



<b>National Imaging Associates, Inc.</b>	
<b>Clinical guideline</b> <b>TRANSESOPHAGEAL (TEE) ECHO</b>	<b>Original Date: October 2009</b>
<b>CPT codes: 93312, 93313, 93314, 93315, 93316, 93317, 93318, +93320, +93321, +93325</b>	<b>Last Revised Date: July 2019</b>
<b>Guideline Number: NIA_CG_066</b>	<b>Implementation Date: January 2020</b>

## INDICATIONS FOR TRANSESOPHAGEAL ECHOCARDIOGRAPHY (TEE)

**General Criteria** (Doherty 2019, Flachskampf 2014, Hahn 2013, Lancelotti 2013, Ogbara 2011)

- TEE may be performed after a nondiagnostic TTE or a high likelihood of a nondiagnostic TTE due to patient characteristics or inadequate visualization of relevant structures

### **Aortic Pathology**

- Suspected acute aortic pathology such as aortic dissection (Bhave 2018, Doherty 2019)
- Dilated aortic sinuses or ascending aorta on transthoracic echocardiogram (TTE)
- Evaluation of aortic sinuses, sinotubular junction, or ascending aorta in patients with bicuspid aortic valve when morphology cannot be assessed by TTE, and other imaging including CT or MRI have not been done

### **Valvular Disease** (Doherty 2017, Nishimura 2014)

- Discordance between clinical assessment and TTE assessment of the severity of mitral regurgitation (MR)
- Evaluation of mitral stenosis, when there is a discrepancy between clinical signs or symptoms, and TTE is inadequate
- Discordance between clinical assessment and TTE assessment of the severity of aortic regurgitation (AR)
- Evaluation of native or prosthetic valves with clinical signs or symptoms suggesting valve dysfunction, when TTE is inadequate
- Re-evaluation of known prosthetic valve dysfunction when it would change management or guide therapy, and TTE is inadequate

### **Infective Endocarditis** (Doherty 2017, Douglas 2011, Saric 2016)

- Suspected infective endocarditis (IE) of native valve, prosthetic valve, or endocardial lead with positive blood culture or new murmur
- Moderate to high pretest probability of IE (i.e. staph bacteremia, fungemia, prosthetic heart valve, or intracardiac device) when TTE is negative
- Re-evaluation of IE in a patient with a change in clinical status or cardiac examination (e.g. new murmur, embolism, persistent fever, heart failure (HF), abscess, or atrioventricular block)
- Re-evaluation of IE if the patient is at high risk for progression/complications or when the findings would alter therapy, when TTE is inadequate

### **Cardiac Mass or Source of Emboli**

- Evaluation of cardiac mass, suspected tumor or thrombus, or potential cardiac source of emboli (Doherty 2019, Saric 2016)

- Re-evaluation of prior TEE finding for interval change (e.g. resolution of thrombus after anticoagulation) when the findings would change therapy

#### **Atrial Fibrillation/Flutter** (January 2019)

- Evaluation for clinical decision making regarding anticoagulation, cardioversion, and/or radiofrequency ablation

#### **TAVR (Transcatheter Aortic Valve Replacement/Repair)** (Doherty 2017, Otto 2017)

- Pre-procedural assessment of annular size and shape, number of cusps, and degree of calcification, when computed tomography (CT) cannot be performed
- Post procedural assessment of degree of aortic regurgitation (including valvular and paravalvular) with suspicion of valve dysfunction, if TTE is inadequate

#### **Patent Foramen Ovale or Atrial Septal Defect** (Doherty 2019)

- Evaluation for anatomy, potential cardiac source of emboli, and suitability for percutaneous device closure
- Evaluation post device closure with clinical concern for infection, malposition, embolization or persistent shunt

#### **Left Atrial Appendage Occlusion** (Doherty 2019)

- Evaluation for anatomy, potential cardiac source of emboli, and suitability for percutaneous occlusion device placement
- Surveillance at 45 days or FDA guidance/guidelines for follow-up to assess device stability and device leak, and exclude migration, displacement, or erosion

#### **Percutaneous Mitral Valve Repair** (Doherty 2017)

- Determination of patient eligibility for percutaneous mitral valve procedures
- Pre-procedural evaluation for percutaneous mitral valve procedures may be performed in addition to CT imaging (Wunderlich 2018)
- Exclude the presence of intracardiac mass, thrombus, or vegetation prior to (within 3 days of) the procedure

#### **Adult Congenital Heart Disease** (Stout 2018)

- Imaging with provocative maneuvers (Valsalva, cough) to assess for the presence of right-to-left cardiac shunt
- Evaluation when TTE, CMR, or CTA are not adequate in the setting of:
  - Pulmonary venous connections with ASD
  - Aortic imaging in Williams syndrome or patient suspected of having supraaortic stenosis
  - Surgical planning for Ebstein anomaly
  - Evaluation of baffle leak after atrial switch repair for d-Transposition of the Great Arteries

#### **Ventricular Assist Devices** (Doherty 2019, Stainback 2015)

- Preoperative evaluation of suitability for ventricular assist device (VAD)
- Re-evaluation for VAD-related complication or suspected infection

**BACKGROUND:**

Transesophageal echocardiography (TEE) enables cardiac ultrasound imaging from within the esophagus, which provides a window for enhanced quality images as well as additional views, beyond that acquired by standard transthoracic echocardiography (TTE).

**Abbreviations**

AR	aortic regurgitation
CMR	cardiac magnetic resonance
CT(A)	computed tomography (angiography)
IE	infective endocarditis
MR	mitral regurgitation
MRI	magnetic resonance imaging
TEE	transesophageal echocardiography
TTE	transthoracic echocardiography
VAD	ventricular assist device

## **POLICY HISTORY:**

**Review Date:** July 26, 2019

### **Review Summary:**

- For ventricular assist devices added indication for re-evaluation for VAD-related complication or suspected infection
- Aortic Pathology section rewritten as follows:
  - Suspected acute aortic pathology such as aortic dissection (Bhave 2018, Doherty 2019)
  - Dilated aortic sinuses or ascending aorta on transthoracic echocardiogram (TTE)
  - Evaluation of aortic sinuses, sinotubular junction, or ascending aorta in patients with bicuspid aortic valve when morphology cannot be assessed by TTE, and other imaging including CT or MRI have not been done
- Added infective endocarditis indication for moderate to high pretest probability of IE (i.e. staph bacteremia, fungemia, prosthetic heart valve, or intracardiac device) when TTE is negative
- For cardiac mass or source of emboli added indication for re-evaluation of prior TEE finding for interval change (e.g., resolution of thrombus after anticoagulation) when the findings would change therapy
- Added indications for Patent Foramen Ovale or Atrial Septal Defect as follows:
  - Evaluation for anatomy, potential cardiac source of emboli, and suitability for percutaneous device closure
  - Evaluation post device closure with clinical concern for infection, malposition, embolization or persistent shunt
- Added indications for Left Atrial Appendage Occlusion as follows:
  - Evaluation for anatomy, potential cardiac source of emboli, and suitability for percutaneous occlusion device placement
  - Surveillance at 45 days or FDA guidance/guidelines for follow-up to assess device stability and device leak, and exclude migration, displacement, or erosion
- Added indications for Adult Congenital Heart Disease as follows:
  - Imaging with provocative maneuvers (Valsalva, cough) to assess for the presence of right-to-left cardiac shunt
  - Evaluation when TTE, CMR, or CTA are not adequate in the setting of:
    - Pulmonary venous connections with ASD
    - Aortic imaging in Williams syndrome or patient suspected of having supra-avalvular stenosis
    - Surgical planning for Ebstein anomaly
    - Evaluation of baffle leak after atrial switch repair for d-Transposition of the Great Arteries
    - Removed section on “Frequency of Echo Studies”

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