Cutaneous electrogastrography (EGG) is a method of recording electrical activity of the stomach from electrodes placed on the skin of the abdomen. This technique has been investigated as a diagnostic tool in patients with gastroparesis or functional dyspepsia.

**Investigational and Not Medically Necessary:**

Electrogastrography is considered **investigational and not medically necessary**.

**Rationale**

The use of EGG has been most widely studied in patients with gastroparesis and functional dyspepsia. Scintigraphic gastric emptying is considered the gold standard test for evaluating gastroparesis. While scintigraphic gastric emptying studies evaluate the efficiency of gastric emptying, EGG focuses on the underlying myoelectrical activity.

Validation of the clinical use of any diagnostic test focuses on three main principles:

1. Technical feasibility and reproducibility of the test;
2. Diagnostic performance (validity) of the test as measured by the sensitivity, specificity and positive and negative predictive values; and
3. How the results of the test will be used in the management of the patient and whether or not such treatment decisions result in an improvement in health outcomes (utility).

Based on an analysis of the published peer reviewed literature, there are inadequate data to evaluate any of the above principles. The published literature suggests that EGG is primarily used as a research tool in patients with a variety of disorders. Studies comparing EGG with gastric emptying tests have reported a poor correlation between the two. If gastric emptying studies were considered less than the gold standard test, then it is particularly important to validate electrogastrography as an alternative diagnostic test using improved patient outcomes as the reference standard. No study was identified that focused on the final patient outcomes in patients undergoing EGGs. Outcomes of interest could include the avoidance of unnecessary tests or unnecessary treatment or the institution of potentially more effective treatment. However, due to the low reported sensitivity of EGG for diagnosis of gastric motility disorders compared to scintigraphic gastric emptying studies, it is unlikely that EGG can supplant tests of gastric emptying. As an adjunct to gastric emptying tests, one study suggested that EGG could be used to distinguish patients with mechanical obstruction from idiopathic gastroparesis. However, this one study did not include patient outcomes.
In 2001, the American Gastroenterological Association published a medical position statement on nausea and vomiting, which offered the following conclusion:

Although well-documented disorders of enteric nerve and muscle, such as the pseudo-obstruction syndrome, may result in nausea and vomiting, the role of gastrointestinal dysmotility and gastroparesis, in particular, in the patient with isolated chronic nausea and vomiting remains unclear. Although gastroparesis is common among patients in this category, its primacy remains in dispute, and the interrelationships between such entities as functional and psychogenic vomiting, idiopathic gastroparesis, and functional dyspepsia remain unclear. For these same reasons, the place of such tests of motor function as gastric emptying studies, electrogastrography, and manometry have not been defined, and the yield of such diagnostic studies has not been adequately compared with a therapeutic trial of an antiemetic and/or prokinetic agents.

Several recent studies (Abid, 2007 and Krusiec-Świdergo, 2008) conclude the reproducibility and clinical utility of EGG are poor. At this time, there is not sufficient, convincing evidence in the peer reviewed medical literature, in terms of clinical effectiveness, to support the use of electrogastrography.

**Background/Overview**

Electrogastrography (EGG) describes the recording and interpretation of electrical activity of the stomach. The EGG is usually evaluated in terms of changes in the EGG amplitude and frequency. Deviations from the normal frequency of 3 cycles per minute may be referred to as brady- or tachyarrhythmia.

**Definitions**

**Antiemetic:** a medication that prevents or alleviates nausea and vomiting

**Dysmotility:** abnormal movement through the gastrointestinal tract

**Dyspepsia:** often called “indigestion”, is painful, difficult or disturbed digestion not associated with a definitive pathologic condition

**Gastroparesis:** a condition where there is delayed stomach emptying

**Prokinetic agent:** a medication used to enhance upper gastrointestinal motility

**Coding**

The following codes for treatments and procedures applicable to this document are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member’s contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services are Investigational and Not Medically Necessary:

Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Coverage Guidelines and must be considered first in determining eligibility for coverage. The member’s contract benefits in effect on the date that services are rendered must be used. Coverage Guidelines, which addresses medical efficacy, should be considered before utilizing medical opinion in adjudication. Medical technology is constantly evolving, and we reserve the right to review and update Coverage Guidelines periodically.

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Coverage Guideline

Cutaneous Electrogastrography

CPT

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<td>91133</td>
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ICD-9 Procedure

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ICD-9 Diagnosis

All diagnoses

References

Peer Reviewed Publications:


Federal and State law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over Coverage Guidelines and must be considered first in determining eligibility for coverage. The member’s contract benefits in effect on the date that services are rendered must be used. Coverage Guidelines, which addresses medical efficacy, should be considered before utilizing medical opinion in adjudication. Medical technology is constantly evolving, and we reserve the right to review and update Coverage Guidelines periodically.

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Government Agency, Medical Society, and Other Authoritative Publications:

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Document History

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<td>08/28/2008</td>
<td>Medical Policy &amp; Technology Assessment Committee (MPTAC) review.</td>
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<td>02/21/2008</td>
<td>Description, rationale, definitions and references updated.</td>
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<td>09/14/2006</td>
<td>MPTAC review. References updated.</td>
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<td>Revised</td>
<td>09/22/2005</td>
<td>MPTAC review. Revision based on Pre-merger Anthem and Pre-merger WellPoint Harmonization.</td>
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Pre-Merger Organizations

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