

# Technical Features of Afib Ablation: Is Anything Standard, and What Procedural Features Must a Registry Capture?

*Imaging*  
*- An Academic View -*

Hugh Calkins MD  
Professor of Medicine  
Director of Electrophysiology  
Johns Hopkins Medical Institutions

- Dr Calkins has been a paid consultant and/or received honoraria or research support from Biosense Webster, Boston Scientific, CryoCor, Medtronic, St Jude Medical, and AblationFrontiers.

# **Background / Overview**

## **- Imaging -**

- **AF ablation procedures are highly dependent on imaging.**
- **Imaging plays a role prior to, during, and following ablation.**
- **Many different imaging modalities are available.**
- **Imaging tools may add cost.**
- **The incremental value of, and cost effectiveness of these imaging modalities remains largely unexplored.**
- **A registry must capture technical details regarding the type and results of monitoring that is performed.**

# Pre Procedure Imaging

## Standard:

- 2-d echocardiography

## Optional:

- Transesophageal echocardiogram
- CT, MR, or rotational angiography

## Novel:

- MR imaging of scar

# Intra Procedure Imaging

## Standard:

- fluoroscopy

## Optional:

- pulmonary vein venography
- barium esophageal swallow
- intracardiac ultrasound
- electroanatomic mapping
- image integration

## Novel:

- real time MR imaging

# Post Procedure Imaging

## Standard:

- None

## Optional:

- 2d echo to r/o effusion
- MR/CT imaging to r/o PV stenosis

## Novel:

- MR imaging of scar / lesion creation

# Procedure Imaging - proposed variables -

**CT scan:** date, LA volume, PV anatomy

**Echocardiography:** date, type (2-d, TEE, ICE),  
LA size, EF, valve disease

**Electroanatomic Mapping:** system, image integration

**Fluoroscopy:** biplane /single plane, fluoroscopy  
barium swallow, PV venography

**MR Imaging:** date, LA volume, PV anatomy,  
scar distribution / lesion completeness

**Thank You**