

- 1 Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions; Results obtained by the Interventional Vascular Department at St. Antonius Hospital.
- 2 In 28 individual comparative studies, Philips ClarityIQ was associated with reductions in patient radiation exposure.
- 3 (95% CI of 53%, 77% for all diagnostic and interventional coronary procedures). The results of the application of dose reduction techniques will vary depending on the clinical task, patient size, anatomical location and clinical practice. The interventional cardiologist assisted by a physicist as necessary has to determine the appropriate settings for each specific clinical task.

- 4 Results based on total dose area product from a single center prospective controlled randomized study (University Hospital Gent, Belgium) on 122 patients (42 for Allura Xper and 80 for AlluraClarity) undergoing coronary procedures. Of the 122 patients, 102 (83.6%) had a diagnostic procedure without intervention and 51 (41.8%) resulted in a diagnosis of no coronary disease. Patient radiation exposure was quantified using cumulative dose area product as collected from Radiation Dose Structured Reports and/or Allura Reports. Baseline dose was maintained by configuring both systems to power up with the lowest dose settings as default and default procedure settings for cardio were used. Exam duration and fluoro time was consistent between the systems and an increase in number of exposure images and runs with the AlluraClarity was attributed to the biplane configuration compared to the monoplane configuration of the Allura Xper.

- 5 It is the user's responsibility to ensure that Philips network requirements (such as performance, VPN) for IntelliSpace Cardiovascular are met.

- 6 Compared to the suites with Azurion 7 C20. Evaluated with clinical users in a simulated lab environment after approximately 20 minutes of practicing C-arm and table positioning. This study was designed and supervised by Use-Lab GmbH, an independent and objective usability engineering consultancy and user interface design company. Use-Lab also analysed the study results and documented the conclusions.

- 7 Results obtained during user demonstrations performed in December 2017 with the EPIQ CVxi and the iE33 systems. The research was designed and supervised by Use-Lab GmbH, an independent and objective engineering consultancy and user interface design company. The tests involved 42 clinicians from 17 countries. The various types of cardiac customer segments represented were adult diagnostics and interventional, adult diagnostics, and pediatric diagnostics and interventional.

- 8 Based on responses from 38 respondents.

PHILIPS

Image guided therapy

Azurion

SHD suite

Confidence and efficiency in structural heart interventions



Defining the future of image guided therapy

Innovative solutions across the health continuum

At Philips, we look beyond technology to the experiences of patients, providers and caregivers across the health continuum, from healthy living to prevention, diagnosis, treatment and home care. We unlock insights leading to meaningful innovations from hospital to home.

Our integrated solutions – packaged suites of systems, smart devices, software and services – combine broad and deep clinical expertise, technology and services, actionable data, consultative new business models and partnerships. Together, with our customers, we can transform how care is delivered and experienced, to deliver upon the Quadruple Aim: improved patient experience, better health

outcomes, improved staff experience, and lower cost of care.

At Philips Image Guided Therapy, we have played a pioneering role in image-guided minimally invasive therapy for cardiovascular disease since the inception of the field back in the 1950s, thanks to our expertise in X-ray imaging systems. We aim to both improve existing procedures and introduce new procedures so that more patients can benefit from image-guided therapy. We also develop new business models to cater for new care settings, such as ambulatory surgery centers and office-based labs, and drive improved lab performance. Today our clinical partners benefit from complete procedural solutions to treat a wide range of diseases – from cardiovascular disease to stroke, cancer, and spine conditions.



Clinical demands are getting more specific. And so are we.

During an interventional procedure you are focused on making the best decisions you can for your patient. Each patient and each disease has very specific challenges, complexities, and needs. As the number of procedures and patients grows, you see the need for better image guidance and interventional devices to help make treatment and decision-making more effective. At the same time, you're looking to enhance workflows as the key to improving efficiency. That's why we

created our clinical suites; a flexible portfolio of integrated technologies, devices and services for a broad range of interventional procedures.

Each of our clinical suites offers specific image guided therapy solutions to provide more choice and flexibility for exceptional care. So you can be confident in your performance and in the fact your patients are receiving exceptional care. Together we aim to shape and create the future of image guided therapy.

Introducing Clinical Suites

Helping to bring across our comprehensive clinical propositions

Coronary suite	EP suite	SHD suite	Vascular suite	Neuro suite	Onco suite	Lung suite	Spine suite
Transforming complex PCI procedures into confident care	Seamless integration drives EP excellence	Confidence and Efficiency in Structural Heart Interventions	Redefine outcomes for vascular treatment	Neuro decisions are based on what you see, so see more	Critical insights for superior care in Interventional Oncology	All-in-one diagnosis and treatment of lung cancer	Perform spine surgery with confidence and precision

Key benefits

- Streamlined SHD planning for increased reproducibility and efficiency
- Live fusion of planned anatomical targets from CT or MRI, and of real-time ultrasound with fluoroscopy for augmented live guidance
- Flexibility and future-proof adaptability of intraprocedural workflows to emerging SHD procedures



SHD suite

Confidence and Efficiency in Structural Heart Interventions

Minimally invasive structural cardiac interventions are changing the therapeutic landscape, from valvular disease procedures such as transcatheter aortic valve replacement (TAVR) and edge-to-edge mitral repair, to stroke prevention alternatives such as patent foramen ovale closure (PFO) and left atrial appendage occlusion (LAAO).

The SHD suite is designed to enable heart teams to grow their program and drive upcoming transcatheter innovations through workflow flexibility and multimodal imaging integration.

The SHD suite enhances communication, enables efficiency, and provides confidence in anatomical guidance, device navigation, and accurate device placement.

Let the cathlab or hybrid OR work around you, and let the imaging integration guide you. Seamlessly.

Structural Heart Disease

Improving lab performance while focusing on the patient

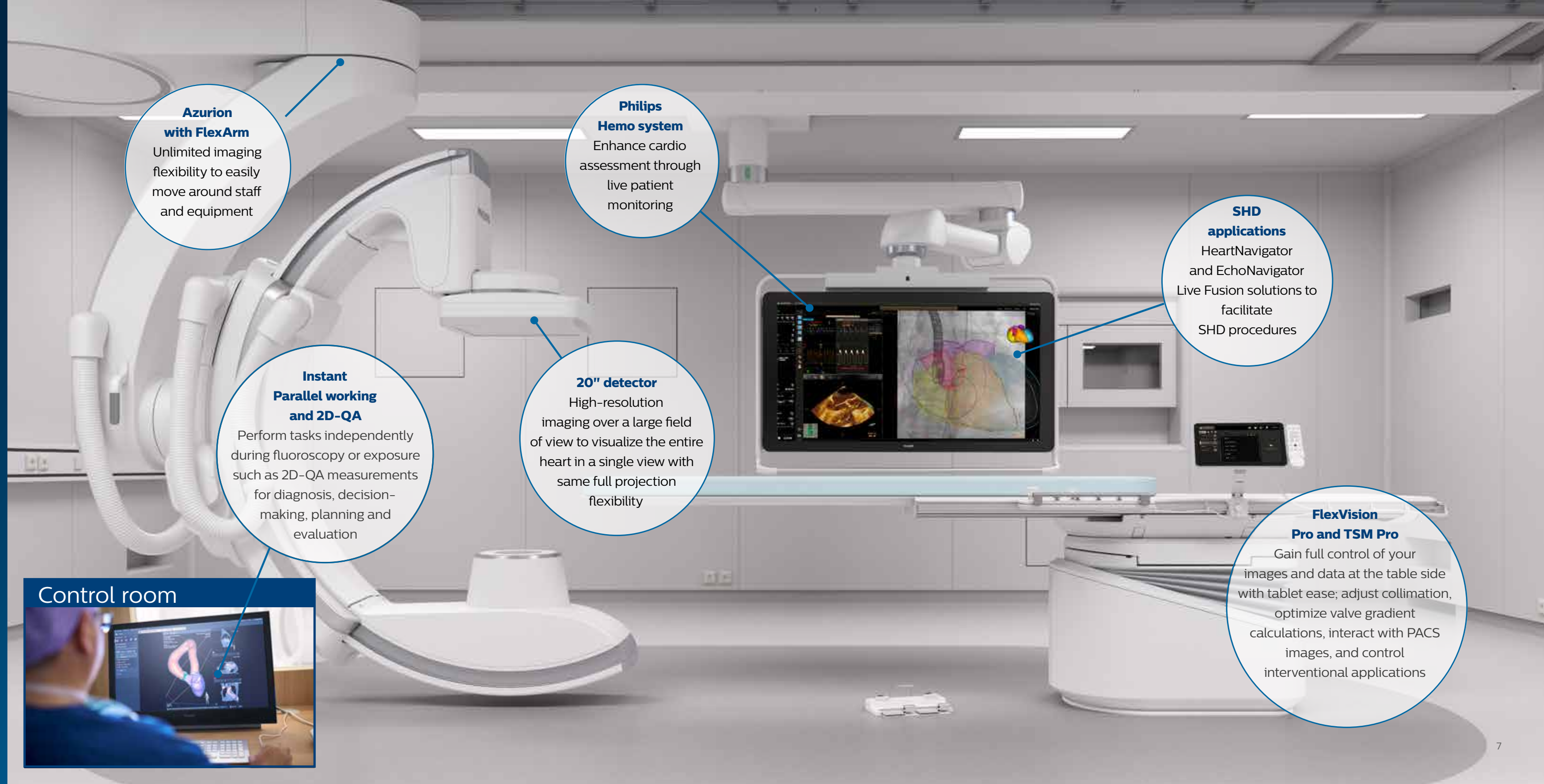
The demands of transcatheter valvular and other structural heart procedures require a future-proof, fully integrated environment providing the right image and the right information at the right time. The Azurion SHD suite was designed to adapt to your workflow needs, letting the system work seamlessly around you so that you may focus on your patient.

Using ProcedureCards, controlling the room at your fingertips with unlimited flexibility, and generating live fusion of critical imaging data in real time improves lab efficiency and enhances confidence at each step of treatment.

At the center of our suite, the unique EchoNavigator solution is the flagship example of Philips' commitment to multimodality and workflow integration, by bringing the best of both worlds from the industry leader in both interventional X-ray and Ultrasound cardiac solutions.

“ 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, MD, FACC, FSCAI Co-Director of the Center for Structural Heart Disease, Henry Ford Hospital, Detroit, Michigan, USA



Azurion with FlexArm
Unlimited imaging flexibility to easily move around staff and equipment

Philips Hemo system
Enhance cardio assessment through live patient monitoring

SHD applications
HeartNavigator and EchoNavigator Live Fusion solutions to facilitate SHD procedures

Instant Parallel working and 2D-QA
Perform tasks independently during fluoroscopy or exposure such as 2D-QA measurements for diagnosis, decision-making, planning and evaluation

20" detector
High-resolution imaging over a large field of view to visualize the entire heart in a single view with same full projection flexibility

FlexVision Pro and TSM Pro
Gain full control of your images and data at the table side with tablet ease; adjust collimation, optimize valve gradient calculations, interact with PACS images, and control interventional applications

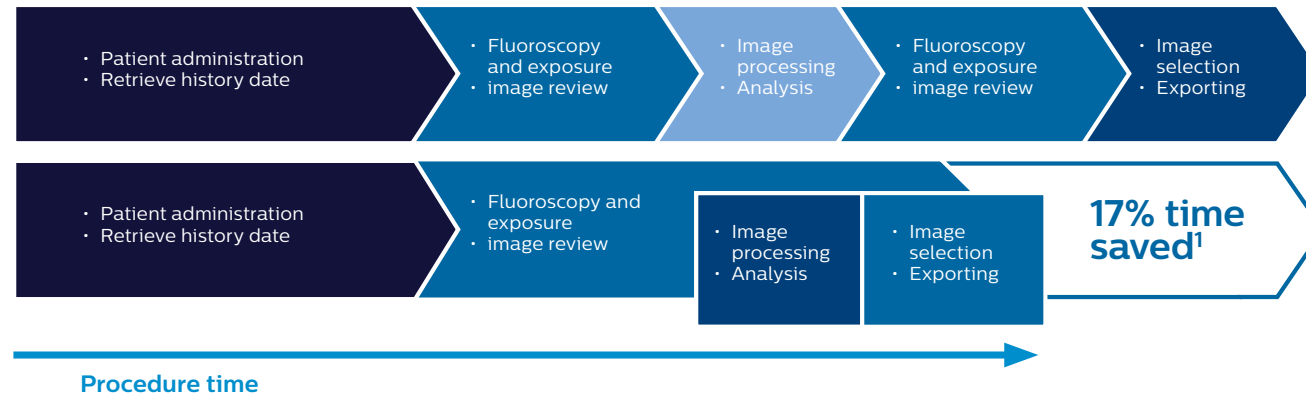


Control room

With Philips Azurion, performance and superior care become one

Saving time through Instant Parallel Working

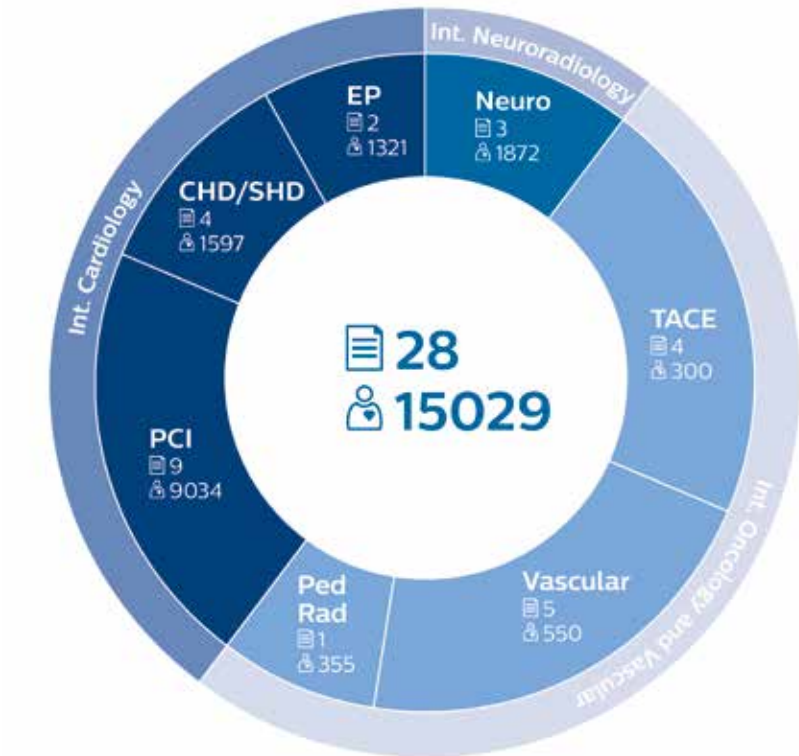
The Azurion has been specifically designed to save time by enabling people to work on two different activities at the same time without interrupting each other. As an example, while fluoroscopy/exposure is taking place, a technologist in the control room can perform other tasks.



Several Azurion features have a positive impact on dose. Our Dose management solutions help you take control over patient care, staff safety, and regulatory compliance with a comprehensive suite of radiation dose management tools, training, and integrated product technologies.

ClarityIQ technology

Our novel ClarityIQ X-ray imaging technology provides superb image quality at significantly lower dose across clinical areas, patients, and operators². In routine coronary procedures³, ClarityIQ technology may reduce patient radiation dose (as total dose-area product) by 67%⁴ for the total procedure without affecting the procedural performance (fluoroscopy time and number of exposure images) as compared to equivalent procedures on an Allura Xper system, as demonstrated in one single-center study.



FlexVision Pro
View and control all connected applications, like SyncVision iFR and IVUS co-registrations at table side to save time and unnecessary walking.



FlexSpot
A clutter-free environment to control all connected applications (like your PACS, hemo and all interventional tools).



Touch screen module (Pro)
Table side control of images and applications with tablet ease.



Zero Dose Positioning

This table-side function lets you pan the table, change table height or field-of-view on your Last Image Hold (LIH) image. This means you can already see the effect of moving the table or changing the field-of-view on your region of interest to prepare your next run without using Fluoroscopy.

Orchestrating your interventional **cardiology workflow**

IntelliSpace Cardiovascular

Is designed to help streamline workflow and improve operational performance throughout the cardiovascular service line, with a tight integration with Philips TOMTEC, Xper IM, IntelliSpace Portal and IntelliSpace ECG. IntelliSpace Cardiovascular also interfaces with multiple third-party applications. It can be viewed and controlled from FlexSpot and FlexVision Pro of Azurion.

Key benefits

- Single point of access anytime and virtually anywhere to support informed decision-support by providing a comprehensive multi-modality overview of a patient
- Improve information exchange across your clinical ecosystem, by providing quick and easy access to images and information
- Access a variety of systems and applications from a single location, and analyze data to streamline efficiency



Philips Interventional Hemodynamic System⁵

Brings advanced hemodynamic measurements into the interventional lab to support clinical decision making. This system includes a patient monitoring device mounted at the table side and a workstation in the control room with a user interface designed to simplify hemodynamic monitoring and assessment. The users in the control room can also perform hemodynamic analyses and display them in the exam room. Displaying all relevant physiologic waveforms and analyses supports you in making a real-time assessment of the patient's condition during an intervention.

Key benefits

- Improved communication in the interventional lab by visualizing hemodynamic analyses in the exam room
- Enhanced workflow through integrated valve gradient assessment
- Confidently used by all staff members with minimal training

Xper Information Management

Xper IM is designed to enable more efficient cath lab workflows with hemo monitoring and data management. It streamlines workflows in physician reporting, billing, registry reporting and inventory management. Xper IM has a broad range of interfaces, orchestrating disparate patient data across the care continuum to support informed decision making. Xper IM can be viewed and controlled from FlexSpot and FlexVision Pro of Azurion.

Key benefits

- Reduce the need to manually chart and reduce the chance of human errors
- Reduce time and efforts associated with admin tasks
- Our decision support tools with analytics capabilities drive provider reimbursement and create positive clinical, operational and financial outcomes

Structural heart interventions

Support across the entire care pathway

Decide



ISP AVA analysis

Comprehensive automated vascular assessment for access route determination

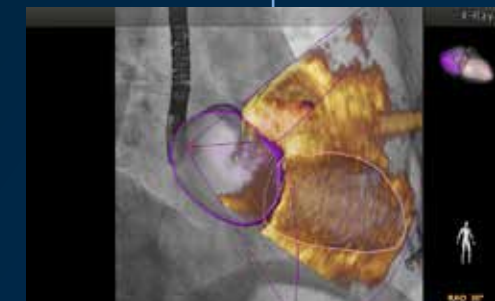
Guide



HeartNavigator

Fully automated CT analysis for TAVI including sizing and optimal X-ray projection. Powerful flexible workflow for planning and guidance of any SHD procedure. Cathlab integration for automatic fusion of planning information.

Treat



EchoNavigator

Provides real-time fusion of live ultrasound and live X-ray images, to improve communication and confidence.

Confirm



EPIQ CVXi interventional ultrasound

Intuitively create intervention-specific ultrasound views with industry-leading image quality, and fully integrate with the SHD suite and EchoNavigator.

Azurion with FlexArm

The advanced suite with unlimited imaging flexibility

Philips Azurion with FlexArm – a revolutionary new approach to image guided therapy that gives you the freedom to improve and grow your minimally invasive care. This new ceiling-mounted system provides unlimited imaging flexibility for diverse procedures and exceptional positioning freedom for medical teams. With the full flexibility and compact set-up of the FlexArm stand you have a highly cost-effective environment ready for the procedures of the future.

Key benefits

Optimal patient access during complex cases

- Flexibility in gantry position offers optimal workflow especially for ultrasound and anesthesia.

3D Image Fusion in any 45° position

- Overlay of CT and Ultrasound images in any 45 degree position with HeartNavigator and EchoNavigator

“ The system moves around us, instead of us having to move around the system.”

Dr. Carlos E. Ruiz, M.D., Ph.D., FACC, FESC, MSCAI Director, Structural and Congenital Heart Center, Hackensack University Medical Center and The Joseph M. Sanzari Children's Hospital, Professor of Cardiology in Pediatrics and Medicine



Optimal patient access



Improved workflow for radial access



3D Image Fusion in any 45 degree position

100%

of physicians who participated in a simulated use study agreed that FlexArm offered uncompromised access to the patient's head end⁶

HeartNavigator

Insightful planning and guidance

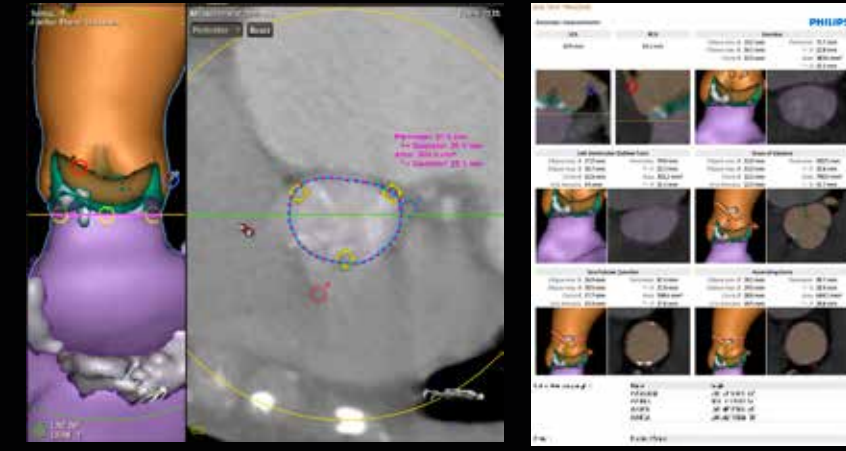
The HeartNavigator is a structural heart CT planning and live guidance solution using automatic heart model segmentation of anatomy to improve ease of use, speed, and reproducibility of planning tasks, and adding the ability to overlay planned targets, landing zones, and anatomical boundaries onto live fluoroscopy.

HeartNavigator for TAVI

is based on a fully automatic segmentation of the aortic valve, aorta, and left ventricle to enable a step by step workflow:

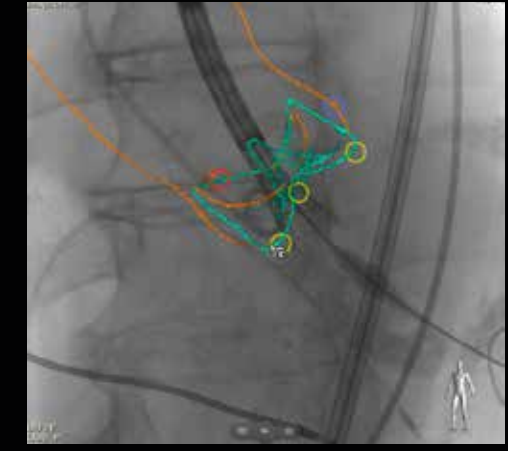


Decide



- Calcification distribution assessment
- Fully-automatic sizing and view planning
- Virtual TAVI device visualization to examine anatomical fit

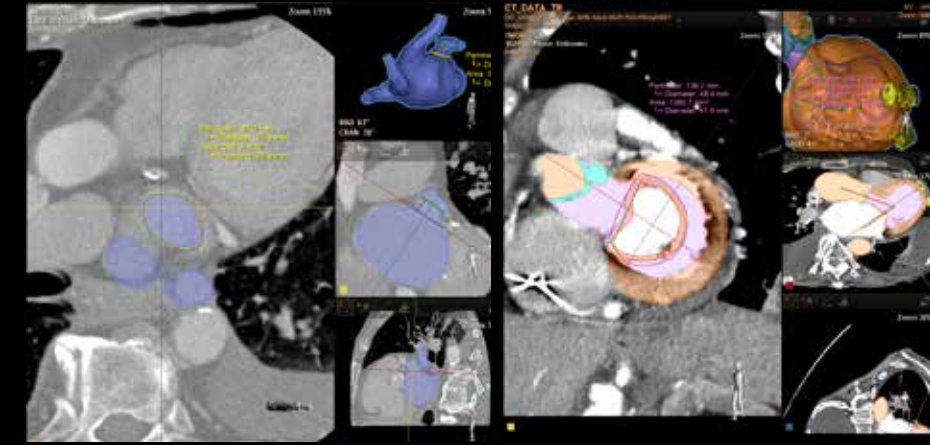
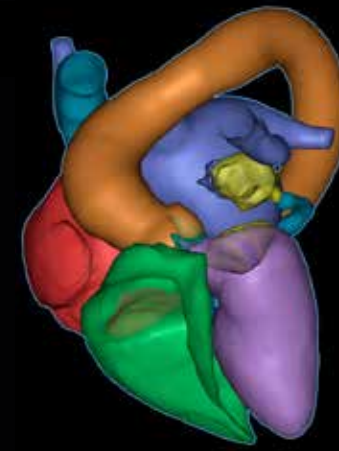
Guide



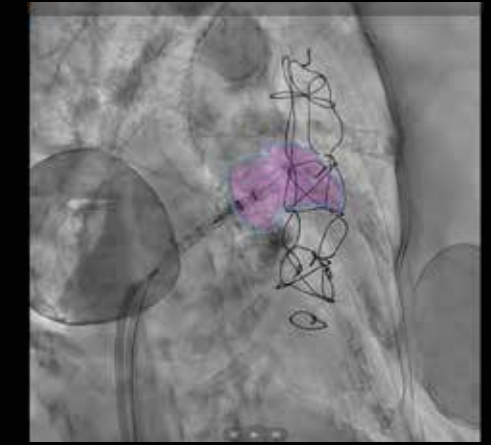
- Tableside recall of planned X-ray projections
- Live overlay of segmentation to visualize landing zones, coronary ostia, and annotations

HeartNavigator for SHD

is a powerful and fully flexible solution, automatically segmenting the entire heart to enable:



- Automatic shortcuts to the mitral, tricuspid, and LAA orifice planes
- Intuitive measurement tools
- Planning interventional views



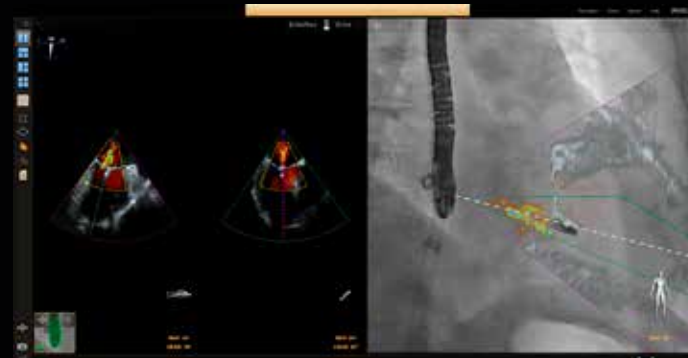
- Tableside recall of optimal X-ray projections
- Live fluoroscopic overlays of anatomy, annotations, and critical structures for guidance

Key benefits

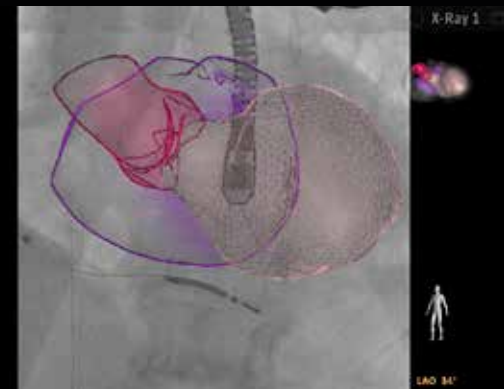
- Automatic continuous alignment of ultrasound with C-arm orientations simplifies image interpretation and facilitates communication
- Control of fusion image from ultrasound system or tableside provides workflow flexibility
- EchoNavigator enhances confidence in device manipulation and in understanding anatomical structures. It also improves efficiency through the automation of imaging views and fusion.



Guide fine positioning by visualizing soft tissue and devices together, in real-time.



Visualize flow on fluoroscopy to target pathologies or assess interventional results



Navigate safely and optimize views based on ultrasound-derived heart models

EchoNavigator on EPIQ CVxi

Unparalleled visualization of anatomy and devices. Together.

EchoNavigator

EchoNavigator reorients and combines ultrasound and X-ray information into a single augmented visualization for guidance and device-tissue relationship assessment.

EchoNavigator enables

- Importing ultrasound targets or critical structures as fluoroscopic annotations
- Live-on-live fusion of both modalities including 2D, 3D, and color flow
- ECG-gated dynamic segmentation of cardiac structures for view optimization and orientation
- Flexible workspots at both tableside and on the EPIQ CVxi console

EPIQ CVxi

The EPIQ CVxi interventional ultrasound provides easy, single-cable connection enabling full lab integration and EchoNavigator R3 control. Interventional tools such as flexible MultiVue including 1-click catheter alignment, AutoVue for 1-click access to anatomical Live 3D zoom views, and TrueVue for high resolution photo-realistic rendering of 3D, enhancing the efficiency in getting interventional views and the confidence in anatomical insights⁷



EPIQ CVxi with Live 3D imaging

Philips xMATRIX performance becomes even more powerful with the X8-2t Live 3D transesophageal transducer. Its acoustic design provides higher frequencies and width, providing increased resolution and tissue filling in 2D and Live 3D.

Acquisitions in a single beat

The X8-2t brings true one-beat acquisitions and our highest volume rates in Live 3D and Live 3D color flow to transesophageal imaging, without compromise to image quality. Its handle is designed with a real-time configurable function button, allowing for additional functionality while imaging.

TrueVue and MultiVue

MultiVue allows one-click cropping of a Live 3D image during interventional procedures, and one-click alignment of the catheter within cardiac anatomy. Get better visualization of cardiac structures for procedure guidance in fewer steps, confidently visualize the region of interest for echo-guided interventional procedures, and obtain faster 3D measurements for device sizing.

Better visualization of interventional devices

TrueVue photorealistic 3D rendering is designed for better visualization of interventional devices. The lighting of TrueVue can make it simpler to visualize the location of catheters and devices relative to anatomy during interventional procedures.

Aids collaboration in the suite

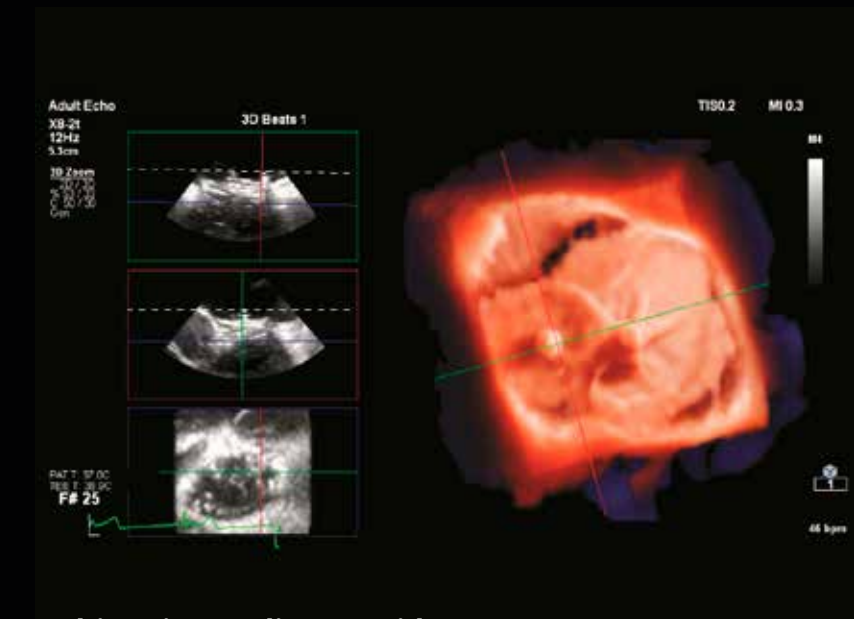
By illuminating tissue detail and creating depth perception like never before, TrueVue can help with the communication of complicated echo images among caregivers in the interventional suite, providing viewing context for the echo image to enhance procedural confidence.

X8-2t xMATRIX transducer for next-generation Live 3D TEE.



94%

of clinicians who saw the new EPIQ CVxi thought the EPIQ MultiVue real-time alignment solution could help to reduce the risk of choosing an incorrectly sized device during interventional procedures.⁸



MultiVue image alignment with TrueVue

Structural Heart Disease

Portfolio overview

Lab performance and dose management



Azurion



FlexArm



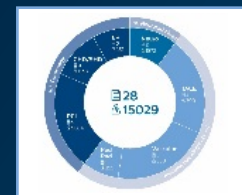
ProcedureCards, checklists and protocols



Flexible workspots



Zero Dose Positioning

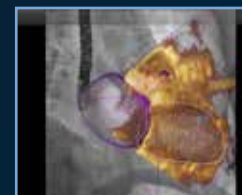


ClarityIQ

Dedicated SHD applications

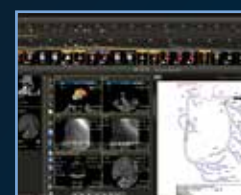


HeartNavigator



EchoNavigator

Integrated solutions



IntelliSpace Cardiovascular



EPIQ CVxi



DoseAware and DoseWise Portal



Philips Interventional Hemodynamic system

Increase value

throughout your SHD Suite lifecycle

Stay clinically and operationally relevant with Technology Maximizer

To keep your Image Guided Therapy Suite state-of-art with regards to cyber security, clinical, and operational advancements, subscribe to IGT Technology Maximizer - Plus, Pro or Premium offer – for a standard duration of 4 years at point of sale.

Technology Maximizer secures all your eligible Philips imaging equipment with the same technology release level reducing maintenance complexity and simplifying lifecycle management across hospital departments. Maintain peace of mind with imaging equipment that is always up to date, and enhance patient care knowing you will always be first to take advantage of technology innovations.

Learn more about Technology Maximizer



Standard offer

Technology Maximizer Plus

Mid-level offer

Technology Maximizer Pro

Premium offer

Technology Maximizer Premium Cardiac/Vascular

	Azurion system SW version upgrade	✓	✓	✓
	State-of-the-art security	✓	✓	✓
	Latest available Operation System	✓	✓	✓
	Computer HW refresh to support software upgrade	✓	✓	✓
	Application training for new or enhanced functionality (days)	1	2	2
	New version of existing iApps	✓	✓	✓
	Future iApps in one clinical suite (Coronary, EP, SHD, Vascular, Neuro, Onco, Spine or Lung)	✓	✓	
	Future iApps in one clinical domain (Cardiac or Vascular)			✓