Evolent Clinical Guideline 7309 for Microvolt T-Wave Alternans

Guideline Number: Evolent_CG_7309	Applicable Codes	
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Original Date: August 2011	Last Revised Date: May 2025	Implementation Date: January 2026

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STATEMENT

General Information

- ***It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.***
- ***Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. These criteria are supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.***
- ***The guideline criteria in the following sections were developed utilizing evidence-based and peer-reviewed resources from medical publications and societal organization guidelines as well as from widely accepted standard of care, best practice recommendations.***

Purpose

Indications for determining medical necessity for Microvolt T-Wave Alternans testing.

Clinical Reasoning

All criteria are substantiated by the latest evidence-based medical literature. To enhance transparency and reference, Appropriate Use (AUC) scores, when available, are diligently listed alongside the criteria.

This guideline first defaults to AUC scores established by published, evidence-based guidance endorsed by professional medical organizations. In the absence of those scores, we adhere to a standardized practice of assigning an AUC score of 6. This score is determined by considering variables that ensure the delivery of patient-centered care in line with current guidelines, with a focus on achieving benefits that outweigh associated risks. This approach aims to maintain a robust foundation for decision-making and underscores our commitment to upholding the highest standards of care. [1–5]

INDICATIONS FOR MICROVOLT T-WAVE ALTERNANS

The non-invasive Microvolt T-Wave Alternans is not recommended for risk stratification of patients with ventricular arrythmias or those who are at risk for developing life threatening arrythmias. [6] Data on the use of Microvolt T-Wave Alternans is inconclusive and not routinely used in clinical practice. [7]

CODING AND STANDARDS

Codes

93025

Applicable Lines of Business

☒	**CHIP (Children's Health Insurance Program)**
☒	**Commercial**
☒	**Exchange/Marketplace**
☒	**Medicaid**
☒	**Medicare Advantage**

BACKGROUND

Definitions

- **Electrocardiogram (ECG): is a recording of the heart's electrical activity to review the electrical conduction system of the heart.**
- **Sudden Cardiac Death (SCD): sudden or unexpected death due to a cardiovascular cause and occurs within an hour of onset of symptoms.**
- **Ventricular Arrhythmias: abnormal heart rhythm affecting the ventricular chambers of the heart.**
  - **Premature Ventricular Complexes (PVCs)**
  - **Nonsustained Ventricular Tachycardia (NSVT)**
  - **Ventricular Tachycardia (VT)**
  - **Torsades de pointes**
  - **Ventricular Flutter**
  - **Ventricular Fibrillation**

AUC Score

A reasonable diagnostic or therapeutic procedure can be defined as that for which the expected clinical benefits outweigh the associated risks, enhancing patient care and health outcomes in a cost-effective manner. [(2)]

- **Appropriate Care- Median Score 7-9**

- **May be Appropriate Care- Median Score 4-6**
- **Rarely Appropriate Care- Median Score 1-3**

Acronyms/Abbreviations

ECG: Electrocardiogram

MTWA: Microvolt T-Wave Alternans

NSVT: Nonsustained Ventricular Tachycardia

PVC: Premature Atrial Contractions

SCD: Sudden Cardiac Death

VT: Ventricular Tachycardia

SUMMARY OF EVIDENCE

2015 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death [(6)]

Study Design: This document is a clinical practice guideline by the European Society of Cardiology (ESC) for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. It includes recommendations based on systematic literature reviews and expert consensus.

Target Population: Patients with ventricular arrhythmias and those at risk of sudden cardiac death, including those with conditions such as acute coronary syndrome, cardiomyopathies, inherited arrhythmogenic diseases, and congenital heart disease.

Key Factors: Epidemiology: The document provides data on the prevalence of ventricular arrhythmias and sudden cardiac death in various populations, highlighting the higher risk in men and older individuals.

Risk Prediction: It discusses the risk factors for sudden cardiac death, including genetic predisposition, left ventricular ejection fraction, and the presence of specific arrhythmogenic conditions.

Management: Recommendations for the management of ventricular arrhythmias and the prevention of sudden cardiac death, including pharmacological treatments, device therapy (such as ICDs and CRT), and catheter ablation.

Special Populations: Guidelines for the management of ventricular arrhythmias in specific populations, such as patients with congenital heart disease, neuromuscular disorders, and pregnant women.

Prevention: Strategies for the prevention of sudden cardiac death, including public access defibrillation and the use of wearable cardioverter defibrillators.

2017 AHA/ACC/HRS Guideline for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death [7]

Study Design: The guideline is based on a systematic review of evidence from various sources, including randomized controlled trials (RCTs), registries, nonrandomized comparative and descriptive studies, case series, cohort studies, systematic reviews, and expert opinion. The writing committee used evidence-based methodologies to formulate recommendations, focusing on the quality of scientific evidence and the magnitude and certainty of benefit in proportion to risk.

Target Population: The guideline is intended for adults who have ventricular arrhythmias (VA) or are at risk for sudden cardiac death (SCD), including those with diseases and syndromes associated with a risk of SCD from VA. It covers a wide range of conditions, including ischemic heart disease, nonischemic cardiomyopathy, arrhythmogenic right ventricular cardiomyopathy, hypertrophic cardiomyopathy, myocarditis, cardiac sarcoidosis, neuromuscular disorders, and cardiac channelopathies.

Key Factors:

Indications for ICD Implantation:

- **Secondary prevention: For patients who survive sudden cardiac arrest (SCA) due to VA or experience hemodynamically unstable VT.**
- **Primary prevention: For patients with reduced left ventricular ejection fraction (LVEF) due to ischemic or nonischemic cardiomyopathy.**

Pharmacological Therapy: Beta blockers are recommended for patients with VA and SCD risk. Amiodarone and sotalol are useful for suppressing recurrent VA.

Catheter Ablation: Recommended for patients with recurrent symptomatic sustained VT or VT storm.

Genetic Testing and Counseling: Recommended for patients with inherited arrhythmia syndromes and their first-degree relatives.

Special Considerations: Management of VA in specific populations such as athletes, pregnant women, older patients with comorbidities, and patients with chronic kidney disease.

ANALYSIS OF EVIDENCE

Shared Conclusions [6,7]

- **Indications for MTWA Testing:**
  - **Both articles agree that MTWA testing is indicated for risk stratification in patients with ventricular arrhythmias (VA) and the prevention of sudden cardiac death (SCD).**
  - **They also concur that MTWA can be used to identify patients at high risk for SCD who may benefit from implantable cardioverter-defibrillator (ICD) therapy.**
- **Evaluation and Diagnosis:**

- MTWA is emphasized as a non-invasive tool for evaluating the risk of SCD in patients with VA and structural heart disease.
- Both articles highlight the importance of MTWA in assessing the electrical instability of the heart, which can predict the likelihood of life-threatening arrhythmias.

- Prognostic Value:
  - MTWA testing is recognized for its prognostic value in predicting SCD and guiding therapeutic decisions.
  - The articles agree that a positive MTWA test is associated with a higher risk of SCD, while a negative test indicates a lower risk.

Summary [6,7]

The data on Microvolt T-Wave Alternans (MTWA) is not entirely conclusive. While MTWA is recognized for its prognostic value in predicting sudden cardiac death (SCD) and guiding therapeutic decisions, its role in specific populations and the timing of intervention may vary depending on the clinical context. Some studies suggest that MTWA testing can help identify patients at high risk for SCD who may benefit from implantable cardioverter-defibrillator (ICD) therapy. However, there are differing opinions on its effectiveness and integration with other risk stratification tools. Therefore, while MTWA has shown promise, more research is needed to fully understand its utility and establish definitive guidelines for its use.

POLICY HISTORY

Date	Summary
May 2025	• No clinical changes to guideline content • Added third General Information bullet. • Added Summary of Evidence and Analysis of Evidence • Checked Medicare Advantage Line of Business
November 2024	• This guideline replaces UM CARDIO_1158 Microvolt T-Wave Alternans

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Services Clinical Guideline Review Committee

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Evolent Clinical Guidelines are comprehensive and inclusive of various procedural applications for each service type. Our guidelines may be used to supplement Medicare criteria when such criteria is not fully established. When Medicare criteria is determined to not be fully established, we only reference the relevant portion of the corresponding Evolent Clinical Guideline that is applicable to the specific service or item requested in order to determine medical necessity.

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