

# Transthoracic Echocardiography (TTE)

## Clinical Guideline Tip Sheet

*This tip sheet is intended to further assist you with the clarification of the National Imaging Associates, Inc. (NIA) 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.

### 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, (which will likely be most of the requests we receive), 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 6 weeks since a positive COVID-19 test?

- **If so, move to below scenarios below:**
  - No new symptoms - no further testing is needed
  - New symptoms of:
    - Chest pain - approve
    - SOB - approve
    - Unusual fatigue (unable to perform prior ADL) - approve
    - Prior hospitalization with positive troponins - approve
    - Prior hospitalization with need for mechanical ventilation - approve
  - **If it has been less than 6 weeks and TTE has been performed and symptoms have not worsened, no further testing is needed.**

## 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 (ETT, MPI, or stress echocardiogram) is also being ordered to evaluate the symptoms
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- ❖ Palpitations:
  - If signs and symptoms of cardiovascular disease (significant murmur or ECG 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 VPC's- > 30/hour
  - 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. LVH on EKG), must be provided.
  - Repeated studies without new symptoms are not approvable
  
- ❖ Valvular Stenosis:
  - Routine surveillance of bicuspid aortic valve allowed every 3 years (regardless of whether there is stenosis)
  - Aortic stenosis- allowed every 6 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 6 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 (for bioprosthetic valves)- no specific indications currently for mechanical valves
  - Baseline study post valve replacement (6 weeks to 3 months postop)
  - Every 3 years; (If symptoms are present can do as needed)
- ❖ Edema:
- Not an indication for TTE, unless there are other signs of CHF (shortness of breath, rales on lung exam, S3 gallop)
- ❖ Heart Failure:
- Yearly TTE's 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 TTE's **are not** allowable for mild pulmonary HTN and no new symptoms
  - As needed for patients with primary pulmonary htn 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 6 weeks (unless there has been a decrease in the EF).
  - MUGA scan or CMR (MRI), if TTE is inadequate
- ❖ Organ Transplant
- Approvable yearly preop for kidney or liver transplant
- ❖ Aortic Root Disease:
- o Initial six-month follow-up after diagnosis of thoracic aortic aneurysm to measure rate of change
  - If rate of change is > 0.5cm/year, biannual (2x/year) follow up can be performed.
  - Annual imaging for surveillance allowed for stable thoracic aortic aneurysm <4.5 cm.
  - Bi-annual surveillance imaging is allowed for thoracic aortic aneurysm > 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 (e.g. 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**
- ❖ PFO, ASD closure, Percutaneous Mitral Valve repair and TAVR Indications added - See guidelines
- ❖ TTE Not Approvable:
  - Sinus Bradycardia
  - APC's – without atrial fibrillation or SVT
  - Known CAD – when prior testing (MPI or LHC) had normal LVEF and no new symptoms
  - Trace regurgitant valvular heart disease without new symptoms

**Pediatric Cases (refer to guidelines):**

- ❖ Pediatric TTE: In congenital heart disease in which there is a residual shunt, **in CVR cases** – notes are accepted for up to 2 years (if there is a plan to do repeat TTE at visit)

**Non-CVR Cases:**

- ❖ Do not require reports but should have a physician's statement regarding the prior testing along with the reason the study is being performed.

**References:**

ACCF/ASE/AHA/ASNC/HFSA/HRS/SCAI/SCCM/SCCT/SCMR 2011 Appropriate Use Criteria for Echocardiography. A Report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, American Society of Echocardiography, American Heart Association, American Society of Nuclear Cardiology, Heart Failure Society of America, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Critical Care Medicine, Society of Cardiovascular Computed Tomography, a... J Am Coll Cardiol. 2011 Mar 1. 57(9):1126-66

ACC/AAP/AHA/ASE/HRS/SCAI/SCCT/SCMR/SOPE 2014 Appropriate Use Criteria for Initial Transthoracic Echocardiography in Outpatient Pediatric Cardiology A Report of the American College of Cardiology Appropriate Use Criteria Task Force, American Academy of Pediatrics, American Heart Association, American Society of Echocardiography, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and Society of Pediatric Echocardiography. Journal of the American College of Cardiology, 2014, 8, 1-22. doi.org/10.1016/j.jacc.2014.08.003