

## Corporate Medical Policy

### T - Wave Alternans

**File Name:** t\_wave\_alternans  
**Origination:** 06/2002  
**Last CAP Review:** 10/2009  
**Next CAP Review:** 10/2011  
**Last Review:** 10/2009

#### Description of Procedure or Service

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T-wave alternans refers to a beat-to-beat variability in the amplitude of the T-wave. A routine electrocardiogram (EKG or ECG) cannot detect these small fluctuations, and thus this test requires specialized sensors to detect the fluctuations and computer algorithms to evaluate the results. T-wave alternans is a provocative test that necessitates gradual elevation of the heart rate to above 110 beats per minute. The test can be performed in conjunction with an exercise tolerance stress test.

The presence of T-wave alternans has been investigated as a risk factor for fatal arrhythmias and sudden cardiac death in patients with a history of myocardial infarction, congestive heart failure, or cardiomyopathy. High-risk patients may be treated with drugs to suppress the emergence of arrhythmias or undergo implantation of cardiac defibrillators to promptly terminate tachyarrhythmias when they occur. Since sudden cardiac death is one of the most common causes of death after a myocardial infarction (MI) or in patients with dilated cardiomyopathy, there is intense interest in risk stratification to target therapy.

Patient groups are divided into those who have not experienced a life-threatening arrhythmia (primary prevention) and those who have (secondary prevention). T-wave alternans is just one of many risk factors that have been investigated. Others include left ventricular ejection fraction, arrhythmias detected on Holter monitor or electrophysiologic studies, heart rate variability, and baroreceptor sensitivity. Signal-averaged EKG (SAEKG) is another technique for risk stratification. It is addressed in a separate policy titled Signal Averaged ECG. It measures beat-averaged conduction, while T-wave alternans measures beat-to-beat variability.

T-wave alternans has also been investigated as a diagnostic test for patients with syncope of unknown origin and as a noninvasive test to identify candidates for further invasive electrophysiology testing of the heart.

**\*\*\*Note: This Medical Policy is complex and technical. For questions concerning the technical language and/or specific clinical indications for its use, please consult your physician.**

#### Policy

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**BCBSNC does not provide coverage for T-Wave Alternans because it is considered investigational. BCBSNC does not pay for investigational services.**

#### Benefits Application

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Please refer to Certificate for availability of benefits. This policy relates only to the services or supplies described herein. Benefits may vary according to benefit design, therefore certificate language should be reviewed before applying the terms of the policy.

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### When T-Wave Alternans is covered

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Not applicable

### When T-Wave Alternans is not covered

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T-wave alternans is considered investigational as a technique of risk stratification for primary or secondary prevention of fatal arrhythmias and sudden cardiac death in patients with a history of myocardial infarction, congestive heart failure, cardiomyopathy or other cardiac disorders such as long-QT syndrome (e.g., Brugada syndrome).

### Policy Guidelines

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The published scientific evidence is insufficient to determine whether the use of T-wave alternans improves net health outcomes or whether it is as beneficial as any established alternative. Three observational studies of ICD-eligible patients with negative MTWA tests are relatively small. Although the test does stratify risk in these studies, the absolute risk of events remains uncertain. Furthermore, it is uncertain how low a level of risk precludes benefit from ICD therapy. There are no clinical trials of ICD therapy in patients not currently eligible for ICD therapy who have been selected using MTWA testing. Thus, there is no evidence for using MTWA to expand the pool of patients eligible for ICD placement.

### Billing/Coding/Physician Documentation Information

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This policy may apply to the following codes. Inclusion of a code in this section does not guarantee that it will be reimbursed. For further information on reimbursement guidelines, please see Administrative Policies on the Blue Cross Blue Shield of North Carolina web site at [www.bcbsnc.com](http://www.bcbsnc.com). They are listed in the Category Search on the Medical Policy search page.

*Applicable codes: 93025*

BCBSNC may request medical records for determination of medical necessity. When medical records are requested, letters of support and/or explanation are often useful, but are not sufficient documentation unless all specific information needed to make a medical necessity determination is included.

### Scientific Background and Reference Sources

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BCBSA Medical Policy Reference Manual, 2.02.13, Issued 2/15/02

BCBSA Medical Policy Reference Manual, 2.02.13, 4/29/03

Specialty Matched Consultant Advisory Panel - 11/2003

Specialty Matched Consultant Advisory Panel - 11/2005

BCBSA Medical Policy Reference Manual [Electronic Version]. 2.02.13, 4/17/07.

BCBSA TEC Assessment [Electronic Version]. May 2007.

California Technology Assessment Forum (CTAF). (October 2006) Microvolt T-Wave Alternans Testing to

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Risk Stratify Patients for Implantable Cardioverter-Defibrillator Placement for Prevention of Sudden Cardiac Death. Retrieved 8/17/07 from <http://www.ctaf.org/content/general/detail/622>

Harvard Pilgrim HealthCare Technology Assessment Policy (December 2006). Microvolt T-wave Alternans (MTWA). Retrieved 8/17/07 from [http://www.harvardpilgrim.org/pls/portal/docs/PAGE/PROVIDERS/MEDMGMT/STATEMENTS/MICROVOLT\\_TWAVE\\_ALTERNANS\\_12.06.PDF](http://www.harvardpilgrim.org/pls/portal/docs/PAGE/PROVIDERS/MEDMGMT/STATEMENTS/MICROVOLT_TWAVE_ALTERNANS_12.06.PDF)

Zipes DP, Camm AJ, Borggrefe M, Buxton AE, Chaitman B, Fromer M, et. al. ACC/AHA/ESC 2006 guidelines for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death--executive summary: a report of the American College of Cardiology/American Heart Association Task Force and the European Society of Cardiology Committee for Practice Guidelines (Writing Committee to Develop Guidelines for Management of Patients with Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death). J Am Coll Cardiol 2006;48:1064-1108

Centers for Medicare & Medicaid Services (CMS). National Coverage Determination for Microvolt T-Wave Alternans (MTWA). Manual Section Number 20.30. Retrieved 8/17/07 from <http://www.cms.hhs.gov/transmittals/downloads/R49NCD.pdf>

U.S. Food and Drug Administration (FDA).Center for Devices and Radiological Health (CDRH). Premarket Notification. 510(k) Summary. April 7, 2005. Retrieved 8/17/07 from <http://www.fda.gov/cdrh/pdf5/K050225.pdf>

### Policy Implementation/Update Information

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- 6/02 Original policy issued
- 5/03 Changed Date of Next Review to 6/04.
- 11/03 Biannual policy review. Specialty Matched Consultant Advisory Panel review. No change to policy criteria. Formatting changed for consistency. Sources added. Policy reaffirmed.
- 11/17/05 Biennial policy review. Specialty Matched Consultant Advisory Panel review 11/07/05. No change to policy.
- 11/19/07 Restated "When T-Wave Alternans is Not Covered" to read: T-wave alternans is considered investigational as a technique of risk stratification for primary or secondary prevention of fatal arrhythmias and sudden cardiac death in patients with a history of myocardial infarction, congestive heart failure, cardiomyopathy or other cardiac disorders such as long-QT syndrome (e.g., Brugada syndrome). Added medical terms and definitions. Updated Policy Guidelines with rationale from BCBSA TEC Assessment. References updated. Specialty Matched Consultant Advisory Panel review meeting 10/29/07. (adn)
- 12/7/09 Specialty Matched Consultant Advisory Panel review 10/30/09. No change to policy statement.
- 6/22/10 Policy Number(s) removed (amw)

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Medical policy is not an authorization, certification, explanation of benefits or a contract. Benefits and eligibility are determined before medical guidelines and payment guidelines are applied. Benefits are determined by the group contract and subscriber certificate that is in effect at the time services are rendered. This document is solely provided for informational purposes only and is based on research of current medical literature and review of common medical practices in the treatment and diagnosis of disease. Medical practices and knowledge are constantly changing and BCBSNC reserves the right to review and revise its medical policies periodically.