinating conditions, coma, or hysteria. Audiometric analysis using multiple sound frequencies is usually preferred over BAER to test hearing in cooperative patients who are able to report when sounds are heard.

**BAEP and Newborn Hearing Screening**

The American Academy of Pediatrics (AAP) Task Force on Newborn and Infant Hearing and the Joint Committee on Infant Hearing (JCIH) endorse the implementation of universal newborn hearing screening. Screening should be conducted before discharge from the hospital whenever possible. Physicians should provide recommended hearing screening, not only during infancy, but also through early childhood for those children at risk for hearing loss (e.g., history of trauma, meningitis) and for those demonstrating clinical signs of possible hearing loss.

The U.S. Preventive Services Task Force (USPSTF) recommends screening for hearing loss in all newborn infants. All infants should be screening before one month of age. Those infants who do not pass the newborn screening should undergo audioligic and medical evaluation before three months of age for confirmatory testing. Because of the elevated risk of hearing loss in infants with risk indicators (e.g., neonatal intensive care unit admission for two or more days; syndromes associated with hearing loss, such as Usher syndrome and Waardenburg syndrome; family history of hereditary childhood hearing loss; craniofacial abnormalities; and congenital infections such as cytomegalovirus, toxoplasmosis, bacterial meningitis, syphilis, herpes, and rubella), an expert panel recommends that these children undergo periodic monitoring for three years. The USPSTF found good evidence that newborn hearing screening leads to earlier identification and treatment of infants with hearing loss and improves language outcomes. However, additional studies detailing the correlation between childhood language scores and functional outcomes (e.g., school attainment and social functioning) are needed.

Two types of tests are commonly used to screen for congenital hearing loss: otoacoustic emissions (OAE), which tests the peripheral auditory system, and auditory brainstem response (ABR), which tests the eighth nerve pathway to the brainstem.

These tests may be used either alone or in combination.

Both methods are noninvasive, quick (<5 minutes), and easy to perform, although each assesses hearing differently. EOAE measures sound waves generated in the inner ear (cochlea) in response to clicks or tone bursts emitted and recorded via miniature microphones placed in the external ear canals of the infant. EOAE screening is quicker and easier to perform than ABR, but it may be affected by debris or fluid in the external and middle ear. ABR measures the electroencephalographic waves generated in response to clicks via three electrodes pasted to the infant’s scalp. ABR screening requires the infant to be in a quiet state, but it is not affected by middle or external ear debris.
Typically, screening programs use a two-stage screening approach: OAE repeated twice, or OAE followed by ABR, or ABR repeated twice. Criteria for defining a pass or fail on the initial screening test vary widely. Comprehensive, diagnostic OAE or ABR are used to diagnose hearing impairments identified by limited screening tests. OAE and ABR are not designed to identify infants with central hearing deficits. Therefore, infants with risk factors for central hearing deficits, particularly those who have congenital cytomegalovirus infection or prolonged severe hypoxia at birth, may pass their newborn hearing screens with OAE or ABR, but develop profound hearing loss in early infancy.

**Cortical Auditory Evoked Responses (CAER)**
Cortical auditory evoked responses (CAER) measure the later-occurring auditory evoked potentials reflecting cortical activity in response to an auditory stimulus. They have a long latency, compared to the short latency auditory evoked responses. They have been used in clinical research to evaluate the timing, sequence, strength, and anatomic location of brain processes involved with the perception of sounds. There is current research underway that looks at the use of CAER to understand the brain processes underlying basic hearing percepts such as loudness, pitch, and localization, and the processes involved with speech perception.

**Vestibular Evoked Myogenic Potentials (VEMP)**
Vestibular evoked myogenic potentials (VEMP), also known as click evoked neurogenic vestibular potentials, are presumed to originate in the saccule of the inner ear. They are recorded from surface electrodes over the sternocleidomastoid muscles and can be activated by means of a brief, high-intensity acoustic stimuli. Some authors have stated that VEMP testing is a possible new diagnostic technique that may be specific for the vestibular pathway. It has potential use in patients with disorders of the vestibular nerve, subclinical symptoms in MS, benign paroxysmal positional vertigo (BPPV), and Ménière’s disease. However, there is a lack of reliable evidence from well-controlled, prospective studies demonstrating that VEMP testing alters management such that clinical outcomes are improved. Current evidence-based guidelines on the management of neurological disorders from leading medical professional organizations have not incorporated VEMP testing in diagnostic and treatment algorithms. The American Academy of Neurology considered VEMP as an investigational technique. Rauch, et al (2006), reviewed the literature and stated that VEMP holds great promise for diagnosing and monitoring Ménière’s disease and some other neurotologic disorders. However, he noted that the methods, equipment, and applications for VEMP testing are not yet standardized, and many aspects of VEMP and its use have not yet been adequately studied or described.

**Key Words:**
Somatosensory evoked potentials (SEP, SSEP), visual evoked potentials (VEP), brain stem auditory evoked potentials (BAEP, brainstem auditory evoked response (BAER), auditory evoked potentials (AEP), dermatosensory evoked potentials (DSEP), automated VEP, Diopsys NOVA VEP, Enfant VEP System
Approved by Governing Bodies:
FDA approved

Benefit Application:
Coverage is subject to member’s specific benefits. Group specific policy will supersede this policy when applicable.

ITS: Home Policy provisions apply
FEP: Special benefit consideration may apply. Refer to member’s benefit plan. FEP does not consider investigational if FDA approved. Will be reviewed for medical necessity.
Pre-certification requirements: Not applicable

Coding:
CPT Codes:

92585     Auditory evoked potentials for evoked response audiometry and/or testing of the central nervous system; comprehensive
92586     ; limited
95925     Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in upper limbs
95926     ; in lower limbs
95927     ; in the trunk or head
95928     Central motor evoked potential study (transcranial motor stimulation); upper limbs
95929     ; lower limbs
95930     Visual evoked potential (VEP testing central nervous system, checkerboard or flash
95938     Short-latency somatosensory evoked potential study, stimulation of any/all peripheral nerves or skin sites, recording from the central nervous system; in upper and lower limbs (Effective 01/01/2012)
95939     Central motor evoked potential study (transcranial motor stimulation); in upper and lower limbs (Effective 01/01/2012)
0333T     Visual evoked potential, screening of visual acuity, automated (Effective 07/01/2013)

References:

Policy History:
Medical Policy Group, March 2010 (2)
Medical Policy Group, April 2010 (2)
Medical Policy Administration Committee May 2010
Available for comment May 7-June 21, 2010
Medical Policy Group, December 2011 (3): Added new 2012 Codes – 95938 & 95939
Medical Policy Group, September 2012: Effective September 14, 2012 this policy is no longer scheduled for regular literature reviews and updates.
Medical Policy Group, June 2013 (1) Updated policy statement for VEP section stating automated VEP testing is investigational; added new code 0333T related to automated VEP testing to policy effective for 7/1/2013; added automated VEP, Diopsys NOVA VEP, and Enfant VEP System to Key Words
Medical Policy Administration Committee June 2013
Available for comment May 30 through July 13, 2013

This medical policy is not an authorization, certification, explanation of benefits, or a contract. Eligibility and benefits are determined on a case-by-case basis according to the terms of the member’s plan in effect as of the date services are rendered. All medical policies are based on (i) research of current medical literature and (ii) review of common medical practices in the treatment and diagnosis of disease as of the date hereof. Physicians and other providers are solely responsible for all aspects of medical care and treatment, including the type, quality, and levels of care and treatment.

This policy is intended to be used for adjudication of claims (including pre-admission certification, pre-determinations, and pre-procedure review) in Blue Cross and Blue Shield’s administration of plan contracts.