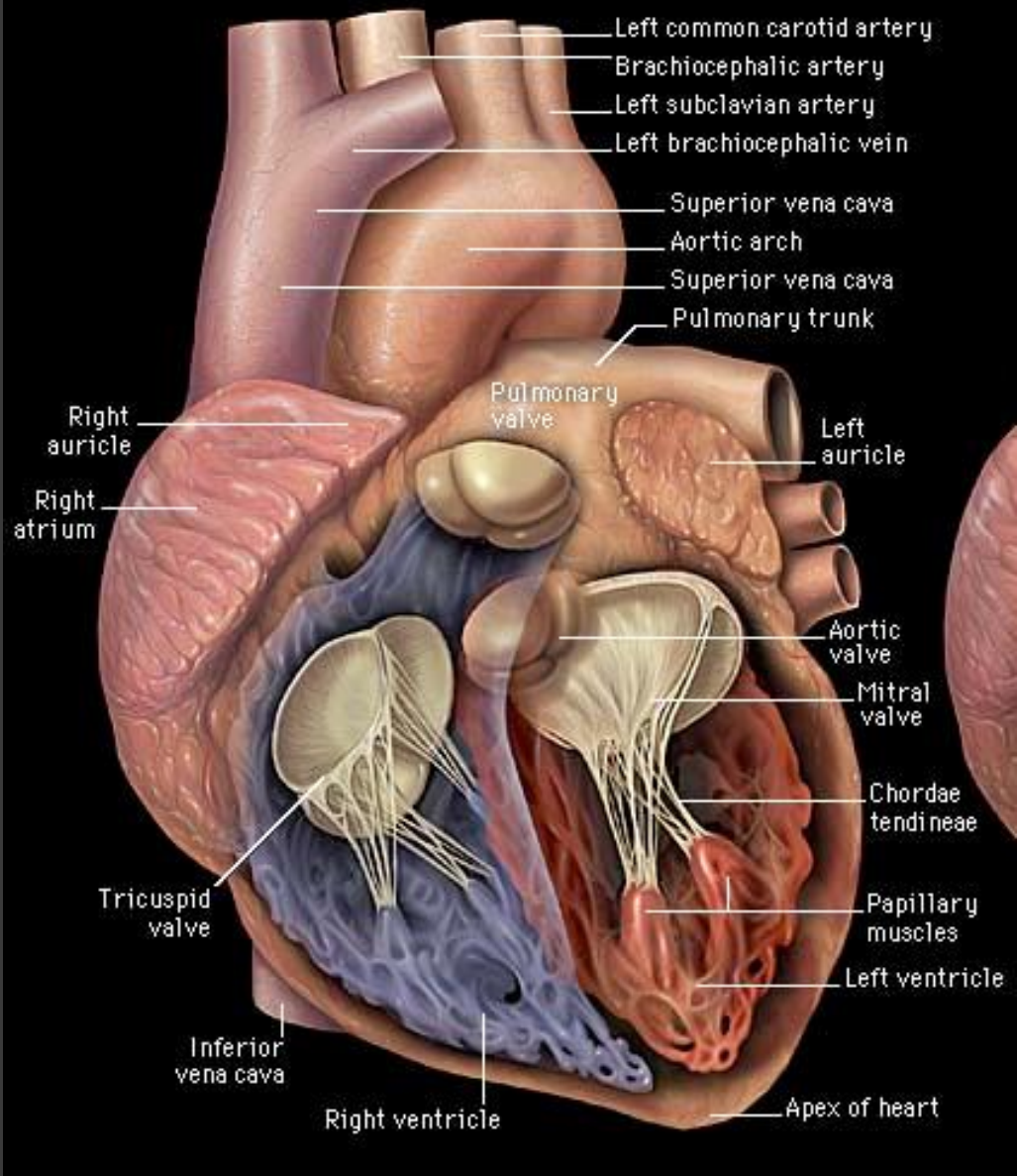


# Aortic Valve Disease: Role of TAVR

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# Disclosures

- None



The Chattanooga  
**Heart Institute**

† Memorial

# Aortic Valve Anatomy



# Aortic Valve Pathology

- Congenital: unicuspid, bicuspid, quadracuspid
- Infectious: endocarditis (bacterial or fungal), rheumatic fever, syphilitic
- Radiation
- Degenerative: Age related
- Aortic dissection: Marfan syndrome, trauma

# Clinical Evaluation

- **History**
  - Valve problem, murmur
  - Asymptomatic
  - Dyspnea or fatigue
- **PE**
  - Heart murmur
  - Carotid arteries

# Timing of Echocardiography

## Class I

1. TTE is recommended in the initial evaluation of patients with known or suspected VHD
2. TTE in patients with known VHD with any change in symptoms or physical examination findings.
3. Periodic monitoring with TTE in asymptomatic patients with known VHD at intervals depending on valve lesion, severity, ventricular size, and ventricular function.

# F/U Echocardiography

- Mild: 3-5 years
- Moderate: 1-2 years
- Severe: 6-12 months



# Considerations for Referral

- Moderate-to-severe or severe valve Dz
- Patients with symptoms thought to be related to valvular disease
- Consider earlier referral for patients with unexplained dyspnea and/or fatigue, LV dysfunction, LV or RV chamber enlargement

# Bicuspid Aortic Valve

- 1-2 % of population
- Some genetic component
- AS or AI
- Associated with coarctation and ascending aortic aneurysms
  - Serial testing for aorta  $> 4$  cm
  - Annual testing for aorta  $>4.5$  cm

# Aortic Insufficiency

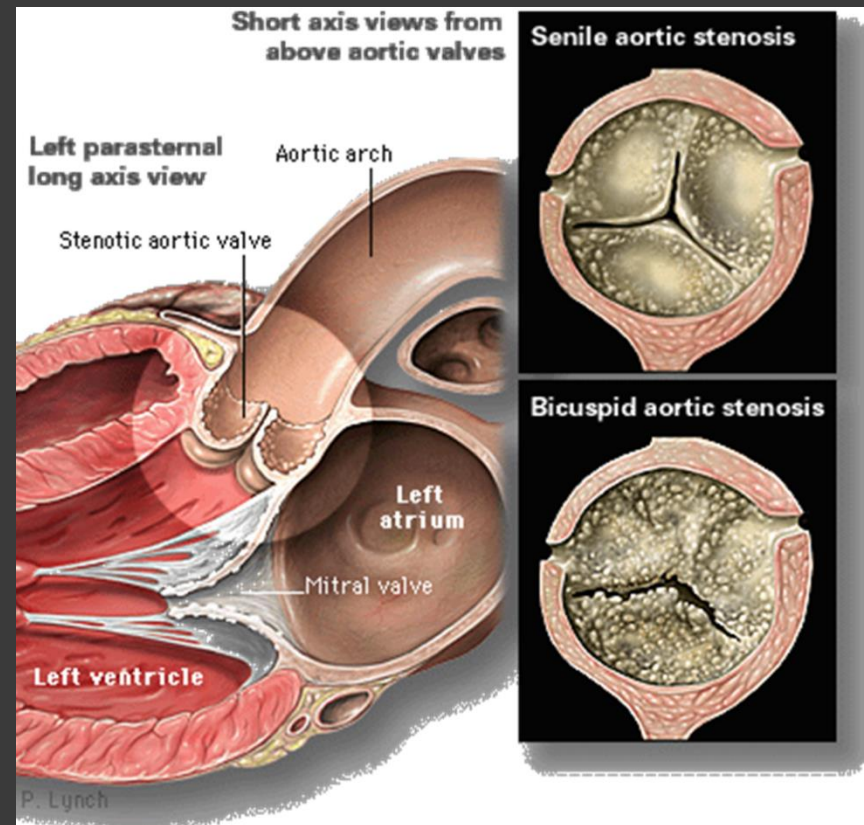
- May be caused by malfunction of the leaflets or by dilation of the aortic root.
- PE:
  - diastolic murmur,
  - pronounced carotid upstroke,
  - wide pulse pressure
- Volume overload » LV enlargement
- CHF symptoms

# Aortic Stenosis - Presentation

- Murmur
- Symptoms:
  - Angina
  - Dyspnea, CHF
  - Syncope
- Pressure overload » Hypertrophy
- Progressive  $\sim 0.1\text{cm}^2$  decline in AVA/year
- 50% Mortality if untreated 2-3 years

# Aortic Stenosis

- Age related (senile calcific) degenerative
  - 25% >65yr sclerosis
  - 7% >65yr Mod-Severe AS
- Congenital Bicuspid valve
- Normal AVA 3-4 cm<sup>2</sup>
- Severe AS  $\leq 1$  cm<sup>2</sup>



# Treatment

Indication Severe, symptomatic AS

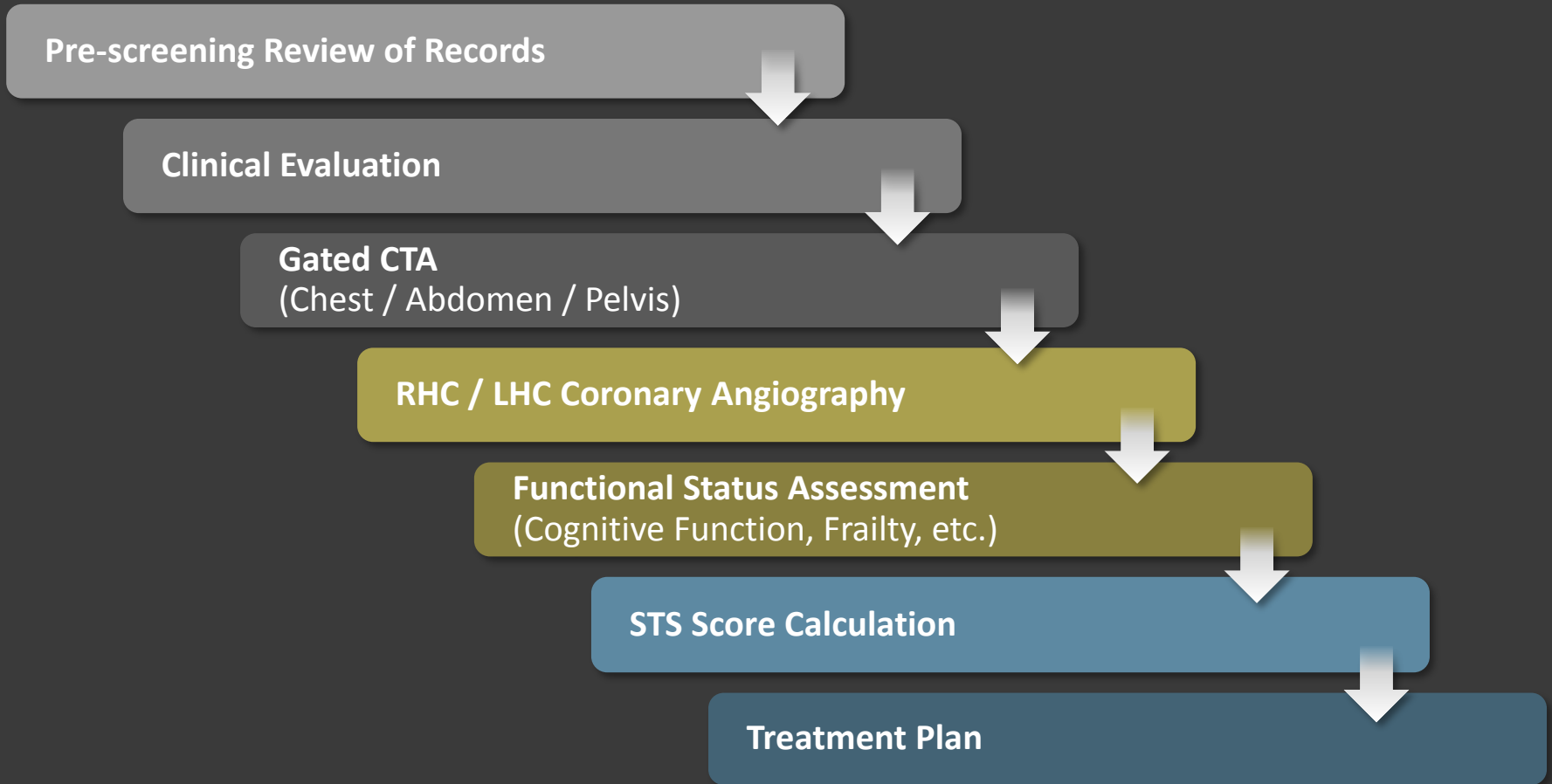
- Open AVR or SAVR vs TAVR
  - Operative mortality estimators
    - STS risk estimator
    - Euroscore

These do not take into account procedure specific problems (Porcelain aorta, chest wall radiation) nor Frailty

# Operative risk

- Predicted risk of mortality
  - <4% Low risk
  - 4 - 8% Intermediate risk
  - 8 - 15%% High Risk
  - >15% Extreme Risk

# TAVR Evaluation Pathway





# Decisions

- The Heart Valve Team
  - Multidisciplinary, collaborative group of caregivers, including interventional cardiologists, cardiovascular imaging specialists, cardiovascular surgeons, nurses, case managers, and physical therapist.
  - Team evaluates patient to recommend treatment.

# TAVR procedure



# CHI Experience

- Initial in 12/2011
- Total patients 357
  - Aortic 348
  - Mitral 9
- Age range 32 - 97, Average - 79

# Minimalist Approach

- Propofol anesthesia (MAC)
- Procedure time ~ 90 min
- Transfemoral access with closure device
- Awake in OR
- Fast Track: SSU 5<sup>th</sup> hour
- Average LOS 1.3 days
- 95% Discharged to Home

# TMVR

- Indication for failed mitral bioprosthesis
- Procedure
  - Access through femoral vein
  - Transseptal approach
- FDA approved fall 2017

# Take Home Points

- If there is a question about a heart valve problem, get an echo.
- Repeat echo as indicated.
- Refer earlier rather than later
- Call if there is a question.

Valve Coordinator 495-4327 (Heart)

# Thank You