

# LAAC CT ACQUISITION REFERENCE GUIDE



Recent studies have highlighted the benefits of pre-procedural cardiac CT planning for LAAC, including more accurate sizing, device selection accuracy, improved procedure time and predicting optimal fluoroscopic angles.<sup>1-5</sup> This guide provides a summary of the recommendations to obtain quality CT images for LAAC planning<sup>6-8</sup> and is not intended to supersede established institutional guidelines.



## CT Scanner Requirements

- Minimum 64-slice
- 128+ slice scanner recommended to increase image quality and minimize radiation exposure
- Equipped with cardiac package capable of prospective and retrospective gating



## Patient Preparation

- Non-fasting and maintain normal fluid intake
- Avoid caffeine and nicotine
- Drink a glass of water just prior to scan
- Familiarize patient with procedure and breath holding to ensure cooperation and image quality
- 16-18 gauge intravenous needle in antecubital vein (right AC preferable)



## Contrast Injection Considerations

- Contrast media of 350 mg/mL Iodine is recommended
- Total contrast volume 40-100 mL depending on scanner capabilities, patient size and renal function
- Dual head power injector recommended and the use of a saline bolus
- Contrast injection (5-6 mL/sec) followed by 40-60 mL saline at same injection rate is recommended
- Triphasic injection of contrast, followed by diluted contrast (at 20-30% contrast) and finally a saline bolus is recommended for additional right-heart chamber and septal opacification



## Acquisition Technique

- Use topogram to adjust scanning region from top of carina to the diaphragm (12-16 cm)
- Bolus tracking recommended with ROI placed in the ascending aorta or descending aorta
  - ROI in left atrium when using lower contrast dose
- CT tube voltage should be 80-120 kVp according to patient size
- Tube current (mA) should be adjusted according to patient size in accordance with scanner recommendation and radiation dose reduction options
- Choosing iterative reconstruction options can improve image quality while reducing tube voltage and current
- Prospective gating covering a minimum 30-60% of the R-R interval is recommended to minimize radiation exposure
  - If using retrospective gating (RG), use ECG tube current modulation with higher current during 30-60% of R-R interval
  - RG is less sensitive to cardiac arrhythmia artifacts and allows for ECG-gating correction during reconstruction
- Slice thickness should be 0.5-1.0 mm



## Delayed Acquisition for Thrombus Rule Out

- Delayed imaging is recommended for thrombus exclusion if there is suspected/risk of thrombus OR if a filling defect is observed on the initial scan
- The delayed scan should be performed about 30-60 seconds after the previous contrast injection (dependent on scanner type)
- Same scan technique as initial scan but with NO additional contrast injection is recommended
- Scan region can be minimized to region of LAA to further reduce radiation exposure
- Tube voltage may be lowered to enhance previously injected contrast and reduce radiation dose to patient
- Choosing iterative reconstruction options can improve image quality while reducing tube voltage and current

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## References

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