



PHILIPS

Azurion

Image guided therapy

Pushing the boundaries in structural heart

Philips Azurion supports innovative procedures

Who/Where

Adam Greenbaum, MD, FACC, FSCAI

Co-Director of the Center for
Structural Heart Disease

Anne Marie Creed, VP of Operations

Jessica Harrington, RCIS, Cath Lab Technologist

Helen Constan, RN, Cath Lab Lead Nurse

Henry Ford Hospital, Detroit, Michigan, USA

Challenge

Leverage the capabilities of a hybrid
interventional X-ray system to support
innovative solutions for complex structural
heart disease procedures

Equipment

Philips Azurion interventional suite with
ClarityIQ and FlexMove technology

For the past several years, Dr. Adam Greenbaum, Co-Director of the Center for Structural Heart Disease at Henry Ford Hospital, has been focused on 'novel' therapies for treatment of patients with structural heart disease. He pursues these as an adjunct to procedures such as TAVR or TMVR to make them more readily available to patients that otherwise might have declined the procedures and who are already at prohibitive risk for a traditional surgical approach.

"There are people with certain problems that require novel procedures because there is nothing else out there for them," says Dr. Greenbaum. "I try to spend my time helping these 'no option' people."

"We wouldn't have been able to develop some of these procedures unless we knew that we had cutting-edge imaging capabilities," continues Greenbaum. "For instance, when we proposed the idea of splitting the anterior leaflet of the mitral valve prior to valve implantation, people thought we were lunatics, that it never could be done, but it can and has been done with the assistance of our Philips Azurion interventional system."

Technology keeps pace

“

We wouldn't have been able to develop some of these procedures unless we knew that we had cutting-edge imaging capabilities.”

– Dr. Adam Greenbaum



Founded in 1915 by auto pioneer Henry Ford and now one of the nation's leading health care providers, Henry Ford Hospital is an 877-bed level one trauma center and tertiary care facility, and an education/research complex in Detroit, Michigan. It is staffed by over 1200 medical group physicians in over 40 different specialties.



At the Center for Structural Heart Disease, heart experts are pioneers in developing the latest transcatheter procedures for heart valve disease and other structural heart conditions. “Our interventional program is very well respected nationally,” says Ann Marie Creed, Vice President of Operations. “Our cardiologists are constantly pushing the envelope with regards to what’s new.”

Of the seven cath labs at Henry Ford, five are dedicated to cardiology, with two setup as hybrid OR/interventional suites, offering a combination of high-end angiographic capabilities along with the space, versatility and sterility standards of an operating room. Hybrid suite #5 showcases Azurion, a next-generation image guided

therapy platform from Philips designed to perform a wide range of routine and complex procedures with a unique user experience, helping clinicians to optimize lab performance and provide superior care.

Selecting the equipment to fit the skill set

Structural heart procedures are always scheduled into the Azurion room. While coronary revascularizations can certainly be performed there, the primary list of interventions conducted includes, transcatheter aortic valve repair, transcatheter mitral valve repair, perivalvular leak, atrial septal defect, ventricular septal defect, and patent foramen ovale closure – along with the occasional watchman device.



“

Our cardiologists are constantly pushing the envelope with regards to what’s new.”

– **Ann Marie Creed**

In support of these complex procedures, Henry Ford took great care in selection of the proper imaging equipment. Guided by requirements of their staff and the desire to maintain an optimal environment for development of unique interventional approaches, a decision was made to add the Azurion system.

Ann Marie Creed recalls, “The decision to include Azurion had a lot to do with the clinicians and technicians desire to gain more procedural control – more table control – better image resolution and data consolidation on multiple in-room monitors – an overall workflow improvement.”

“It’s truly improved the patient experience,” says Helen Constan, Cath Lab Lead Nurse. “I’ve been in the cath lab since 1990 and I remember when we used to have to take patients off the table and do other studies before a physician could decide on the best approach, whereas now with Azurion, it’s one smooth, continuous procedure with all pertinent information right at our fingertips.”

“ Having the functionality of multiple monitors and then multimodality imaging within each monitor has been key.”

– Dr. Adam Greenbaum

Working in parallel

Azurion has been specifically designed to save time by enabling interventional team members to do multiple tasks at the same time in the exam room and control room – without interrupting each other.

For Dr. Greenbaum, this versatility offers him the ability to develop unique approaches. “The most novel procedure I’m working on involves dual access / dual entry points or even three entry points where we’re going through the neck, through the tip of the heart, and through the leg simultaneously – so we might have three teams working on the patient at one time from three different places, each one requiring their own monitor to be able

to see what they’re doing for their part of the procedure. Having the functionality of multiple monitors and then multimodality imaging within each monitor has been key.”

In the control room, technologist Jessica Harrington also sees an advantage. “If someone walks into the control room and says ‘Hey, can I go through the case pictures’ it used to be a problem. Once the physician steps on fluoro it overrides whatever you’re looking at. With Azurion, that’s all changed. Someone can be right there going through the images and it doesn’t hold up the procedure. They can see pictures from the case you’re involved in even when fluoro is going on – that’s a big benefit.”





“ I think one of the biggest benefits with Azurion is having everything at our fingertips.... We spend less time taking our eyes off of the patient or off of hemodynamics because everything is right in front of us.”

– Jessica Harrington, RCIS

Eliminating clutter, gaining control

When prepping the control room for a procedure, Jessica Harrington used to have to prioritize the order of a long row of computer monitors, organizing everything from hemodynamics to IVUS. Now, Azurion's FlexSpot integrated user-centric workspot provides seamless access to all applications at one compact, customizable workplace, reducing clutter and simplifying workflow.

She explains, “I think one of the biggest benefits with Azurion is having everything at our fingertips. The FlexSpot monitor in the control room combines everything into one so we're not sliding ten feet down the tabletop to get to the piece of equipment we need. We spend less time taking our eyes off of the patient or off of hemodynamics because everything is right in front of us.”

Control is also improved in the procedure room. The tableside Touchscreen Module Pro allows clinicians the

ability to make quick imaging decisions of their own. “They've always been dependent on technicians in the control room to customize everything,” says Jessica. “The doctors would say ‘Hey can you put live fluoro on top or can you make these changes for me?’ Now they have the capability to do a lot of those things tableside.”

Control is further demonstrated through the use of ProcedureCards. ProcedureCards can help improve the consistency of exams by offering presets (e.g. most-frequently used, default protocols and user-specified settings) per procedure type for each physician. Jessica notes, “We have customized the settings for each doctor according to what they prefer to see on the monitors. We can customize say, Dr. Greenbaum TAVR, Dr. Greenbaum PCI, or Dr. O'Neil TAVR, etc. We can have those preset and ready to go even before they walk into the room. It definitely helps simplify setup.”

Quality images at reduced dose

“Novel procedures involve high-end imaging in the context of low radiation exposure because they’re often very long procedures,” says Dr. Greenbaum. “If I’m splitting an anterior mitral leaflet with a fourteen thousandths of an inch wire, it tends to take some time – so we want to keep our radiation exposure to the patient and operating staff to a minimum. With ClarityIQ, I feel as though I never need to concern myself with cumulative dose during long procedures.”

Jessica agrees, “ClarityIQ offers crazy reduced dose. If you look at time in the room and length of cases, I can’t believe that our X-ray milligrays are so low compared to what you might expect on other equipment. And even with the low dose, I would say the image quality is better than before.”

Over 500 system parameters have been fine-tuned to use the full potential of ClarityIQ technology, enabling superb visualization and dramatically lower dose in many different application areas.

Flexible geometry

Panning the X-ray system along the table can interfere with wires and tubes. Azurion’s ceiling mounted FlexMove can be moved longitudinally and laterally where needed, so it does not disturb staff and other equipment. When FlexMove is not needed, it can easily be tucked away in a corner, leaving plenty of room to work.

Dr. Greenbaum finds FlexMove to be an important asset during complex procedures. “There is a new procedure that we’ve developed at Henry Ford which involves three teams, plus anesthesia, all at different access points. The ability to swap the table 180 degrees and move the FlexMove all the way around for various parts of the procedure, without getting in the way of any one of those teams is critical.”

Well positioned for the future

“Our physicians are ready to try things that others may not,” says Helen Constan, “and for some patients that is a big draw – they are looking for their last lifeline. If that means flying to Detroit to have Dr. Greenbaum or Dr. O’Neil perform an innovative structural heart procedure to save their life, they’re going to do it.”

The Henry Ford structural heart team has found new ways to treat more people, those that might have been previously excluded, with fewer complications. Selection of Azurion interventional X-ray as the go-to technology aids in that effort.

“Having skilled physicians working in combination with a good piece of equipment allows us to do a lot,” concludes Dr. Greenbaum. “I believe the Azurion system will supply us with the support we need for current procedures as well as anything we might dream up in the future.”



“

The ability to swap the table 180 degrees and move the FlexMove all the way around for various parts of the procedure, without getting in the way of any one of those teams is critical.”

– Dr. Adam Greenbaum

