



HTM MIXER

MD EXPO



DENVER, CO | MAY 15-16, 2025

denver.htmmixer.com

2025 HTM Mixer



Cath Lab 101

Presented by Brian Wilson, CBET, CRES.

Cath Labs

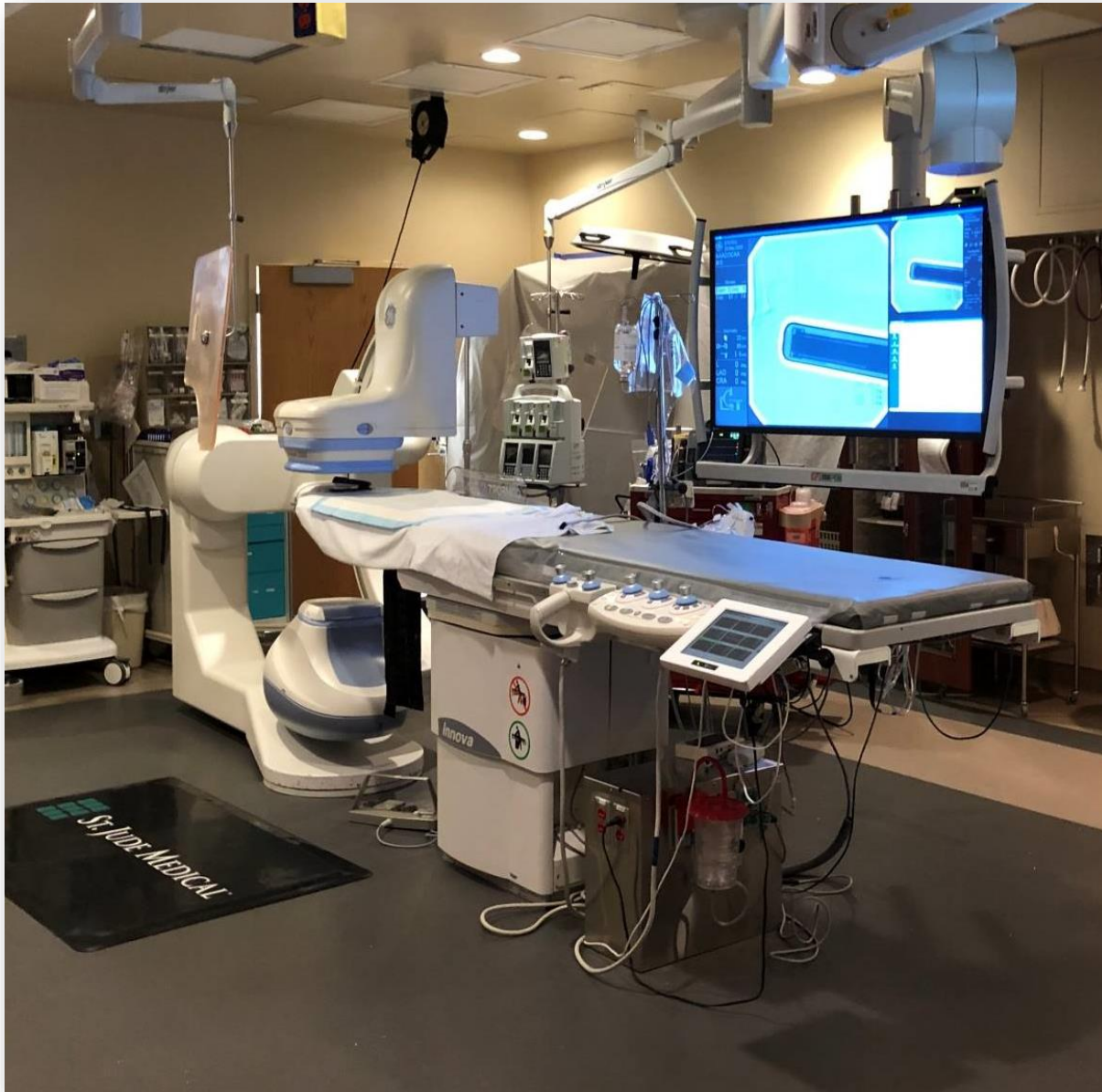
Catheterization Laboratory.

Originally conceived in the 1950's as an experimental way to use flexible catheters and fluoroscopy to access parts of the body without using invasive surgical procedures.

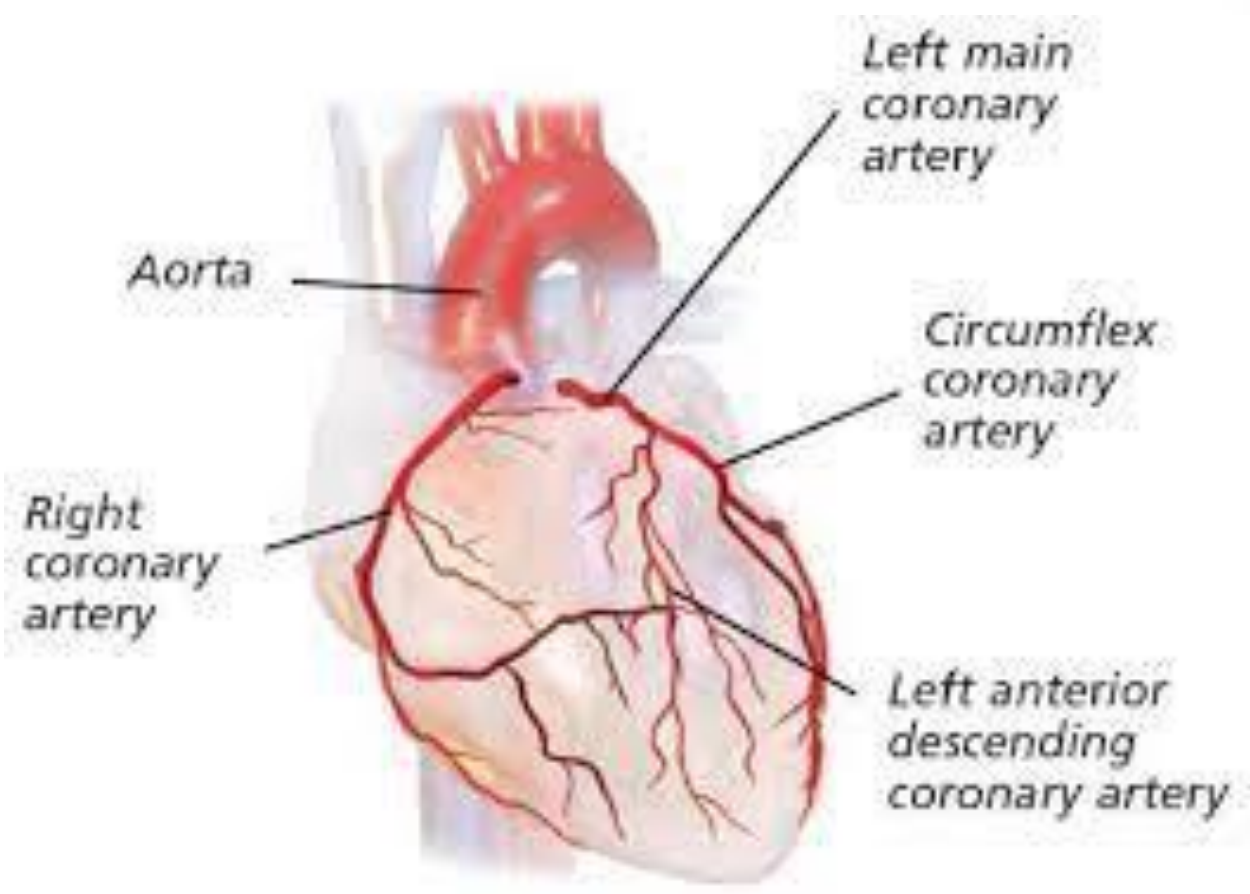


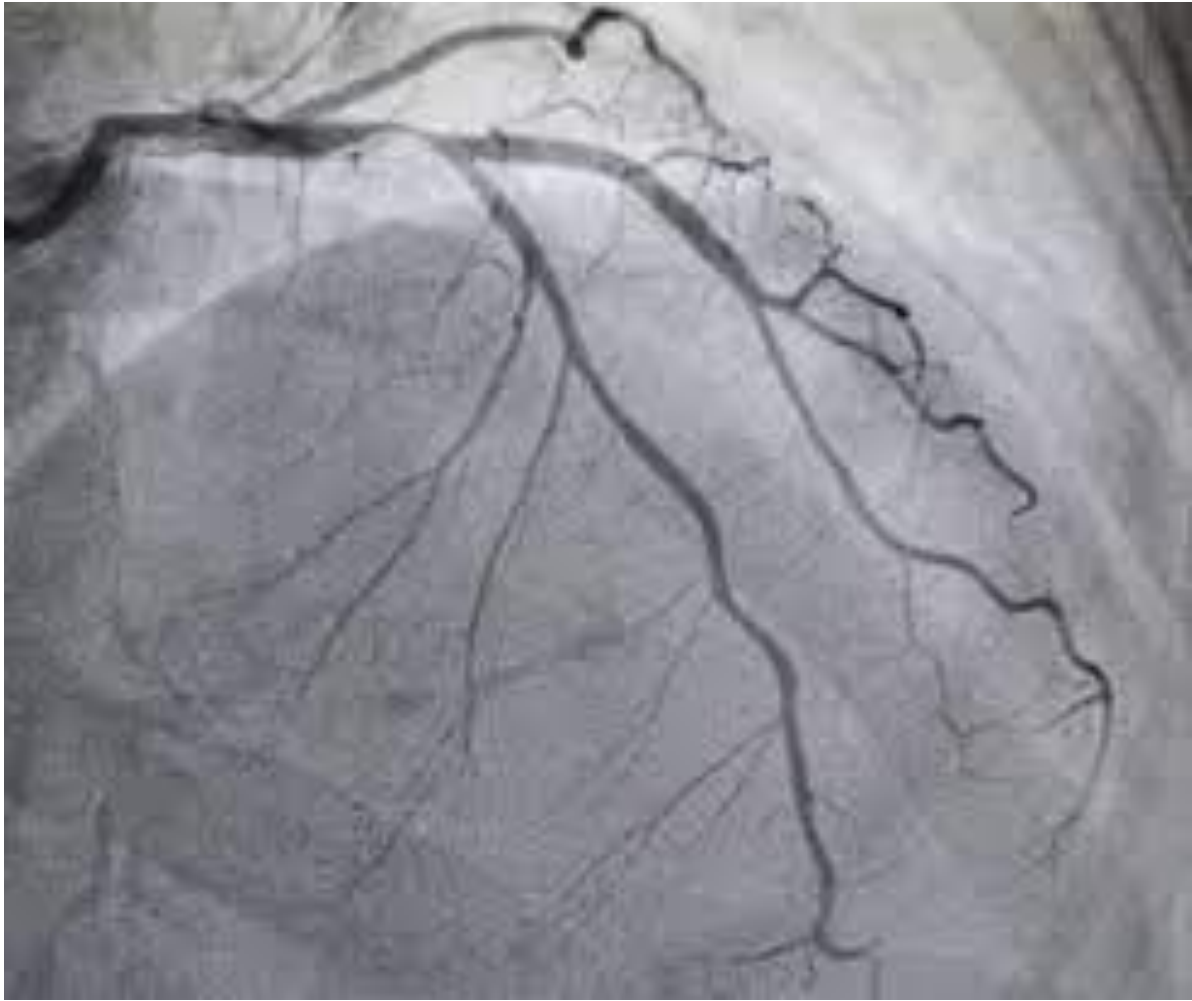
Fluoroscopy

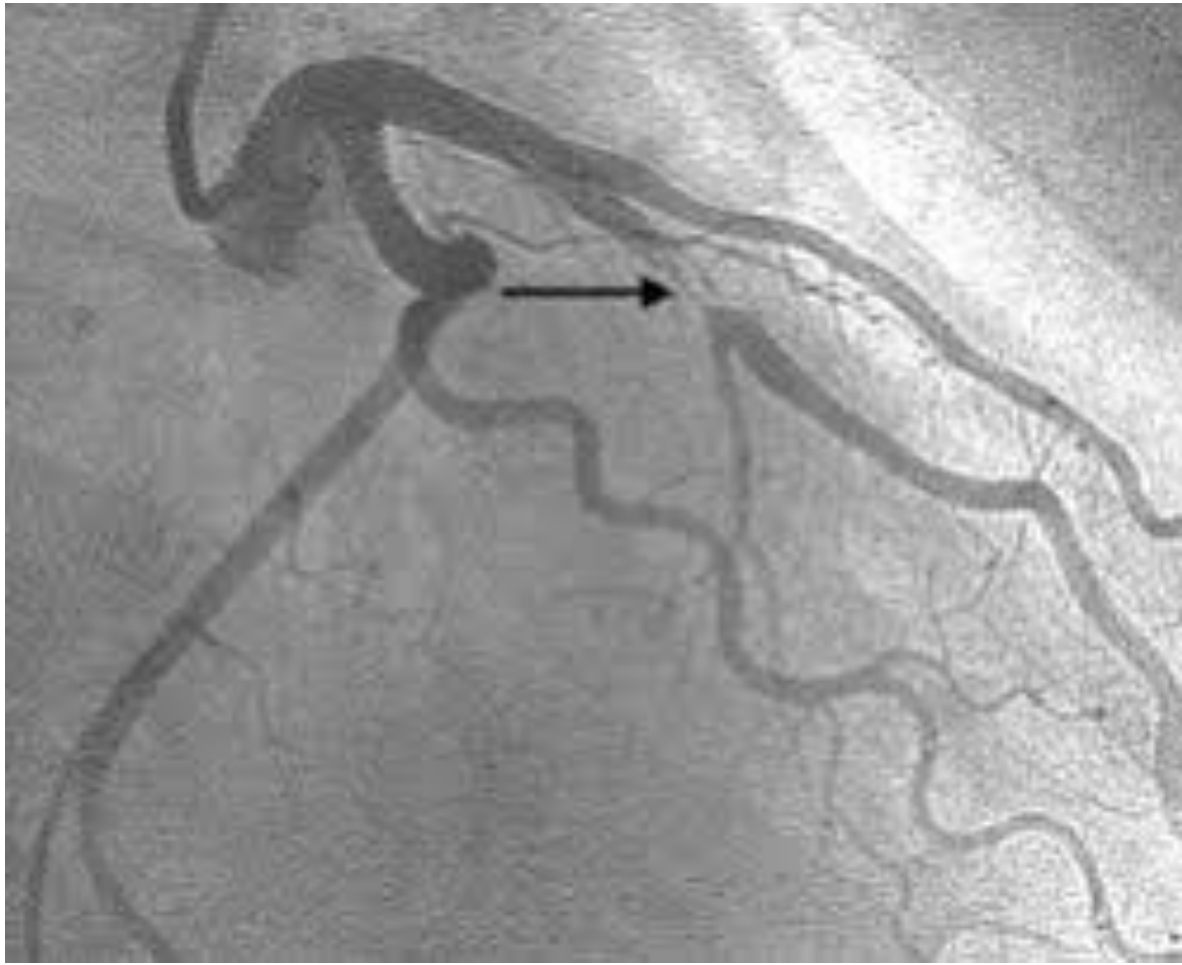
- Fluoroscopy - Allows for real time, moving images of inside the patient.
- Normally viewed on a video monitor.
- Useful for both diagnostic and interventional procedures.

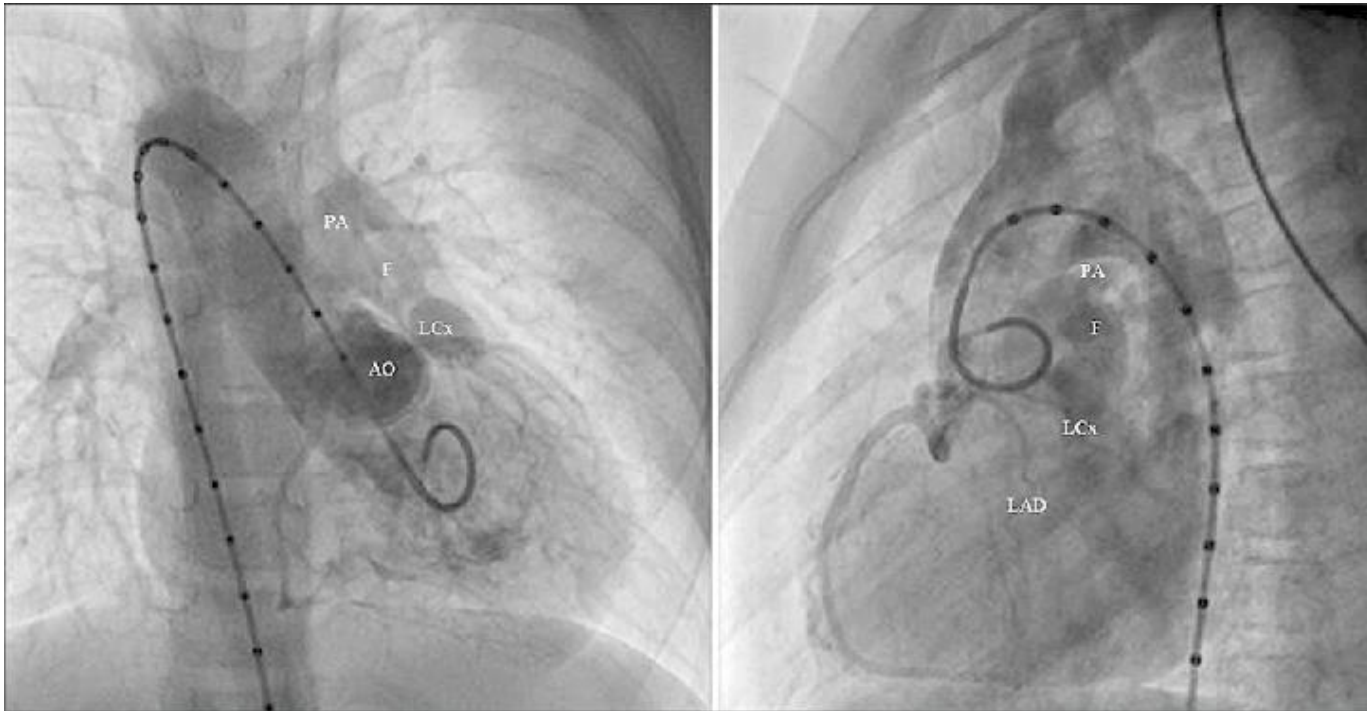


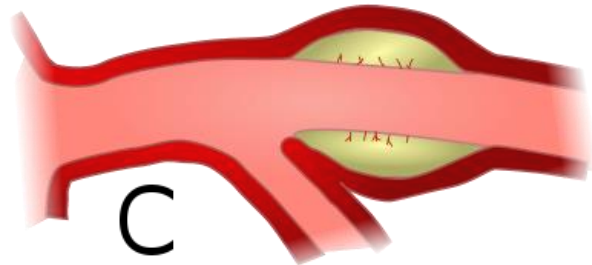
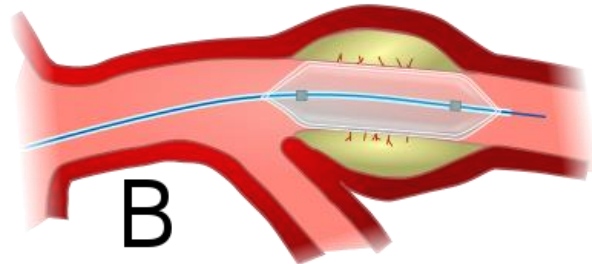
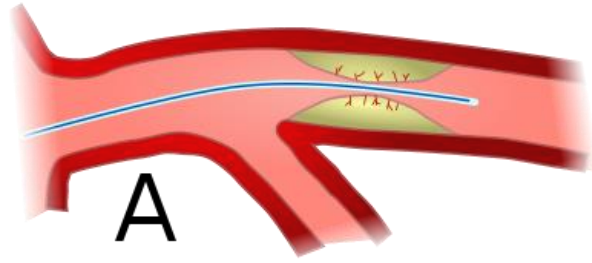
Angioplasty



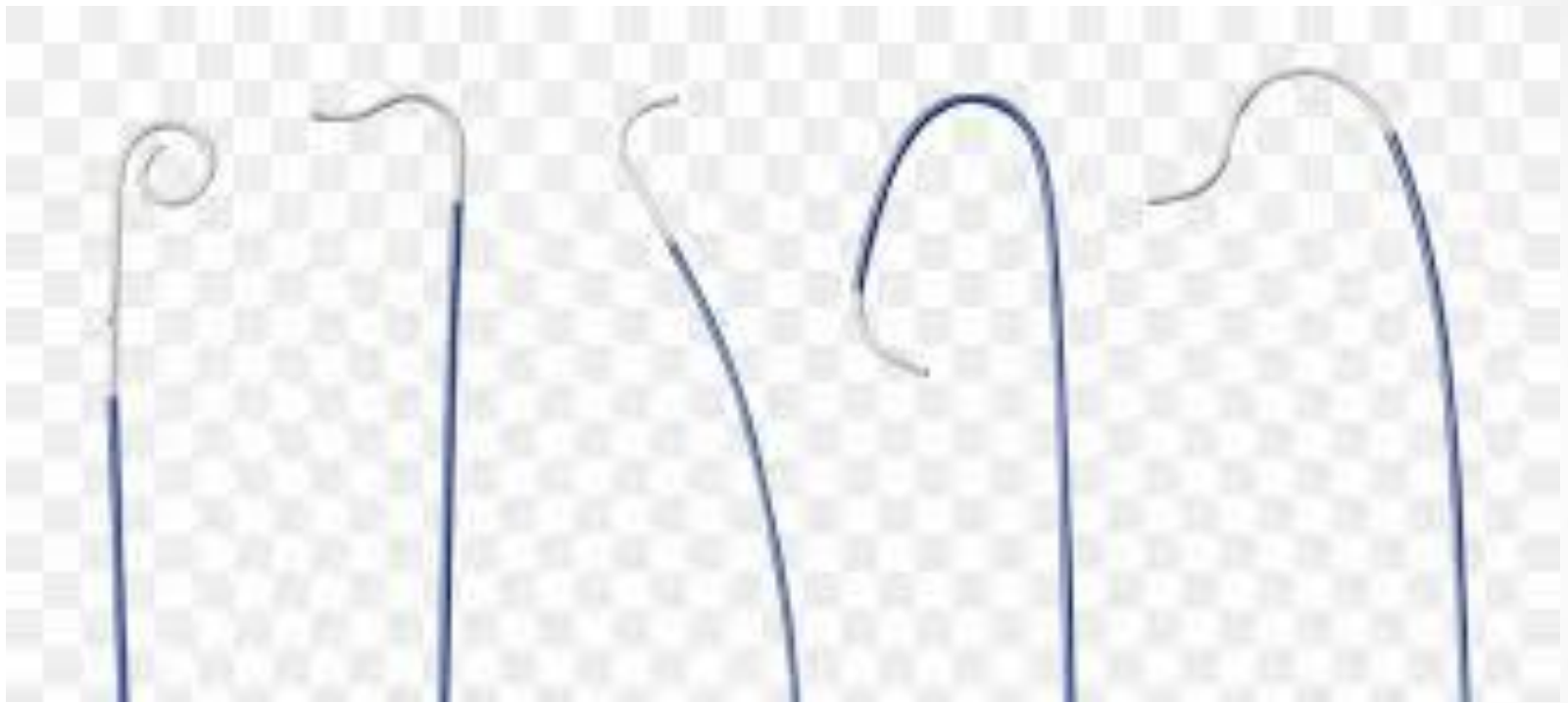














Early Cath Lab Technology



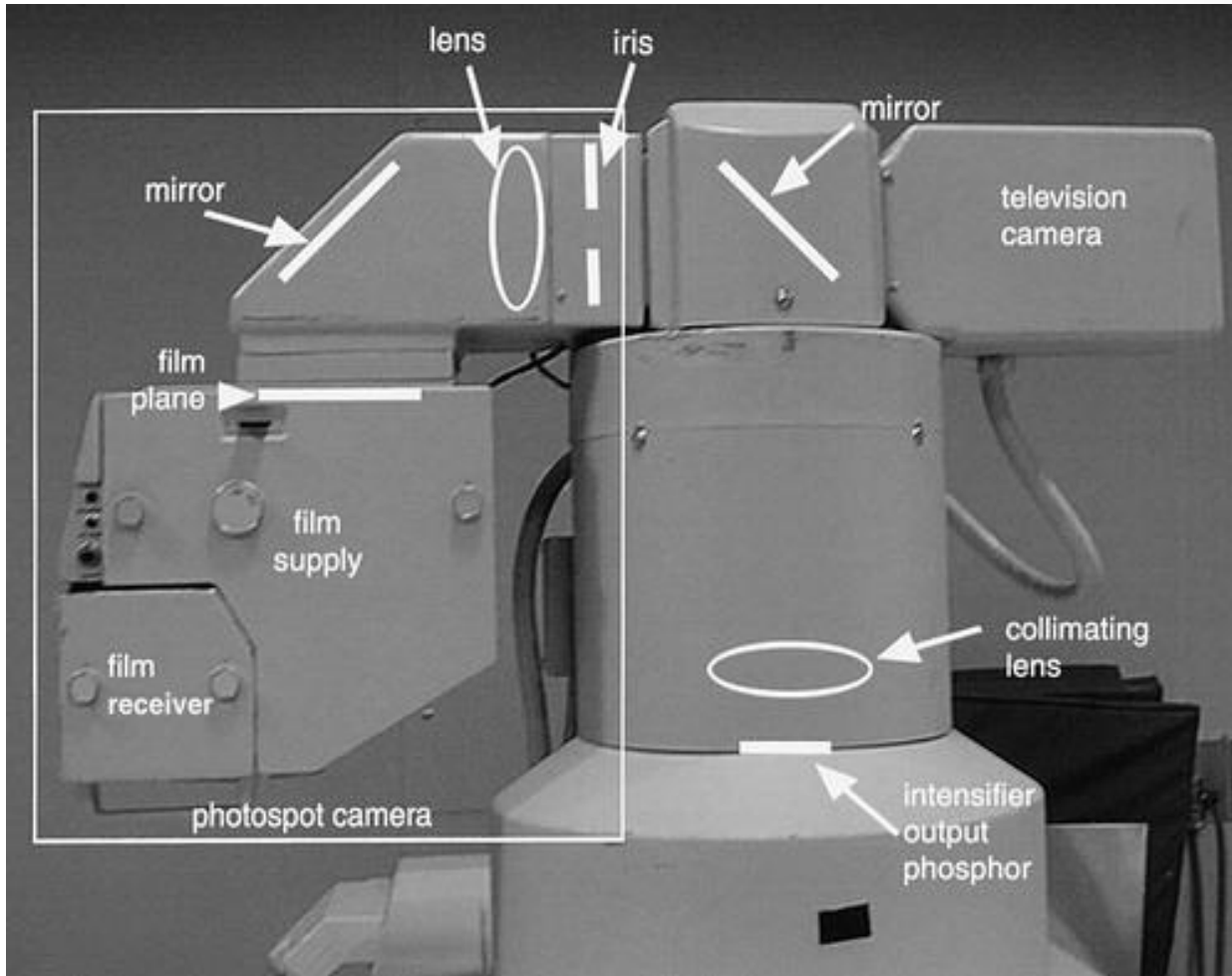
Image Intensifier

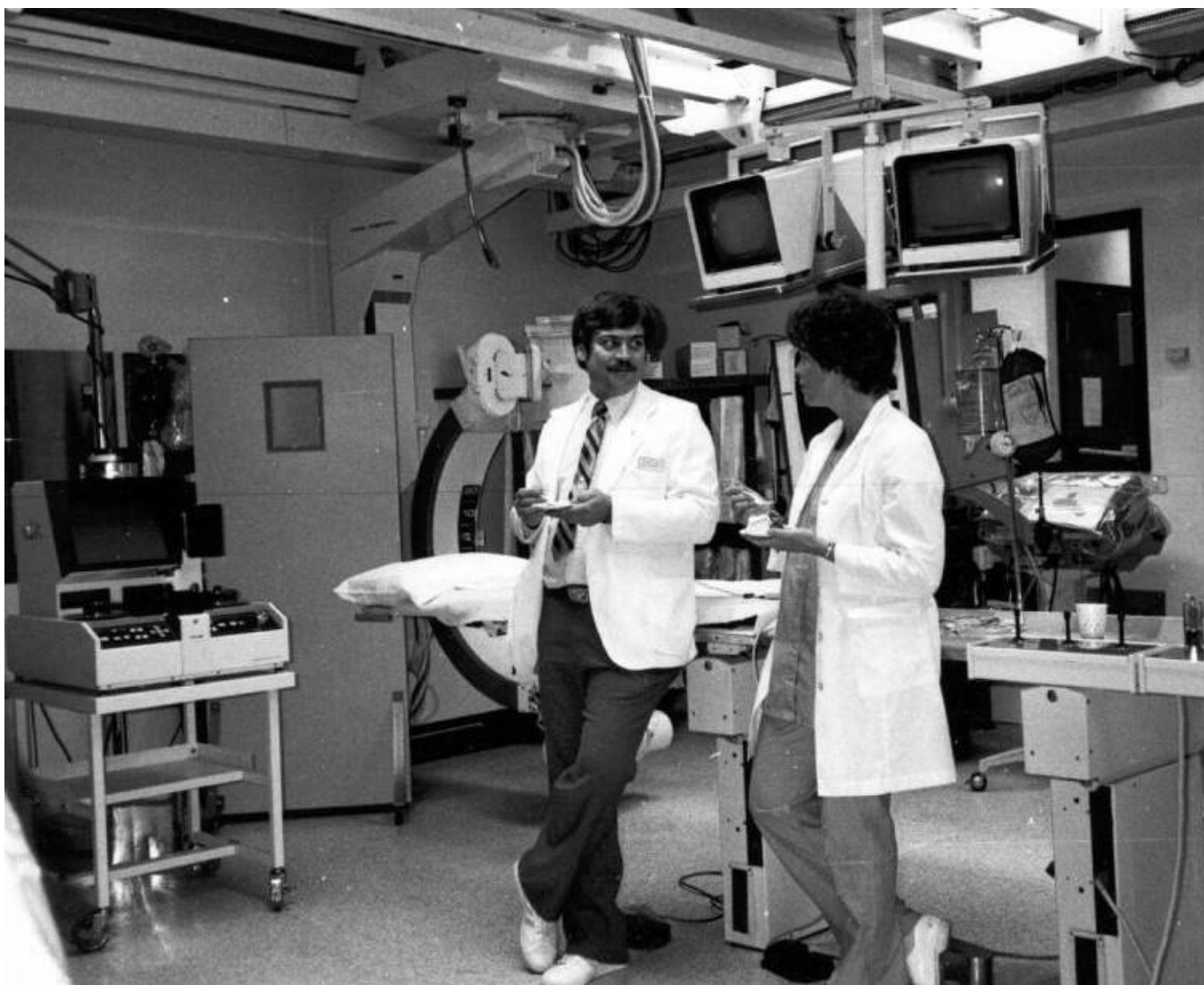


Digital Cath Lab



Cine Film Camera and Viewer

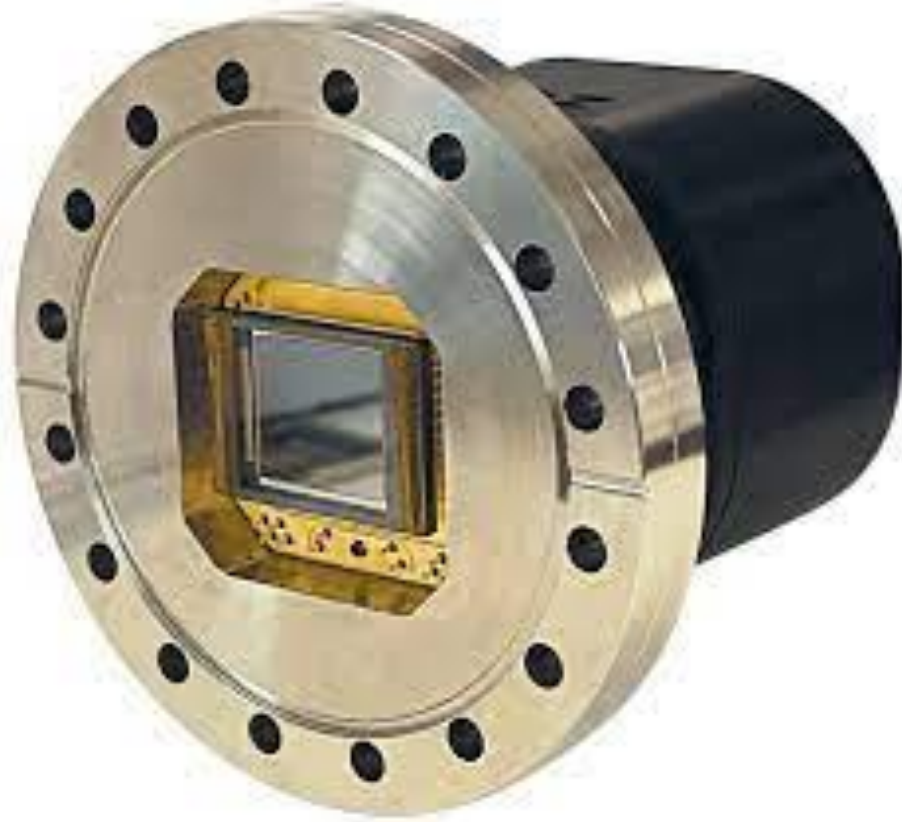




Pickup Tube (Video Camera)

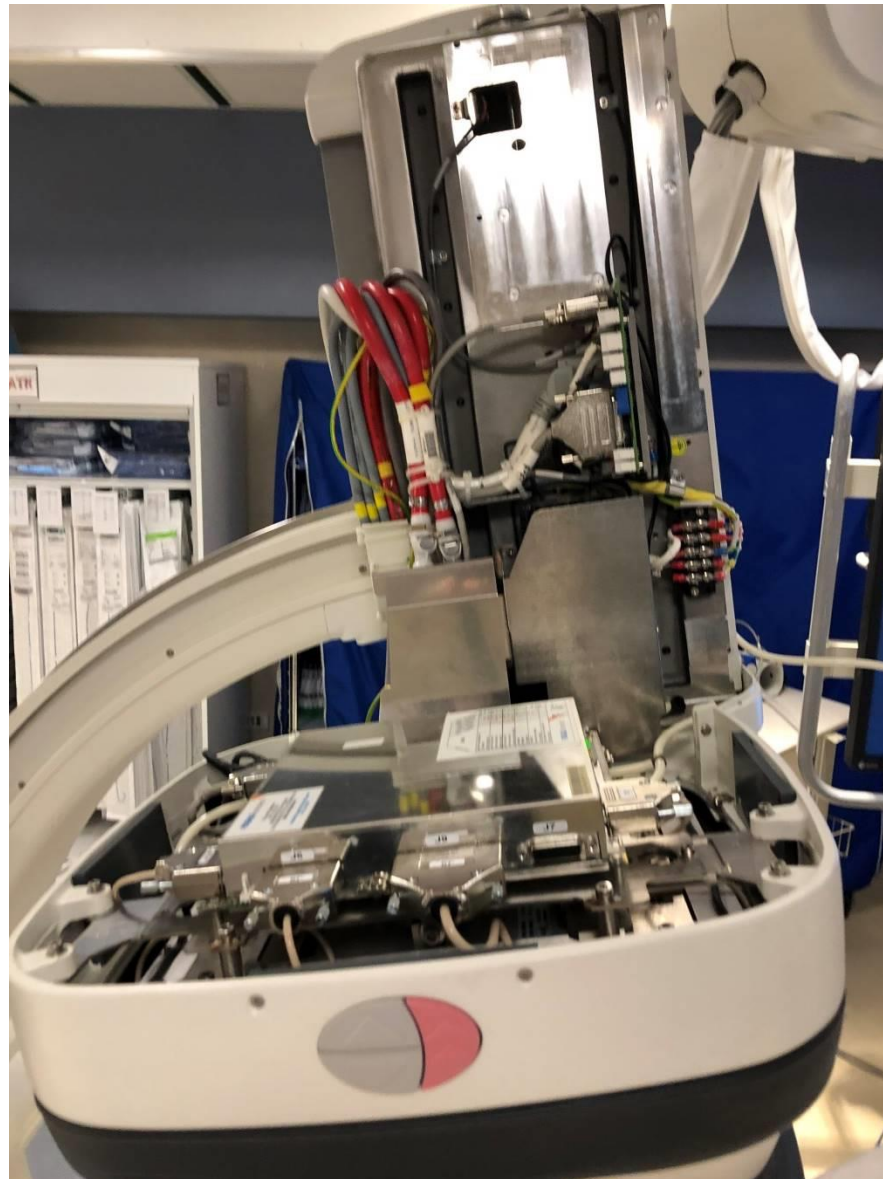


Solid State CCD Camera (Charge Coupled Device)



Digital Detector





Cath Lab X-Ray Tube



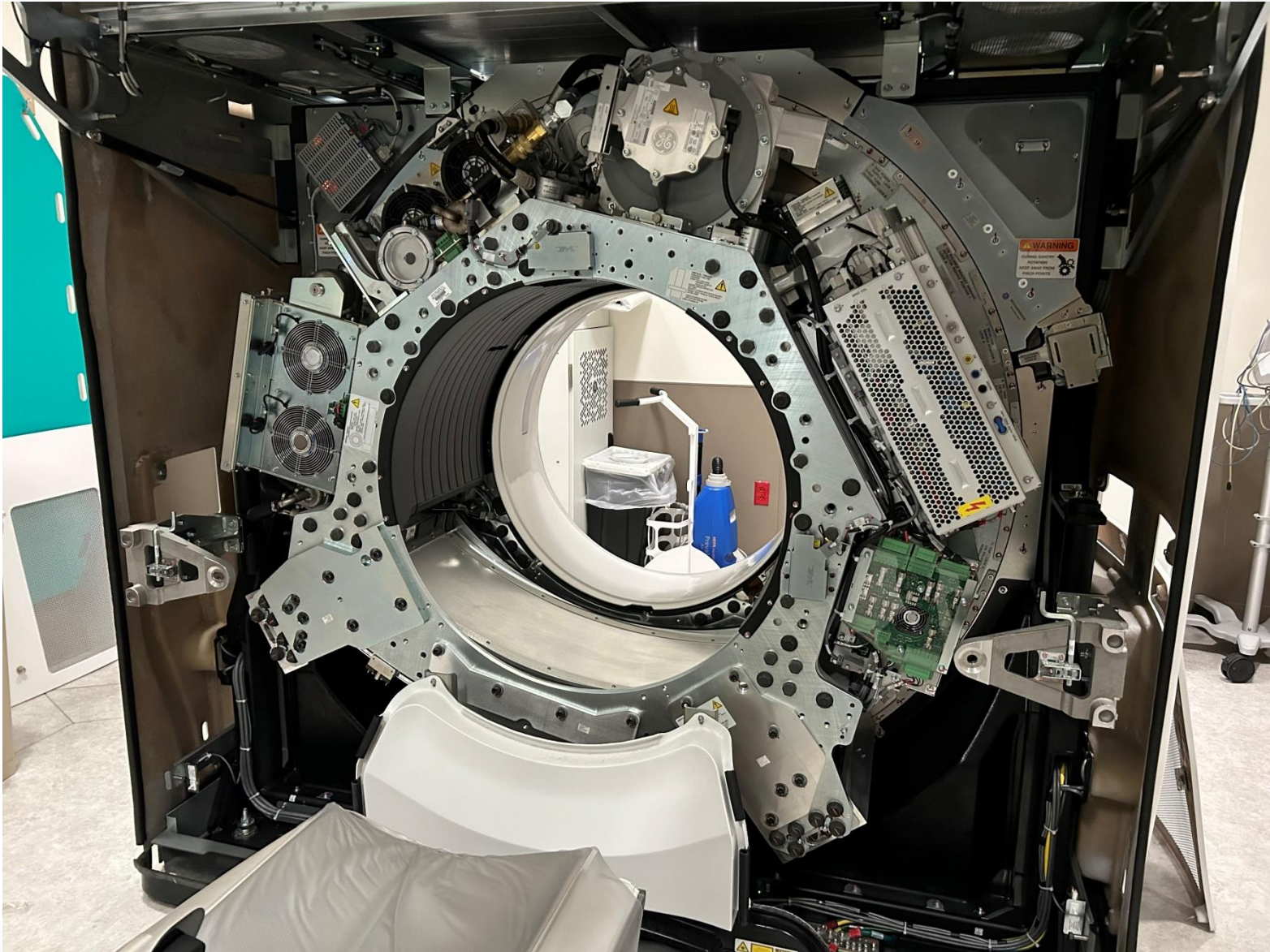
Broken Cath Lab



CCTA (Cardiac Computed Tomography Angiography)



Calcium Scoring



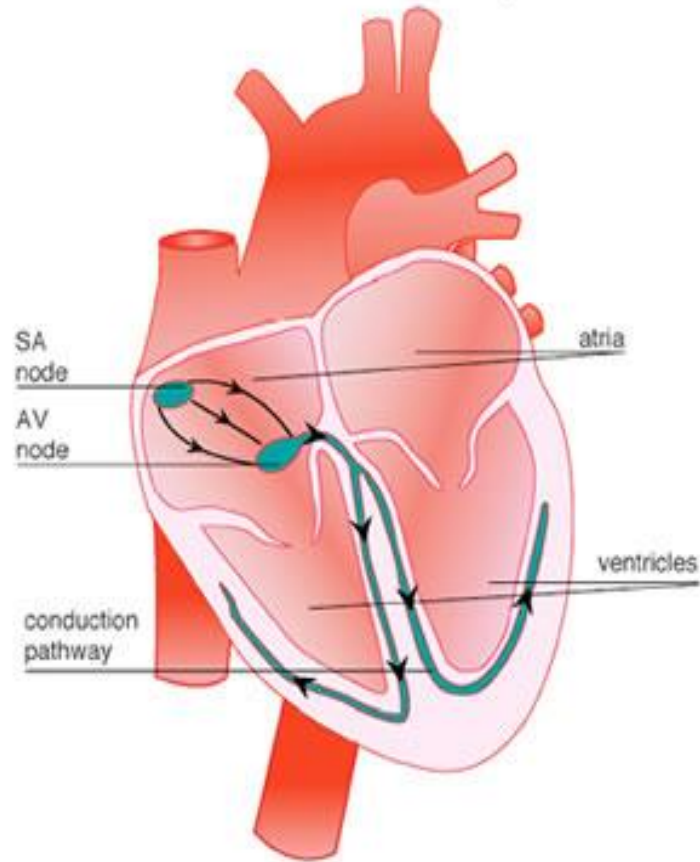
Injectors



EP Lab

Electrophysiology

Electrical conduction system



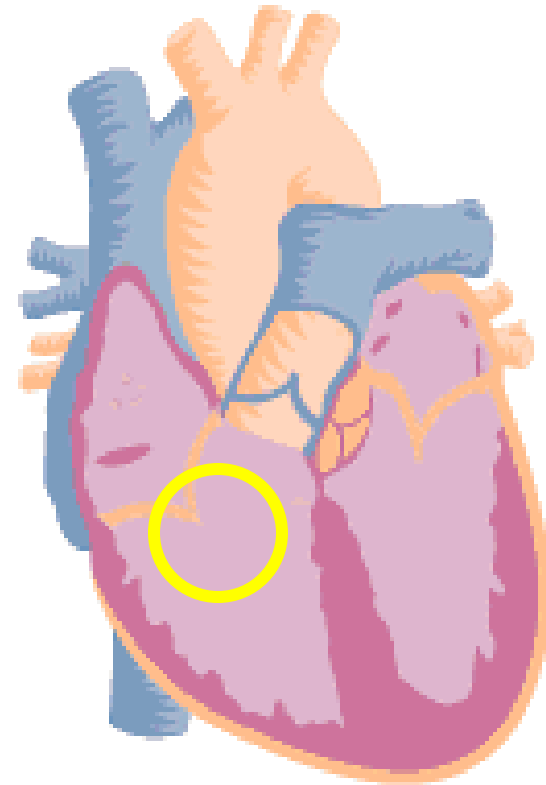
SA Node

AV Node

Bundle of His

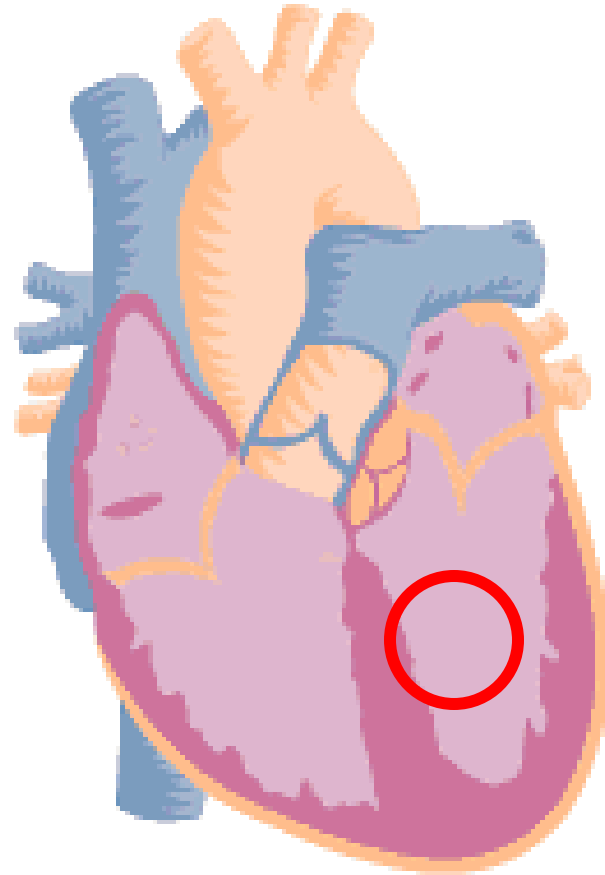
Normal Electrophysiology

- **SA node**
 - Sinoatrial node
 - Location: Right Atrium
 - “natural pacemaker”
 - Initiates electrical pathway responsible for:
 - Normal cardiac conduction
 - Proper filling and ejection of blood in the four chambers
 - Causes the atria to contract and fill the ventricles



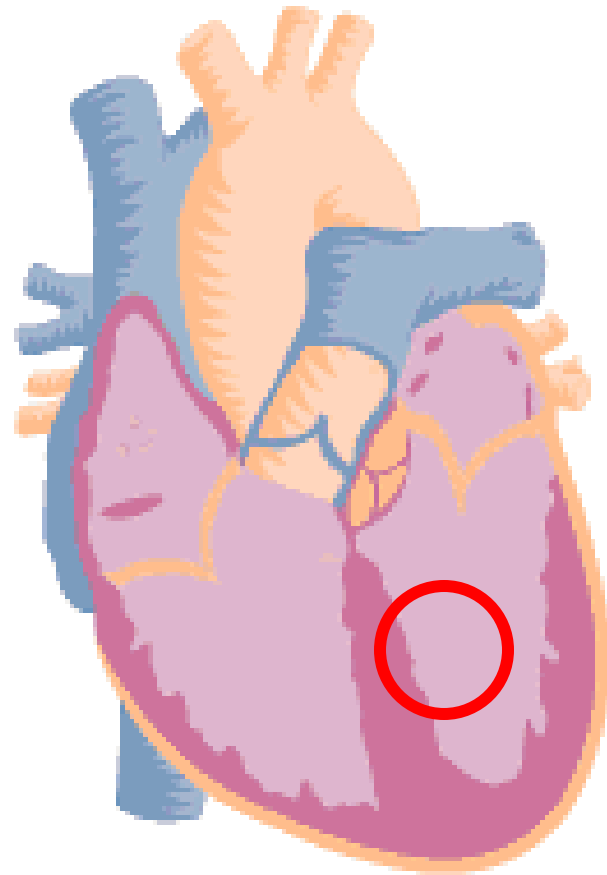
Normal Electrophysiology

- **AV node**
 - Atrioventricular node
 - Location: junction of the atria and the ventricles
 - Receives conduction impulse from **SA node**



Normal Electrophysiology

- **AV node**
 - Relays the impulse down the ventricles through the Bundle of HIS
- **Bundle of HIS**
 - Branches into RIGHT bundle and LEFT bundle to each respective ventricle
- These bundle branches break out into the **Purkinje Fibers**
- Leads to ventricle contraction and ejection of blood

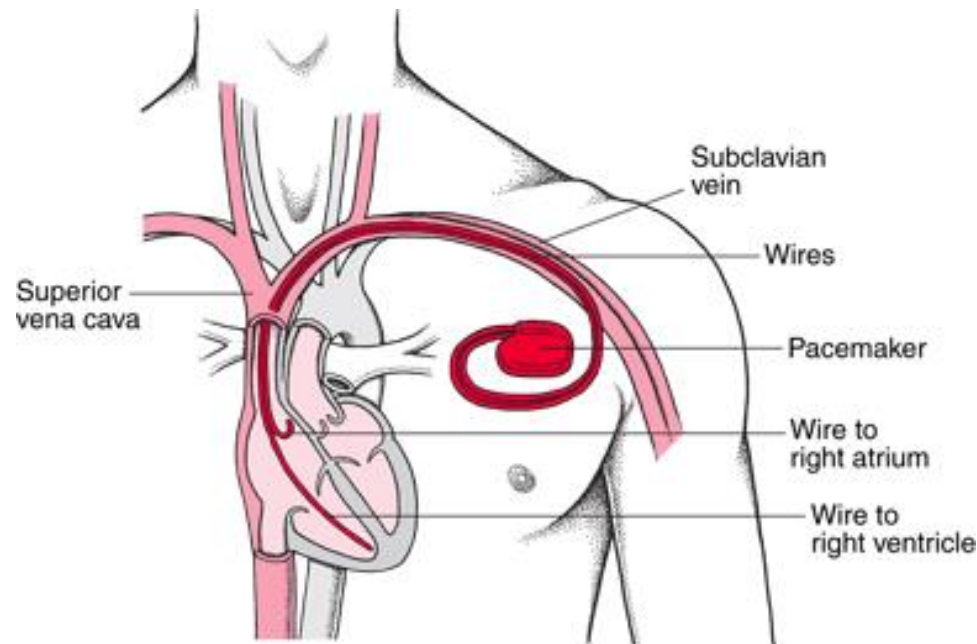


Arrhythmias

- Abnormal pathways may interfere with conduction causing:
 - Low cardiac output
 - Syncope (fainting)
 - Sudden cardiac death
- Ablation
 - procedure that burns abnormal cardiac electrical pathways using radiofrequency ablation catheters
 - destroy tissue by heating it with radiofrequency energy or freezing it with cryotherapy

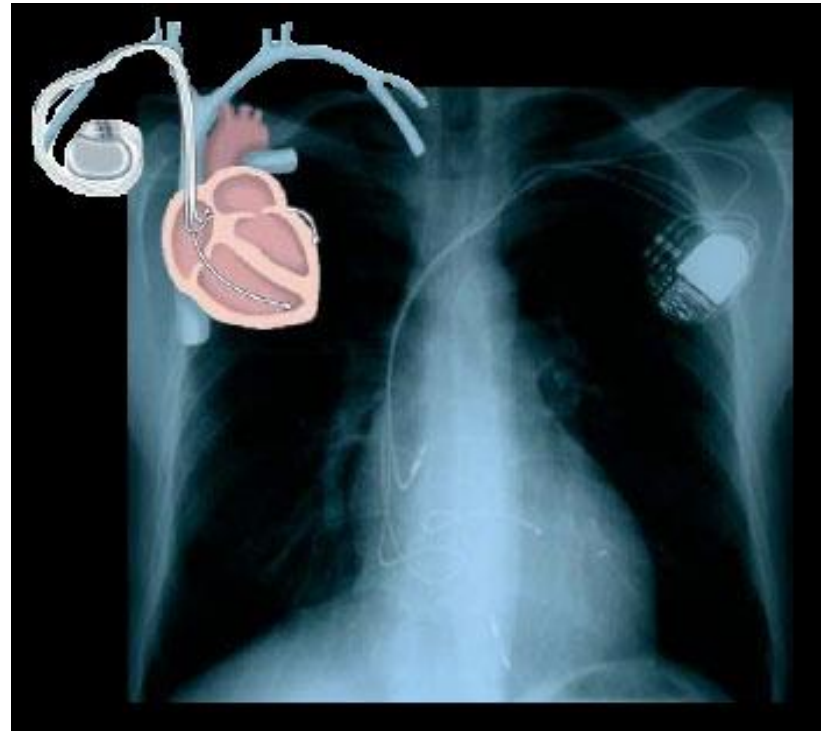
Artificial Pacemakers

- Provide electrical impulses to the atria and/or ventricles when they no longer work or do not work well enough to sustain life

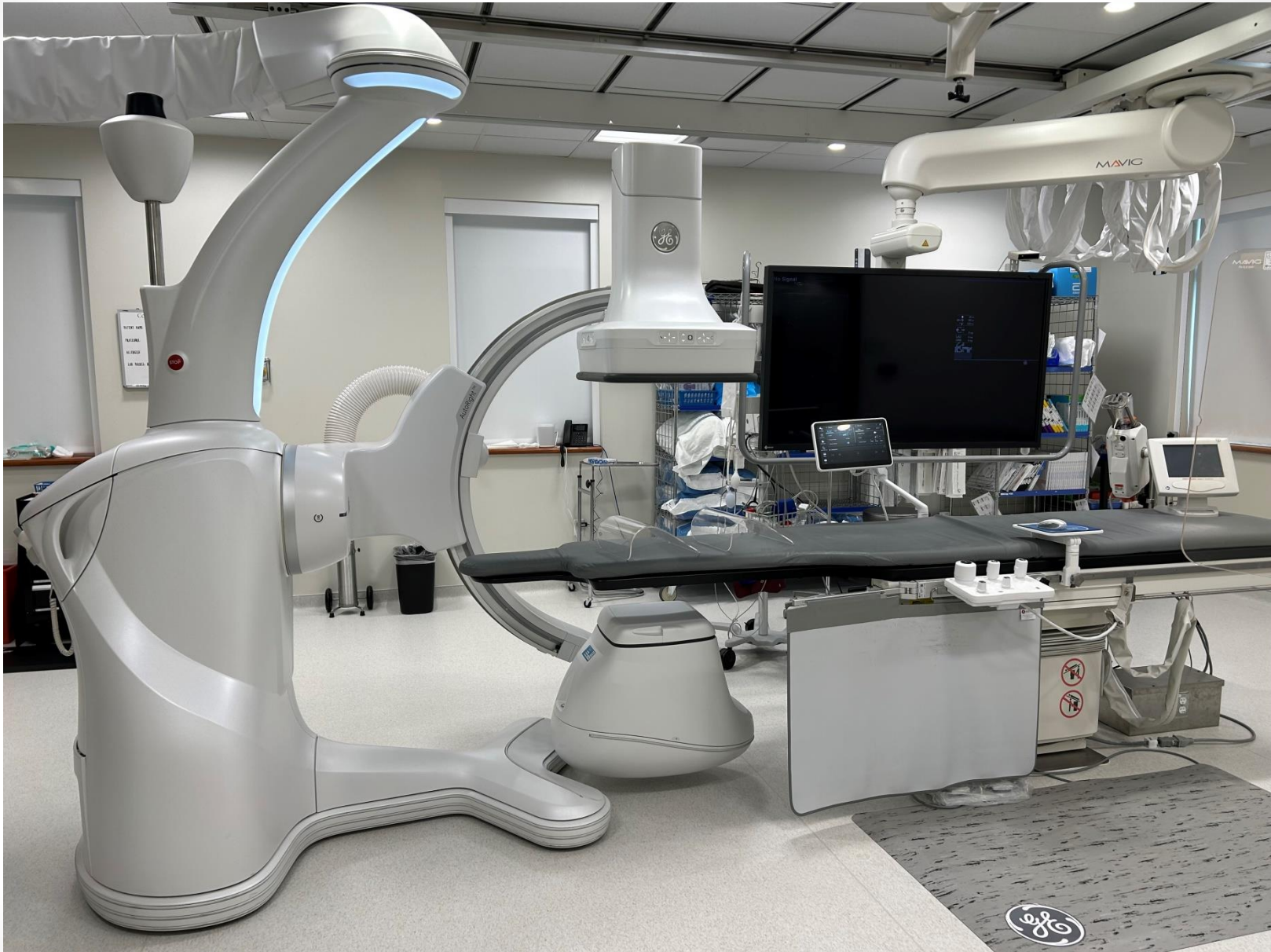


Implantable Defibrillators

- ICD's
 - cardiac defibrillators
 - used to pace or shock patients out of life-threatening arrhythmias that cannot be treated by ablation or drug therapy

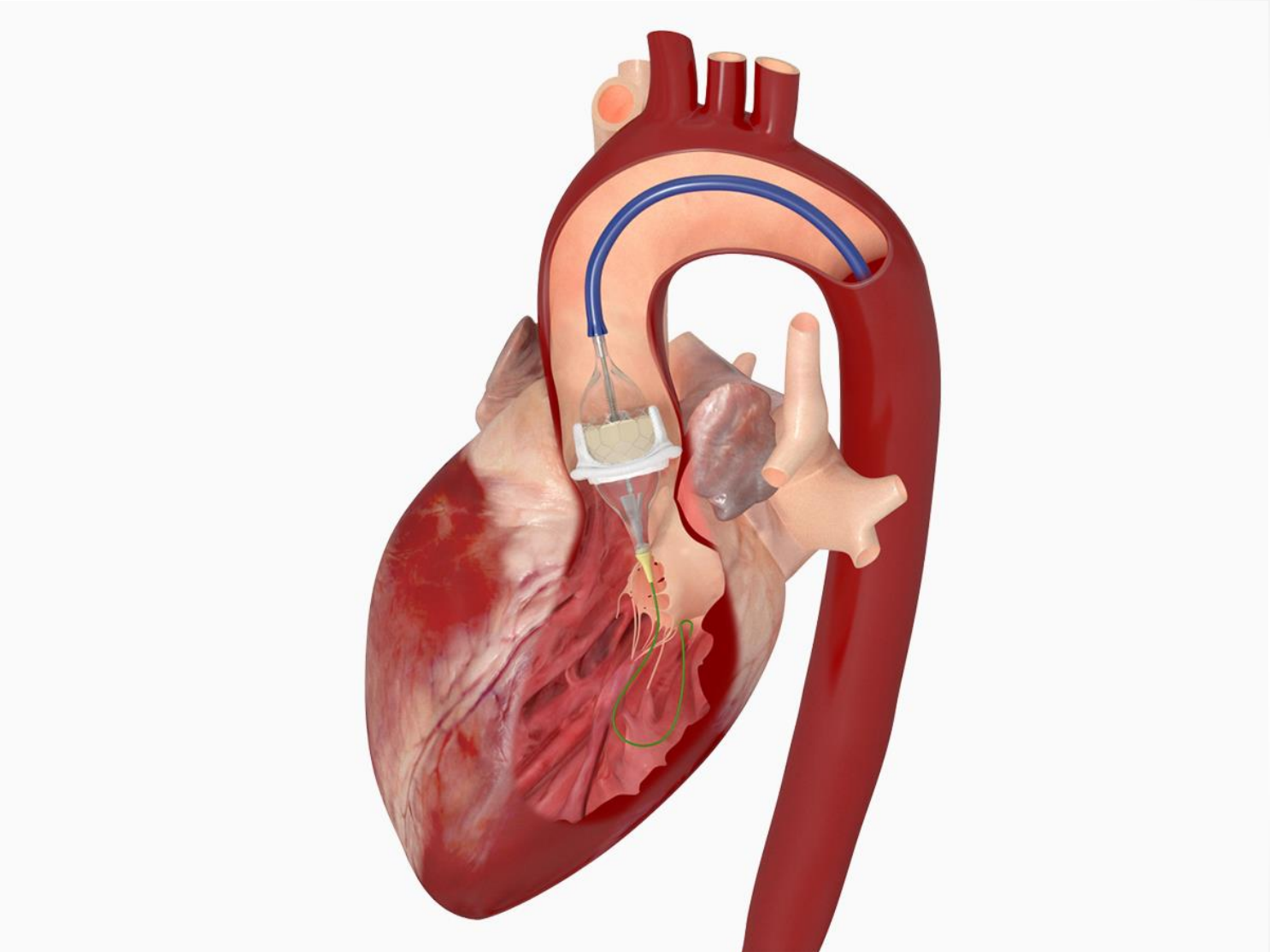


Hybrid OR



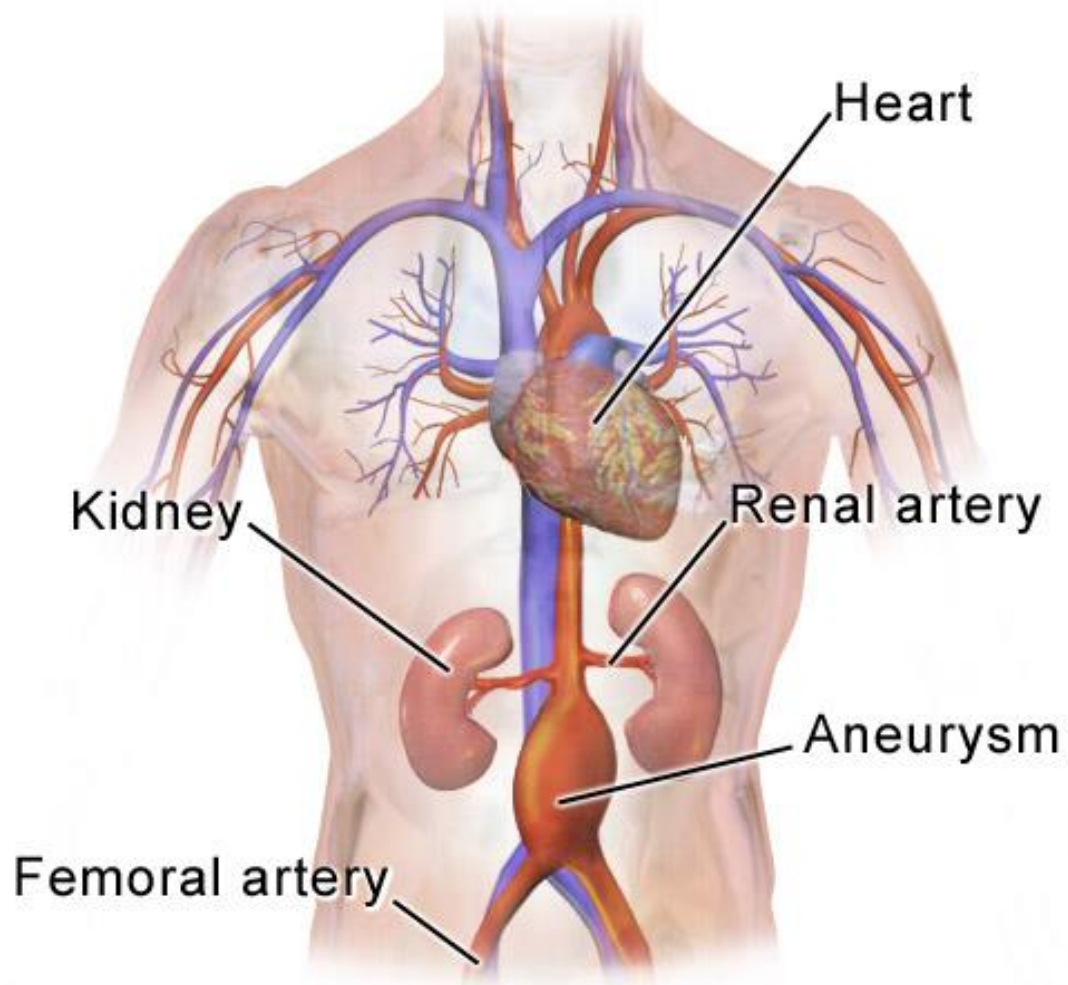
TAVR

Transcatheter Aortic Valve Replacement

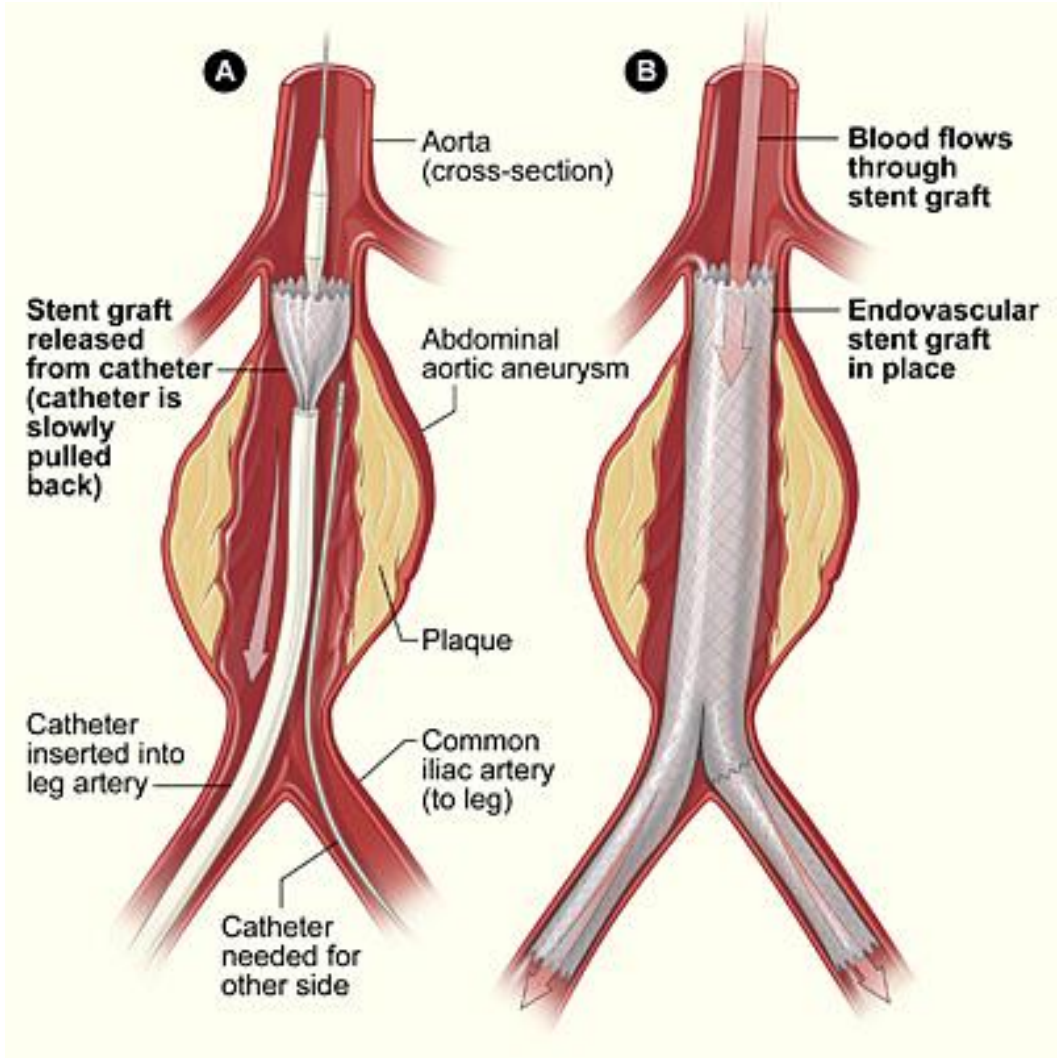




Abdominal Aortic Aneurysm (AAA)



Endovascular Aneurysm Repair (EVAR)





Radiation Safety

- Time - Keep your time to a minimum amount when working around an active X-Ray source.
- Distance - Maximize the distance between you and a active X-Ray source.
- Shielding - Always wear a lead apron when working around a active X-Ray source. If possible utilize both stationary and portable shielding to reduce exposure.

Thank you for your time!

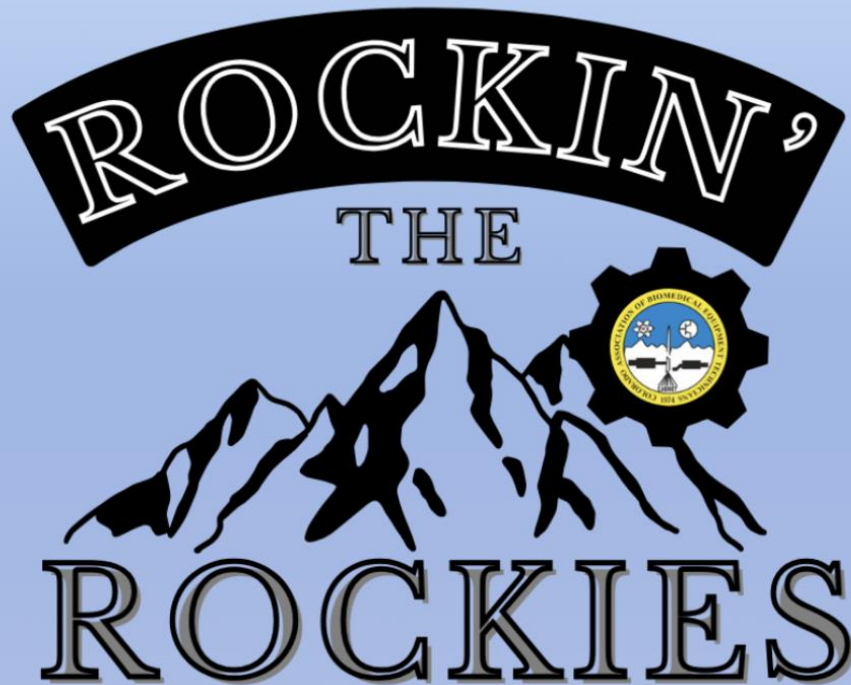
Enjoy the HTM Mixer.





SAVE THE DATE!

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