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## **Microvolt T-Wave Alternans (MTWA)**

**Policy Number: HS-084**

**Original Effective Date: 2/16/2009**

**Revised Date(s): 2/26/2010; 2/26/2011**

### **DISCLAIMER**

The Clinical Coverage Guideline is intended to supplement certain standard WellCare benefit plans. The terms of a member's particular Benefit Plan, Evidence of Coverage, Certificate of Coverage, etc., may differ significantly from this Coverage Position. For example, a member's benefit plan may contain specific exclusions related to the topic addressed in this Clinical Coverage Guideline. When a conflict exists between the two documents, the Member's Benefit Plan always supersedes the information contained in the Clinical Coverage Guideline. Additionally, Clinical Coverage Guidelines relate exclusively to the administration of health benefit plans and are NOT recommendations for treatment, nor should they be used as treatment guidelines. The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

### **APPLICATION STATEMENT**

The application of the Clinical Coverage Guideline is subject to the benefit determinations set forth by the Centers for Medicare and Medicaid Services (CMS) National and Local Coverage Determinations and state-specific Medicaid mandates, if any.

## BACKGROUND

Microvolt T-wave Alternans (MTWA) testing is a non-invasive diagnostic test that detects minute electrical activity in a portion of the electrocardiogram (EKG) known as the T-wave. MTWA testing has a role in the risk stratification of patients who may be at risk for sudden cardiac death (SCD) from ventricular arrhythmias.

Microvolt T-wave alternans (TWA) is an every other beat variation in the T-wave that is predictive of ventricular tachyarrhythmia associated with sudden cardiac death. Microvolt TWA is measured through sensors and electrodes placed in the standard 12-lead configuration as well as additional vector positions during a routine exercise stress test, pharmacologic stress test or cardiac pacing. Sustained alternans with an onset of the heart rate less than 110 bpm for a minimum of 2.5 minutes with alternans voltage measured at > 1.9 microvolts and alternans ratio of >3 is considered a positive t-wave alternans. Spectral analysis is used to calculate these minute voltage changes. Spectral analysis is a sensitive mathematical method of measuring and comparing time and the EKG signals. Software then analyzes these microvolt changes and produces a report to be interpreted by a physician.

Within patient groups that may be considered candidates for implantable cardioverter defibrillator (ICD) therapy, a negative MTWA test may be useful in identifying low-risk patients who are unlikely to benefit from, and who may experience worse outcomes from ICD placement.

The 2006 ACC/AHA/European Society of Cardiology (ESC) guideline for management of patients with ventricular arrhythmias and the prevention of SCD recommends MTWA with class IIa level of evidence stating, "It is reasonable to use TWA to improve the diagnosis and risk stratification of patients with ventricular arrhythmias or who are at risk for developing life-threatening ventricular arrhythmias. (Level of evidence A).

## POSITION STATEMENT

Microvolt T-Wave Alternans (MTWA) diagnostic testing **is considered medically necessary** when the criteria in A or B are met:

- A. MTWA diagnostic testing is performed for a clinical condition associated with a high risk of ventricular tachyarrhythmia (e.g., 414.8 Ischemic Cardiomyopathy, 780.2 Unexplained Syncope with suspected or known heart disease, etc) only when the results of the test will be used in the management of the member. For example, the results of the MTWA will determine whether a member will undergo an invasive electrophysiological study or treatment with antiarrhythmics when the results are positive.
- B. MTWA diagnostic testing is performed for the evaluation of members at risk of sudden cardiac death (SCD), only when the spectral analysis method is used.\*

\*NOTE: Within member groups that may be considered candidates for implantable cardioverter defibrillator (ICD) therapy, a negative MTWA test may be useful in identifying low-risk members who are unlikely to benefit from, and who may experience worse outcomes from ICD placement.

Microvolt T-Wave Alternans diagnostic testing **is considered NOT medically necessary and NOT a covered benefit** for the general assessment of members with 440.9 atherosclerotic heart disease, V72.81 pre-surgical evaluation or other circumstances where the index of suspicion of ventricular tachycardia/fibrillation is low, or the knowledge of possible ventricular tachycardia/defibrillation will not alter the management of the member.

Microvolt T-Wave Alternans diagnostic testing **is considered NOT medically necessary and NOT a covered benefit** as an "add-on" service to other cardiac evaluation tests such as electrocardiograms, stress testing, and electrophysiologic studies.

## CODING

### Covered CPT® Codes when the criteria in A or B are met:

**93025** Microvolt T-wave alternans for assessment of ventricular arrhythmias

### ICD-9-CM Procedure Codes

**89.59** Other nonoperative cardiac and vascular measurements

**HCPCS Code** - No applicable code

### Covered ICD-9-CM Diagnosis Codes when the criteria in A or B are met:

**780.2** Syncope and Collapse

**414.8** Other specified forms of chronic ischemic heart disease; ischemic cardiomyopathy

**425.1** Hypertrophic obstructive cardiomyopathy

**425.4** Other primary cardiomyopathies

**427.0** Paroxysmal supraventricular tachycardia

**427.1** Paroxysmal ventricular tachycardia

**427.9** Cardiac Dysrhythmia, Unspecified; Arrhythmia (cardiac) NOS

\*Current Procedural Terminology (CPT) 2010 American Medical Association: Chicago, IL.®©

## REFERENCES

### Peer Reviewed

1. Cost-Effectiveness of a Microvolt T-Wave Alternans Screening Strategy for Implantable Cardioverter-Defibrillator Placement in the MADIT-II-Eligible Population. Chan et al. Journal of the American College of Cardiology. 2006.
2. Prognostic Utility of Microvolt T-Wave Alternans in Risk Stratification of Patients with Ischemic Cardiomyopathy. Chow et al. Journal of the American College of Cardiology. 2006.
3. Hayes Directory. Microvolt T-Wave Alternans to Identify Risk of Ventricular Arrhythmias and Sudden Cardiac Death. March 24, 2004.
4. Usefulness of Microvolt T-Wave Alternans for Prediction of Ventricular Tachyarrhythmic Events in Patients with Dilated Cardiomyopathy: Results from a Prospective Observational Study. Hohnloser et al. 1003.
5. Predictive Value of Microvolt T-Wave Alternans for Sudden Cardiac Death in Patients with Preserved Cardiac Function after Acute Myocardial Infarction: Results of a Collaborative Cohort Study. Ikeda et al. Journal of the American College of Cardiology. 2006.

### Government Agencies, Professional and Medical Organizations

1. ACC/AHA/ESC 2006 Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death.
2. BlueCross BlueShield Technology Assessment. Microvolt T-Wave Alternans Testing to Risk-Stratify Patients Being Considered for ICD Therapy for Primary Prevention of Sudden Death. 2007.
3. Centers for Medicare and Medicaid Services (CMS), National Coverage Determination (NCD) for Microvolt T-Wave Alternans (MTWA) (20.30).

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**HISTORY AND REVISIONS**

Date	Action
12/1/2011	• New template design approved by MPC.
2/26/2011	• Approved by MPC.