

# Transthoracic Echocardiography (TTE)

## Evolut Clinical Guideline Tip Sheet

This tip sheet is intended to further assist you with the clarification of the Evolut (formerly National Imaging Associates, Inc.) clinical guidelines. It is for informational purposes only and is **not** intended as a substitute for the clinical guidelines that must be utilized when reviewing cases for medical necessity and clinical appropriateness.

### Overview

**Transthoracic Echocardiograms (TTE) are used to evaluate structural heart disease, ventricular and valve function.**

### Recommendations

#### Adults – CVR Cases:

- ✓ Need documentation of prior TTE reports or MD notes documenting the findings
- ✓ Office notes should be within **six** months.
  
- ❖ Chest pain:
  - Not an indication for a TTE if a stress test (exercise tolerance test [ETT], myocardial performance index [MPI] or stress echocardiogram) is also being ordered to evaluate the symptoms
  
- ❖ Palpitations:
  - If signs and symptoms of cardiovascular disease (significant murmur or electrocardiogram [EKG] suggesting cardiac etiology such as ventricular arrhythmia, atrial fibrillation) are present
  
- ❖ Syncope:
  - Not for clearly documented vasovagal syncope or lightheadedness
  - Approvable for exercise-induced syncope
  
- ❖ Murmurs:
  - Clear documentation based on the office notes that the characteristics of the murmur is pathologic (i.e., diastolic, holosystolic or continuous murmurs)
  - Initial evaluation when there is reasonable suspicion of valvular or structural heart disease

- ❖ Arrhythmias:
  - Frequent premature ventricular complexes (PVCs) – (PVCs greater than 30 per hour on remote monitoring or greater than or equal to one PVC on 12 lead EKG)
  - Atrial fibrillation- both paroxysmal and sustained- for initial diagnosis
  - Ventricular bigeminy, trigeminy, or NSVT on EKG or Holter monitor
  
- ❖ Hypertension:
  - Documentation of suspicion of hypertensive heart disease (i.e., left ventricular hypertrophy [LVH] on EKG) must be provided.
  - Repeated studies without new symptoms are not approvable
  
- ❖ Valvular Stenosis:
  - Routine surveillance of bicuspid aortic valve allowed every three years (regardless of whether there is stenosis)
  - Aortic stenosis- allowed every six months for severe stenosis without symptoms
  - Moderate aortic stenosis- can be done yearly
  
- ❖ Native Valvular Regurgitation:
  - Can do yearly for moderate valvular regurgitation without symptoms
  - Every six months is allowable for severe aortic or mitral regurgitation without symptoms
  - Every three years for follow-up of mild valvular regurgitation
  
- ❖ Prosthetic Heart Valves:
  - Can do yearly TTE for prosthetic valves after ten years
  - Baseline study post-valve replacement (six weeks to three months post-op)
  - Every three years (if symptoms are present, can do as needed)
  
- ❖ Edema:
  - Not an indication for TTE unless there are other signs of congestive heart failure (CHF) (e.g., shortness of breath, rales on lung exam, S3 gallop)
  
- ❖ Heart Failure:
  - Yearly TTEs for patients with documented systolic or diastolic heart failure is not indicated unless there are symptoms or to help guide therapy (does not include initial period when device management is being considered)
  
- ❖ Pulmonary Hypertension:
  - Clear documentation by MD of suspicion of pulmonary hypertension
  - Yearly TTEs **are not** allowable for mild pulmonary hypertension and no new symptoms
  - As needed for patients with primary pulmonary hypertension to guide therapy

- ❖ Chemotherapy with Cardiotoxic Agents:
  - TTE is the method of choice for evaluation as a baseline, during and after chemotherapy – usually at the discretion of the ordering physician, not to exceed once every six weeks (unless there has been a decrease in the ejection fraction [EF])
  - Multigated acquisition (MUGA) scan or cardiovascular (CMR) MRI, if TTE is inadequate
- ❖ Organ Transplant
  - Approvable yearly pre-op for any solid organ transplant
- ❖ Aortic Root Disease:
 

Initial six-month follow-up after diagnosis of thoracic aortic aneurysm to measure rate of change:

  - If rate of change is greater than 0.5cm/year, biannual follow-up can be performed
  - Annual imaging for surveillance allowed for stable thoracic aortic aneurysm less than 4.5cm
  - Biannual surveillance imaging is allowed for thoracic aortic aneurysm greater than 4.5cm
  - Surveillance interval for thoracic aneurysm (noted above) also applies to patients with known or suspected connective tissue disease or genetic conditions that predispose to aortic dissection (i.e, Marfan's, Ehler's Danlos or Loetz-Dietz syndrome)
  - In addition to the surveillance criteria noted above, biannual imaging is allowed in patients with a **bicuspid AV** and thoracic aortic aneurysm and a **family history of first degree relative of aortic dissection**
- ❖ Patent foramen ovale (PFO), atrial septal defect (ASD) closure, percutaneous mitral valve repair and transcatheter aortic valve replacement (TAVR) indications added – see guidelines
- ❖ TTE Not Approvable:
  - Sinus bradycardia
  - Atrial premature complexes (APCs) – without atrial fibrillation or supraventricular tachycardia (SVT)
  - Known Coronary artery disease (CAD) – when prior testing (MPI or left heart catheterization [LHC]) had normal left ventricular ejection fraction (LVEF) and no new symptoms
  - Trace regurgitant valvular heart disease without new symptoms

## Post COVID-19 Patients

Patients with COVID-19 typically present with symptoms of respiratory tract infections, but cardiac manifestations are also common. Cardiac testing is commonly performed in hospitalized patients with COVID-19 as it may have prognostic value and may serve as a useful baseline in patients who develop manifestations of possible myocardial injury.

Targeted cardiac evaluation is indicated in selected patients with COVID-19 with one or more of the following: new onset heart failure, unexplained cardiac arrhythmias, chest pain, shortness of breath or EKG changes. The approach to cardiac evaluation may differ from the standard approach as it is based upon weighing the likelihood that evaluation will change management and guide prognosis.

For the **post-COVID-19** infection evaluation, below is a recommended strategy for TTE studies. In general, an MRI would not be performed without first performing a TTE.

**Has it been more than six weeks since a positive COVID-19 test?**

- **If so, see the scenarios below:**
  - No new symptoms – no further testing is needed
  - New symptoms of:
    - Chest pain - approve
    - Shortness of breath - approve
    - Unusual fatigue (unable to perform prior activities of daily living) - approve
    - Prior hospitalization with positive troponins - approve
    - Prior hospitalization with need for mechanical ventilation - approve
- **If it has been less than six weeks, TTE has been performed and symptoms have not worsened, no further testing is needed.**

## References

ACC/ AATS/AHA/ASE/ASNC/HRS/SCAI/SCCT/SCMR/STS 2019 appropriate use criteria for multimodality imaging in the assessment of cardiac structure and function in nonvalvular heart disease: a report of the American College of Cardiology Appropriate Use Criteria Task Force, American Association for Thoracic Surgery, American Heart Association, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and Society of Thoracic Surgeons. *J Am Coll Cardiol* 2019;73:488–516.

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