



# Interventional radiology breaks new ground

Philips and Skytron team up to help fully realize the promise of a 'hybrid' angiography suite

## Who/where

Dr. Barry T. Katzen  
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Baptist Cardiac & Vascular Institute  
Miami, Florida  
USA

## Challenge

Create an angiography environment that fully supports both minimally-invasive procedures and surgical alternatives

## Solution

Implement new 'hybrid' cardiovascular solutions with the latest Allura Xper FD technology from Philips and state-of-the-art surgical lighting and boom technology from Skytron

For more than a decade, Dr. Barry T. Katzen, Medical Director of Baptist Cardiac and Vascular Institute (BCVI) in Miami, Florida, has pioneered the integration of surgical and interventional procedures. Dr. Katzen and his team continue to show that surgical procedures in an angiographic environment can be accomplished with the same degree of efficiency as in an operating room (OR).

"The specialties of interventional radiology and vascular surgery bring more to each other when we work together," suggests Katzen. "Procedures that help drive this relationship include aneurysms of the thoracic aorta and abdominal aorta. Having an environment where we can use a surgical option allows us to think out of the box for individualized patient solutions."

## Improving on a good thing

At BCVI, eight angiography suites serve the diverse needs of the patient population. 'Room Two', as Dr. Katzen calls it, bears the distinct advantage of being the first hybrid angiography suite to benefit from a special alliance between Philips Healthcare and Skytron.



James F. Benenati, M.D. (left) and  
Barry T. Katzen, M.D., FACC, FRCR (right)

Outfitted with a Philips Allura Xper FD20 interventional X-ray system, Room Two has served BCVI as the focal point for cross-disciplinary procedures for several years. Yet, while the room worked very well for traditional 'cath' procedures, Katzen found it was not optimally designed to accommodate his surgical colleagues. "Over time," he says, "we made small modifications, trying to provide better lighting and trying to assure better access for the surgeons, but success was minimal."

# PHILIPS



In 2008, Philips Healthcare and Skytron entered into a collaborative agreement to provide comprehensive, integrated solutions for the cardiovascular environment. Dr. Katzen seized the opportunity to refine the surroundings.

Based on a well-coordinated plan from Philips and Skytron, Room Two underwent a significant upgrade aimed at enhancing hybrid functionality. Improvements included:

- Allura Xper FD20 release 3, including XperGuide, Xper table and enhanced 2D roadmapping
- Focusable LED surgical lighting on overhead booms
- Anesthesia boom
- Secondary flat screen monitor for opposite side of table viewing

As Katzen explains, “What we’ve tried to do is create an environment that is more comfortable for our surgical colleagues and more comfortable for our anesthesia colleagues, while at the same time taking a lot of clutter off the floor.”

#### Room to work and move

Up and operational, the redesigned room is running smoothly. Surgical lighting and anesthesia boom technologies provided by Skytron not only aid clinicians procedurally, but have helped clear the room—opening the floor for easy access to the patient. Dr. James F. Benenati, Medical Director of the Peripheral Vascular Laboratory, is impressed with the new space. “Frequently in the room there’s a vascular surgeon, an interventional radiologist and then our team of techs and nurses. Often there’s an OR team there too. So the room can get pretty full of people. One of the great advantages of the new room design is it’s so spacious that we can all operate and function very effectively without being in each others way. Information can be transferred to the head of the bed—to the anesthesiologist—down to where we’re working very easily.”

The quality of lighting now meets the tough standards of the surgical team. High intensity LED lights can be finely positioned for critical tasks. “The lights, because they are LED, are extremely white and quite cool,” says Katzen. “In addition, they are focusable, which is very beneficial to both us and the surgeons. One of our surgeons even feels that the lighting is superior to that which is in the OR. It’s been a big success.”

A multipurpose flat-screen monitor hangs from a ceiling boom. This new addition assists in two ways. First, it can be positioned to allow clinicians working on the opposite side of the table to see what’s going on fluoroscopically. When that’s not required, the monitor is made available to other allied health personnel to chart and track ongoing procedures. “From a physician’s standpoint,” states Benenati, “the

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ergonomics of having that additional monitor in the room is great because you're not put in an unnatural position with your head and neck straining to look at things, especially when you work on the other side of the table. It makes the procedures much more relaxing.”

#### Enhanced imaging capabilities

With the Philips Allura Xper FD20, Dr. Katzen and his team are able to combine 3D-RA high-resolution vessel information with XperCT soft tissue information to aid in complex interventions. XperCT is a remarkable technology which provides

CT-like soft tissue imaging capabilities in the interventional suite, mitigating the need to transport the patient. For Dr. Katzen, this is critical, “Integration of three dimensional imaging with fluoroscopy is revolutionizing the way we do a lot of interventions. It's almost like having an extra set of eyes. It provides us with a better understanding of what we're doing.”

Part of the latest release for the FD20 is a live 3D imaging product called XperGuide. Based on XperCT principles, XperGuide helps to bring percutaneous needle guidance to the angiography lab. Dr. Benenati describes the considerations for such work, “Our goal,” he says, “is to put a needle in a precise point. Historically, the two ways to do that have been ultrasound and CT guidance. But in certain situations you really need fluoroscopy right after you get a needle to its destination in order to accomplish a treatment objective.”

He continues, “XperGuide allows us to use the 3D volumetric information for imaging guidance directly. It takes the XperCT imaging and accomplishes precision needle guidance. Two areas where this works well are endoleaks, where we are doing a direct aortic sac injection and certain drainage procedures where we use needle guidance to get into an organ and then combine that with fluoroscopic intervention such as placing drainage catheters.”





Every nuance, every adjustment possible to position the patient for optimal needle introduction is critical. The upgraded FD20 boasts an Xper table with unique isocentric cradle functionality, providing the ability to confidently refine positioning. “Cradling the patient is something we’re doing more and more,” Katzen remarks. “It allows us to rotate our patient from side to side. It gives us access to the patient in ways we didn’t have before and has proved to be a valuable new function.” The Xper table also features an increased weight capacity of 250 kg, automatic position control (x,y,z) and table lock for 3D roadmapping.

High resolution and superb contrast visualization are characteristic of the image quality available with the FD20. “I think the image quality is clearly superior to anything else we have,” suggests Benenati. Yet further refinement of fluoroscopic overlay imaging for roadmapping is offered with this new release. “It’s one of those funny things,” Benenati quips. “We were all very happy with the quality of the images prior to the upgrade. Then the new room opened up and the improvement is noticeable.”

#### **Installation with minimal impact**

“We’re a busy lab and taking a room down for a period of time is always an inconvenience,” says Katzen. “The one thing everybody remarked upon was how fast this upgrade was accomplished.” In two and a half weeks, Philips and Skytron, working closely with the implementation team at BCVI, completed the staging and upgrade. The new room reflected the input of interventional radiologists, surgeons and anesthesiologists. Each group helped define the clinical specifications, making it a truly multidisciplinary environment.



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#### **A room that works**

The surgical team at BCVI has been appreciative of the changes made. Dr. Katzen believes the upgrade has created a better environment for all involved. Recently, they encountered an excellent example of how successfully the teams can combine surgical access with an interventional solution. A patient presented with critical narrowing of an artery to the brain and chest, and a narrowing of that same artery in the neck. “It was a very complex situation,” recalls Katzen, “but we combined our skills. The surgeons removed the plaque in the neck with an endarterectomy and we used that same access to go down and stent the chest.”

This type of coordinated procedure may save precious time for patients and assures that they can benefit from the collaborative talents of surgeons and interventional radiologists.

#### **Furthering the hybrid model**

Room Two now stands as one of the most advanced hybrid angiography suites in the country. Drs. Katzen and Benenati and their surgical colleagues continue to break new ground in minimally-invasive cardiovascular care. As Benenati puts it, “We do a lot of very sophisticated and challenging cases and certainly image optimization and system ease of use plays a critical role in allowing us to take on these cases. This new room is on the forefront of hybrid design.”

Katzen concludes, “Philips provides us with the kind of support we need to get the job done.”

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