HEALTHHELP®

A WNS COMPANY

2025 Electrophysiology Study (EPS)

Cardiology

CARD-CEPS-HH

Last Review Date: 05/08/2025
Previous Review Date: 09/23/2024
Guideline Initiated: 06/30/2019

HEALTHHELP®

A WNS COMPANY

Table of Contents

Electrophysiology Study (EPS)

Electrophysiology Study (EPS) Related National Coverage Determination (NCD)/Local Coverage Determination (LCD)

Please refer to https://www.cms.gov/medicare-coverage-database/search.aspx if applicable to the individual's health plan membership.

Type/ID Number	Title
NCD 20.11	Intraoperative Ventricular Mapping
NCD 20.12	Diagnostic Endocardial Electrical Stimulation (Pacing)
NCD 20.13	HIS Bundle Study
NCD 20.4	Implantable Cardioverter Defibrillators (ICDs)

Clinical Judgment

These medical policies are designed to provide clinical guidance and do not supplant a provider's independent professional judgment. Physicians retain full and independent authority to determine appropriate care based on each patient's individual clinical circumstances. Although services may be subject to documentation requirements, medical necessity review, or coverage limitations, nothing in this policy is intended to restrict or interfere with a physician's independent medical judgment.

Preamble: Pediatric Cardiology Preamble

HealthHelp's clinical guidelines for the Cardiology program, are intended to apply to both adults and pediatrics (21 years of age or younger), unless otherwise specified within the criteria.

EPS Guideline

An electrophysiology study (EPS) is considered medically appropriate when the documentation demonstrates **ANY** of the following:

1. Atrioventricular (AV) block is second-degree Mobitz I or second-degree Mobitz 2:1.
   References: [8] [11] [10] [4]
2. Bifascicular block and syncope is unexplained.
   References: [8] [11] [10] [4]
3. Bradycardia is suspected, symptomatic **AND** initial non-invasive evaluation (eg, ambulatory electrocardiographic [ECG] monitoring, ECG, echocardiogram [ECHO], tilt table testing) is non-diagnostic or indeterminate.
   References: [8] [11] [10] [4] [7]

4. Bundle branch block is known and **EITHER** of the following:
    a. Asymptomatic and pharmacologic therapy to increase conduction delay or produce heart block is contemplated.
    b. Syncope is unexplained.
    c. Transaortic valve replacement (TAVR) is planned.

    References: [8] [11] [10] [4]

5. Cardiac arrest survivor caused by bradyarrhythmia.
    References: [8] [11] [10] [4]

6. Congenital heart disease and **ANY** of the following:
    a. Arrhythmias that are life threatening (eg, ventricular fibrillation, ventricular tachycardia).
    b. Arrhythmogenic right ventricular cardiomyopathy.
    c. Cardiac arrest risk (eg, coronary artery disease history, electrolyte disturbances, family history).
    d. Intraprocedural therapeutic intervention is likely.
    e. Spontaneous, sustained ventricular tachycardia **AND** a cardiac ablation is planned.
    f. Sudden cardiac death that was resuscitated **AND** etiology is unknown.
    g. Syncope is unexplained, with high-risk predisposing conditions associated with primary arrhythmias **OR** poorly tolerated atrial tachyarrhythmias (eg, significant systemic or single ventricular dysfunction, Tetralogy of Fallot, transposition of the great arteries with atrial switch surgery).

    References: [8] [11] [10] [4] [12] [3] [2]

7. Ischemic heart disease with suspected arrhythmic cause, unexplained syncope **AND NO** established indication for implantable cardioverter defibrillator (ICD).
    References: [8] [11] [10] [4]

8. Muscular dystrophy is known, to identify conduction disorders.
    References: [8] [11] [10] [4] [6]

9. Myocardial infarction (MI) and **ANY** of the following:
    a. MI history and **ANY** of the following:
        i. Bundle branch block (BBB) is known.
        ii. Ventricular tachycardia (VT) is non-sustained and left ventricular ejection fraction (LVEF) is less than 40%.

b. MI is remote (more than 6 months ago), coronary artery disease (CAD) is known and ventricular tachyarrhythmia is suspected (eg, palpitations, presyncope or syncope).

c. MI survivor with preserved LV function and syncope is unexplained.

References: [8] [11] [10] [4]

10. Palpitation evaluation with **ANY** of the following:

    a. **ALL** of the following:

        i. ECG recordings do **NOT** demonstrate a documented cause.

        ii. Pulse is inappropriately rapid at more than 100 beats per minute (BPM).

    b. Symptoms are sporadic, **CANNOT** be documented and cardiac origin is suspected.

    c. Syncope or near syncope

    References: [8] [11] [10] [4]

11. Sinus node dysfunction and **ANY** of the following:

    a. Sinus bradycardia is demonstrated on ECG; to determine abnormality cause (intrinsic disease, autonomic nervous system dysfunction or drug effects).

    b. Sinus bradycardia is demonstrated on previous testing, symptomatic (eg, dizziness, fatigue, syncope) **AND** initial non-invasive evaluation (eg, ambulatory electrocardiographic monitoring, ECG, echocardiogram [ECHO], tilt table testing) is non-diagnostic or indeterminate.

    c. Symptomatic (eg, dizziness, fatigue, syncope), to determine inducibility of other arrhythmias.

    References: [8] [11] [10] [4] [7]

12. Structural heart disease and **ANY** of the following:

    a. Antiarrhythmic surgery history, 2 weeks to 6 moths after surgery to evaluate surgery results or to evaluate implantable cardio-defibrillator (ICD) implantation candidacy.

    b. Cardiac sarcoidosis, with syncopal episode is known **AND** arrhythmic etiology is suspected.

    c. Dilated cardiomyopathy (DCM) and sustained, monomorphic ventricular tachycardia (VT), to guide a cardiac ablation procedure.

    d. Hypertrophic cardiomyopathy (HCM), candidate for cardiac ablation and **ANY** of the following:

i. Supraventricular tachycardia (SVT) (atrial flutter [AFL], atrial tachycardia [AT], atrioventricular nodal re-entrant tachycardia [AVNRT] and accessory AV pathway-mediated tachycardias) is persistent or recurrent.

ii. Ventricular pre-excitation.

iii. Ventricular tachycardia (VT), symptomatic (eg, chest pain, dizziness, palpitations), monomorphic and sustained (greater than 30 sec).

e. Ischemic or non-ischemic cardiomyopathy, syncope and is **NOT** a candidate for a primary prevention ICD.

References: [8] [11] [10] [4] [1] [2]

13. Tachycardia and **ANY** of the following:

a. Narrow QRS complex tachycardia and **ANY** of the following:

i. Catheter ablation is planned.

ii. Episodes are frequent or poorly tolerated and medication resistant.

iii. Episodes are frequent and proarrhythmic effect (new or increased occurrence of pre-existing arrhythmias) of anti-arrhythmic drugs is suspected.

iv. SVT (AFL, AT, AVNRT, accessory AV pathway-mediated tachycardias) is persistent and recurrent.

b. Premature ventricular contractions (PVC), couplets or non-sustained ventricular tachycardia and **EITHER** of the following:

i. Prior MI and LVEF is 40% or lower.

ii. Symptomatic (eg, chest pain, dizziness, palpitations) and is a candidate for catheter ablation.

iii. VT is inducible and future arrhythmic events are high risk (LVEF is low, non-sustained VT on ambulatory ECG).

c. Ventricular tachycardia (VT) and **ANY** of the following:

i. Catheter ablation is planned.

ii. Right ventricular origination, in arrhythmogenic right ventricular cardiomyopathy (ARVC), benign right ventricular outflow tract (RVOT) tachycardia or sarcoidosis, for diagnosis.

iii. Sustained, monomorphic, is known and catheter ablation is planned.

iv. VT occurs after valvular surgery.

d. Wide QRS complex tachycardia and ECG is non-diagnostic or indeterminate.

e. Wolff-Parkinson-White syndrome (WPW), pre-excitation or other accessory pathways for **ANY** of the following:

   i. Asymptomatic with arrhythmic events (eg, atrial fibrillation) suspected.

   ii. Cardiac arrest survivor.

   iii. Catheter ablation is planned.

   iv. **NO** cardiac arrest and unexplained syncope.

References: [8] [11] [10] [4] [5] [9] [13]

EPS Procedure Codes

Table 1. Electrophysiology Study (EPS) Associated Procedure Codes

CODE	DESCRIPTION
93600	Bundle of His recording
93602	Intra-atrial recording
93603	Right ventricular recording
93610	Intra-atrial pacing
93612	Intraventricular pacing
93615	Esophageal recording of atrial electrogram with or without ventricular electrogram(s);
93616	Esophageal recording of atrial electrogram with or without ventricular electrogram(s); with pacing
93618	Induction of arrhythmia by electrical pacing
93619	Comprehensive electrophysiologic evaluation with right atrial pacing and recording, right ventricular pacing and recording, His bundle recording, including insertion and repositioning of multiple electrode catheters, without induction or attempted induction of arrhythmia
93620	Comprehensive electrophysiologic evaluation including insertion and repositioning of multiple electrode catheters with induction or attempted induction of arrhythmia; with right atrial pacing and recording, right ventricular pacing and recording, His bundle recording
93624	Electrophysiologic follow-up study with pacing and recording to test effectiveness of therapy, including induction or attempted induction of arrhythmia
93631	Intra-operative epicardial and endocardial pacing and mapping to localize the site of tachycardia or zone of slow conduction for surgical correction
93640	Electrophysiologic evaluation of single or dual chamber pacing cardioverter-defibrillator leads including defibrillation threshold evaluation (induction of arrhythmia, evaluation of sensing and pacing for arrhythmia termination) at time of initial implantation or replacement
93641	Electrophysiologic evaluation of single or dual chamber pacing cardioverter-defibrillator leads including defibrillation threshold evaluation (induction of arrhythmia, evaluation of sensing and pacing for arrhythmia termination) at time of initial implantation or replacement; with testing of single or dual chamber pacing cardioverter-defibrillator pulse generator

CODE	DESCRIPTION
93642	Electrophysiologic evaluation of single or dual chamber transvenous pacing cardioverter-defibrillator (includes defibrillation threshold evaluation, induction of arrhythmia, evaluation of sensing and pacing for arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters)
93644	Electrophysiologic evaluation of subcutaneous implantable defibrillator (includes defibrillation threshold evaluation, induction of arrhythmia, evaluation of sensing for arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters)
93650	Intracardiac catheter ablation of atrioventricular node function, atrioventricular conduction for creation of complete heart block, with or without temporary pacemaker placement
93653	Comprehensive electrophysiologic evaluation with insertion and repositioning of multiple electrode catheters, induction or attempted induction of an arrhythmia with right atrial pacing and recording, and catheter ablation of arrhythmogenic focus, including intracardiac electrophysiologic 3-dimensional mapping, right ventricular pacing and recording, left atrial pacing and recording from coronary sinus or left atrium, and His bundle recording, when performed; with treatment of supraventricular tachycardia by ablation of fast or slow atrioventricular pathway, accessory atrioventricular connection, cavo-tricuspid isthmus or other single atrial focus or source of atrial re-entry
93654	Comprehensive electrophysiologic evaluation with insertion and repositioning of multiple electrode catheters, induction or attempted induction of an arrhythmia with right atrial pacing and recording, and catheter ablation of arrhythmogenic focus, including intracardiac electrophysiologic 3-dimensional mapping, right ventricular pacing and recording, left atrial pacing and recording from coronary sinus or left atrium, and His bundle recording, when performed; with treatment of ventricular tachycardia or focus of ventricular ectopy including left ventricular pacing and recording, when performed
93656	Comprehensive electrophysiologic evaluation including transseptal catheterizations, insertion and repositioning of multiple electrode catheters with intracardiac catheter ablation of atrial fibrillation by pulmonary vein isolation, including intracardiac electrophysiologic 3-dimensional mapping, intracardiac echocardiography including imaging supervision and interpretation, induction or attempted induction of an arrhythmia including left or right atrial pacing/recording, right ventricular pacing/recording, and His bundle recording, when performed
0577T	Electrophysiologic evaluation of implantable cardioverter-defibrillator system with substernal electrode (includes defibrillation threshold evaluation, induction of arrhythmia, evaluation of sensing for arrhythmia termination, and programming or reprogramming of sensing or therapeutic parameters)

EPS Summary of Changes

Electrophysiology study (EPS) clinical guidelines from 2024 to 2025 had the following version changes:

- Added the following to keep in line with current evidence per the American College of Cardiology and the Canadian Cardiovascular Society:
  - "AV block is second-degree Mobitz I or second-degree Mobitz 2:1"
  - "Myocardial infarction (MI) and **ANY** of the following;"
  - "Sinus node dysfunction and **ANY** of the following:"
  - Indications under "Structural heart disease"
  - Indications under "Tachycardia"

- Removed the following as current evidence no longer supports the indication per the American College of Cardiology:
  - "Atrial fibrillation or atrial flutter that terminated spontaneously"
  - "Atrial flutter is recurrent and **ALL** of the following:"
  - "AV block is known and prior testing was non-diagnostic or indeterminate."

EPS Definitions

Ablation is a procedure performed in a cardiac catheterization laboratory during an electrophysiology study (EPS) for the purpose of destroying myocardial tissue by delivery of radio-frequency energy, electrical or cryo-energy. The procedure is used to correct heart arrhythmias.
Arrhythmia is an irregular or abnormal heart rhythm. Arrhythmia refers to any change from the normal sequence of electrical impulses of the heart, causing abnormal heart rhythms. The electrical impulses may happen too fast, too slowly or erratically – causing the heart to beat too fast, too slowly or erratically.
Arrhythmogenic right ventricular cardiomyopathy (ARVC) is a genetic disorder characterized by the replacement of right ventricular myocardium with fibrous and fatty tissue, leading to ventricular arrhythmias, heart failure, and sudden cardiac death.
Atrial fibrillation (AF) is a cardiac rhythm disorder characterized by uncontrolled atrial activation without effective atrial contraction. On the electrocardiogram (ECG), P waves are absent. AF is characterized by rapid oscillations or fibrillatory waves that vary in amplitude, shape and timing associated with an irregular ventricular response.

- **Paroxysmal AF** terminates spontaneously or with intervention within 7 days of onset. Episodes typically convert back to sinus rhythm within 48 hours.
- **Persistent AF** is continuous AF sustained beyond 7 days.

Atrial flutter is a rhythm disorder characterized by coordinated electrical activity in the atria, and the electrocardiogram (ECG) shows a saw tooth pattern of the flutter waves.

- Typical atrial flutter is localized to the right atrium.
- Atypical atrial flutter refers to atrial flutter arising in the left atrium.

Atrioventricular (AV) Block is an interruption or delay of electrical conduction from the atria to the ventricles due to conduction system abnormalities in the AV node or the His-Purkinje system (electrical conduction fibers and cells in the ventricles). Conduction delay or block can be physiologic if the atrial rate is abnormally fast or pathologic at normal atrial rates.
Atrioventricular reentrant tachycardia (AVRT) is an abnormal fast heart rhythm, classified as a type of supraventricular tachycardia (SVT). In AVRT an accessory pathway allows electrical

signals from the heart's ventricles to enter the atria and cause earlier than normal contraction, which leads to repeated stimulation of the atrioventricular (AV) node.

Bifascicular block is a conduction disturbance below the atrioventricular (AV) node in which the right bundle branch and one of the two fascicles (anterior or posterior) of the left bundle branch are involved.

Bradycardia is a heart rate that is too slow. What is considered too slow can depends on age and physical condition. In general, for adults, a resting heart rate of fewer than 60 beats per minute (BPM) qualifies as bradycardia. Causes for bradycardia may include: problems with the sinoatrial (SA) node, sometimes called the heart's natural pacemaker, problems in the conduction pathways of the heart that do not allow electrical impulses to pass properly from the atria to the ventricles, metabolic problems (eg, hypothyroidism), damage to the heart from heart disease or heart attack, and certain heart medications that can cause the side effect of bradycardia.

Bundle branch block is a type of conduction disorder involving partial or complete interruption of the flow of electrical impulses through the right or left bundle branches. Normally, electrical impulses travel down the right and left branches of the ventricles at the same speed, allowing both ventricles to contract simultaneously. When there is a "block " in one of the branches, electrical signals have to take a different path through the ventricle and one ventricle contracts a fraction of a second slower than the other, causing an arrhythmia.

Bundle branch reentrant tachycardia is an uncommon form of ventricular tachycardia (VT) incorporating both bundle branches in the reentry circuit. This often occurs as a result of His-Purkinje disease associated with left ventricular (LV) enlargement and heart failure (HF). People typically present with presyncope, syncope or sudden death because of VT, with fast rates frequently more than 200 beats per minute.

Cardiac sarcoidosis is an inflammatory granulomatous disease that can affect the heart. Up to one-quarter of the population with systemic sarcoidosis may have evidence of cardiac involvement. The clinical manifestations of cardiac sarcoidosis (CS) include heart block, atrial arrhythmias, ventricular arrhythmias and heart failure.

Cardiomyopathy is a disease of the heart muscle that makes it harder for the heart to pump blood to the rest of the body. Cardiomyopathy can lead to heart failure. The main types of cardiomyopathy include dilated, hypertrophic and restrictive cardiomyopathy.

Congenital heart disease (CHD) is a term for a variety of birth defects that affect heart anatomy and function. Congenital is defined as present since birth. CHD occurs when the heart, or blood vessels near the heart, do not develop normally. Common heart defects include: atrial septal defect, coarctation of the aorta, d-transposition of the great arteries, Ebstein's anomoly, patent ductus arteriosus, tetralogy of fallot, total anomalous pulmonary venous connection and ventricular septal defect.

Coronary artery disease (CAD) is caused by plaque buildup in the walls of the arteries that supply blood to the heart (called coronary arteries) and other parts of the body.

Dilated cardiomyopathy is a condition in which the left ventricle, the heart's main pumping chamber, is enlarged (dilated). As the chamber gets bigger, its thick muscular wall stretches, becoming thinner and weaker. This affects the heart's ability to pump enough oxygen-rich blood to the rest of the body.

Echocardiogram (ECHO) is a test that uses high frequency sound waves (ultrasound) to make pictures of the heart. The test is also called echocardiography or diagnostic cardiac ultrasound. An ECHO uses sound waves to create pictures of the heart's chambers, valves, walls and the blood vessels (aorta, arteries, veins). A probe called a transducer is passed over the chest. The probe produces sound waves that bounce off the heart and "ECHO" back to the probe. These waves are changed into pictures viewed on a video monitor.

Electrocardiogram (ECG or EKG) is a test that measures and records the electrical activity of the heart. The ECG electrical activity is divided into the P wave, PR interval, QRS complex, QT interval, ST segment, T wave and U wave. An ECG is useful in establishing many cardiac diagnoses.

Electrophysiology study (EPS) is a minimally invasive procedure that evaluates the electrical conduction system of the heart to assess the electrical activity, conduction pathways and abnormal heart beats. During an EPS, the sinus rhythm, and supraventricular and ventricular arrhythmias of baseline cardiac intervals, are recorded. The study is indicated to investigate the cause, location of origin and best treatment (drug therapy, catheter ablation or implantable cardioverter-defibrillator), for various abnormal heart rhythms.

Intraprocedural therapeutic intervention is a medical procedure that aims to treat a patient's condition during a procedure.

Ischemic Heart Disease is a term given to heart problems caused by narrowed heart arteries. When arteries are narrowed, less blood and oxygen reaches the heart muscle, increasing the risk of myocardial infarction. This is also called coronary artery disease and coronary heart disease.

Left ventricular ejection fraction (LVEF), also known as ejection fraction (EF), is defined as the percentage of blood ejected from the left ventricle during each contraction.

Muscular dystrophy is a group of more than 30 genetic diseases characterized by progressive weakness and degeneration of the skeletal muscles that control movement.

Myocardial infarction (MI), also called a heart attack, occurs when the blood flow that brings oxygen to the heart muscle is severely reduced or cut off completely. The coronary arteries that supply the heart muscle with blood flow can become narrowed from a buildup of fat, cholesterol and other substances that together are called plaque. This process is known as atherosclerosis. When plaque within a coronary artery breaks, a blood clot forms around the plaque and can block the flow of blood through the artery to the heart muscle. Ischemia results when there is an inadequate blood supply to the heart muscle causing damage or death of part of the heart muscle, resulting in an MI.

Narrow QRS tachycardia is characterized by a QRS complex duration of less than 120 milliseconds on an electrocardiogram (ECG) and a heart rate exceeding 100 beats per minute.

Palpitations are rapid or irregular heartbeats that a person can feel.
Premature ventricular contractions (PVCs) are extra, abnormal heartbeats that begin in the ventricles, or lower pumping chambers, and disrupt your regular heart rhythm, sometimes causing you to feel a skipped beat or palpitations.
Right ventricular outflow tract (RVOT) is a tubular structure that extends from the tricuspid annulus to the pulmonary valve, directing blood flow from the right ventricle to the pulmonary artery.
Second-degree Mobitz type I also known as Wenckebach block, is a type of heart block that occurs when the electrical signals from the atria to the ventricles are intermittently delayed or blocked.
Mobitz type II is a type of second-degree atrioventricular (AV) block, which is a heart rhythm condition that occurs when the electrical signal from the upper chambers of the heart doesn't always reach the lower chambers.
Sinus bradycardia is a heart rhythm where the heart beats slower than normal, usually less than 60 beats per minute. It's caused by a slower rate of electrical signals from the sinoatrial (SA) node, the heart's natural pacemaker.
Sinus node dysfunction, previously known as sick sinus syndrome, is an abnormal function in the sinoatrial (SA) node (also called sinus node). The sinus node is the natural pacemaker of the heart and is responsible for the regular, rhythmic heartbeat. When the sinus node malfunctions, abnormalities may result (eg, bradycardia, tachycardia, tachycardia-bradycardia syndrome, sinus pauses or arrest). Clinical symptoms result from hypoperfusion of end organs. Symptoms of sinus node dysfunction can include palpitations, syncope, pre-syncope, chest pain, weakness or decreased physical activity tolerance.
Structural heart disease is a condition that occurs when there is a defect in the heart's structure. This can include the heart's walls, chambers, valves, or major arteries.
Sudden cardiac death (SCD) occurs when the heart malfunctions and unexpectedly and suddenly stops beating due to electrical impulse problems. Myocardial infarction increases the risk of SCD. Conditions associated with SCD include arrhythmogenic right ventricular dysplasia (ARVD), long QT syndrome, hypertrophic obstructive cardiomyopathy (HOCM) or Brugada syndrome.
Supraventricular tachycardia (SVT) is a rapid rhythm with atrial and/or ventricular rates of more than 100 beat per minute (bpm) at rest, which originate and are sustained in atrial or atrioventricular node tissue above the bundle of His. The condition is caused by reentry phenomena or automaticity at or above the atrioventricular node and includes atrioventricular (AV) nodal reentrant tachycardia, atrioventricular reciprocating and atrial tachycardia.
Syncope is a transient loss of consciousness and postural tone (ability to maintain or change position intentionally) due to insufficient cerebral perfusion. The loss of consciousness is associated with prompt recovery, not needing resuscitation.
Tachycardia is an accelerated heart rate of more than 100 beats per minute in adults.

Ventricular fibrillation (VF) also called V-fib, is a serious cardiac rhythm disorder in which disordered electrical activity causes the heart's lower chambers (ventricles) to quiver or fibrillate, instead of contracting (beating) normally. This prohibits the heart from pumping blood, causing collapse and cardiac arrest. This type of arrhythmia is a life-threatening medical emergency.
Ventricular pre-excitation is a condition in which some or all of the ventricular muscle of the heart undergoes electrical activation (or depolarization) earlier, in relation to atrial events than would be expected, had the electrical impulses travelled normally by way of the atrioventricular (AV) conduction system.
Ventricular tachycardia (VT) is a rhythm disorder caused by abnormal electrical signals in the ventricles of the heart.

- **Monomorphic ventricular tachycardia** is ventricular tachycardia with stable QRS morphology.
- **Non-sustained ventricular tachycardia (NSVT)** is defined as 3 or more consecutive beats originating from the ventricle, lasting less than 30 seconds, at a rate more than 100 beats per minute (bpm).
- **Polymorphic ventricular tachycardia** is a ventricular rhythm, with a rate greater than 100 bpm with a varying QRS pattern that terminates spontaneously (causing syncope if lasting more than a few seconds) or will deteriorate into ventricular fibrillation, causing cardiac arrest.
- **Sustained ventricular tachycardia (SVT)** is defined as a ventricular rhythm more than 100 bpm (widened QRS complex with duration greater than 120 ms) lasting more than 30 seconds or requiring termination due to hemodynamic instability.

Wide complex QRS tachycardia (WCT) refers to a tachycardia with a QRS duration of 120 milliseconds and a heart rate greater than 100 beats per minute, which can originate from either ventricular tachycardia (VT) or supraventricular tachycardia (SVT) with aberrant conduction.
Wolff-Parkinson-White (WPW) is a congenital condition involving abnormal electrical conduction via an accessory pathway between the atria and the ventricles, which causes ventricular pre-excitation. The electrocardiogram (ECG) shows a short PR interval and a widened QRS with an initial delta wave, that reflects the accelerated ventricular contraction. WPW results in a predisposition to atrioventricular reentry tachycardia, atrial fibrillation and atrial flutter.

EPS References

[1] Adhaduk, M., Paudel, B., . . . Giudici, M. (2021). The role of electrophysiology study in risk stratification of cardiac sarcoidosis patients: Meta-analyses and systemic review. *International Journal of Cardiology, 349*, 55-61.

[2] Al-Khatib, S.M., Stevenson, W.G., . . . Page, R.L. (2018). 2017 AHA/ACC/HRS Guideline for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death. *Journal of the American College of Cardiology, 72*(14), e91-e220.

[3] Baumgartner, H., De Backer, J., . . . Zeppenfeld, K. (2021). 2020 ESC Guidelines for the management of adult congenital heart disease. *European Heart Journal, 42*(6), 563-645.

[4] Brignole, M., Moya, A., . . . van Dijk, J.G. (2018). 2018 2018 ESC Guidelines for the diagnosis and management of syncope. *European Heart Journal, 39*(21), 1883–1948.

[5] Brugada, J., Katritsis, D.G., . . . Zaza, A. (2020). 2019 ESC Guidelines for the management of patients with supraventricular tachycardia: The Task Force for the management of patients with supraventricular tachycardia of the European Society of Cardiology (ESC). *European Heart Journal, 41*(5), 655-720.

[6] Cesar, S., Campuzano. O., . . . Sarquella-Brugada, G. (2023). Characterization of cardiac involvement in children with LMNA-related muscular dystrophy. *Frontiers in Cell and Developmental Biology, 11*, 1142937.

[7] Kusumoto, F.M., Schoenfeld, M.H., . . . Varosy, P.D. (2018). 2018 ACC/AHA/HRS Guideline on the Evaluation and Management of Patients With Bradycardia and Cardiac Conduction Delay. *Circulation, 140*(8), e382-e482.

[8] Muresan, L., Cismaru, G., . . . de Chillou, C. (2019). Recommendations for the use of electrophysiological study: Update 2018. *Hellenic Journal of Cardiology, 60*(2), 82-100.

[9] Page, R.L., Joglar, J.A., . . . Al-Khatib, S.M. (2016). 2015 ACC/AHA/HRS guideline for the management of adult patients with supraventricular tachycardia: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *Circulation, 133*(14), e471-505.

[10] Sandhu, R.K., Raj, S.R., . . . Sivilotti, M. (2020). Canadian Cardiovascular Society Clinical Practice Update on the Assessment and Management of Syncope. *Canadian Journal of Cardiology, 36*(8), 1167-1177.

[11] Shen, W.K., Sheldon, R.S., . . . Yancy, C.W. (2017). 2017 2017 ACC/AHA/HRS guideline for the evaluation and management of patients with syncope. *Journal of the American College of Cardiology, 70*(5), e39-e110.

[12] Stout, K.K., Daniels, C.J., . . . Van Hare, G.F. (2019). 2018 AHA/ACC Guideline for the Management of Adults With Congenital Heart Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation, 139*(14), e698–e800.

[13] Zeppenfeld, K., Tfelt-Hansen, J., . . . Volterrani, M. (2022). ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. *European Heart Journal, 43*(40), 3997–4126.

Disclaimer section

Purpose

The purpose of the HealthHelp's clinical guidelines is to assist healthcare professionals in selecting the medical service that may be appropriate and supported by evidence to safely improve outcomes. Medical information is constantly evolving, and HealthHelp reserves the right to review and update these clinical guidelines periodically. HealthHelp reserves the right to include in these guidelines the clinical indications as appropriate for the organization's program objectives. Therefore the guidelines are not a list of all the clinical indications for a stated procedure, and associated Procedure Code Tables may not represent all codes available for that state procedure or that are managed by a specific client-organization.

Clinician Review

These clinical guidelines neither preempt clinical judgment of trained professionals nor advise anyone on how to practice medicine. Healthcare professionals using these clinical guidelines are responsible for all clinical decisions based on their assessment. All Clinical Reviewers are instructed to apply clinical indications based on individual patient assessment and documentation, within the scope of their clinical license.

Payment

The use of these clinical guidelines does not provide authorization, certification, explanation of benefits, or guarantee of payment; nor do the guidelines substitute for, or constitute, medical advice. Federal and State law, as well as member benefit contract language (including definitions and specific contract provisions/exclusions) take precedence over clinical guidelines and must be considered first when determining eligibility for coverage. All final determinations on coverage and payment are the responsibility of the health plan. Nothing contained within this document can be interpreted to mean otherwise.

Registered Trademarks (®/™) and Copyright (©)

National and Local Coverage Determination (NCD and LCD)

NOTICE
To ensure appropriate review occurs to the most current NCD and/or LCD, always defer to https://www.cms.gov/medicare-coverage-database/search.aspx.

Background

National Coverage Determinations (NCD) and Local Coverage Determinations (LCD) are payment policy documents outlined by the Centers for Medicare and Medicaid Services (CMS) and the government's delegated Medicare Audit Contractors (MACs) that operate regionally in jurisdictions.
CMS introduced variation between different jurisdictions/Medicare Audit Contractors (MACs) and their associated covered code lists with the transition to ICD 10. The variation resulted in jurisdictions independently defining how codes are applied for exclusions, limitations, groupings, ranges, etc. for the medical necessity indications outlined in the NCD and LCD. Due to this variation, there is an inconsistent use/application of codes and coverage determinations across the United States between the different MACs.
In addition, **WITHOUT** notice, CMS can change the codes that indicate medical necessity and the format of the coverage determinations/associated documents (eg, Articles). This is an additional challenge for organizations to keep up with ongoing, unplanned changes in covered codes and medical necessity indications.

Medical Necessity Codes

Due to the variation in code application between jurisdictions/MACs and that updates can happen without notification, HealthHelp is not able to guarantee full accuracy of the codes listed for any Coverage Determination, and advises that prior to use, the associated Coverage Determination Articles are reviewed to ensure applicability to HealthHelp's programs and any associated NCDs and LCDs.

For Internal Use Only:

11248 11249 11253 11282 11325 11328 11333 11349 11350 11351 11352 11354 11355 11356 11358 11359 11360 11361 11362 11365 11366 11367 11368 11369 11370 11374 11375 11394 11395 11396 11565