



Best Practices for Healthcare Lighting

# Cardiac Cath & EP Labs



**AMANDA**  
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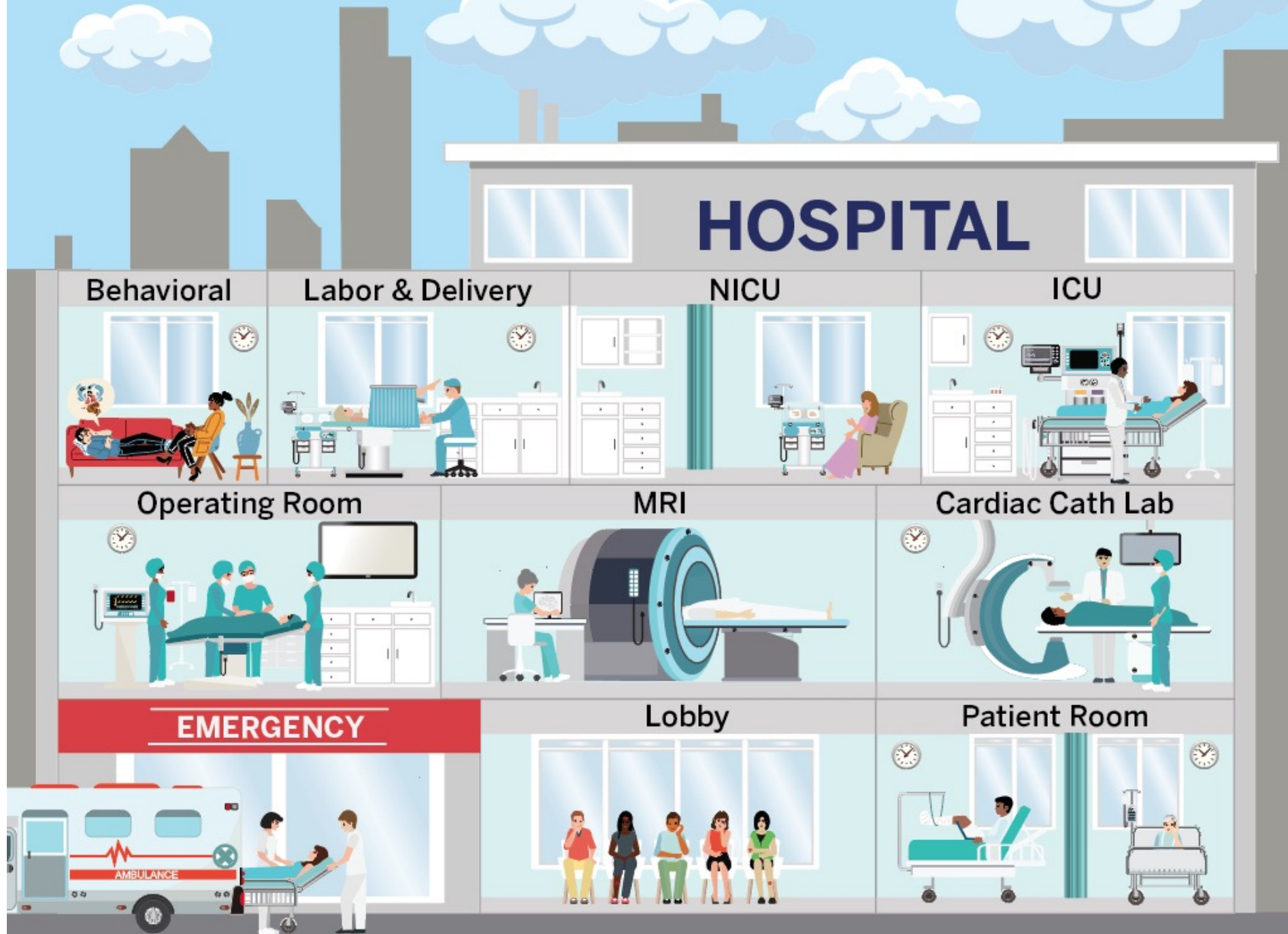


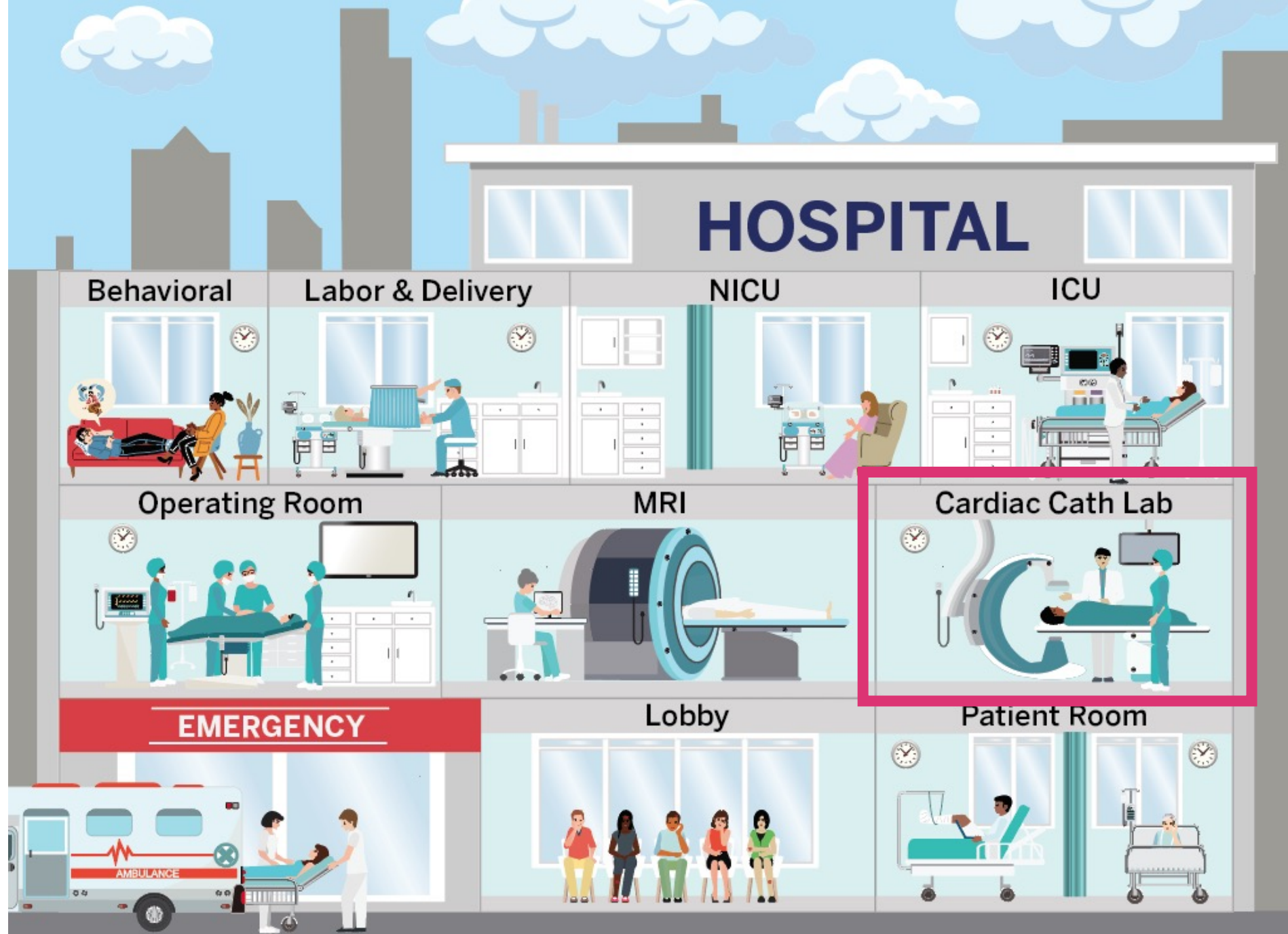
**CHAD**  
National Sales Manager

# Key Focus Areas

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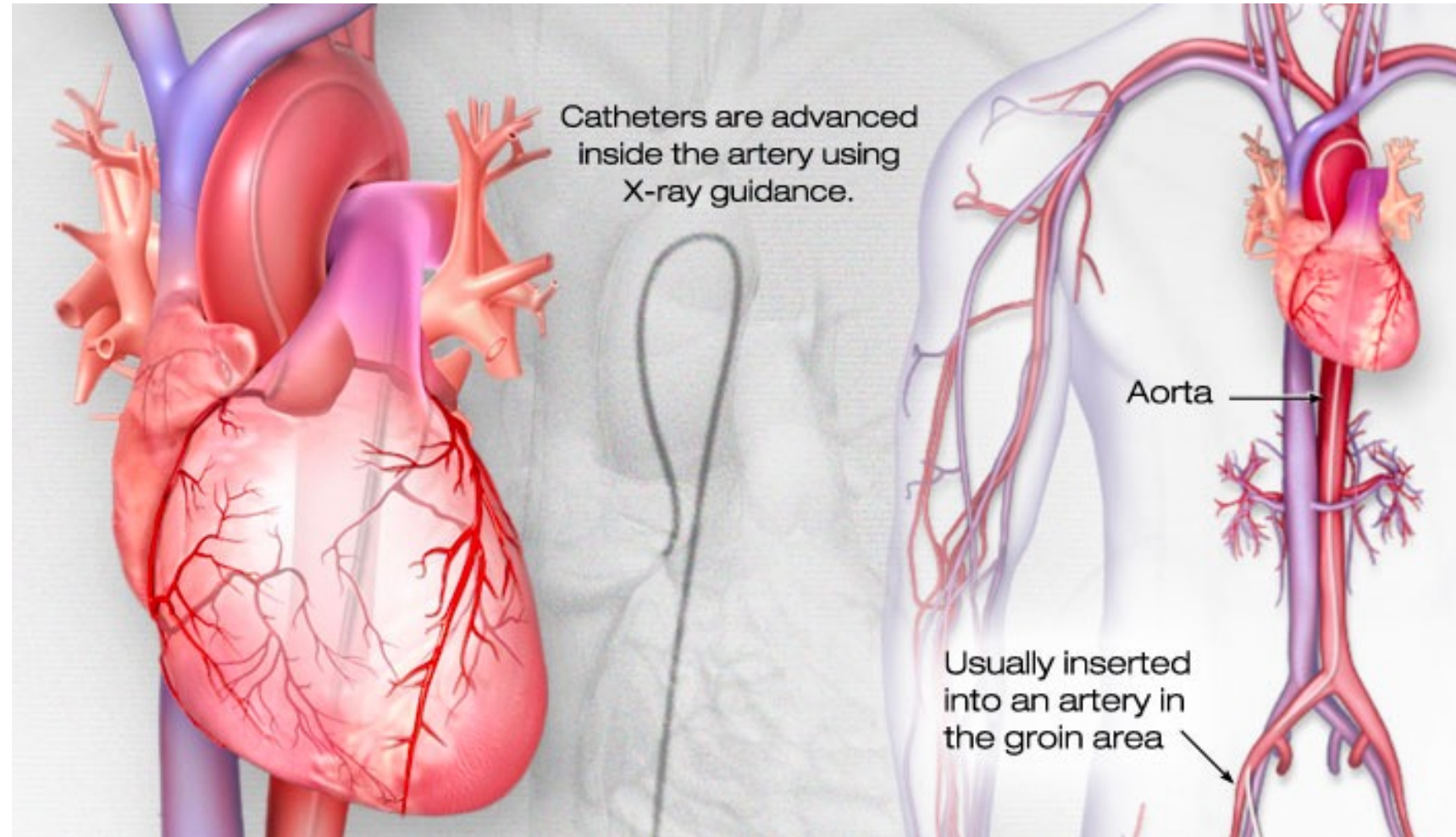






# What is a Cardiac Cath Lab?

- A specialized laboratory where doctors **diagnose** and **treat** heart conditions using **catheters** rather than surgical techniques
- The catheter is inserted into the patient's **groin**, **arm**, or **neck**

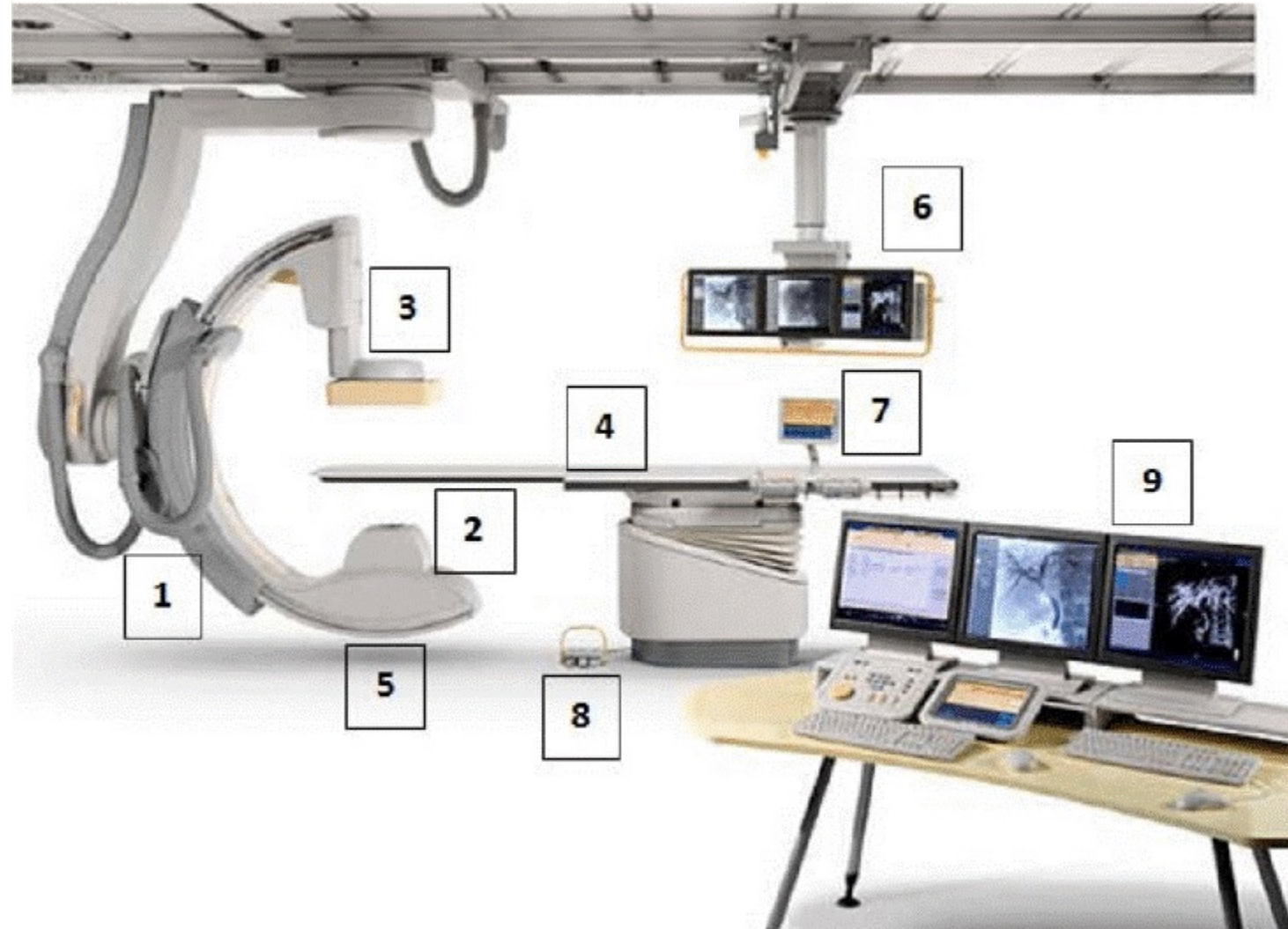


# Sheath & Catheter Insertion via the Groin



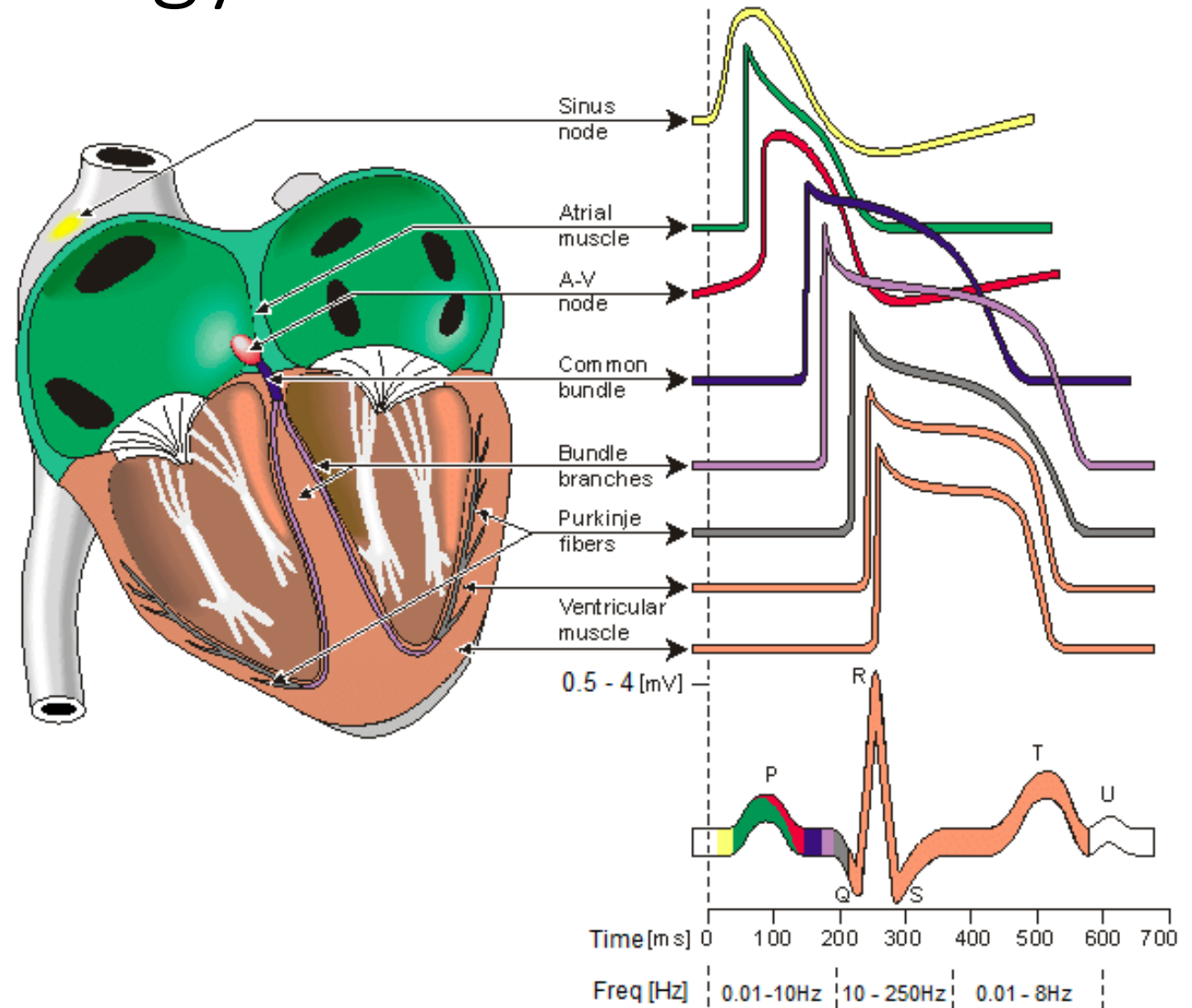
# Equipment in the Cardiac Cath Lab

1. C-Arm
2. X-Ray Source Tube
3. Detector/Camera
4. Moving Catheterization Table
5. X-Ray Generator
6. Monitors
7. Control Handle
8. Control Pedal
9. Control Station / Room

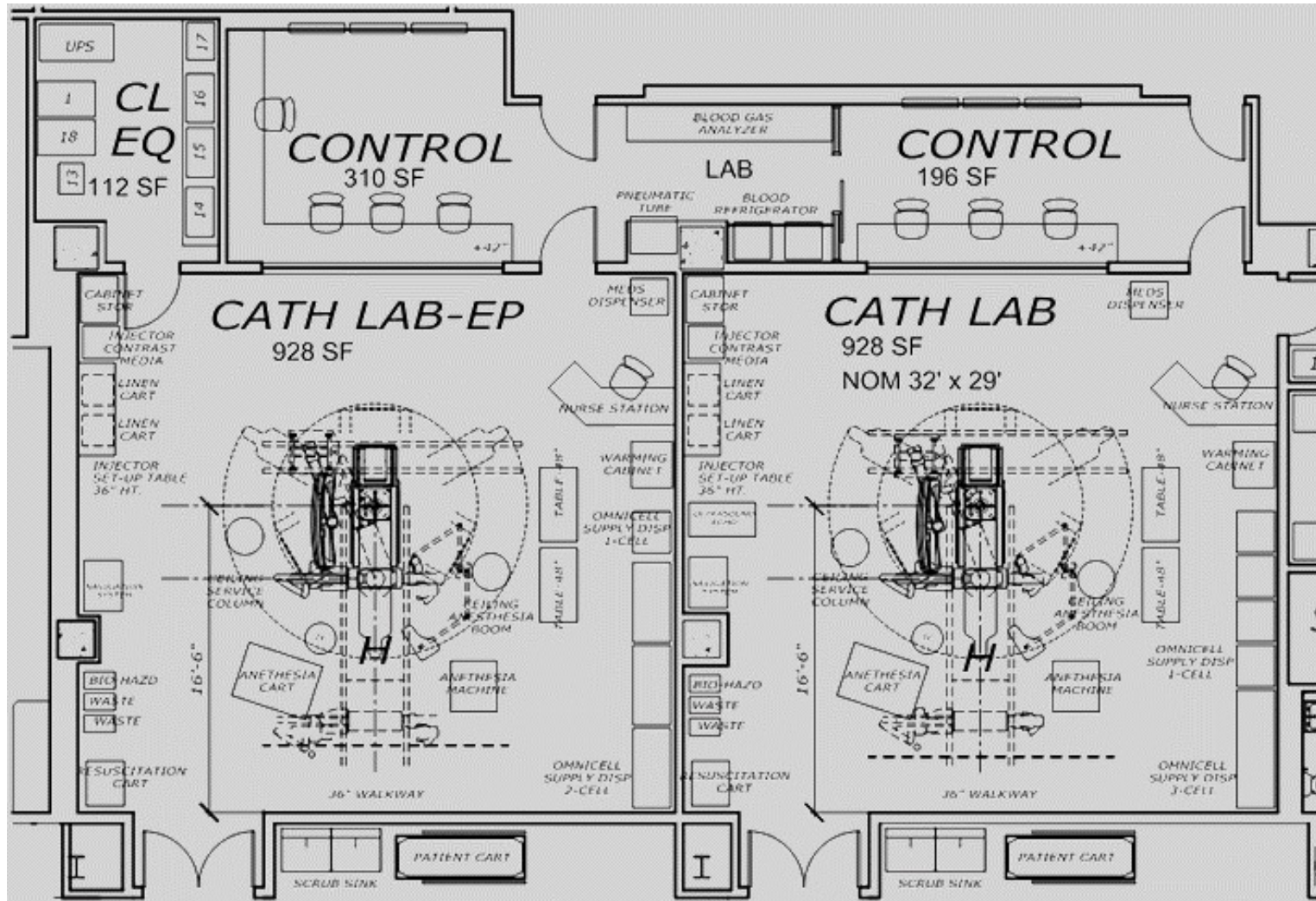


# What is an Electrophysiology Lab?

- A specialized laboratory with electrical monitoring equipment and X-Ray machinery used to **monitor** and **map** the heart's electrical system
- Three primary procedures in the EP Lab are:
  - Cardiac Mapping
  - Cardiac Ablation
  - Insertion of Pacemaker or ICD (Implantable Cardioverter Defibrillator)



# Additional Equipment in the EP Lab



- The primary imaging system in the Cath and EP Labs will be similar or identical
- Often the rooms have the same footprint or floor plan, but the EP Lab requires:
  - 3D mapping system
  - Cardiac stimulator
  - RF generator
  - More carts & monitors
  - Greater cable management

# Single-Plane vs. Bi-Plane

- Bi-Plane equipment uses detectors on two axes, for faster 3D imaging, which is helpful in neurovascular and cardiac procedures
- Heavier bi-plane systems require a floor mount and a unistrut ceiling, with greater structural support
- There is no clinical consensus on which improves outcomes

**Single-Plane Equipment**



**Bi-Plane Equipment**



# Cath & EP Lab Lighting Needs

1



## Enhanced Visual Acuity

- Provide precise surgical illumination of insertion site(s)
- Delivery high levels of ambient light for clinicians and staff when needed
- Enable variable light levels and static color options for enhanced monitor viewing

2



## Improved Patient Comfort

- Minimize imposing equipment over the patient (Cath Lab patients are **awake** for most procedures)
- Reduce glare for the patient with thoughtful lighting layout

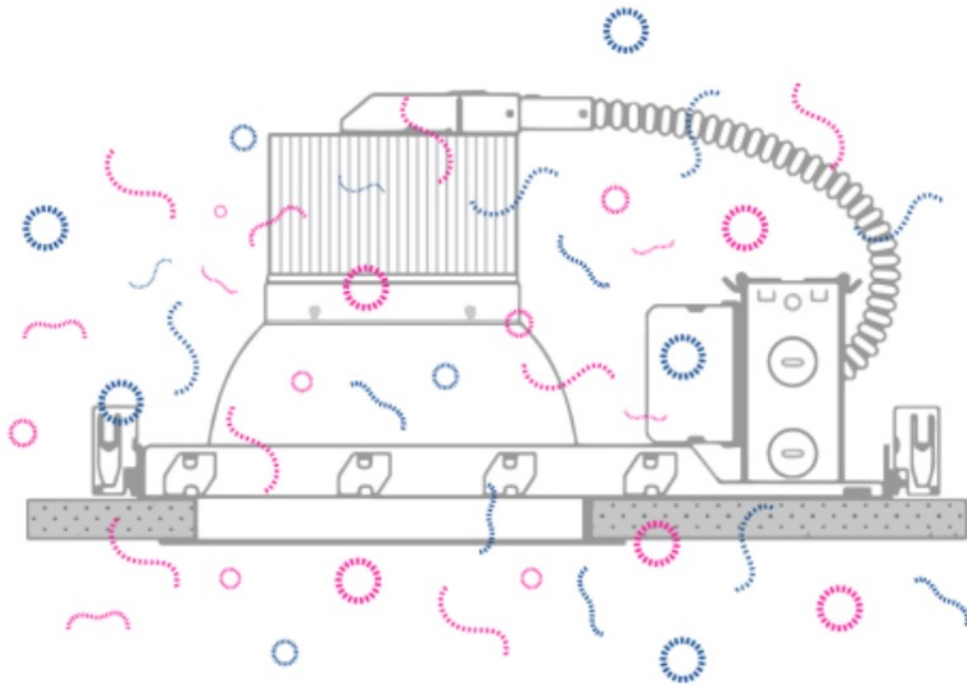
3



## A Safer Environment

- Reduce infection risk with sealed IP65 or IP66 fixtures
- Eliminate physical hazards associated with boom mounted exam lights

# Infection in the Hospital



NON-KIRLIN DESIGN

## THE PROBLEM

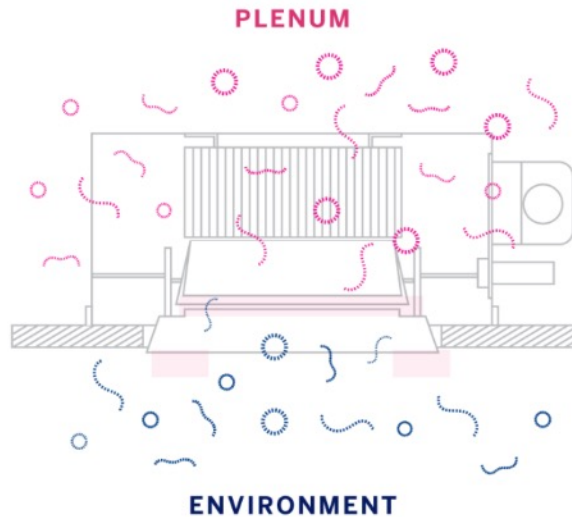
Without lensing, gasketing, or a sealed housing, pathogens and bacteria from the environment mix freely with pathogens and bacteria from the plenum, increasing the risk of widespread infection throughout the hospital.

# Three Levels of Infection Control

## LEVEL 1



Biogard™ Antimicrobial Finish



1

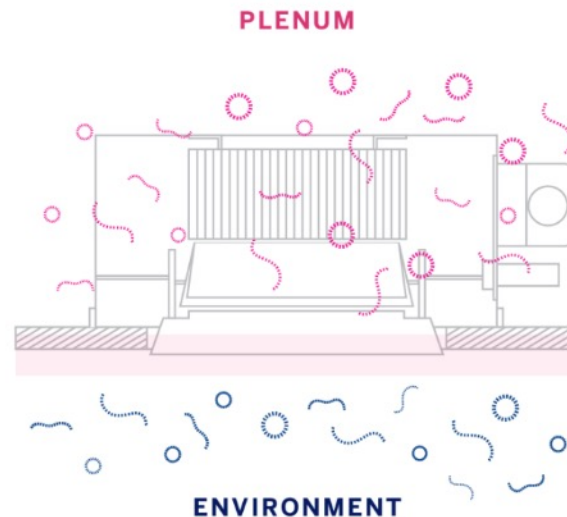
## LEVEL 2



IP65 Sealed Trim



Biogard™ Antimicrobial Finish



2

## LEVEL 3



ISO 5/Class 100 Sealed "Cleanroom"  
Fixture with IP65 Trim



Biogard™ Antimicrobial Finish



3

# Kirlin Sealed & Antimicrobial Lighting Solutions

## Motorized Exam

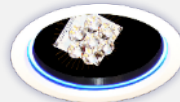
**INFRALED PRO 45**



**INFRALED PRO 35**



**INFRALED PRO 25**



## Non-Motorized




Downlight – 4", 6", 7", 8"



Exam Light – 7", 8"



Adjustable Exam – 7", 8"

A photograph of a modern medical procedure room, likely a catheterization or electrophysiology lab. The room features a large, white, motorized exam table in the foreground. Above the table, there are several large, white, motorized light fixtures suspended from the ceiling. In the background, there are medical monitors displaying various data, and a control panel with multiple buttons and knobs. The room has a clean, professional appearance with light-colored walls and a polished floor.

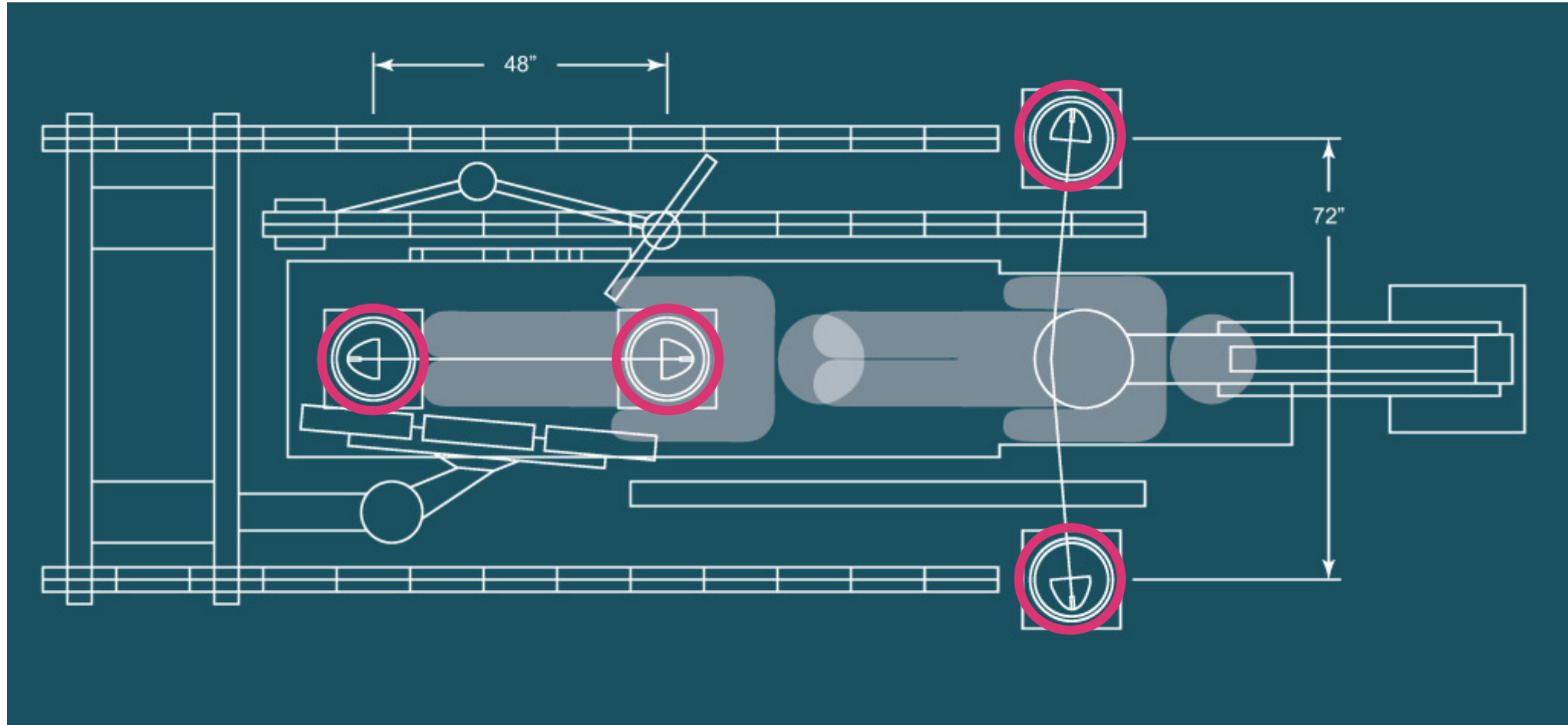
# Motorized Exam Lighting in the Cath & EP Lab

# Showroom Video – See separate Clip

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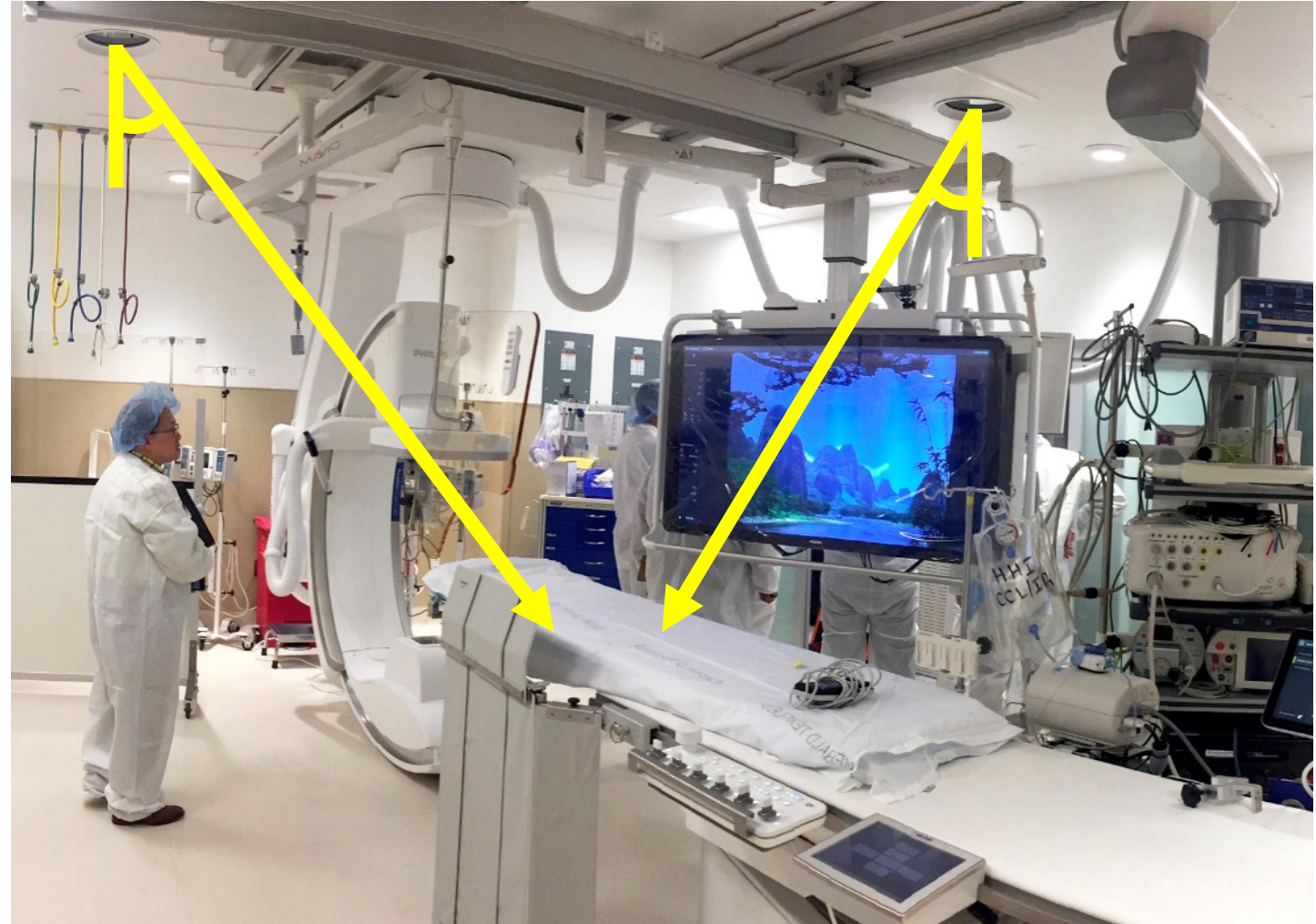
<https://youtu.be/CfGLdepCF2g>

# Typical Fixture Locations for Cath Labs



# Fixture Placement & Beam Angle

- Restricted plenum space and competing equipment can push the recessed exam lights to the perimeter
- When the lights are mounted over the patient table, a 35-degree angle may be sufficient
- Often, the 45 degrees offered by PRO 45 is the difference-maker



# PRO 45: A Simple Solution for Cath Lab Lighting

Kirlin Lighting's INFRALED® PRO 45 provides ideal lighting for the Cardiac Cath & EP Lab

## Enhanced Visual Acuity

- 360° rotation and up to 45° tilt for illumination of patient table
- Fully dimmable & adjustable, with 95+ CRI

## A Safer Environment

- Fully recessed with IP66 trim and sealed housing
- Sterile and easy to clean

## Improved Patient Comfort

- Replaces imposing boom lights

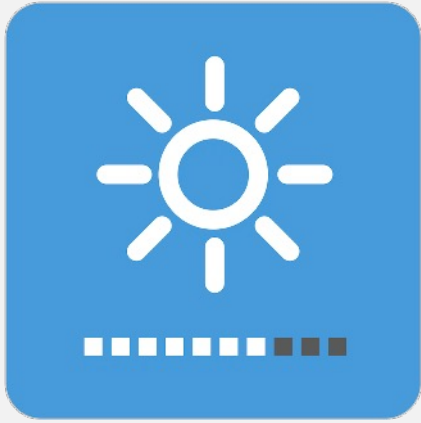


The background image shows a medical procedure room. A large, white C-arm X-ray machine is suspended from the ceiling. Two computer monitors are visible, displaying medical data. The room has a clean, clinical appearance with light-colored walls and floor. A semi-transparent dark blue banner is overlaid across the middle of the image, containing the title text in white.

# Ambient/Perimeter Lighting in the Cath & EP Lab

# Ambient Lighting: Two Primary Goals

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Sufficient Light  
Levels for Cath & EP  
Tasks (w/ Dimming!)



Sealed & Cleanroom  
Rated Fixtures for  
Infection Control



## Sufficient Ambient Light Level

- General procedural area: 150 fc
- Scrub area: 75 fc
- Instrument Prep: 50fc



- ✓ Consistent, high light levels
- ✓ No shadow zones
- ✓ Dimmable for enhanced monitor viewing



## Insufficient Ambient Light Level



- x Inconsistent light levels – bright spots and dark spots
- x Minimal illumination of patient table, other than boom lights

# Cleanroom Lighting in the Cath Lab



## 8" Sealed Downlight

2500L to 6500L



BioGard Antimicrobial Finish



IP65 Ingress Protection



ISO 5 / Class 100 Cleanroom

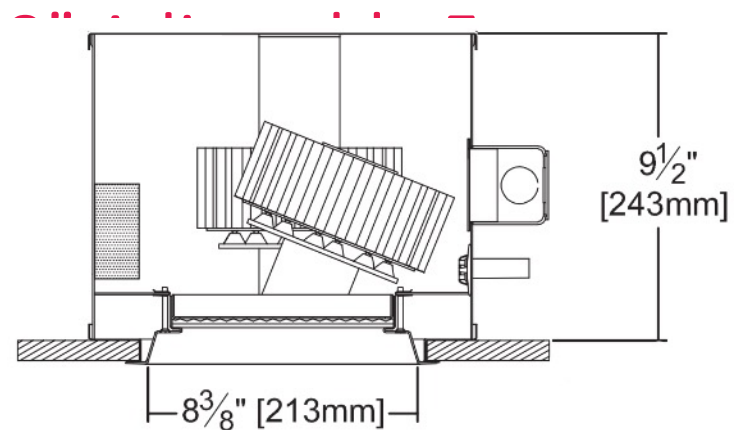
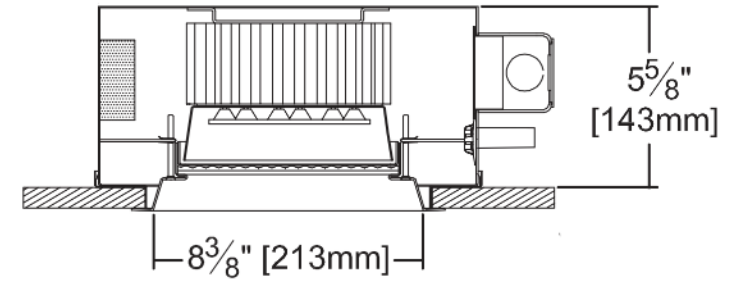


Color-Specific Wavelengths

# Fixed & Adjustable IP65 @ Tucson Medical Center



## 8" Perimeter Downlight



# Recessed Luminaires for Ambient Cath/EP Lighting

4"



Downlight

1000L – 2500L



6"



Downlight

1000L – 6500L



7"



Downlight

1000L – 6500L



8"



Downlight  
Adjustable

1000L – 6500L



A wide-angle photograph of a modern Catheterization and Electrophysiology (Cath & EP) laboratory. The room features a central circular console with various medical devices and controls. A large, curved medical monitor is mounted on the right side, displaying a blue screen. The ceiling is equipped with multiple overhead surgical lights and a large, white, articulated robotic arm. The walls are lined with wooden cabinets and glass-fronted storage units. The floor is a light-colored, polished surface.

# Cath & EP Lab Vignettes

# Sealed Ambient Lighting @ Cleveland Clinic



**MRR-08555**



**Level 3 Cleanroom Downlight**  
**3500L**

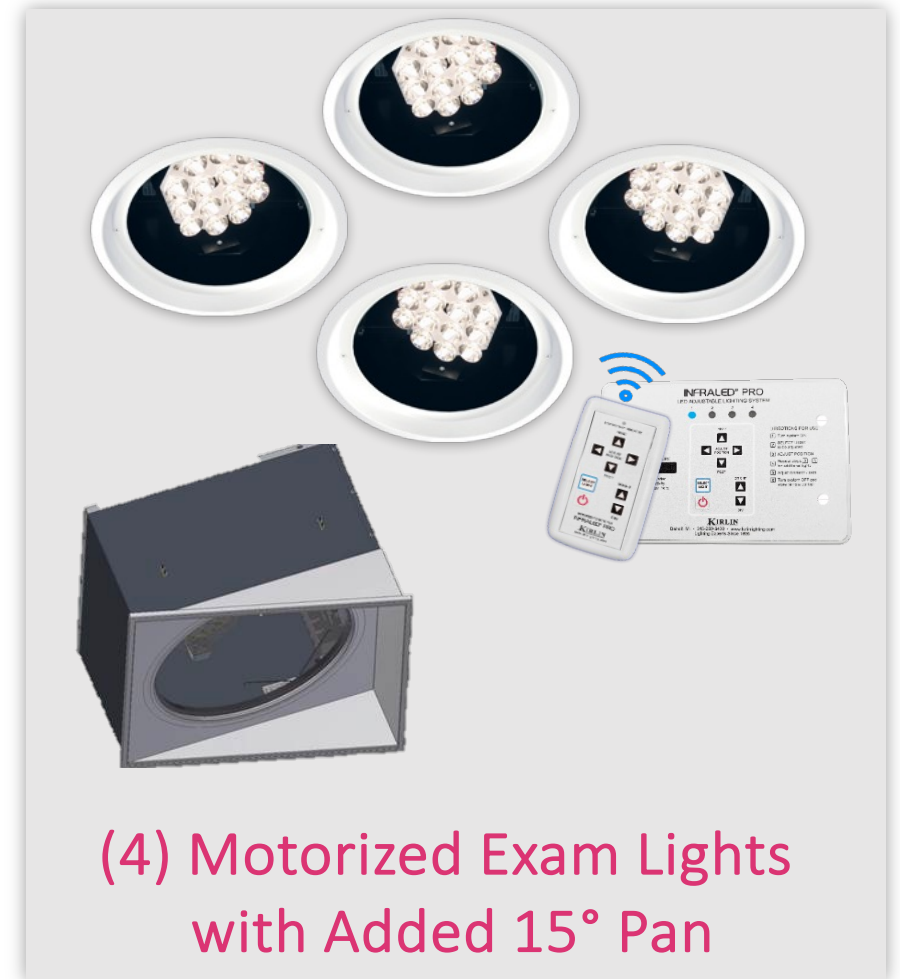


# Managing Scarce Ceiling Real Estate

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# 4-Light Motorized System @ Placentia Linda Hospital

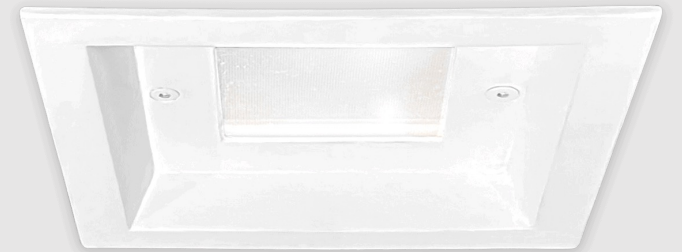


(4) Motorized Exam Lights  
with Added 15° Pan

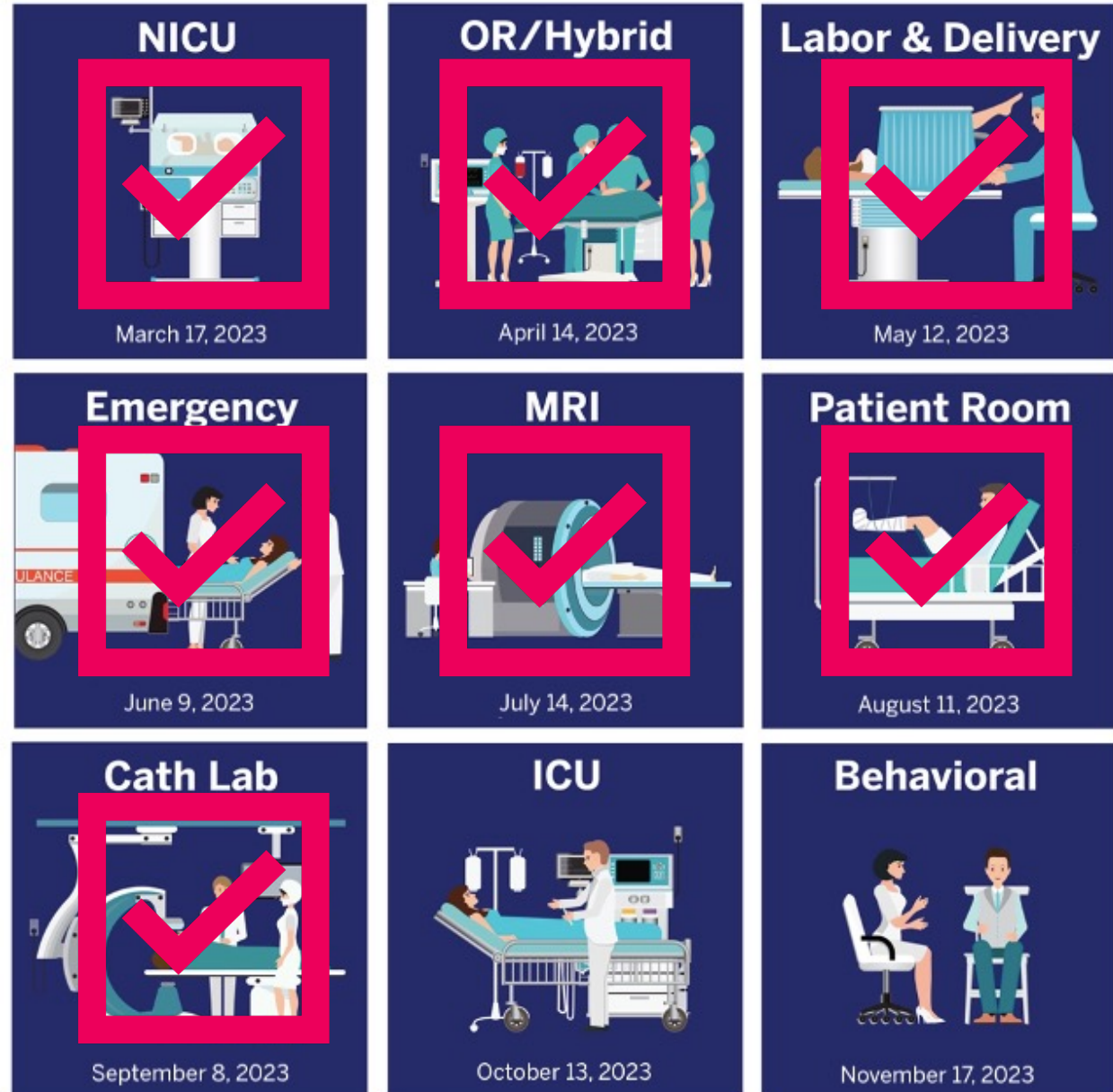
# It's Hip to be Square @ St. Clare's Denville



4" Square Lensed Downlight  
2000L



# Join Us Every Month, or On Demand!



A photograph of a modern building's interior, featuring multiple levels with curved balconies and glass railings. The space is illuminated with recessed ceiling lights, and the overall color palette is dominated by blues and greys, with some warmer tones from the railings and floor. The word "Questions?" is overlaid in a large, white, sans-serif font in the center of the image.

# Questions?