



# Transforming the EP lab experience

Philips EP cockpit brings order and innovation to EP by providing a streamlined technology solution

## Who/where

Carondelet Heart Institute  
St. Joseph Medical Center  
Kansas City, Missouri  
USA

## Challenge

Simplify the workflow in order to realize procedural efficiencies in a busy EP lab environment

## Solution

Install a Philips Allura Xper FD10 X-ray system enhanced with the new EP cockpit workflow solution

Accompanying the versatile Allura Xper FD10 X-ray system in Carondelet Heart Institute's new EP lab is the Philips EP cockpit, an evolutionary workflow solution.

“Electrophysiology is the kind of work that has to be organized,” suggests Jane Falk, Administrative Director, “The EP cockpit allows us to bring order to the lab by getting all the cables up off the floor, all the equipment pieces into a single rack, and to really clean up the lab.”

## Better, faster

While electrophysiology may be the fastest growing of all the cardiovascular disciplines, it is often characterized by crowded and cluttered labs. Tedious procedures are made even longer by repositioning equipment, walking to the control room and working with dissimilar systems.

As a leader in EP solutions and ergonomic room design, Philips has sought to redefine the EP lab environment from the electrophysiologist's perspective. The purpose of EP cockpit, an integrated lab solution, is to simplify and harmonize elements of the EP care cycle for an improved work experience.

## Philips meets the need

The EP team at Carondelet Heart Institute performs all types of EP procedures including:

- *Ablations*: supra-ventricular tachycardia (SVT)
- *Implants*: pacemaker, implantable cardioverter defibrillator (ICD) and Bi-ventricular ICD
- *EP studies*: general diagnostic and therapeutic

Selecting equipment to support this broad spectrum of procedures and to manage a growing case load was critical. “We spent a lot of time talking about the equipment and what features came along with it,” recalls Dr. Robert Tung, Medical Director of the Heart Rhythm Center at Carondelet Heart Institute. “We wanted to keep the lab clean. We wanted to streamline every function possible.”

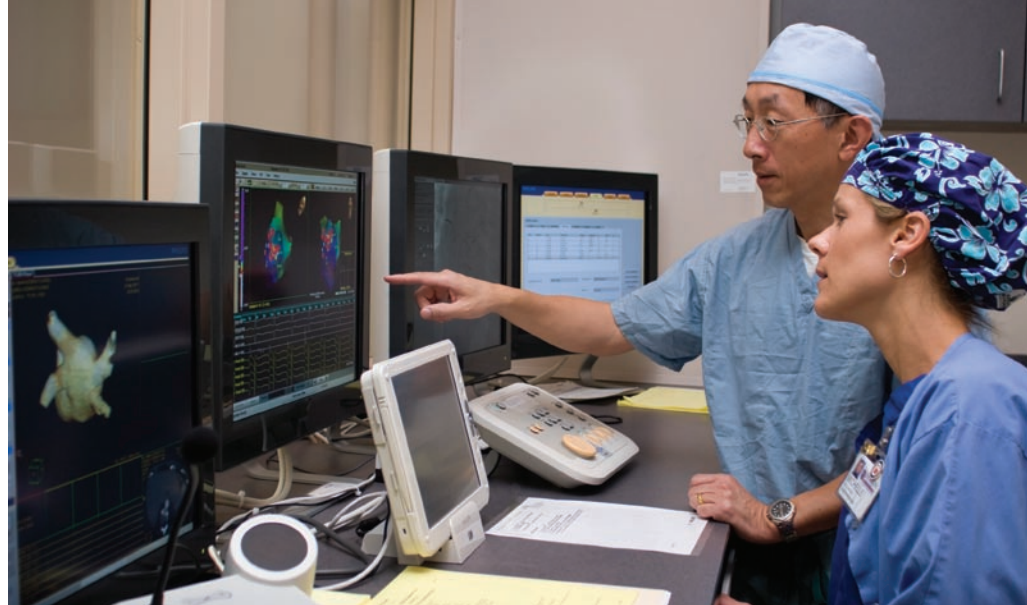
Ms. Falk concurs, “After discussing Philips exceptional X-ray image quality, we saw the efficiencies, cleanliness and organizational benefits of the EP cockpit as a valuable addition. Coupled with good customer support we've had throughout the years, gave Philips a 'one-up' over competition. Choosing EP cockpit was almost a no-brainer as we knew we were growing into more complex EP procedures and wanted to be prepared.”

# PHILIPS

### Effective and efficient features

EP cockpit brings innovation to the EP lab in several key areas:

- A ceiling-suspended equipment rack provides a single location for all third-party equipment (mapping, recording, stimulator, etc.) with all the associated cables thread through the ceiling suspension. This keeps the room clean and safe, removing any tripping hazard.
- Bedside control enhances workflow by integrating with EP MedSystem's Workmate application.
- Six or eight, rack-mounted bedside monitors can be easily positioned for optimal viewing. Visual image input is customized to suit operator preference and can be changed quickly with the use of a touch screen control panel.



- Control room monitors (up to seven) are configured and controlled with a single Xper module touchscreen panel. Keyboards and mice are reduced to bare minimum and can be easily assigned from system to system.
- An Xcelera integrated workstation allows important clinical information to be displayed (i.e. past ECG, Ultrasound, CT, MR studies, X-ray images) and stored for easily pre-procedure review and post procedure report preparation.
- The SnapShot feature captures any image displayed in the exam room or control for future reference or reporting.

### A better working environment

Clearing the lab for a more efficient workflow is essential to the EP cockpit concept; no cables on the floor, no loose equipment, no unnecessary displays or keyboards. This is welcome news to Ms. Falk. She remarks, "Being someone that's managed labs for a long time, the one thing that's always been a daunting task in the EP lab is dealing with the amount of equipment. And with each one of those pieces of equipment comes more and more cabling. From the perspective of the staff, it can be almost dangerous with cables you can trip over." It is also important to note that if one of those cables breaks from a trip or from being crushed or rolled over, the entire lab can be down until that cable is repaired or replaced.

EP cockpit changes that. A single ceiling-mounted rack allows the cabling from all support equipment to run up through the ceiling. Clinical EP Nurse Michelle Meyer BSN RN-BC, who assists Dr. Tung during many of his EP procedures notes, "It's a fantastic way to clean up the lab. It keeps all cords and lines up. Not one thing is on the floor. That minimizes cord fractures. And, I can't tell you how many times a patient has come in that room and said how clean it looks. That reassures them. It's actually a very calming environment."

### Introducing bedside control

Efficiencies in workflow are exemplified by a careful integration of all aspect of the EP cycle of care. Performance improvements are apparent to Dr. Tung. "The EP cockpit really helps in many ways," he says. "But to me what's most impressive is that the operator can perform recordings and many other functions right at the bedside. I can do much of what I want by myself."

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Philips has partnered with EP MedSystems to integrate the EP MedSystems EP-WorkMate application directly into the Philips Allura Xper system. Via the Xper module bedside control, Dr. Tung can:

- Start/stop recording EP signals
- Save fluoro images
- Add map point to examination log
- Mark an event
- Describe an event
- Adjust the signal display, set a timer and print a WorkMate report

“It’s great,” exclaims Tung. “If I want to review something, I can just push a button and record a cine view. Previously, if I wanted to see something, I had to walk into the control room and say, ‘Can we go back and look at that?’ Now much of what I used to have to walk back and forth for, I can do bedside.”

Nurse Meyer sees time saving advantages, “Patient demographic information is automatically transferred from the Allura Xper system right into our EP MedSystem. This eliminates a tedious extra step.”

### See what you need to see

Each of the six or eight individual exam room monitors can be assigned a different signal (up to 15 inputs can be provided to choose from) and each can be easily reassigned depending on physician preference or procedure type.

- In Carondelet’s EP lab, source signals typically include:
- Hemodynamic information
- Live and stored fluoro and cine
- ESI or Carto mapping
- Intra-cardiac echo
- Electrocardiogram
- Device programmers



“Using the Xper module touchscreen control, we’ve designed our own display arrangements,” explains Nurse Meyer. “We have one each for an EP study, ablation, A-fib, ICD and pacemaker. Based on these differing protocols, we sat down with Dr. Tung and went over exactly what he wanted to see on each screen during each specific kind of case.”

Dr. Tung clarifies, “If we do an ablation, I’m standing on the right side of the patient with the screens in front of me. When I’m putting a catheter in, I put the X-ray image on the screen immediately in front of me. Then later, when I want to see the electrocardiogram, I rearrange the screens so the electrocardiogram is right in front and the X-ray is a little off angle. I don’t have to move the rack of monitors. I don’t have to stretch to see the pictures. It’s an example of how the equipment makes things simpler.”

The monitors move smoothly as a group to any spot around the patient table. This allows viewing flexibility from procedure to procedure. Dr. Tung makes good use of this maneuverability. “When I do a device implantation, I go to the left side of the patient and we move the monitors to the foot of the bed. All of the images have to be reversed from the way I view them during an ablation. Changing configuration easily like this is just ideal.”

### Control room staff wins too

As clean and simplified as the exam room is, the control room is equally so. Once cluttered with a variety of disparate monitors, keyboards and mice, the room is now streamlined and centrally controlled.

An Xper module touchscreen sits in the middle of six LCD screens, providing Nurse Meyer with new possibilities. “We can choose from 13 or 14 different functions and put any one of them on any of the

six monitors. There's no reaching from keyboard to keyboard either. We have just two keyboards and from the Xper module we select which function we want either keyboard to control. It cleans up the control room greatly."

She continues, "It's much more efficient too. One person can sit there and do the job of two, potentially three people, because you can quickly choose whatever screen or keyboard function you want at any time."

When her Carto representative comes to visit, Nurse Meyer places him at the far right monitor, assigns one of the two keyboards and is able to keep him out of the busy exam room and out of the way of Dr. Tung.

#### IT and reporting support

Integration of the EP care cycle is further strengthened by versatility in data management and image handling. A Philips Xcelera integrated workstation in the control room helps optimize workflow by:

- Providing access to EP-specific pre-interventional data for use in planning and preparation
- Sending pre-interventional data to third-party equipment
- Providing viewing and storage of third-party equipment information

"If we want to reference a previous study such as a cath, CT or MR," says Nurse



Meyer, "we're able to pull it right up on the workstation screen versus having to get it from another area of the hospital."

Reporting capabilities are also simplified. Still images from any control room or exam room monitor can be 'grabbed' at any point during a procedure by using the SnapShot feature. Nurse Meyer uses it regularly. "With SnapShot, we're able to capture whatever images we want and put them directly into the physician report. For example, if we want an ESI and then a fluoro picture, we 'SnapShot' those and they go directly into the physician report and into our server so we can pull them up at a later time."

#### Ready to grow

The promise of continued rapid growth in electrophysiology demands that ergonomic technologies transform the experience. Philips EP cockpit proves that order, cleanliness, intuitive design and ease-of-use are attainable goals in the EP lab. The team at Carondelet Heart Institute believes this to be true. "From a staff perspective," says Ms. Falk, "if

everything has its place and everything is in its place, workflow is improved. Anecdotally we can say yes, there are procedural efficiencies. We've learned from experience this is true. In fact, we are currently involved in a tracking study to provide quantitative data."

As an electrophysiologist, Dr. Tung knows first hand the benefits of a smoother workflow. "For the longer EP procedures such as during a difficult ablation, I think you benefit particularly from a time savings." He claims, "If you can save 15 minutes, it makes a big difference."

"We have more time to focus on the patient," adds Nurse Meyer, "versus tripping over cables and running back and forth to the monitors. It's a completely integrated lab, very pleasurable to work in."

Ms. Falk sums it up, "I believe the Philips EP cockpit will help us provide a better service to our patients. There is no doubt that with complex EP studies, this system will add incredible value."



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