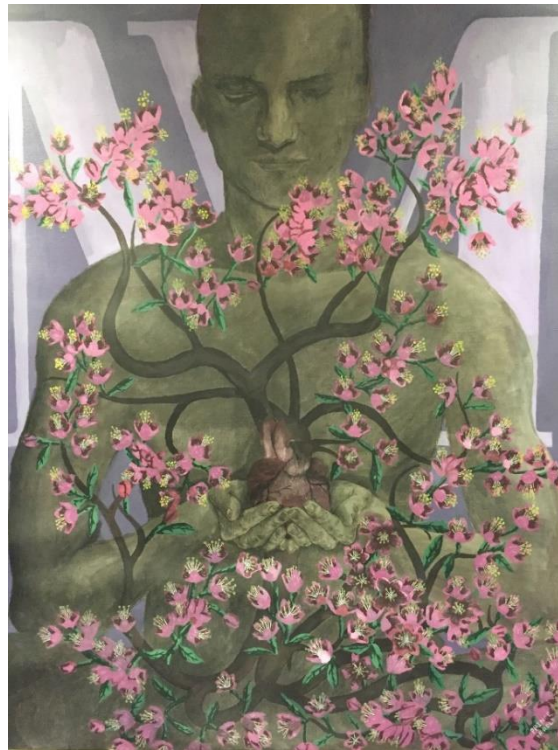


# Update on LAA Closure to Prevent Stroke in Patients with AF

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Northwestern University



Prince Herdle

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[@DrBradleyKnight](https://twitter.com/DrBradleyKnight)

## *Disclosure Information*

### **Bradley P. Knight MD**

#### **Consultant, Speaker, Investigator, Fellowship Support**

- Abbott
- Biosense Webster
- Biotronik
- Boston Scientific
- Medtronic
- SentreHeart

#### **Equity, Ownership, Stock, Employment**

- None

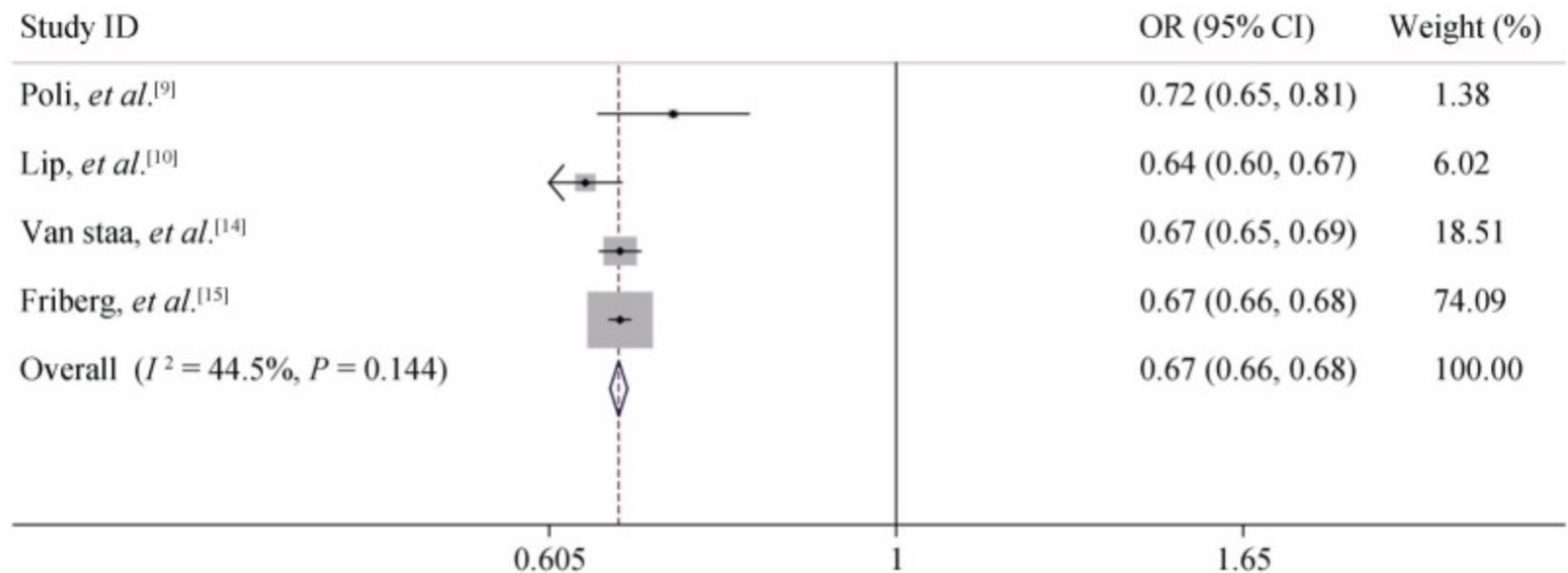
Annual Disclosures Available on

CMS Website: <https://openpaymentsdata.cms.gov/physician/>

NU Website: <https://www.feinberg.northwestern.edu/faculty-profiles/>

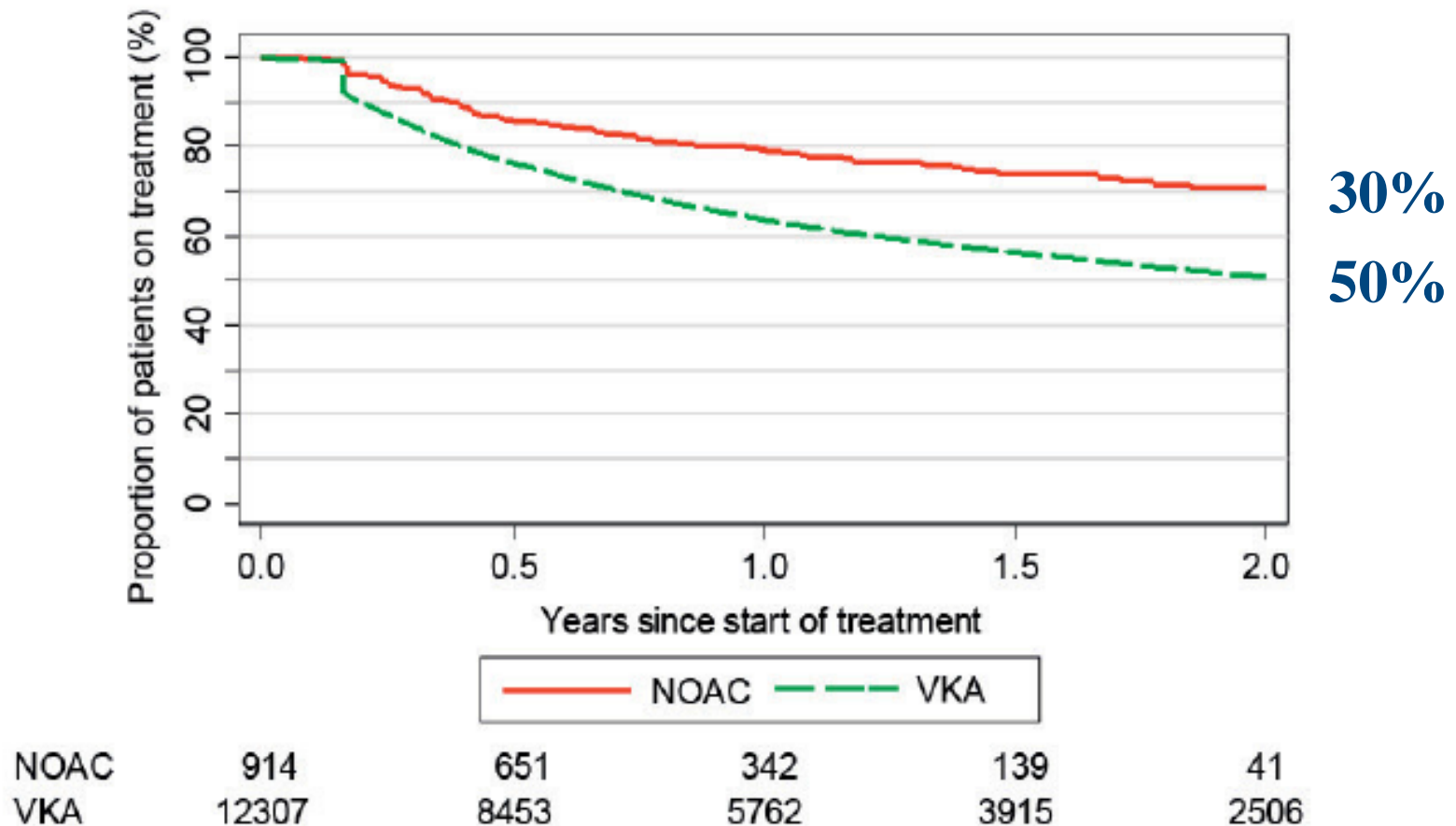


# Our Ability to Predict Which Patients with AF Will Have a Stroke is Poor



Meta-analysis of the C-statistic of CHA<sub>2</sub>DS<sub>2</sub>-VASc anticoagulation patients when analysed as a continuous variable.

# Discontinuation Rates for Warfarin and NOACs

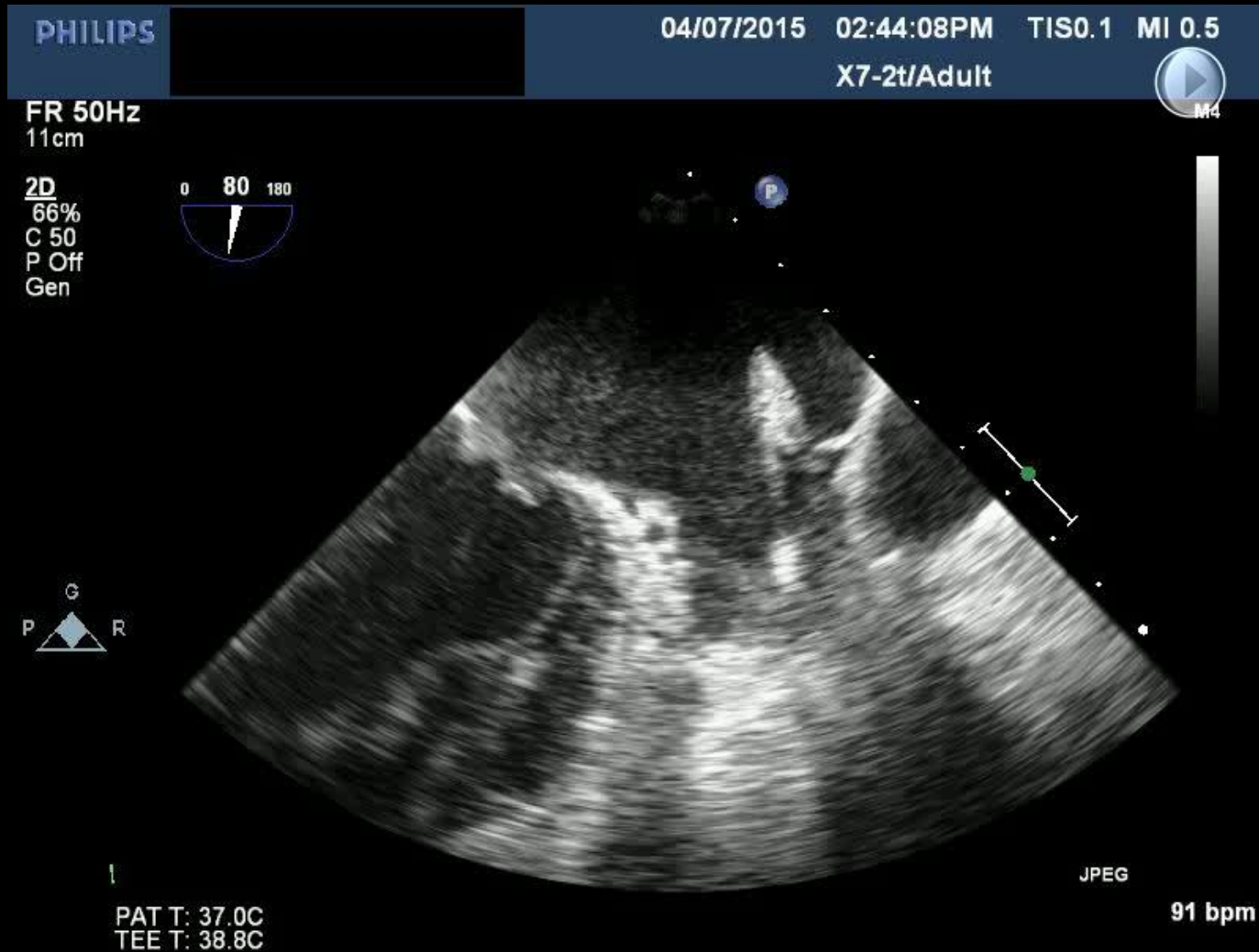


# Left Atrial Appendage

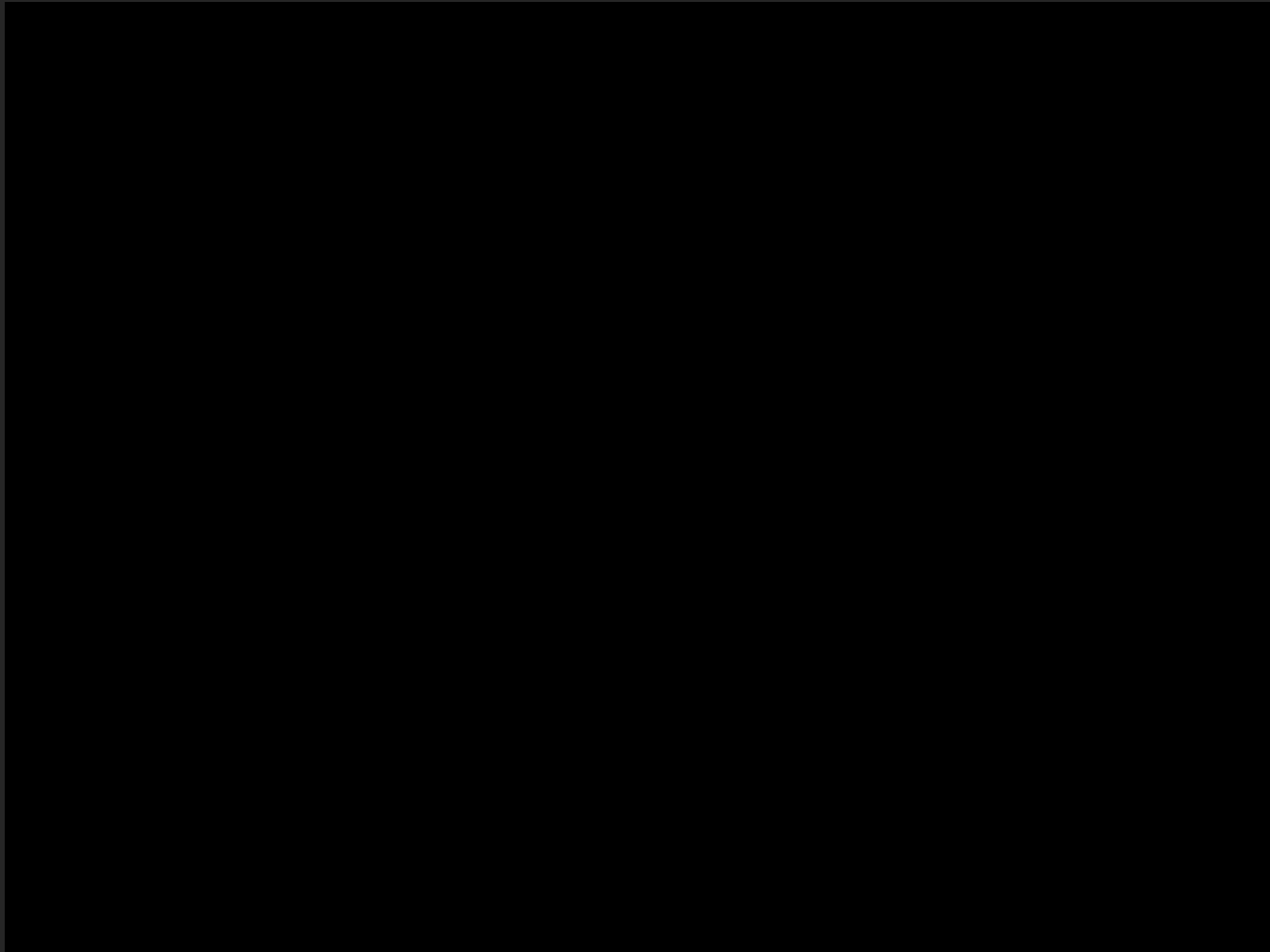




# TEE Showing LAA Clot

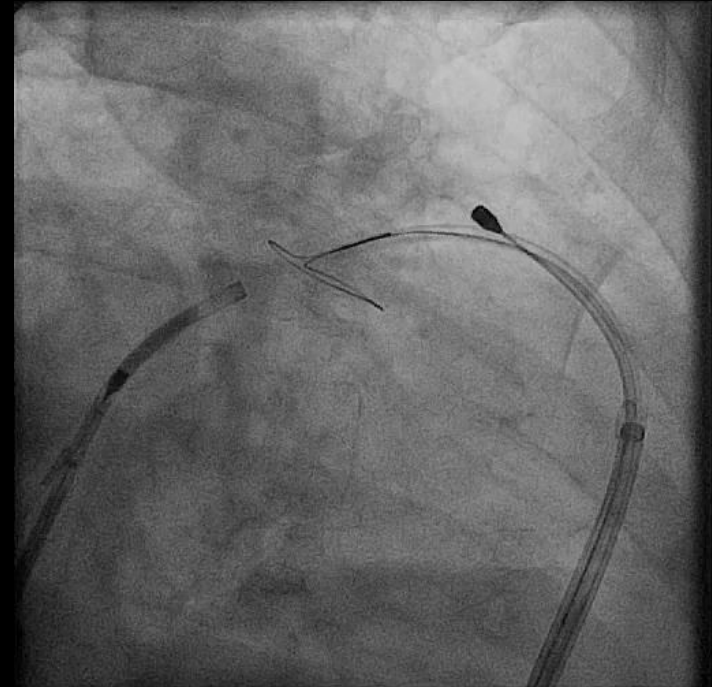
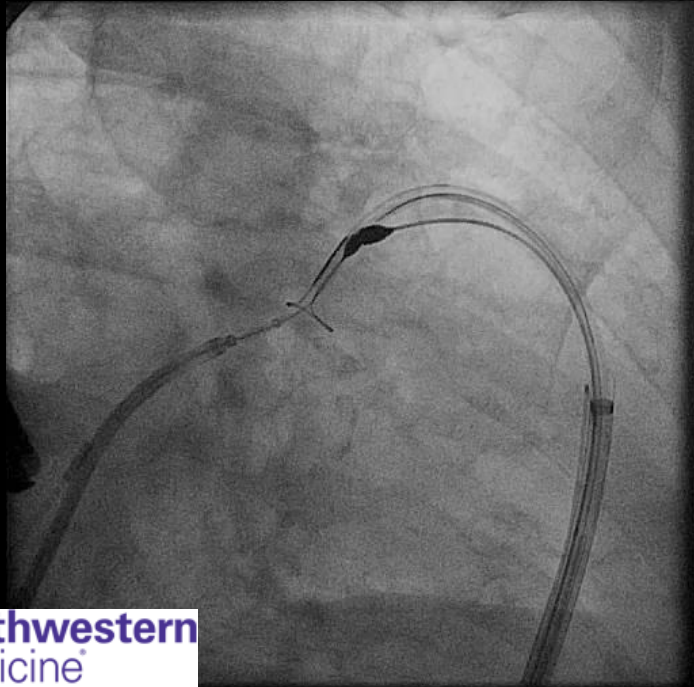
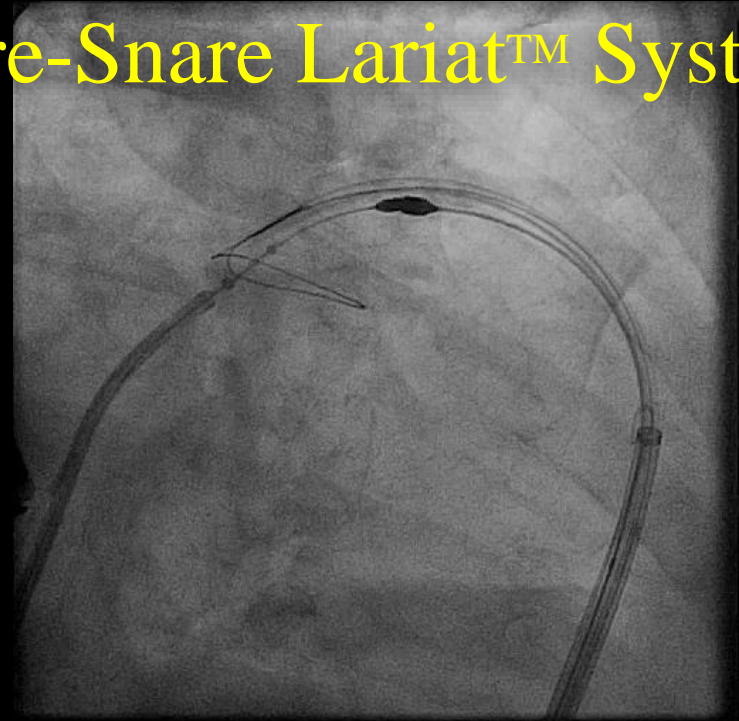
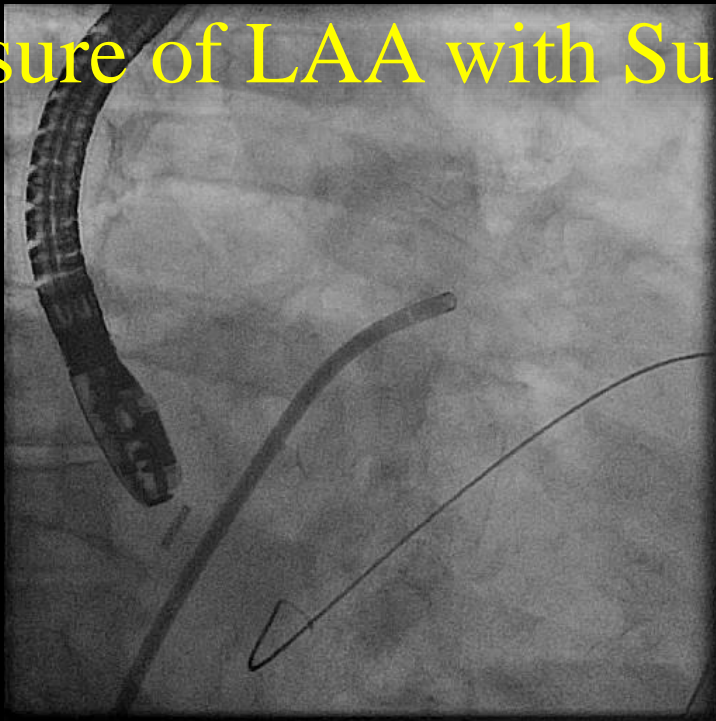


# Surgical Staple Removal of LAA



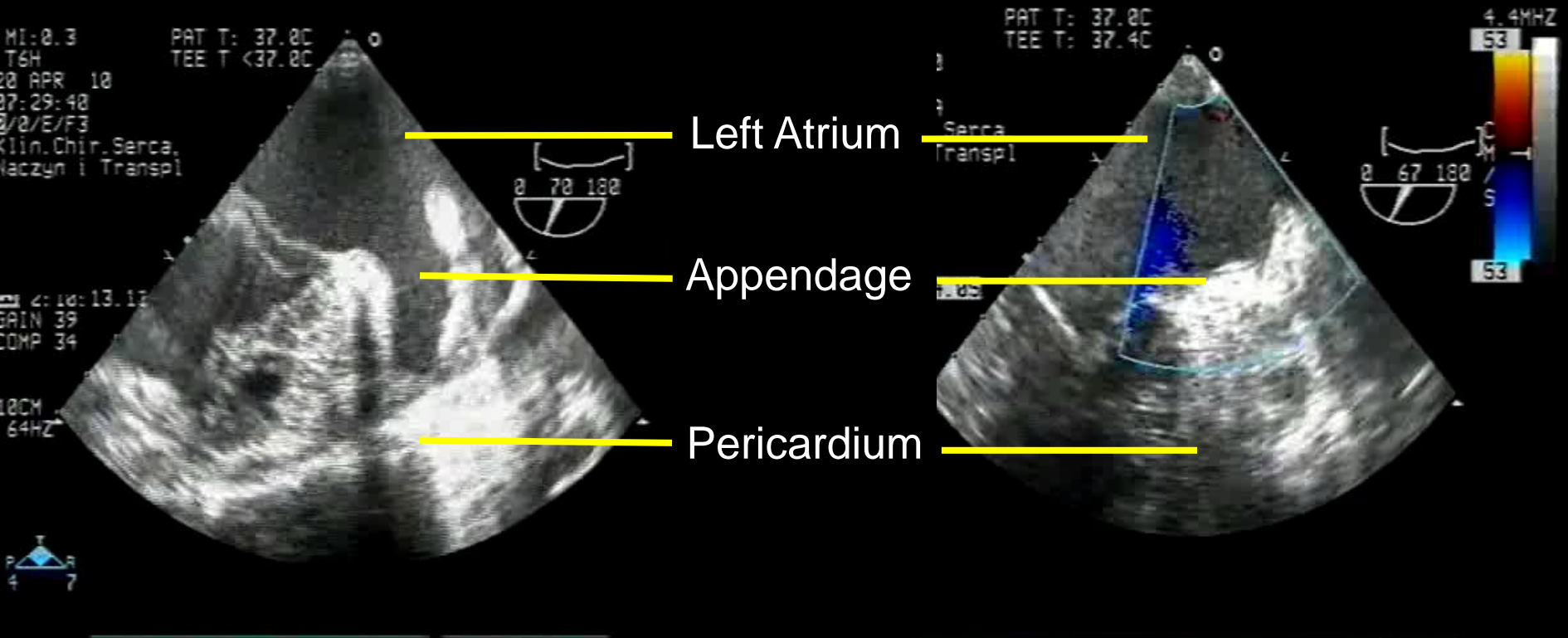


# Closure of LAA with Suture-Snare Lariat™ System

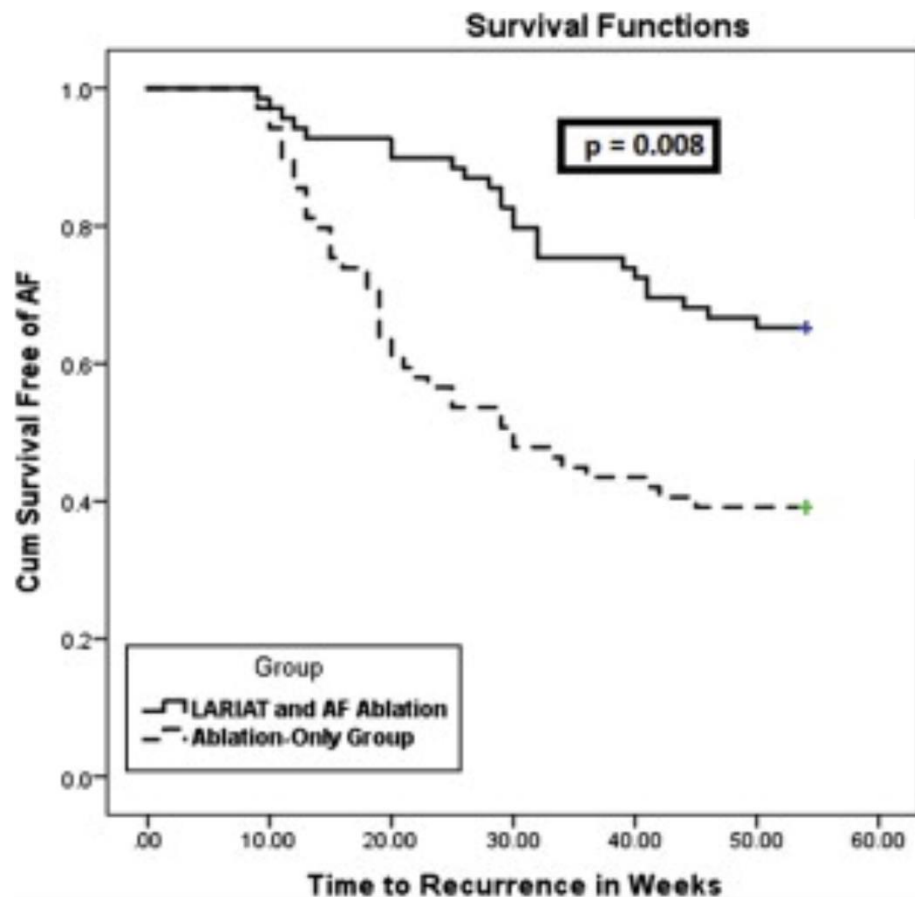


Before

After



# Left Atrial Appendage Ligation and Ablation for Persistent Atrial Fibrillation: The LAALA-AF Registry



**amaze**

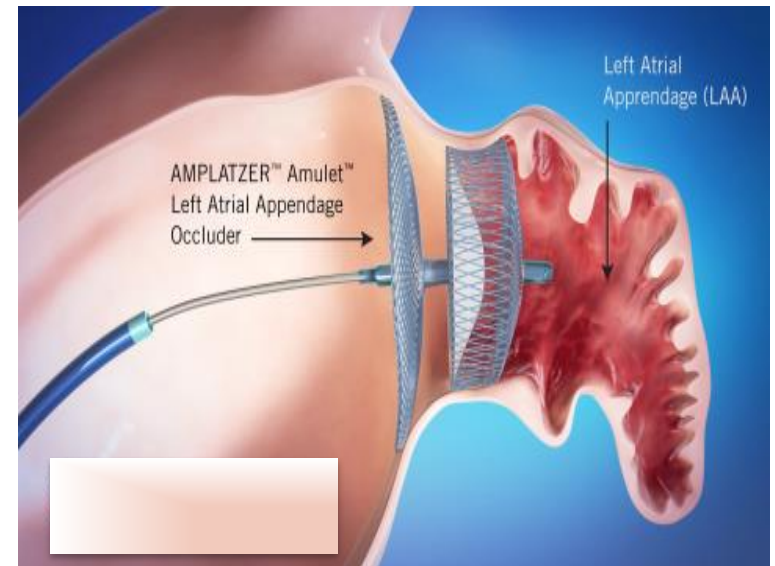
**aMAZE TRIAL:** Left Atrial Appendage Ligation with the LARIAT® Suture Delivery System as Adjunctive Therapy to Pulmonary Vein Isolation (PVI) for Persistent or Longstanding Persistent Atrial Fibrillation

# Percutaneous LAA Transcatheter Plug Options

Watchman Device  
FDA-Approved  
ASA + Warfarin 45 days  
DAPT 6 months

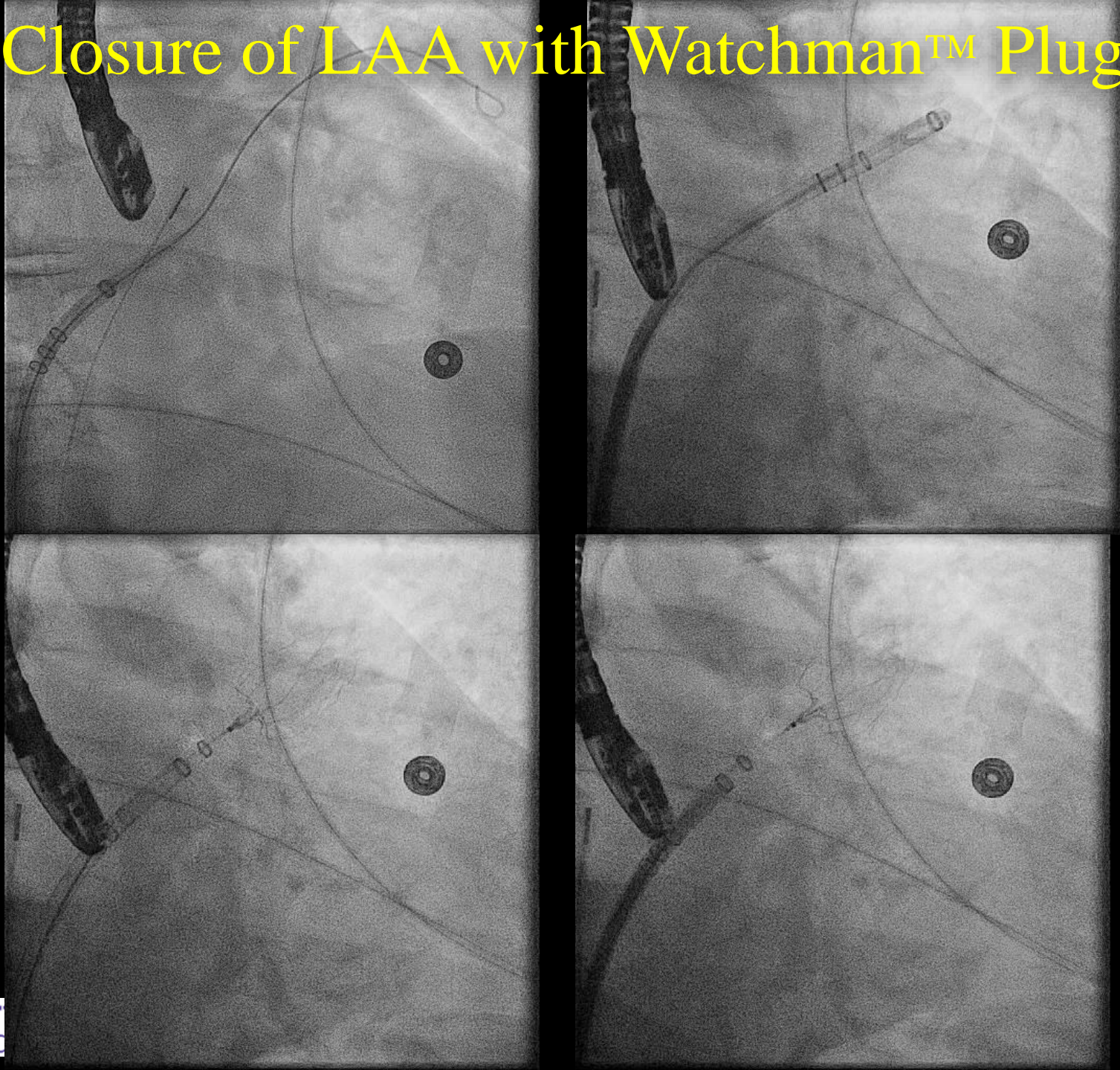


Amulet Device  
Investigational  
DAPT only





# Closure of LAA with Watchman™ Plug

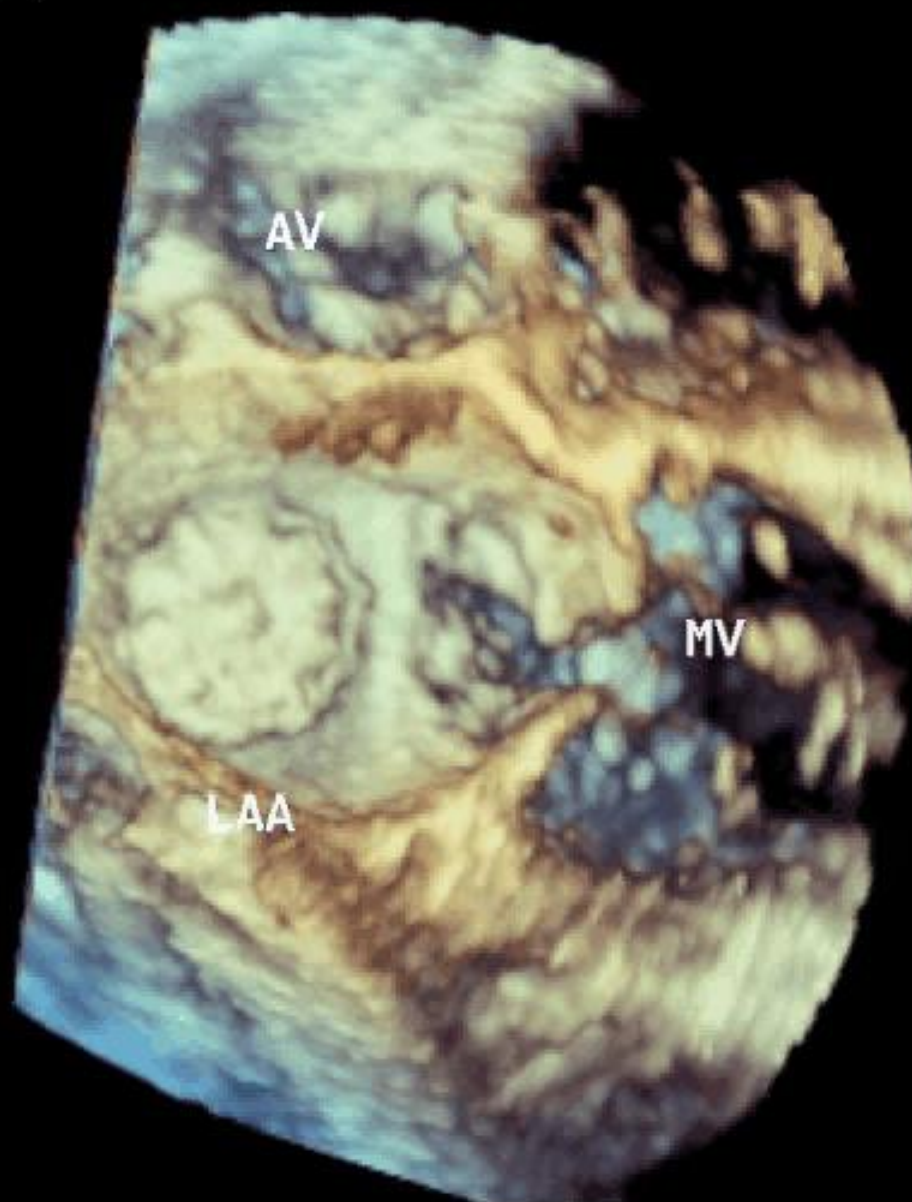
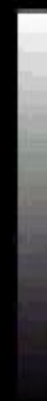


FR 6Hz  
8.4cm

3D Beats 1

M4

3D  
3D 4%  
3D 40dB

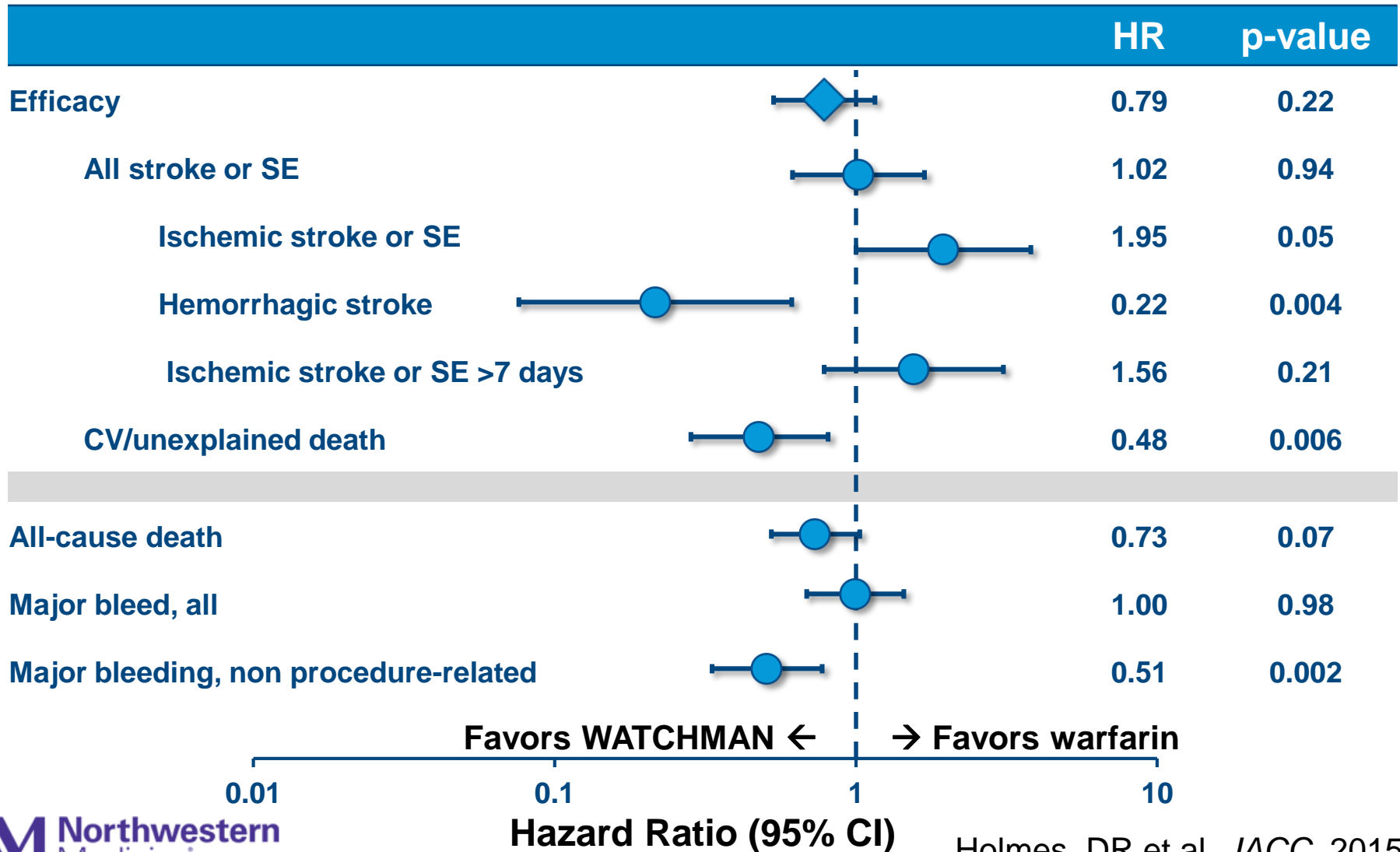


JPEG

126 bpm

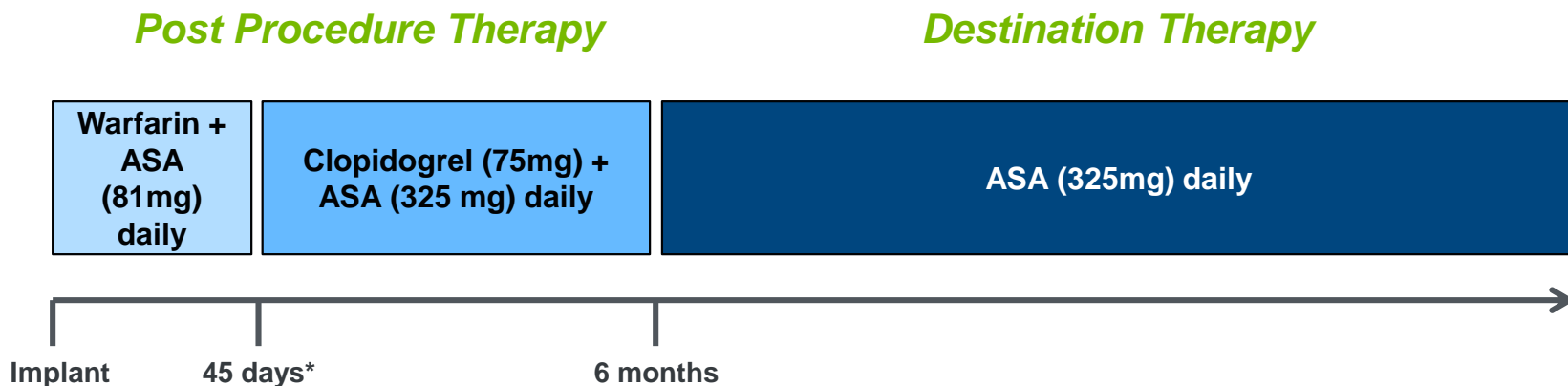


# PROTECT AF/PREVAIL Meta-Analysis: WATCHMAN Mortality and Bleeding Reduction Comparable to Warfarin





# Timeline of Adjunctive Pharmacotherapy in WATCHMAN Device Patients



\*if leak >5mm, patients remained on warfarin + ASA until seal documented, skipping the clopidogrel + ASA pharmacotherapy

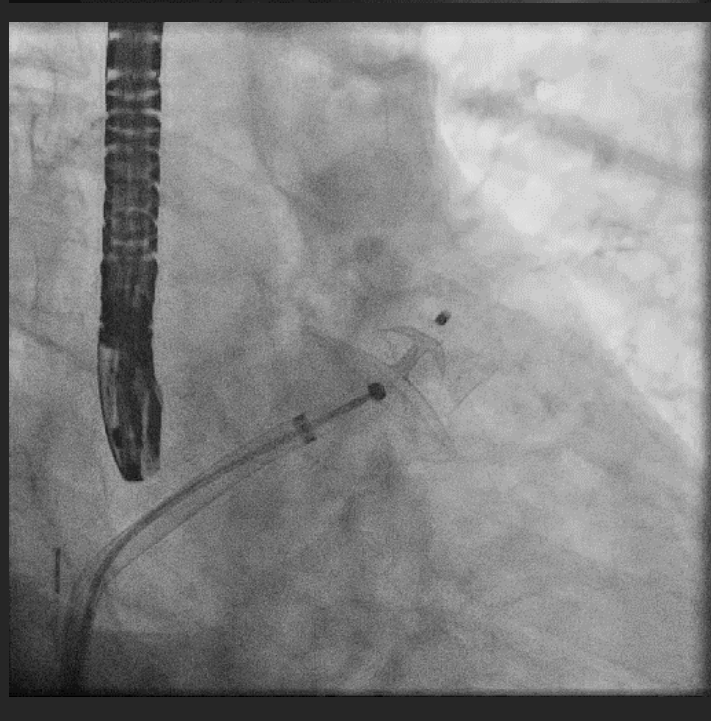
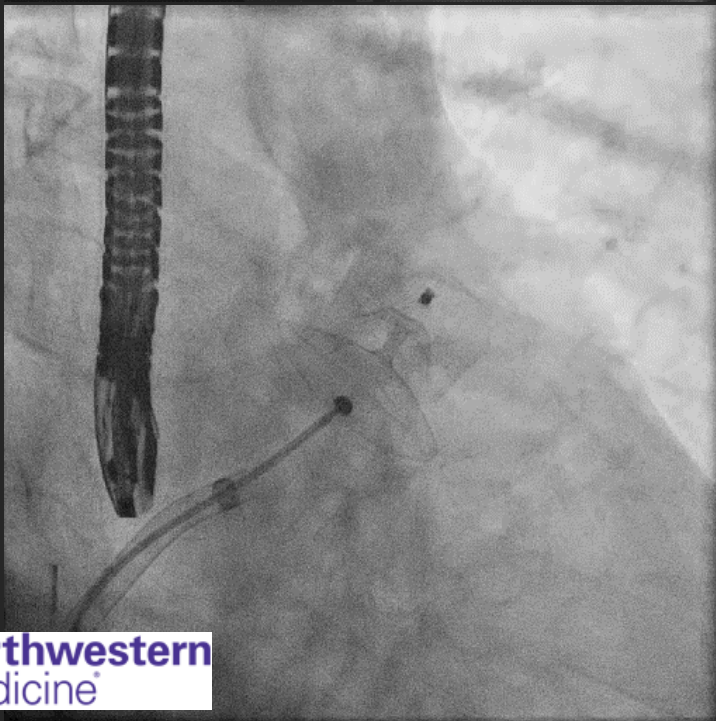
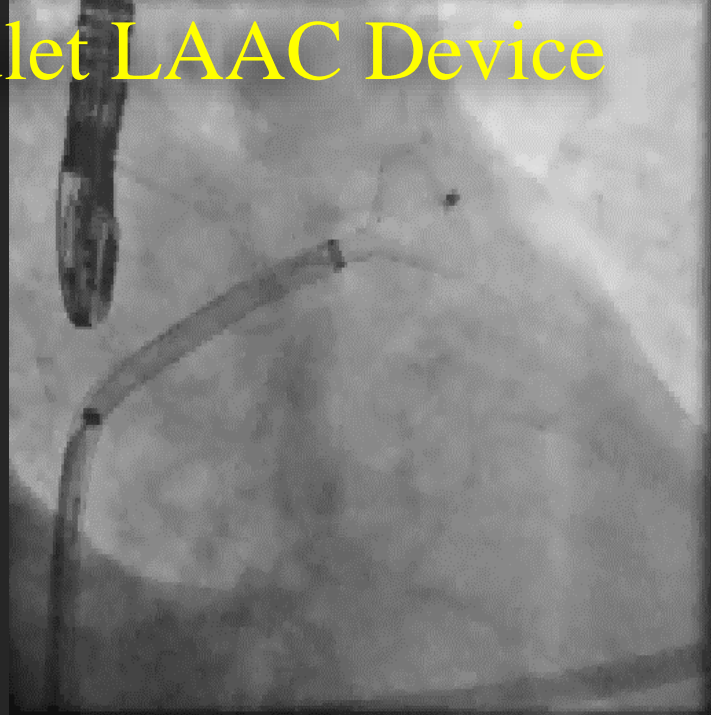
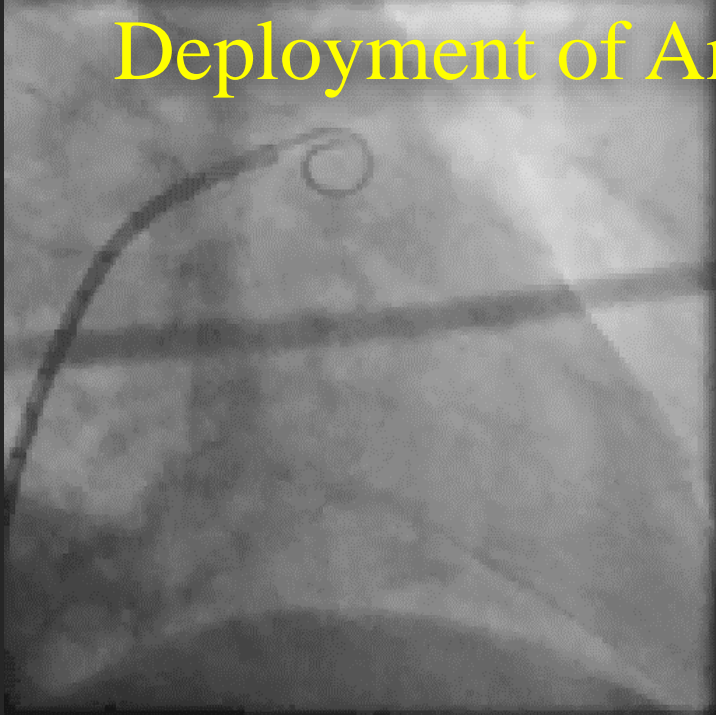
# CMS National Coverage Decision Criteria for LAAC Coverage

CMS will cover percutaneous LAAC implants when specific criteria are met:

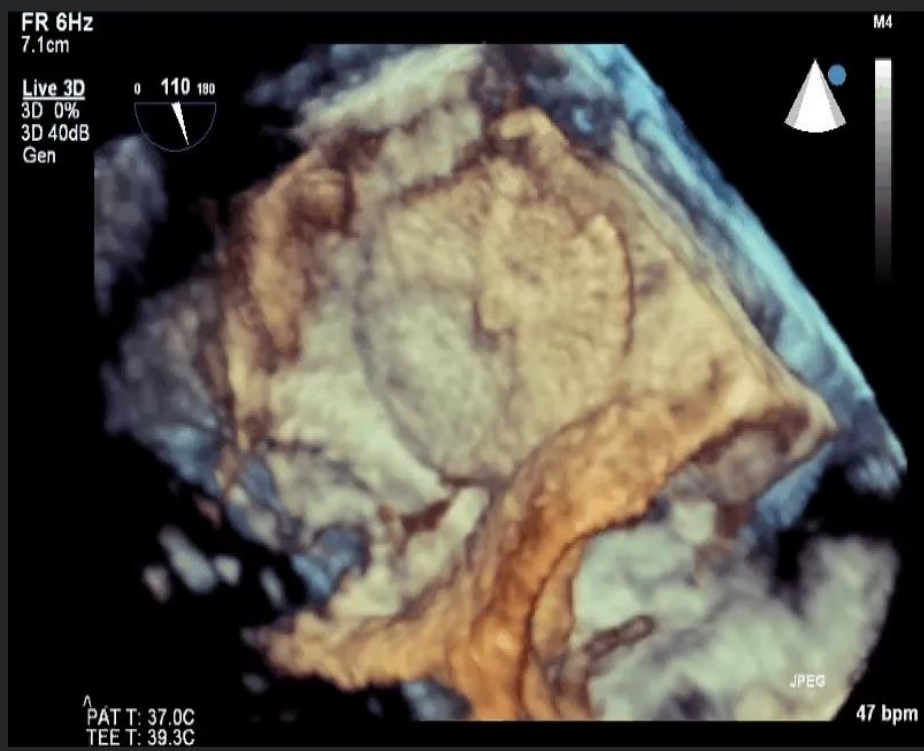
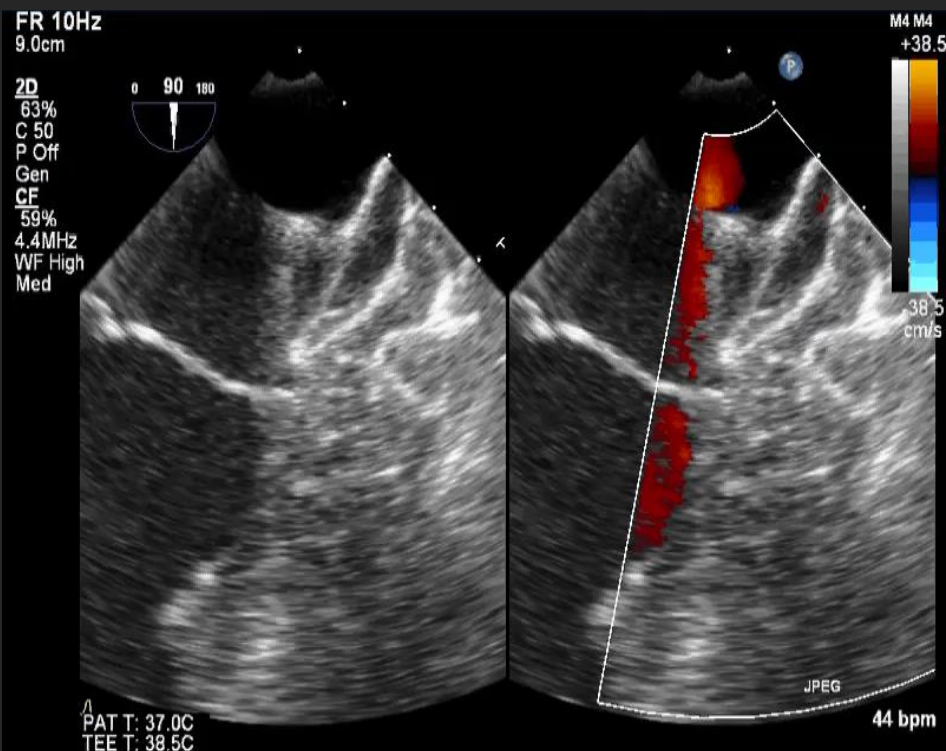
Documented in  
medical record

- Eligible patients must have a CHADS<sub>2</sub> score  $\geq 2$  or a **CHA<sub>2</sub>DS<sub>2</sub>-VASc score  $\geq 3$**
- Patients must be **suitable for short-term warfarin**, but deemed **unable to take long-term oral anticoagulation**
- **Documented evidence of a formal shared decision interaction between the patient and an independent non-interventional physician** using an OAC evidence-based decision tool
- *LAA Registry*: Patients must be enrolled in a prospective national registry
- *Operator requirements*: IC or EP or cardiovascular surgeon must have performed at least 25 transseptal punctures (TSP) through intact septum
  - Must maintain at least 25 TSP over a two year period (at least 12 are LAAC)
- *Facility Requirements*: The procedure must be furnished in a hospital with an established structural heart disease (SHD) and/or electrophysiology (EP) program

# Deployment of Amulet LAAC Device



# Testing Seal of Amulet LAAC Device



# LAAC Case Presentation

- 72 y/o man with HTN, CAD, MR, AF/AFL
  - s/p CABG/MVR/Maze/LAA oversewn 2007
  - s/p successful CTI RFA 2014
  - Known incomplete closure of LAA (0.9cm)
- Recurrent AF and atypical flutter
- CHADS2Vasc=3
- Recurrent GI bleeds on warfarin:
  - 3 required transfusion in 2017



PHILIPS

05/16/2018

12:25:07PM

TIS0.1

MI 0.5

RH

X7-2t/Adult

FR 52Hz

12cm

M4

2D

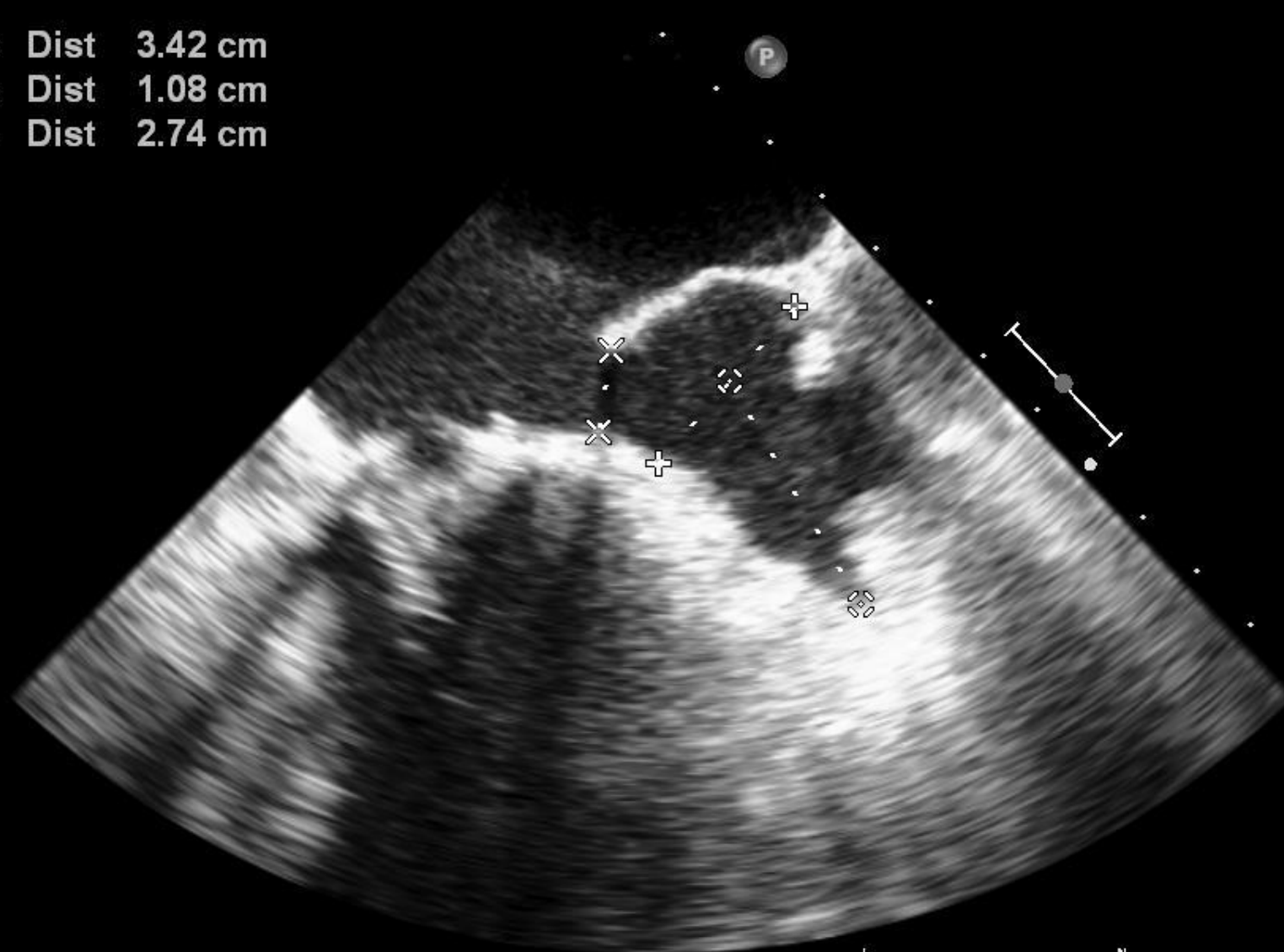
69%

C 50

P Off

Gen

⊗ Dist 3.42 cm  
× Dist 1.08 cm  
+ Dist 2.74 cm



PAT T: 37.0C

TEE T: 38.0C

\*\*\*bpm

PHILIPS

05/16/2018

12:25:47PM

TIS0.1

MI 0.5

RH

X7-2t/Adult

FR 52Hz

12cm

M4

2D

69%

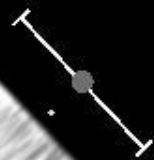
C 50

P Off

Gen

× Dist 3.58 cm

+ Dist 2.09 cm



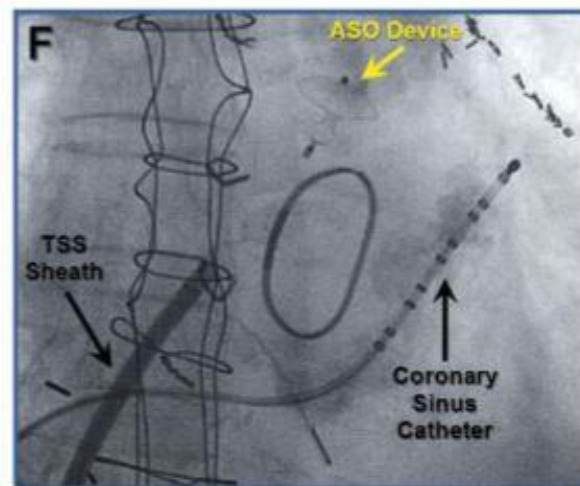
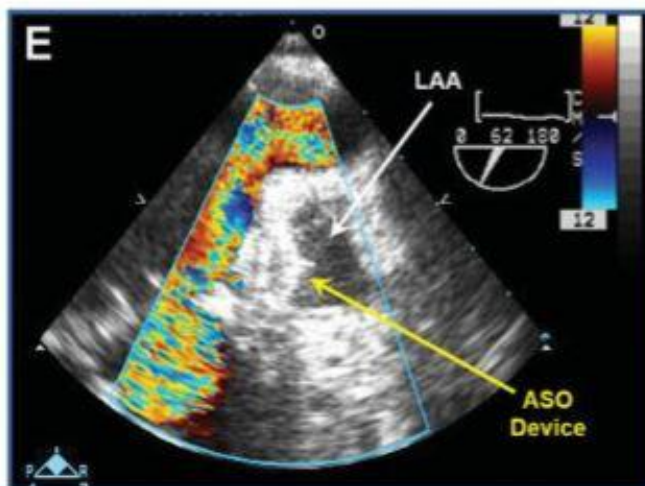
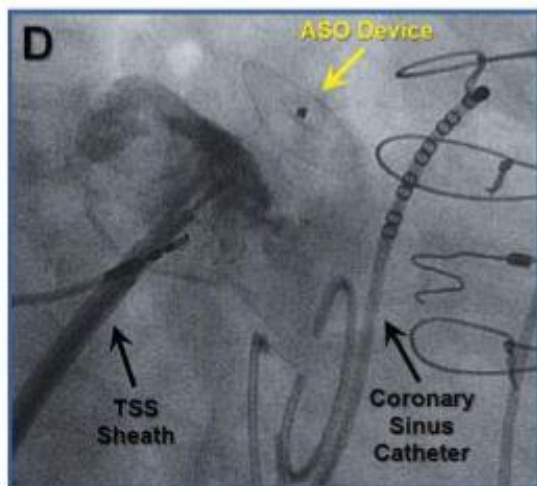
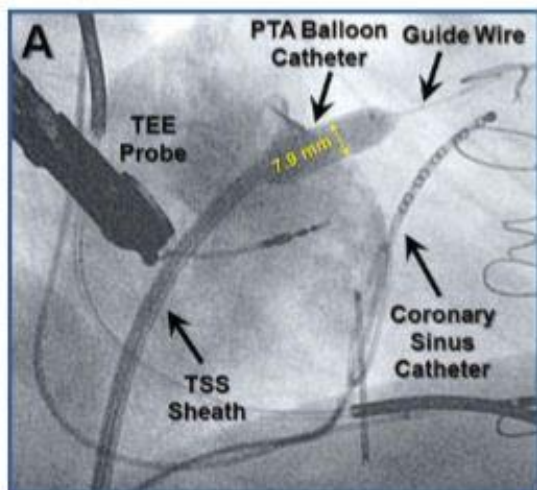
PAT T: 37.0C

TEE T: 37.8C

\*\*\*bpm



Aryana et al. Percutaneous Endocardial Occlusion of ISLL  
JCE 2013

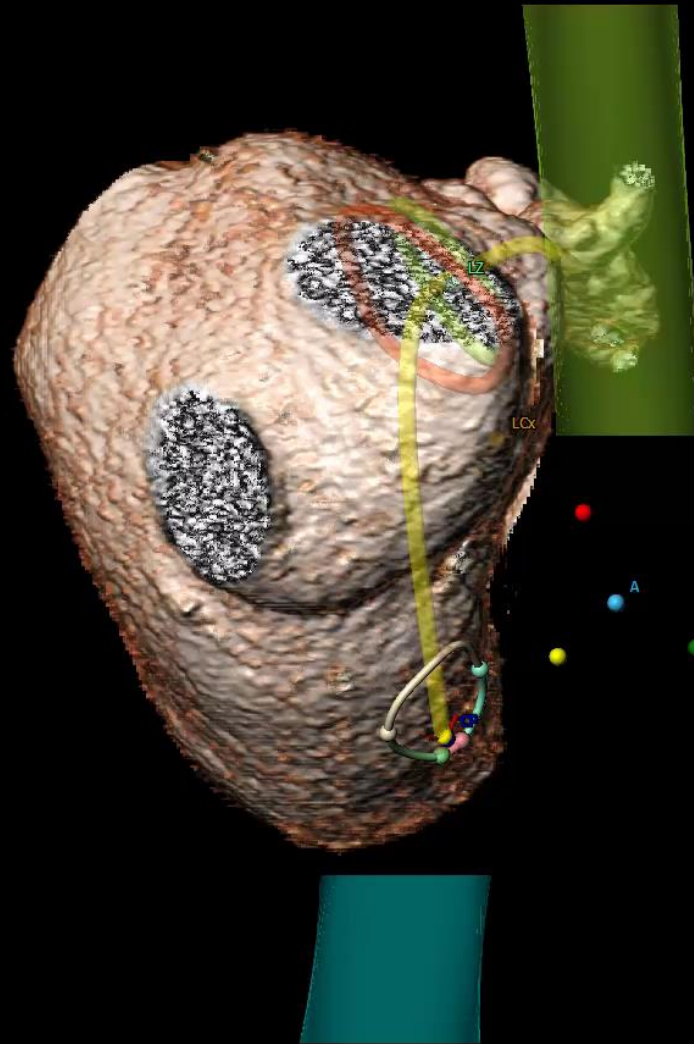


# LAA 3-D Reconstruction

ITM18253485 CT Pt  
1/1/1924  
-  
RAO: 90°  
Caudal: 0°

Segmentation only

BestDiast 70 %  
1/1/2018  
Phase: 70.0%

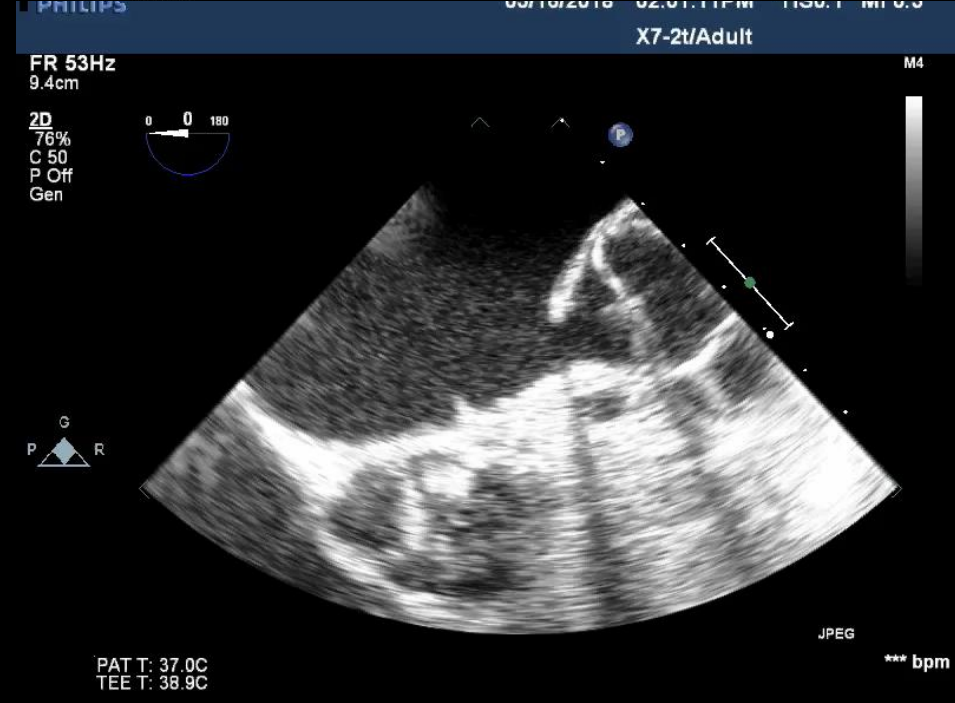
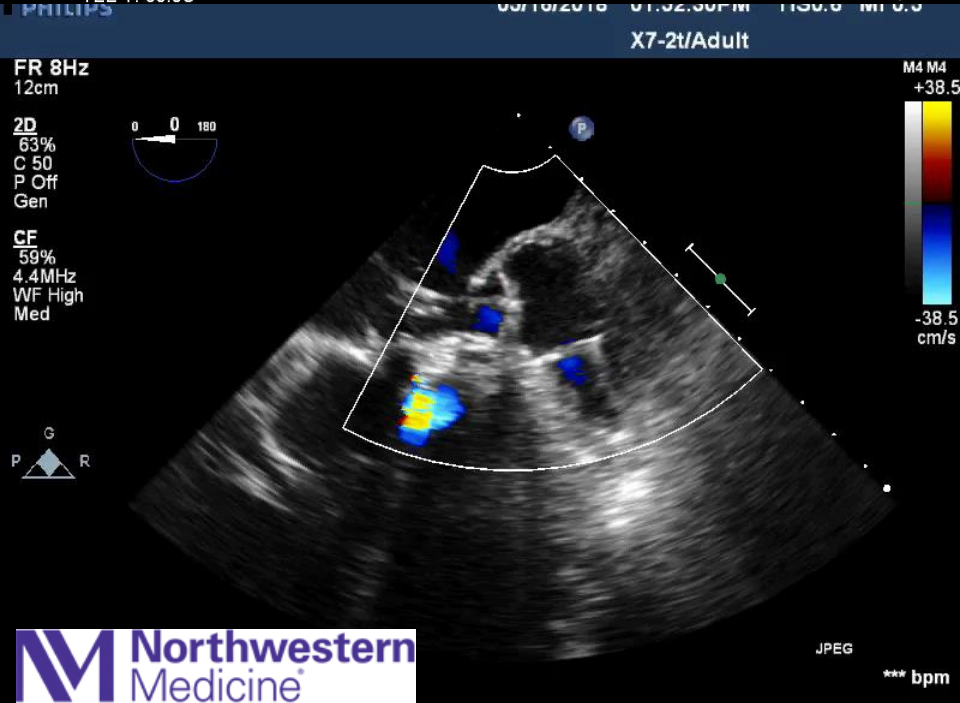
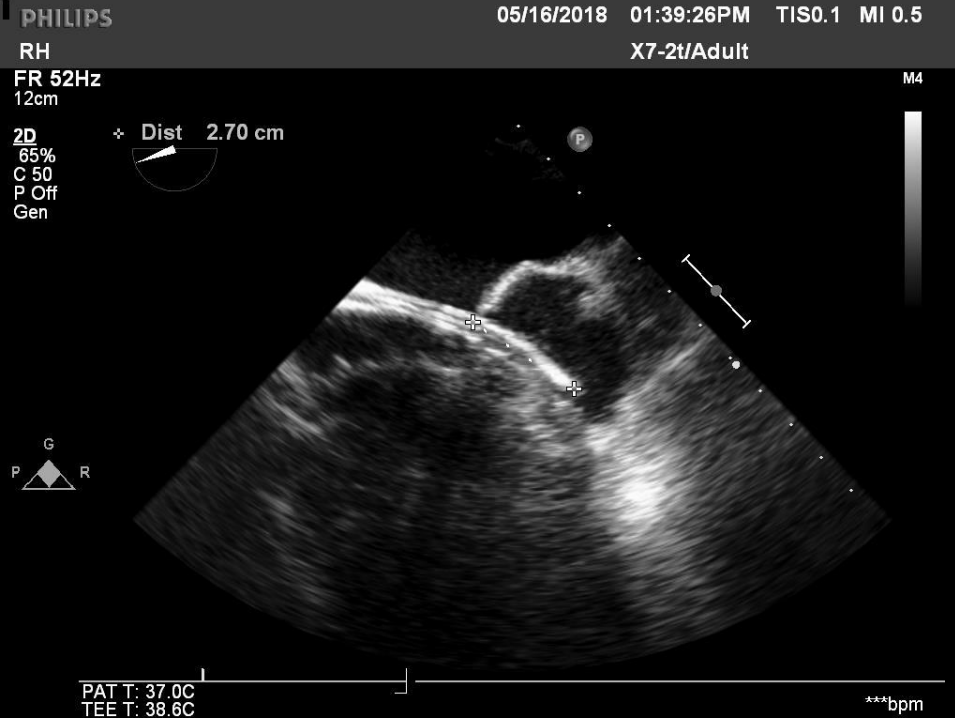


Series: 0  
Slices: 1-444  
Slice Spacing: 0.4 mm

Slice Spacing: 0.4 mm

**M** Northwestern  
Medicine





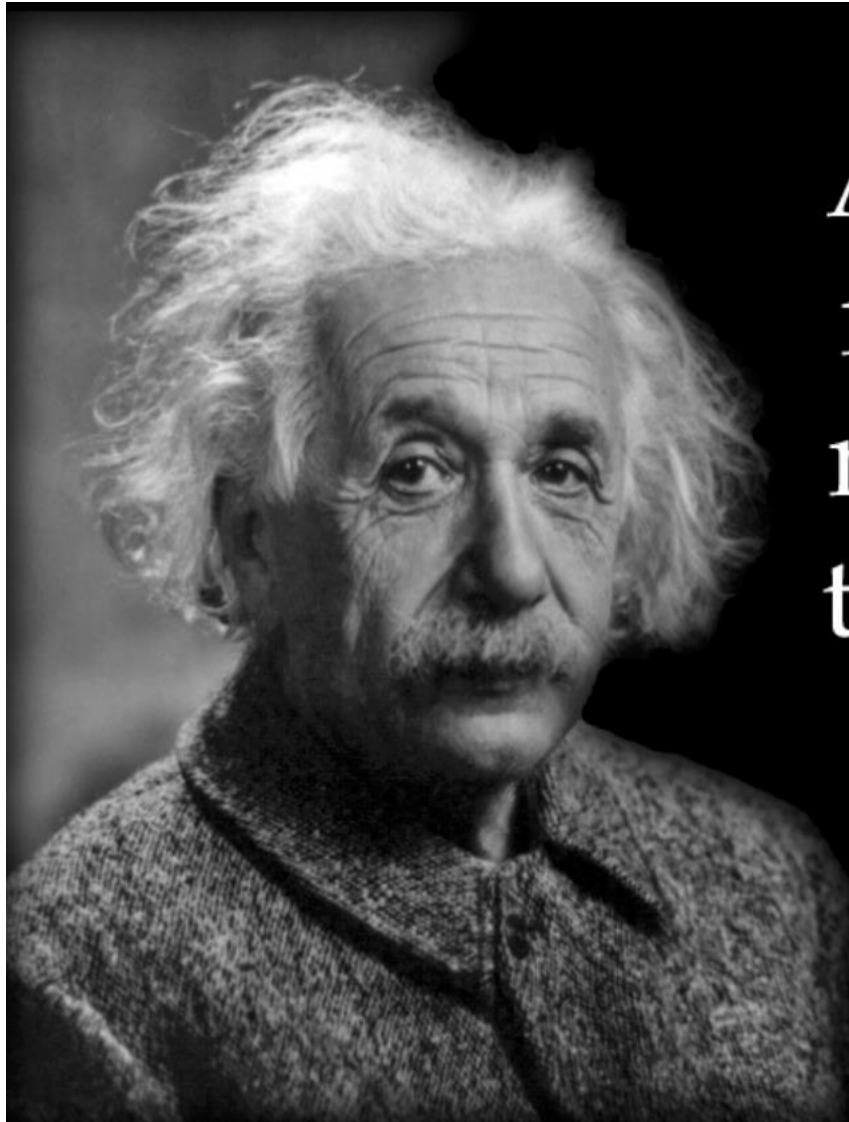
# LAAO: Future Directions

- Procedural Safety/Experience
- Alternative devices
- Comparison to NOACs
- Need for post-procedure OAC (ASAP2)
- Replace TEE with ICE to avoid GA
- Options for patients with LAA clot

**ERRORS  
OF  
OMISSION**

**ERRORS  
OF  
COMMISSION**





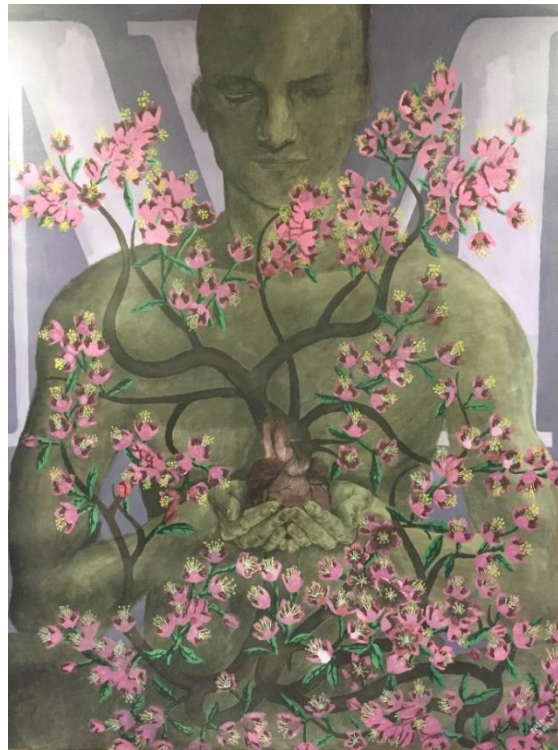
A person who  
never made a  
mistake never  
tried anything  
new

- Albert Einstein-

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