Palpitations

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Other Notices:

Guideline Information:

Disease Area: Cardiology
Care Path Group: Diagnostic
Care Path Name: Palpitations
Type: [**X**] Adult (18+ yo) | [_] Pediatric (0-17yo)

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Care Path Overview

Care Path Clinical Discussion

Palpitations account for 16% of visits to primary care physicians and are the second leading cause of visits to cardiologists.[1-2] Palpitations are a subjective experience that is often associated with an unpleasant awareness of forceful, rapid, or irregular beating of the heart. Patients may also describe the symptoms as a skipped beat, rapid fluttering in the chest, pounding sensation in the chest or neck, or a flip-flopping in the chest. Palpitations are a very non-specific complaint, meaning almost everyone experiences palpitations at one or more times. Most patients have a benign etiology for their palpitations, but palpitations can be a sign of a life-threatening condition. The most common causes of palpitations include cardiac disorders and stress and anxiety disorders; however, other medical conditions and drug side-effects may also cause palpitations. The physician must first determine whether the patient is stable and the appropriate site of evaluation. If an outpatient evaluation is appropriate, be sure to determine the cause of the palpitations and identify patients at high-risk for arrhythmia.[3]

Initial evaluation of the patient with palpitations includes history, physical exam, and a 12-lead ECG. In some cases, the diagnosis is apparent after these steps. When the diagnosis is not clear, laboratory studies can identify other causes of palpitations, including anemia, hyperthyroidism, and electrolyte abnormalities. Base further testing decisions on the patient's risk of cardiac disease. Cardiac causes may be structural or arrhythmic.[1] For patients with suspected structural heart disease, perform echocardiography.[2] Consider stress testing when palpitations occur with physical exertion or if coronary artery disease is suspected.

If the physician suspects an arrhythmia, ambulatory ECG monitoring is appropriate. This monitoring may include a Holter monitor, continuous-loop event recorder, or an implantable loop recorder. Holter monitors continuously record and save data and can be worn for up to 48 hours. However, newer, continuous patch-type monitors are now available that patients can wear for up to 14 days. While the continuous loop recorders continuously record data, the data only saves when the patient activates the monitor or when set heart rate thresholds are met (per the physician's criteria.) Continuous loop recorders are more cost-effective and efficacious than Holter monitors, provided they are activated effectively. Mobile cardiac telemetry (MCT) is a more sophisticated monitoring system with beat-to-beat analysis, more precise recognition of arrhythmia types, and quantification of abnormalities.

An implantable loop recorder is a subcutaneous device that continuously monitors for cardiac arrhythmias. These are most commonly used in patients with unexplained syncope and have more extended use periods than continuous loop recorders. Electrophysiology testing may be appropriate in patients with a high pretest likelihood of a serious arrhythmia as indicated by patient history or test findings.[3]

The information contained herein gives a general overview of the pathway of this specific diagnosis, beginning with the initial presentation, recommended assessments, and treatment options as supported by the medical literature and existing guidelines. It should be noted that the care of patients can be complex. The information below is meant to support clinical decision-making in adult patients. It is not necessarily applicable to every case, as the entire clinical picture (including comorbidities, history, etc.) should be considered.

Key Information

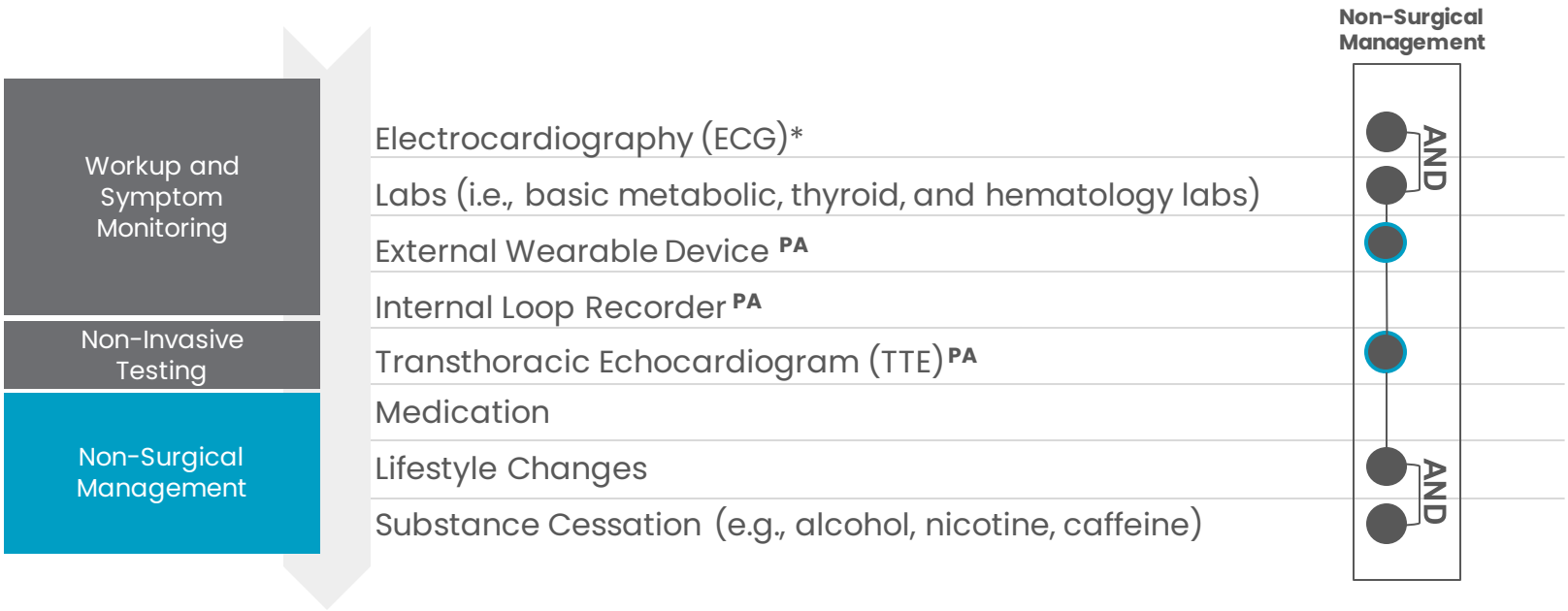
- ➢ Patients with palpitations often present to their primary care physician but may present to a cardiologist, emergency department, or urgent care. Associated symptoms of dizziness or lightheadedness or syncope indicate the possibility of more significant arrhythmia and should be quickly evaluated.
- ➢ For patients with palpitations and reports of anxiety, cardiac causes still may need to be excluded as the cause of palpitations. Additionally, increased catecholamines associated with chronic stress and anxiety often cause ectopy. Inquiring about ingestion of caffeine and other stimulants may also reveal a correctible cause of palpitations.[2]
- ➢ Standard 12-lead ECG is the initial test of choice for patients with palpitations.
- ➢ Normal ECG findings do not eliminate a cardiac etiology. If the concern for a cardiac cause remains high, ambulatory ECG monitoring is warranted.[2]
- ➢ If palpitations occur daily or near daily, a Holter monitor for 24-48 hours offers convenience for the patient and quick turn around of results. If palpitations occur less frequently, longer term monitors such as 14-30 days offer a higher likelihood of detection. In some cases, the patient may be asymptomatic during the monitoring period, however the monitor can still detect important arrhythmias that are actionable. [4]
- ➢ Stress testing is appropriate if palpitations are associated with physical exertion in athletes and when coronary heart disease is suspected.

Definitions

- **Pretest probability (of CAD):** Pretest probability of CAD is the likelihood that the patient has CAD, calculated before the test result is known. These guidelines reference the 2019 European Society of Cardiology (ESC) Guidelines for the diagnosis and management of chronic coronary syndromes model to calculate the pretest probability based on age, sex, and type of chest pain.[6,21]

Palpitations

What is a "Cohere Care Path"?
These Care Paths organize the services typically considered most clinically optimal and likely to be automatically approved. These service recommendations also include the suggested sequencing and quantity or frequency determined clinically appropriate and medically necessary for the management of most patient care scenarios in this Care Path's diagnostic cohort.



Key

PA = Service may require prior authorization
★ = Denotes preferred service
AND = Services completed concurrently
OR = Services generally mutually exclusive

= Non-surgical management prior authorization group of services
= Surgical management prior authorization group of services
= Subsequent service
= Management path moves to a different management path

Care Path Diagnostic Criteria

Disease Classification

Palpitations

ICD-10 Codes Associated with Classification

ICD-10 Code	Code Description/Definition
R00.2	Palpitations

Presentation and Etiology

Causes and Risk Factors

The cause of palpitations can be determined in the majority of patients. The most common causes are benign; however, palpitations may be caused by cardiac conditions, medical conditions including endocrine and metabolic abnormalities, stress and anxiety disorders, and effects of medications or other substances such as tobacco or caffeine.[1,3,7-8]

Cardiac disorders are the most serious cause of palpitations. Cardiac causes of palpitations include heart rhythm disorders, underlying structural heart disease, valvular heart disease, and high-output cardiac states, such as occurs with anemia.[1,3,8-10]

There are many non-cardiac medical conditions that can result in palpitations. These include fever, dehydration, anemia, hyperthyroidism, autonomic nervous system disorders, hypoglycemia, hypocalcemia, hyperkalemia, hypokalemia, hypermagnesemia, hypomagnesemia, and pheochromocytoma.[1,3,8-10]

Palpitations can be caused by anxiety disorders. Anxiety is the most common non-cardiac cause of palpitations. However, it should not be assumed that anxiety is the etiology of palpitations in all patients with psychiatric symptoms, because a non-psychiatric cause may exist in 13% of patients.[1,3,7-8,10]

Medications that can cause palpitations include medications used to treat attention-deficit/hyperactivity disorder and rescue inhalers for asthma.

Over-the-counter medications such as nasal decongestants can also cause palpitations. Omega-3 fatty acids, in particular over 1 gm/day can increase risk of atrial fibrillation. Other substances that may cause palpitations include nicotine, caffeine, alcohol, anabolic steroids, cocaine, 3,4-methylenedioxymethamphetamine (MDMA or ecstasy), and methamphetamine.[1]

Typical History Findings

Important questions to ask in a detailed history include the following[2-3,8-9]:

- What was the timing of onset?
- What is the duration of symptoms?
- Are palpitations caused by trigger incident(s) (e.g., prolonged standing, stressful experience)?
- Are there actions that relieve symptoms?
- Are there associated symptoms such as chest pain, lightheadedness, or fainting?
- Is there a family history of heart rhythm disorders? (certain rhythm disorders have genetic relationships)
- Are there symptoms of hyperthyroidism?
- Are symptoms related to meals or physical activity that could cause dehydration?
- Is there a history of panic attacks or anxiety disorder?
- Is there a history of drug or alcohol abuse?

Typical Physical Exam Findings

A thorough physical exam must be performed. Particular attention should be paid to supine and standing vital signs, skin pallor, central venous pressure, and thyroid size. A careful cardiopulmonary exam searching for a heart murmur, displaced PMI, or signs of pulmonary congestion is essential.[8]

Findings on the exams may lead the physician to specific non-cardiac causes such as dehydration, autonomic dysfunction, hyperthyroidism (e.g., sweating, fine tremor), or hypoglycemia.[8] Findings of a displaced PMI or S3 can indicate a cardiomyopathy, additionally a significant murmur could signify hypertrophic cardiomyopathy or mitral regurgitation which when severe can cause atrial fibrillation.

Many cardiac findings can lead the physician to the correct diagnosis. Some arrhythmias, particularly infrequent premature beats (like premature atrial contractions and premature ventricular contractions) can be captured during several minutes of cardiac auscultation.[8-9]

Typical Diagnostic Findings

Standard 12-lead ECG is the initial test of choice for patients with palpitations. Most patients are not symptomatic at the time of presentation, but the ECG still may provide helpful clues to the diagnosis such as[1-3]:

- Prolonged QTc interval - polymorphic ventricular tachycardia (VT) (Torsades de Pointes).
- Short PR interval or a delta wave - Wolff-Parkinson-White Syndrome.
- Significant left ventricular hypertrophy with deep septal Q waves in I, L, and V4 through V6 - hypertensive heart disease or hypertrophic obstructive cardiomyopathy.
- Significant Q waves - prior myocardial infarction.

A history of cardiac disease, abnormal cardiac examination, or abnormal ECG findings should prompt evaluation for structural heart disease. However, a normal resting ECG does not eliminate a cardiac etiology. The nature of the heart disease suspected or ascertained will determine the need for further testing. If the concern for a cardiac cause remains high, ambulatory ECG monitoring is warranted. This is most helpful when the patient experiences specific triggers or if the symptoms tend to occur frequently, in which case a 48-hour Holter monitor can be ordered. If symptoms are less frequent, an extended-wear continuous monitor (i.e., wearable patch monitor) or an event monitor can be worn for longer periods (typically 30 days). Loop monitors or continuous mobile telemetry may be a more sensitive and cost-effective approach in patients with infrequent episodes of palpitations. An implantable loop recorder can be helpful for patients who have had external telemetry monitoring for 3 weeks without a diagnosis.[3,8-9] Palpitations often wane with time. For those patients with ongoing significant (i.e., frequent and not brief) palpitations with no obvious cause on initial evaluation, an implantable loop recorder may be helpful.

Baseline laboratory testing should be performed to exclude anemia, metabolic situations (e.g., diabetes or electrolyte imbalance), and kidney or thyroid disease.[8]

An electrophysiologic study may be indicated for patients believed to have a high-risk arrhythmia, including patients with palpitations associated with syncope or near-syncope.[3,8-9]

Echocardiography is helpful in evaluating patients for structural heart disease, including athletes whose palpitations could be caused by an inherited cardiomyopathy. Stress testing is indicated if the palpitations are associated with physical exertion, particularly if accompanied by angina or an anginal equivalent.[2-3,11]

Care Path Services & Medical Necessity Criteria

Workup and Symptom Monitoring

Service: External Wearable Device

General Guidelines

- **Units, Frequency, & Duration:** When medical necessity is met based on described clinical criteria, and exclusionary criteria are absent, conduct non-invasive external cardiac monitoring using external wearable devices. The monitoring duration can vary from 24 hours to 30 days, depending on symptom frequency.[12-14]
- **Criteria for Subsequent Requests:** Subsequent requests may be appropriate in some situations, including device malfunction, high burden of poor-quality data, or inability to capture a recording of patient symptoms (i.e., initial monitor chosen was shorter duration or was dependent on patient activation).[13]
- **Recommended Clinical Approach:** With evidence based on clinical history, physical exam, and 12-lead ECG, the most appropriate external wearable monitor should be selected based on patient symptom frequency and duration of the episodes. Daily symptoms or ongoing rhythm abnormalities (e.g., frequent premature ventricular contractions) may be addressable with a 24-48 hour Holter monitor. Less frequent, episodic palpitations are more likely to be captured with extended monitoring with either a 30-day loop recorder, cardiac mobile telemetry, or an extended-wear patch device. Consideration of patient ability to trigger a device effectively may also guide device selection in favor of those with more passive event recording capability.[12-13]
- **Exclusions:** 2 types of monitors cannot be ordered simultaneously.

Medical Necessity Criteria

Indications

➔ **External wearable devices** are considered appropriate if **ALL** of the following are **TRUE**[12-15]:

- ◆ Palpitation symptoms should occur at least once per 21 days.
- ◆ The patient does not have an implantable cardiac device capable of acquiring similar clinical information.
- ◆ For mobile cardiac telemetry, the patient wore an event monitor for at least 21 days without any diagnostic findings.

- If the patient has had 3 or more external wearable devices in the last six months, consider an internal loop recorder.

Non-Indications

➔ **External wearable devices** are not considered appropriate if **ANY** of the following is **TRUE**[12,16]:

- Palpitations are associated with symptoms suggestive of angina or clinically significant coronary artery obstruction, and monitoring would delay other needed testing or intervention.
- The patient has an implantable cardiac device such as a pacemaker capable of acquiring data of comparable quality.

Site of Service Criteria

Outpatient, in-office

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
93224 (Holter monitoring)	External electrocardiographic recording up to 48 hours by continuous rhythm recording and storage; includes recording, scanning analysis with report, review and interpretation by a physician or other qualified healthcare professional
93225	External electrocardiographic recording up to 48 hours by continuous rhythm recording and storage; recording (includes connection, recording, and disconnection)
93226	External electrocardiographic recording up to 48 hours by continuous rhythm recording and storage; scanning analysis with report
93227	External electrocardiographic recording up to 48 hours by continuous rhythm recording and storage; review and interpretation by a physician or other qualified healthcare professional
0295T (Patch monitors)	External electrocardiographic recording for more than 48 hours up to 21 days by continuous rhythm recording and storage; includes recording, scanning analysis with report, review and interpretation
0296T	External electrocardiographic recording for more than 48 hours up to 21 days by continuous rhythm recording and

	storage; recording (includes connection and initial recording)
0297T	External electrocardiographic recording for more than 48 hours up to 21 days by continuous rhythm recording and storage; scanning analysis with report
0298T	External electrocardiographic recording for more than 48 hours up to 21 days by continuous rhythm recording and storage; review and interpretation
93268 (Event monitoring)	External patient and, when performed, auto activated electrocardiographic rhythm derived event recording with symptom-related memory loop with remote download capability up to 30 days, 24-hour attended monitoring; includes transmission, review and interpretation by a physician or other qualified healthcare professional
93270	External patient and, when performed, auto activated electrocardiographic rhythm derived event recording with symptom-related memory loop with remote download capability up to 30 days, 24-hour attended monitoring; recording (includes connection, recording, and disconnection)
93271	External patient and, when performed, auto activated electrocardiographic rhythm derived event recording with symptom-related memory loop with remote download capability up to 30 days, 24-hour attended monitoring; transmission and analysis
93272	External patient and, when performed, auto activated electrocardiographic rhythm derived event recording with symptom-related memory loop with remote download capability up to 30 days, 24-hour attended monitoring; review and interpretation by a physician or other qualified healthcare professional
93228 (Mobile cardiac telemetry)	External mobile cardiovascular telemetry with electrocardiographic recording, concurrent computerized real time data analysis and greater than 24 hours of accessible ECG data storage (retrievable with query) with ECG triggered and patient selected events transmitted to a remote attended surveillance center for up to 30 days; review and interpretation with report by a physician or other qualified healthcare professional

93229	External mobile cardiovascular telemetry with electrocardiographic recording, concurrent computerized real time data analysis and greater than 24 hours of accessible ECG data storage (retrievable with query) with ECG triggered and patient selected events transmitted to a remote attended surveillance center for up to 30 days; technical support for connection and patient instructions for use, attended surveillance, analysis and transmission of daily and emergent data reports as prescribed by a physician or other qualified healthcare professional

Service: Internal Loop Recorder (ILR)

General Guidelines

- **Units, Frequency, & Duration:** When medical necessity criteria are met in the absence of exclusionary criteria, refer to a cardiac electrophysiologist or trained cardiologist for internal loop recorder (ILR) implantation. A single outpatient procedure is appropriate. The implant duration can be up to 4 years, depending on the device's battery life. Periodic recordings are actively or passively transmitted for interpretation by a physician.[12,15]
- **Criteria for Subsequent Requests:** Subsequent requests are only acceptable with documentation of device malfunction, an infection requiring removal of the initial device, or incorrect placement resulting in poor R-wave sensing.
- **Recommended Clinical Approach:** Non-invasive ambulatory ECG monitoring is recommended before this intervention if possible. Poor diagnostic yield of non-invasive monitoring in the setting of continued symptoms may lead a physician to recommend an ILR for their patient. This procedure is performed by a cardiac electrophysiologist or trained cardiologist, and referral to a center that supports this service is required.[13,15,17]
- **Exclusions:** An active infection or bleeding diathesis, which may present a high-risk of hematoma.

Medical Necessity Criteria

Indications

➔ **Internal loop recorders** are considered appropriate if **ALL** of the following are **TRUE**[12-13,15]:

- ◆ The patient has **ANY** positive findings from the following list:
  - Shortness of breath.
  - Abnormal ECG.
  - Palpitations that are persistent with symptoms that have not been captured by previous external monitors.
  - TIA.
  - Stroke.
  - Peripheral embolic event.
  - Syncope.
- ◆ No diagnostic conclusions were achieved with noninvasive monitoring methods, such as an external loop recorder or mobile cardiac telemetry.[14]

- The patient has no other implantable cardiac devices which can detect, record, and transmit data to a physician/cardiologist.
- The patient does not have an active systemic infection or nonreversible bleeding disorder, which would create a safety contraindication.

Non-Indications

➔ **Internal loop recorders** are not considered appropriate if **ANY** of the following is **TRUE**[12-13,15]:

- In the course of the workup, including wearable telemetry, a diagnosis was achieved.
- For patients with embolic events and known atrial fibrillation in whom the decision has been made to either anticoagulate or not anticoagulate
- The patient is no longer having palpitations.
- The patient has an active systemic infection or a bleeding diathesis.

Site of Service Criteria

Outpatient surgical site with invasive cardiac electrophysiology services.

Procedure Codes (HCPCS/CPT)

HCPCS Code	Code Description/Definition
E0616	Implantable cardiac event recorder with memory, activator, and programmer
G2066	Interrogation device evaluation(s), (remote) up to 30 days; implantable cardiovascular physiologic monitor system, implantable loop recorder system, or subcutaneous cardiac rhythm monitor system, remote data acquisition(s), receipt of transmissions and technician review, technical support and distribution of results
33285	Insertion, subcutaneous cardiac rhythm monitor, including programming
33286	Removal, subcutaneous cardiac rhythm monitor
93285	Programming device evaluation (in person) with iterative adjustment of the implantable device to test the function of the device and select optimal permanent programmed

	values with analysis, review and report by a physician or other qualified healthcare professional; subcutaneous cardiac rhythm monitor system
93291	Interrogation device evaluation (in person) with analysis, review and report by a physician or other qualified healthcare professional, includes connection, recording and disconnection per patient encounter; subcutaneous cardiac rhythm monitor system, including heart rhythm derived data analysis
93298	Interrogation device evaluation(s), (remote) up to 30 days; subcutaneous cardiac rhythm monitor system, including analysis of recorded heart rhythm data, analysis, review(s) and report(s) by a physician or other qualified healthcare professional

Non-Invasive Testing

Service: Transthoracic Echocardiogram (TTE)

General Guidelines

- **Units, Frequency, & Duration:** When medical necessity criteria are met in the absence of exclusionary criteria, a complete transthoracic echocardiogram is appropriate for evaluating palpitations if there is clinical suspicion of structural heart disease.[1-2]
- **Criteria for Subsequent Requests:** In finding a structural heart abnormality with a likelihood for progression, a limited echocardiogram is appropriate to request at certain follow-up intervals to evaluate the anatomy. These abnormalities may or may not be directly a result of palpitations or an underlying arrhythmia.
- **Recommended Clinical Approach:** A transthoracic echocardiogram is appropriate after patients present with palpitations if there are historical risk factors, clinical exam findings, or abnormalities on initial ECG monitoring of structural heart disease, including coronary artery disease (CAD).[1-2]
- **Exclusions:** None.

Medical Necessity Criteria

Indications

➔ **TTE** is considered appropriate if **ANY** of the following is **TRUE**[18]:
- ◆ The patient with palpitations may have a valvular, pericardial, or structural myocardial disease.
- ◆ 12-lead ECG abnormalities exist, which could be associated with structural (including congenital) heart disease.
- ◆ History or physical exam findings suggest heart failure.
- ◆ Patient with palpitations and an additional sign or symptom including shortness of breath, chest pain, syncope, neurologic symptoms, or peripheral embolic event.

Non-Indications

➔ **TTE** is not considered appropriate if **ANY** of the following is **TRUE**[17,19-20]:
- ◆ Echocardiography has no contraindications. Echocardiography may have limited benefit in patients at the extremes of adult body weight because a thick chest wall (in obese patients) or overcrowded ribs (in underweight patients) may limit ultrasound wave penetration.

- Patient has had an echocardiogram with no significant findings within the past year and there has been no change in symptoms (other than palpitations) and no change in exam

Site of Service Criteria

Outpatient

Procedure Codes (HCPCS/CPT)

HCPCS/CPT Code	Code Description/Definition
93303	Complete transthoracic echocardiography for congenital cardiac anomalies
+93320	Doppler Echocardiography, pulsed wave and/or continuous wave with spectral display (List separately in addition to codes for 2D echocardiographic imaging); **complete**.
+93321	Doppler Echocardiography, pulsed wave and/or continuous wave with spectral display (List separately in addition to codes for 2D echocardiographic imaging); **follow up or limited**.
+93325	Doppler echocardiography color flow velocity mapping (List separately in addition to codes for echocardiographic imaging)
93304	Follow-up transthoracic echocardiography for congenital cardiac anomalies
93306	Real time transthoracic echocardiography with 2-dimensional (2D) image documentation, M-mode recording with spectral Doppler echocardiography, and color flow Doppler echocardiography
93307	Complete real time transthoracic echocardiography with 2-dimensional (2D) image documentation
93308	Follow-up real time transthoracic echocardiography with 2-dimensional (2D) image documentation
C8921	Tte w or w/o fol w/cont, com
C8922	Tte w or w/o fol w/cont, f/u

C8923	2d tte w or w/o fol w/con,co
C8924	2d tte w or w/o fol w/con,fu
C8929	Tte w or wo fol wcon,doppler

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Clinical Guideline Revision History/Information

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Review History	
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