‘Situational awareness’ in the EP lab

Philips EP cockpit XL promotes efficiency

Who/where
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Ocala, FL
USA

Challenge
To manage heavily data reliant EP procedures more efficiently, for effective results

Solution
Employ Philips Allura Xper FD X-ray system and EP cockpit XL with FlexVision 56” high-resolution display, for an integrated approach

At Munroe Regional Medical Center in Ocala, Florida, Philips EP cockpit XL streamlines electrophysiology procedures. “One of the hurdles that we experience while performing complex EP procedures is gathering data from different sources,” says electrophysiologist Dr. Celso Acevedo.

In his search to gain an edge, the Philips Allura Xper FD10 interventional X-ray system with EP cockpit XL caught Dr. Acevedo’s eye as a tool he could use to streamline his procedures. “As soon as I saw Philips EP cockpit XL’s big screen, I realized its value,” says Acevedo. “I think Philips has it figured out. They know how to bring together data from different sources onto one screen, without affecting quality. That’s why I bought the system.”

Designing an EP suite

Dr. Acevedo was faced with an exciting opportunity. The Munroe Heart Program at Munroe Regional Medical Center in Ocala, Florida was looking for an electrophysiologist to initiate a brand new electrophysiology program. As Acevedo recalls, “They wanted someone who could work in the left atrium, specifically for A-fib and VT ablations.” When brought on staff Acevedo was given the chance to tailor the EP lab to suit his preferences, selecting the equipment he deemed necessary.

He knew he wanted St. Jude’s Velocity mapping and EP WorkMate recording systems. He was impressed by the Philips Allura Xper FD10’s image quality. But it was EP cockpit XL, featuring a 56-inch FlexVision high-resolution display, that he believed would make the biggest difference.

Celso Acevedo, MD

PHILIPS
sense and simplicity

Dr. Acevedo customizes his view by procedure type

Situational awareness

As an avid recreational pilot, Acevedo is familiar with the need to quickly process information from many different instruments. In an unforgiving environment, command of everything that's going on in the moment and anticipation of what might happen in the immediate future is often called 'situational awareness.' "Your brain is gathering information very quickly," says Acevedo, "especially if there is a problem or complication. Technologies are currently being developed to improve a pilot's situational awareness by integrating various displays into one."

"When I saw the EP cockpit XL, I thought this is the same thing. If I can integrate all my data into one screen, my situational awareness in the EP lab is going to be exceptional."

EP cockpit XL's 56-inch, eight megapixel, medical-grade monitor is capable of displaying up to eight different inputs at one time – all presented within an immediate field of view. It gives the electrophysiologist full control over the viewing environment with flexible switching and ease of maneuverability.

"I now have a better sense of how the case is progressing," says Acevedo. "I can see out of the corner of my eye all that's going on. For example, I might see that the temperature of the esophagus has just started to go up, so I know I must move away from the back wall. I don't want to traumatize the esophagus. I am looking at my ablation catheter while viewing the temperature of the esophagus, on the same screen, so I can catch this subtle change very quickly."

He continues, "Or maybe the blood pressure starts changing because I'm pacing a bit fast. I'm immediately aware of that because I also have hemodynamic data right in front of me."

Acevedo believes that complex procedures like an A-fib ablation can be done much more effectively with this efficient display of information. "The situational awareness is just phenomenal. I feel I am more ahead of my procedure, more in control."

Personalized configuration

The FlexVision screen layout is enormously adaptable. It will accept up to sixteen video sources (including 3rd party imaging systems), eight of which can be displayed at the same time. Each source image is arranged within the 56 inch screen to suit personal preference and procedure type, and then sized accordingly. Physicians can choose from twenty-four different preset screen layouts, or create their own. Best of all, FlexVision images can be reorganized and resized 'on the fly.' The table side touch screen module allows all this customization to be done quickly and easily during the procedure.

EP lab at Munroe Regional Medical Center

"By staying ahead of the case, I can be ready to react quickly if any complication arises."

Dr. Celso Acevedo, Cardiovascular Electrophysiologist, Munroe Heart Program

"I use four different presets," says Acevedo, "one for VT ablations, one for SVT ablations, one for A-fib ablations and one for implants. If a particular case dictates something different, I may switch the configuration around because it can be changed very easily. The XperModule, mounted tableside, lets me do this at the touch of a button."

For A-fib ablations, Dr. Acevedo puts the Velocity mapping images in the dominant upper left hand position, followed by live fluoroscopy immediately underneath. His full configuration includes:

- 3D maps generated by the Velocity mapping system
- Live fluoro from Allura Xper FD10
- Intracardiac electrograms from the EP Workmate recording system
- Intracardiac ultrasound (TEE and ICE)
- 2nd screen for recording electrogram (updated views)
- Blood pressure and esophageal temperature (anesthesia machine)
- Hemodynamic information from EP Medical systems

Mapping clarity results in reduction in fluoro

"The cockpit interface with the mapping system is superb," says Acevedo. "The quality of the images I get through the flat screen are identical to the original. Philips and St. Jude have achieved a fantastic integration."

Acevedo's goal of reducing X-ray dose to his patients is assisted by a convergence of technologies – St. Jude's Velocity mapping and Philips EP cockpit XL. During non-complex SVT ablations, Acevedo all but eliminates the use of fluoroscopy to guide his procedures. Instead he relies on the quality of his mapping images, as represented on the big FlexVision screen, combined with the ability to perform a SuperZoom to scale the map from 32% to as much as 420% without loss of detail.

He explains, "I take the FlexVision screen and split it in two – with RAO/LAO mapping views on the left and intracardiac electrograms on the right. On the left image I tag important structures like the AV node, so they're very visible. I can zoom in on that image as much as I want to determine exactly where the critical components are – the areas I need to avoid. I do more than half of my SVT procedures this way without using any fluoro."

For procedures where fluoroscopy from the Allura system is employed, high-resolution images on the 56-inch display demonstrate incredible detail. "The first time we used the FlexVision screen for an implant we were amazed," recalls Acevedo. "When we put in the leads, we could see the screw as if it were an inch long. With this system, you can actually see the little helix attach itself to the heart. There is no question. It's really quite remarkable."

Large screen layout can be modified to fit individual needs

Philips Allura Xper FD10
with EP cockpit XL

Efficient room setup

The 56-inch FlexVision high-resolution monitor is not the only benefit of the EP cockpit XL solution. Supporting equipment in the EP lab can be mounted on a movable ceiling rack to organize and reduce clutter. Cables are routed overhead to keep them out of the way. All equipment is controlled from a single tableside Xper module. And the room is opened up for staff to move about more freely.

Acevedo considered this space-saving design when constructing his EP lab. Now he and his staff are enjoying its advantages. "We can move the system rack around easily without jumping over wires," he notes. "You just free the pneumatic brake and ease the equipment to one side. This means we need a lot less space than the standard EP lab. It makes for faster, cleaner, and more efficient procedures."

With this kind of flexibility and open working environment, transition from one type of procedure to another is dramatically improved. "If we're doing an ablation," explains Acevedo, "I work from the right side of the patient, and then if we switch over to an implant, I need to work on the left side of the patient. Moving the cockpit lab around to adjust from one procedure to the other is a very fast, easy task with the ceiling suspended equipment."

Prepared to handle the volume

At Munroe Regional Medical Center, Acevedo's busy EP lab typically sees a 60/40 split between ablations and implants. "We've been very successful from the moment we began," he says. "We have 20 to 25 cardiologists in the Ocala area regularly sending referrals our way."

Supported by the Philips Allura Xper FD10 X-ray system and EP cockpit XL solution, Acevedo runs an EP lab capable of handling significant volume. The tight integration of St. Jude mapping and recording equipment gives Acevedo an additional edge in X-ray dose reduction techniques. He feels he is ready for anything. "My teacher always said, 'Complications are better anticipated than reacted to.' I believe having all the information displayed right in front of me – clearly – allows me to see changes in dynamic cases very quickly and react to them appropriately. I think this is a huge advantage for my patients and an efficiency advantage for me."

Acevedo concludes, "If you have good equipment, a well-trained staff and a strong program, you'll be able to do several complex ablations each day. In our single lab we can do three A-fib ablations a day, easily, and be out by 5:00 pm."

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