



## CLINICAL POLICY

### Transesophageal Echo Protocol

**A. EFFECTIVE DATE :**

April 7, 2021

**B. PURPOSE :**

To outline guidelines for clinical indications and imaging protocols for Transesophageal Echocardiogram

**C. POLICY :**

TEE is an invasive imaging procedure performed by credentialed cardiologist

**D. SCOPE :**

This policy applies to all in patient, ED, Perioperative and Ambulatory Procedure Locations.

**E. DEFINITIONS :**

Transesophageal Echo – TEE

**F. MATERIAL(S) NEEDED :**

None

**G. PROCEDURE :**

Indications:

1. Source of emboli: cerebrovascular accident, transient ischemic attack, or peripheral arterial embolism
2. Suspected endocarditis
3. Atrial fibrillation/atrial flutter for possible cardioversion
4. Inadequate transthoracic echo
5. Follow up of abnormalities discovered on transthoracic echo
6. Evaluate severity of valvular heart disease or suitability for repair (e.g., mitral regurgitation with prolapsed or flail mitral leaflet)
7. Complex congenital heart disease – must have transthoracic echo first
8. Critically ill or trauma patients with suspected cardiovascular event

Procedure:

1. Imaging Protocol:
  - a. Transgastric Imaging:
    - i. Short axis view (0 degrees) of the left ventricle
      1. Mid ventricular (papillary muscle) level
      2. Mitral valve level
    - ii. Long axis view
      1. Mitral valve morphology (prolapse, flail, rheumatic deformity)

- 2. Color Doppler for regurgitation (e.g. prolapse)
- iii. Two-chamber view (90 degrees) of left ventricle
  - 1. Evaluate size, global and segmental function
  - 2. Mitral valve chordal apparatus (chordal thickening)
- iv. Aortic valve Doppler for aortic stenosis
  - 1. Long axis (135 degrees) of left ventricle if favorable
  - 2. Deep transgastric view (5-chamber view) if favorable
- v. Inflow view (90-135 degrees) of tricuspid valve
  - 1. Valve morphology
  - 2. Color Doppler for regurgitation
  - 3. Continuous wave Doppler for tricuspid regurgitation velocity if angle is favorable
- vi. Short axis view of right ventricle and tricuspid valve
- b. Transesophageal Imaging:
  - i. Four-chamber view (0 degrees) of all four chambers
  - ii. Two-chamber view (60-90 degrees) of left ventricle
  - iii. Long axis view (135 degrees) of left ventricle
  - iv. Zoom of mitral valve structure and color Doppler at 0 degrees, 60 degrees, bicommissural, 90 degrees, and 135 degrees
  - v. Color Doppler (full scale) of mitral valve for mitral regurgitation at 0 degrees, 60-90 degrees, and 135 degrees
  - vi. Pulsed Doppler of mitral valve inflow at 0 degrees and/or 135 degrees
  - vii. Zoom of the aortic valve in the long axis (135 degrees) with and without color Doppler
  - viii. Zoom tricuspid valve with and without color Doppler: 0 degrees, 60 degrees, 120-135 degrees, continuous wave Doppler for tricuspid regurgitation velocity if the angle is favorable
  - ix. Bicaval view (120 degrees) of the right atrium to image inferior and superior vena cava
  - x. Inspection of right atrial appendage (70-100 degrees)
  - xi. Zoom or depth optimized view of atrial septum with color Doppler at 70 degrees and 120 degrees for atrial septum defect or patent foramen ovale focusing on the fossa ovalis. Pulsed Doppler if color Doppler evidence of shunt.
  - xii. Long view of PV
  - xiii. Multiple image plane for LA/RA
  - xiv. Intravenous contrast administration for evidence of left to right shunt at 70 degrees and 120 degrees, if indicated
  - xv. Mid-Esophageal view with neutral or anteflexion
    - 1. Short axis view of 45 degrees of the aortic valve leaflets with and without color Doppler
    - 2. Long axis view of ascending aorta (90-110 degrees)
    - 3. Imaging of the left atrial appendage (0-135 degrees)
    - 4. Pulsed Doppler of the atrial appendage filling/emptying velocities
    - 5. Image of pulmonary veins, color, and pulsed Doppler
      - a. Left: 60-90 degrees
      - b. Right: 0 or 120 degrees
    - 6. Long axis view of pulmonic valve (60-90 degrees) with and without color Doppler
  - xvi. High-Esophageal view:
    - 1. Long axis view of ascending aorta (110 degrees) color Doppler if indicated
    - 2. Short axis view of ascending aorta (0-20 degrees)
    - 3. Imaging of the main pulmonary and bifurcation (0 degrees)
  - xvii. Return to transgastric view for imaging of aorta

1. Short axis (0 degrees) and long axis (90 degrees) imaging of the aorta from transgastric position following aorta retrograde through transesophageal views to arch
  2. Imaging of aortic arch at 0 degrees and 90 degrees
  3. Imaging of aortic arch vessels at 90 degrees with and without color Doppler if possible
  4. Pulsed Doppler of descending aorta in long axis if indicated (aortic insufficiency)
  5. Imaging of distal ascending aorta if possible
- xviii. Color Doppler of any section of aorta suspicious for dissection, rupture, intramural hematoma, or ulcerated plaque

**H. ATTACHMENTS :**

None

**I. REFERENCES :**

None

**J. SEARCH WORDS :**

TEE

**K. ENFORCEMENT:**

Violations of this policy or associated procedures may result in appropriate disciplinary measures in accordance with University By-Laws, General Rules of Conduct for All University Employees, applicable collective bargaining agreements, the University of Connecticut Student Code, other applicable University Policies, or as outlined in any procedures document related to this policy.

**L. STAKEHOLDER APPROVALS :**

On File

**M. COMMITTEE APPROVALS :**

None

**N. FINAL APPROVAL :**

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|--|--|
| <p>1. <u>Andrew Agwunobi (Signed)</u><br/>         Andrew Agwunobi, MD, MBA<br/> <b>UConn Health Chief Executive Officer</b></p>                 | <p><u>04/16/2021</u><br/>         Date</p> |
| <p>2. <u>Anne Horbatuck (Signed)</u><br/>         Anne D. Horbatuck, RN, BSN, MBA<br/> <b>Clinical Policy Committee Co-Chair</b></p>             | <p><u>04/16/2021</u><br/>         Date</p> |
| <p>3. <u>Scott Allen (Signed)</u><br/>         Scott Allen, MD<br/> <b>Clinical Policy Committee Co-Chair</b></p>                                | <p><u>04/15/2021</u><br/>         Date</p> |
| <p>4. <u>Caryl Ryan (Signed)</u><br/>         Caryl Ryan, MS, BSN, RN<br/> <b>VP Quality and Patient Service &amp; Chief Nursing Officer</b></p> | <p><u>04/13/2021</u><br/>         Date</p> |

**O. REVISION HISTORY:**

Date Issued: 01/2008

Date Revised: 07/2010, 04/2021

Date Reviewed: 01/2008, 09/2012, 10/2014, 02/2015, 11/2017