

**Policy: MP372**

**Section: Medical Policy**

**Subject: Electrodermal and Surface Electromyographic Seizure Detection Devices**

### Applicable Lines of Business

<b>Commercial</b>	<b>X</b>	<b>CHIP</b>	<b>X</b>
<b>Medicare</b>	<b>X</b>	<b>ACA</b>	<b>X</b>
<b>Medicaid</b>	<b>X</b>		

**I. Policy:** Electrodermal and Surface Electromyographic Seizure Detection Devices

**II. Purpose/Objective:** To provide a policy of coverage regarding Electrodermal and Surface Electromyographic Seizure Detection Devices

**III. Responsibility:**  
 A. Medical Directors  
 B. Medical Management

### IV. Required Definitions

1. Attachment – a supporting document that is developed and maintained by the policy writer or department requiring/authoring the policy.
2. Exhibit – a supporting document developed and maintained in a department other than the department requiring/authoring the policy.
3. Devised – the date the policy was implemented.
4. Revised – the date of every revision to the policy, including typographical and grammatical changes.
5. Reviewed – the date documenting the annual review if the policy has no revisions necessary.

### V. Additional Definitions

Medical Necessity or Medically Necessary means Covered Services rendered by a Health Care Provider that the Plan determines are:

- a. appropriate for the symptoms and diagnosis or treatment of the Member's condition, illness, disease or injury;
- b. provided for the diagnosis, and the direct care and treatment of the Member's condition, illness disease or injury;
- c. in accordance with current standards of good medical treatment practiced by the general medical community.
- d. not primarily for the convenience of the Member, or the Member's Health Care Provider; and
- e. the most appropriate source or level of service that can safely be provided to the Member. When applied to hospitalization, this further means that the Member requires acute care as an inpatient due to the nature of the services rendered or the Member's condition, and the Member cannot receive safe or adequate care as an outpatient.

### Medicaid Business Segment

Medically Necessary — A service, item, procedure, or level of care that is necessary for the proper treatment or management of an illness, injury, or disability is one that:

- Will, or is reasonably expected to, prevent the onset of an illness, condition, injury or disability.
- Will, or is reasonably expected to, reduce or ameliorate the physical, mental or developmental effects of an illness, condition, injury or disability.

- Will assist the Member to achieve or maintain maximum functional capacity in performing daily activities, taking into account both the functional capacity of the Member and those functional capacities that are appropriate for Members of the same age.

**DESCRIPTION:**

Electrodermal or surface electromyography (sEMG) devices have been proposed as an adjunctive device in recording and storing physiologic data for characterization of seizures during periods of rest.

The sEMG device ( e.g., SPEAC® System, Brain Sentinel® Monitoring and Alerting System) electrode patch is placed on the biceps muscle of the individual. An alarm alerts when the device detects signal patterns associated with unilateral, appendicular, tonic extension that is potentially related to a generalized, tonic-clonic seizure.

The electrodermal device ( e.g., Embrace 2) is worn on the wrist, and senses electrodermal activity, motion and temperature data to detect activity that may be associated with generalized tonic clonic seizures in individuals with epilepsy or at high risk of having epilepsy.

**EXCLUSIONS:**

The use of surface electromyography (sEMG) or electrodermal activity sensor devices for seizure monitoring is considered unproven and therefore NOT COVERED. There is insufficient evidence in the published, peer-reviewed medical literature to establish the benefits of this testing at this time.

**Note: A complete description of the process by which a given technology or service is evaluated and determined to be experimental, investigational or unproven is outlined in MP 15 - Experimental Investigational or Unproven Services or Treatment.**

**Medicaid Business Segment:**

Any requests for services, that do not meet criteria set in the PARP, may be evaluated on a case by case basis.

**CODING ASSOCIATED WITH:** Electrodermal and Surface Electromyographic Seizure Detection Devices

*The following codes are included below for informational purposes and may not be all inclusive. Inclusion of a procedure or device code(s) does not constitute or imply coverage nor does it imply or guarantee provider reimbursement. Coverage is determined by the member specific benefit plan document and any applicable laws regarding coverage of specific services. Please note that per Medicare coverage rules, only specific CPT/HCPCS Codes may be covered for the Medicare Business Segment. Please consult the CMS website at [www.cms.gov](http://www.cms.gov) or the local Medicare Administrative Carrier (MAC) for more information on Medicare coverage and coding requirements.*

E1399 Durable medical equipment, miscellaneous [when specified as a mobile-based software application to monitor seizures using electrodermal activity, e.g., Embrace2]

Current Procedural Terminology (CPT®) © American Medical Association: Chicago, IL

**LINE OF BUSINESS:**

**Eligibility and contract specific benefits, limitations and/or exclusions will apply. Coverage statements found in the line of business specific benefit document will supersede this policy. For Medicare, applicable LCD's and NCD's will supercede this policy. For PA Medicaid Business segment, this policy applies as written.**

**REFERENCES:**

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Halford JJ, Sperling MR, Nair DR, et al. Detection of generalized tonic-clonic seizures using surface electromyographic monitoring. *Epilepsia*. 2017; 58(11):1861-1869.

Beniczky S, Conradsen I, Moldovan M, et al. Automated differentiation between epileptic and nonepileptic convulsive seizures. *Ann Neurol*. 2015; 77(2):348-351.

Beniczky S, Conradsen I, Henning O, et al. Automated real-time detection of tonic-clonic seizures using a wearable EMG device. *Neurology*. 2018; 90(5):e428-e434.

Poh MZ, Loddenkemper T, Reinsberger C, et al. Convulsive seizure detection using a wrist-worn electrodermal activity and accelerometry biosensor. *Epilepsia*. 2012;53(5):e93-7

Szabó CÁ, Morgan LC, Karkar KM, et al. Electromyography-based seizure detector: preliminary results comparing a generalized tonic-clonic seizure detection algorithm to video-EEG recordings. *Epilepsia*. 2015; 56(9):1432-1437

Onorati F, Regalia G, Caborni C, et al. Multicenter clinical assessment of improved wearable multimodal convulsive seizure detectors. *Epilepsia*. 2017;58(11):1870-1879

Regalia G, Onorati F, Lai M, Caborni C, Picard RW. Multimodal wrist-worn devices for seizure detection and advancing research: Focus on the Empatica wristbands. *Epilepsy Res*. 2019;153:79-82

Bruno E, Viana PF, et al. Seizure detection at home: Do devices on the market match the needs of people living with epilepsy and their caregivers? *Epilepsia* 2020;61(S1): S11-S24.

This policy will be revised as necessary and reviewed no less than annually.

**Devised:** 5/23

**Revised:**

**Reviewed:**

Geisinger Health Plan may refer collectively to health care coverage sponsors Geisinger Health Plan, Geisinger Quality Options, Inc., and Geisinger Indemnity Insurance Company, unless otherwise noted. Geisinger Health Plan is part of Geisinger, an integrated health care delivery and coverage organization.

Coverage for experimental or investigational treatments, services and procedures is specifically excluded under the member's certificate with Geisinger Health Plan. Unproven services outside of an approved clinical trial are also specifically excluded under the member's certificate with Geisinger Health Plan. This policy does not expand coverage to services or items specifically excluded from coverage in the member's certificate with Geisinger Health Plan. Additional information can be found in MP015 Experimental, Investigational or Unproven Services.

Prior authorization and/or pre-certification requirements for services or items may apply. Pre-certification lists may be found in the member's contract specific benefit document. Prior authorization requirements can be found at <https://www.geisinger.org/health-plan/providers/ghp-clinical-policies>

Please be advised that the use of the logos, service marks or names of Geisinger Health Plan, Geisinger Quality Options, Inc. and Geisinger Indemnity Insurance Company on a marketing, press releases or any communication piece regarding the contents of this medical policy is strictly prohibited without the prior written consent of Geisinger Health Plan. Additionally, the above medical policy does not confer any endorsement by Geisinger Health Plan, Geisinger Quality Options, Inc. and Geisinger Indemnity Insurance Company regarding the medical service, medical device or medical lab test described under this medical policy.