

# Solutions for Safer Electrophysiology Procedures and Improved Patient Care

## Interview With Gaurang Gandhi, MD

Interview by Jodie Elrod

In this feature interview, *EP Lab Digest* speaks with Gaurang Gandhi, MD, director of electrophysiology (EP) and section chief of cardiology at TriHealth Heart Institute - Bethesda North Hospital. The TriHealth Heart Institute in Cincinnati, Ohio, is a leader in treating heart arrhythmias and has received the Blue Distinction Center for Cardiac Care from Blue Cross Blue Shield. In this article, Dr Gandhi discusses how TriHealth Heart Institute has improved efficiency and patient care during EP procedures such as lead extraction and catheter ablation.

**Tell us about your EP practice, including number of labs and staff, as well as type of equipment. How is this EP practice different from other labs you have worked in? What types of procedures are performed at your facility?**



I am the director of EP at Bethesda North Hospital, which is part of the TriHealth Heart Institute. I have been doing EP since 2004 after my training at Cornell and Brown. I joined TriHealth Heart Institute in 2011.

We have 2 EP labs along with a hybrid lab, which also has a mapping system. We do all types of procedures, including newer procedures such as left atrial appendage (LAA) closure and central sleep apnea device implants. We have a very progressive EP program in Cincinnati. We have dedicated EP lab staff consisting of registered nurses and radiology technologists, who perform scrubbing, mapping, stimulating, EP studies, charting, and documentation. There are also 4 other partners—Drs John Wilson, Marshall Winner, Hemal Shah, and Dilesh Patel—all of whom have 5+ years of experience or more.

**What are some of the dominant trends you see emerging in EP and do you feel ready to meet those new trends?**

There are several dominant trends emerging in EP. As the population in this country gets older, we are seeing increased patient volume as well as more atrial fibrillation (AF). With heart failure advancement, we are seeing a lot of arrhythmias such as ventricular tachycardia. With more device implants comes the risk of lead failure, complications, infection, and endocarditis. Newer procedures such as LAA closure can help with prevention of strokes as well as decreased risk of anticoagulation.

We are on an upward trend. EP has been the dominant trend for the last 20 years and continues to hold that edge over other areas in cardiology.

So most importantly, we need to be prepared for increased volumes. We also need to make sure we are providing safer, faster, and more precise care. Procedures that used to take 4-6 hours to perform can now be completed in 2-3 hours using advanced technologies and modalities. Performing multiple redo AF ablations was the norm before, but now we are able to eliminate AF with one procedure. I am confident that we are well poised for success with our current mapping systems.



**Figure 1.** Dr Gandhi and staff performing an AF procedure in Bethesda North Hospital's integrated EP suite featuring Philips Azurion imaging systems.



**Figure 2.** Philips VeriSight Pro, the first ICE catheter to miniaturize the same 3D imaging technology that powers transesophageal echocardiography, allows users to reduce reliance on general anesthesia while giving more confidence and control in interventional procedures.

### How does your team prioritize EP imaging systems to improve patient care and staff satisfaction while managing increased volumes?

Because of the risks associated with radiation as well as the wear and tear on the body due to wearing lead during long EP procedures, we are moving away from the use of fluoroscopy and have installed the Philips Azurion labs because we appreciate the very low radiation exposure. While we want to perform the least amount of fluoroscopy possible, it is still the core essential for imaging. Philips does a wonderful job of offering us technologies that help protect our physicians, staff, and patients from high radiation exposure while providing precise imaging and integration on one screen.

Equally important is that our physicians are able to easily access relevant patient information during the procedure. We have 11 video sources that can be brought into the room on the Azurion FlexVision so every imaging modality is available to the operator when needed. If the patient had an echocardiogram in the past, the operator can access that immediately and display it on the screen.

### Can you speak on your mixture of cryoballoon vs radiofrequency (RF) ablation procedures that you are doing today?

For AF, our 2 primary modalities are cryo and RF ablation, approximately in the 50/50 range. We are involved in several clinical trials for cryo, including performing posterior wall isolation using cryo, so our use of this energy modality has increased.

### How are you addressing safety concerns in your lead extraction and lead management program, and how has that improved patient care?

Older leads can lead to a risk of failure, fracture, and infection, as well as MRI incompatibility. This is not good for the patient in the long term. Our policy has been to extract as many leads as possible and when needed.

We have a mature lead extraction and lead management program. All 5 of us perform lead extraction procedures, which are performed in our hybrid room

with cardiothoracic (CT) surgery backup. We are all proficient in using the laser lead extraction system by Philips. Not a single lead extraction has been done without full CT surgery backup, which is a big advantage to our patient population, because every minute counts.

We are meticulous about having patients be seen by a CT surgeon and having any imaging be performed before proceeding with lead extraction. I am very proud to say that we have not had any major complications in the last 5-10 years.

### Previously you indicated your hospitals focus on advanced EP procedures such as LAA closure. How are you driving this program?

Our LAA closure program is very robust; we implant approximately 250-300 LAA devices per year using the newer intracardiac echocardiography (ICE) imaging modalities. ICE is also one of the reasons that we have been able to safely perform transseptal punctures and LA deployment. My partners and I are also very interested in using this technology to avoid intubation during anesthesia, since access for ICE can be achieved through a small catheter placed in the groin.

Using 3D ICE, which is more expensive than 2D ICE, there is more of an upfront cost to bear; however, we can decrease complications because of more precise visualization. We can also decrease the use of anesthesia and more quickly turn over the room, saving time. If we can do this for every procedure, we might be able to add one more procedure on a given day, not only to increase volume, but to treat more patients who are sick and have been waiting for treatment. Nowadays, waiting 3-6 months for an EP procedure is almost routine for patients in bigger cities. This is not acceptable. Therefore, these types of products can help us improve our efficiencies, provide safer and faster care to patients, and still be economical.

Philips is leading the way with their VeriSight Pro 3D ICE, allowing me everything I need to safely and quickly deploy LAA closure devices with less anesthesia and without any complications. We are very early users, but we are significantly invested in doing procedures using 3D or enhanced 3D ICE imaging.

### In 2021, Philips acquired BioTelemetry to promote connection of patient care from home to hospital and back. How have outpatient services played a role in the care of your patients, both before and after procedures?

Monitoring has always been the key focus. We have had a relationship with Philips BioTel Heart for many years. Patients receive BioTel Heart mobile cardiac outpatient telemetry (MCOT) monitoring and we are then able to view their reports through the electronic medical record (EMR) to provide timely care.

This is becoming more common in patients undergoing transcatheter aortic valve replacement (TAVR) as well, where there is a high risk of heart block. We conduct post-TAVR monitoring with MCOT so we can quickly determine whether a pacemaker is needed.

Having monitoring that is integrated with our EMR system has helped enhance cardiac monitoring outside of the hospital. I believe BioTel does a great job with ambulatory cardiac monitoring.

### As you continue to expand and grow, what value have you gained in partnering with vendors such as Philips to address your needs in EP?

For us, the value is having access to new technologies such as the VeriSight Pro 3D ICE catheter. We were the first in the city to use it, so that makes us really proud. Our vision is to be a test site for new Philips products; we would love to try them here first and help provide feedback. In addition, we hope to be a training site for Philips and have physicians and techs come here to learn new technologies. For example, we recently had visitors from outside the city come to observe the efficiencies in our hybrid room.

We are excited about this partnership with Philips, which will help further our needs in EP. Philips considers us to be true partners and we look forward to continued collaboration. ■

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*Disclosures: Dr Gandhi has completed and returned the ICMJE Form for Disclosure of Potential Conflicts of Interest. He has no conflicts of interest to report regarding the content herein.*