

The image shows two medical professionals in a clinical setting, wearing blue scrubs, purple hairnets, and white face masks. They are looking at a large monitor and a tablet. The monitor displays a complex 3D medical visualization of a patient's anatomy, specifically the vascular system, with various colored regions (blue, yellow, red) highlighting different areas. The tablet also shows a similar 3D model. The background is a plain, light-colored wall.

PHILIPS

Image guided therapy

Onco suite

Onco suite

Critical insights for superior care
in interventional oncology

Defining the future

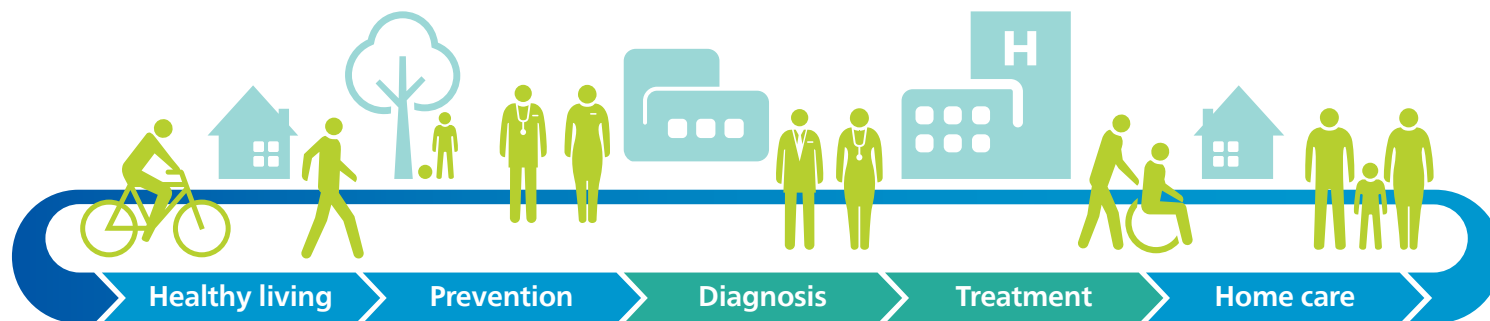
of Image Guided Therapy

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.



Onco suite is a combination of the Azurion platform, interventional solutions, devices, workflow options, accessories, education, and services.


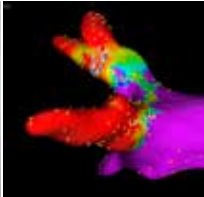

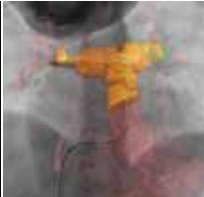
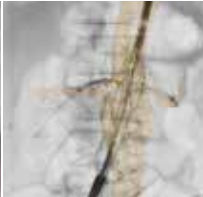
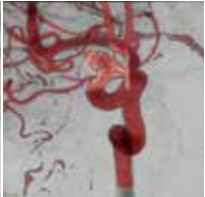
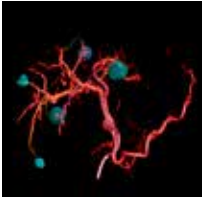


Clinical demands are getting more specific. So are we.

During an interventional procedure you are focused on making the best decisions you can for each patient. Each patient and each disease has very specific challenges, complexities, and needs. As the number of procedures and patients goes up, you can see the need for better forms of image guidance and interventional devices for effective treatment and decision making. At the same time, optimized workflows are key to improving efficiency.

That's why we created 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 create the future of image guided therapy.

Introducing Clinical Suites

Helping to bring across our comprehensive clinical propositions

Coronary suite	EP suite	SHD suite	CHD suite	Vascular suite	Neuro suite	Onco suite	Lung suite	Spine suite
Transforming complex PCI procedures into confident care	Greater insight and confidence in EP procedures	Confidence and Efficiency in Structural Heart Interventions	Gentle care. Powerful insights	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
								

Trends

in interventional oncology procedures

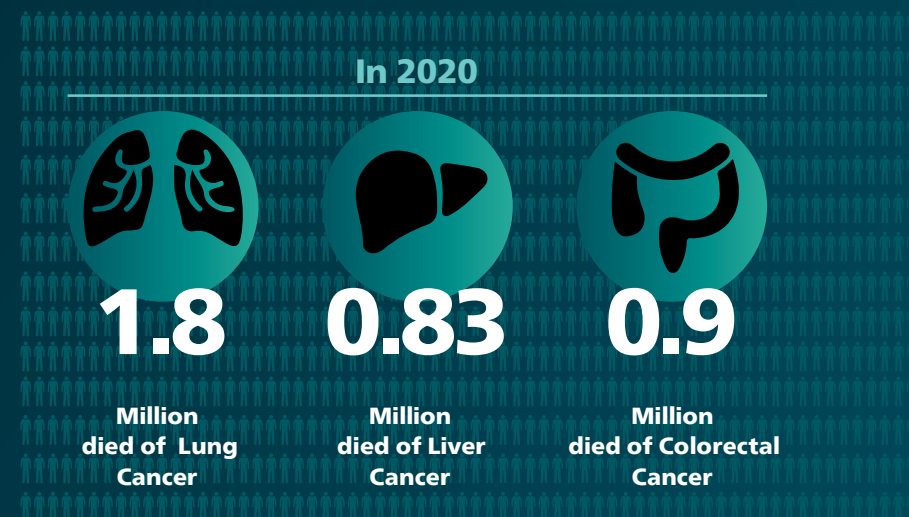
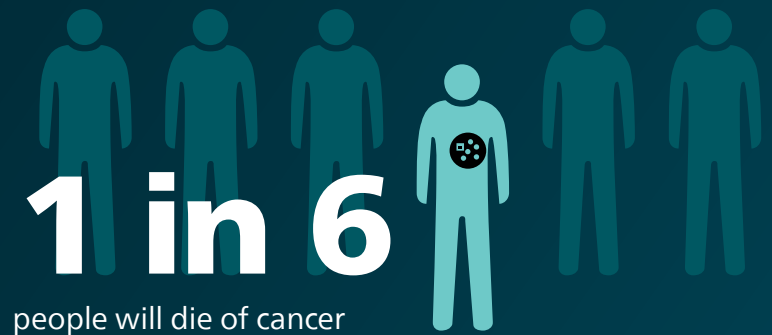
Cancer is a leading cause of death worldwide, accounting for 9.6 million deaths in 2018.

Approximately 70% of deaths from cancer occur in low- and middle-income countries. The economic impact of cancer is significant and is increasing. The total annual economic cost of cancer in 2010 was estimated at approximately US\$ 1.16 trillion.¹

Although originally it was considered the therapy of last resort, interventional oncology has been a fast growing field for the last decade and is emerging as a recognized interventional radiology sub-specialty.²

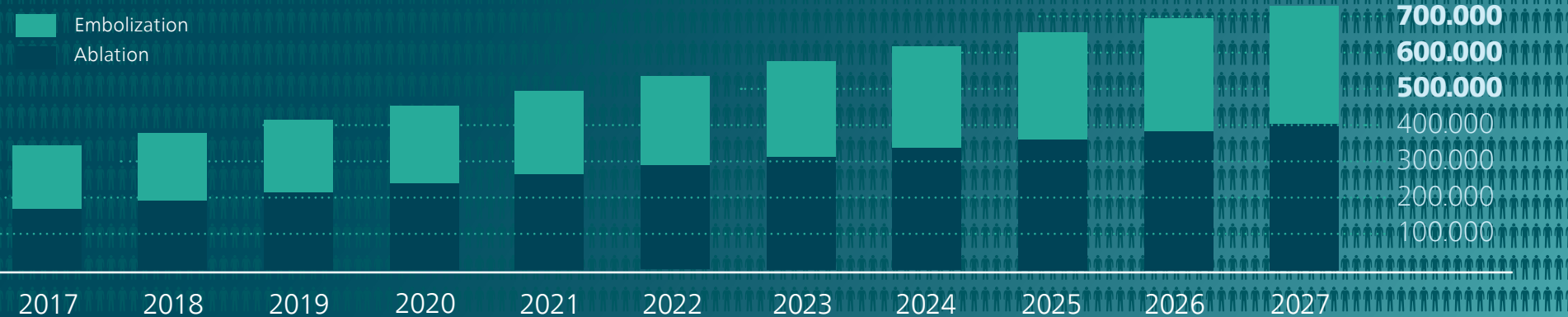
Clinical studies have shown that interventional radiology is safer and more effective than traditional surgery for many conditions. Today it has become the fourth pillar of cancer care next to medical oncology, surgical oncology and radiation oncology.

Many minimally-invasive, imaging-guided procedures are replacing more traditional open surgical techniques of treating solid tumors in a variety of organs but mainly in liver (primary and metastatic tumors), lung and kidney.²





Interventional Oncology Procedures, by Procedures Type, 2017–2027



Onco suite

Critical insights for superior care in interventional oncology

Interventional oncology has evolved from a niche specialty to a well-established treatment alternative for various types of cancers. Strong clinical evidence supports procedures such as transcatheter embolization for primary liver cancer and metastases, and focal tumor ablation therapy in lung, liver, kidney and bones.

Philips is continuously driving the imaging evolution in interventional oncology by investing heavily in clinical research partnerships to bring meaningful interventional imaging solutions to this space.

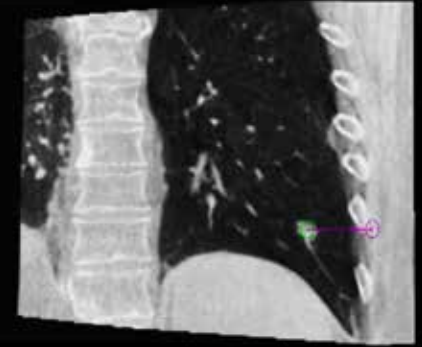
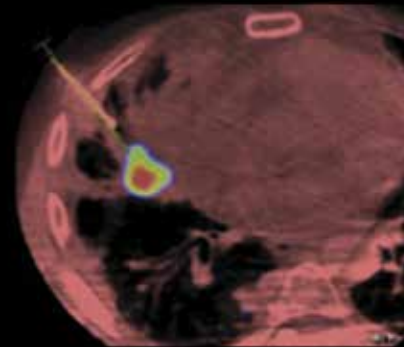
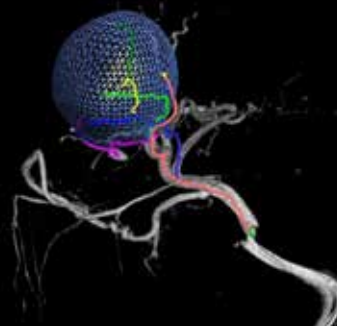
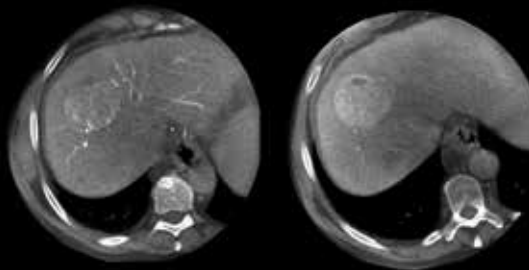
In every successful intervention, critical insight and careful orchestration between imaging, treatment planning, and live guidance play a vital role. You must be able to spot all tumors including those on the periphery of the organ, easily access them, deliver targeted embolization/ablation, and finally, determine procedural success in the shortest time possible.

Based upon the Azurion platform, Onco suite supports an integrated set of technologies designed explicitly for this purpose. By removing the barriers to efficient and reproducible treatment through groundbreaking visualization techniques, Onco suite supports consistency and precision which leads to superior care and confident performance.

This consistency and precision is a result of our innovative Azurion platform – A clinical study in St. Antonius hospital, Nieuwegein, The Netherlands, showed that with Azurion platform procedure time can be reduced by 17% and post procedure lab time by 28%, providing the ability to treat one more patient per day.³

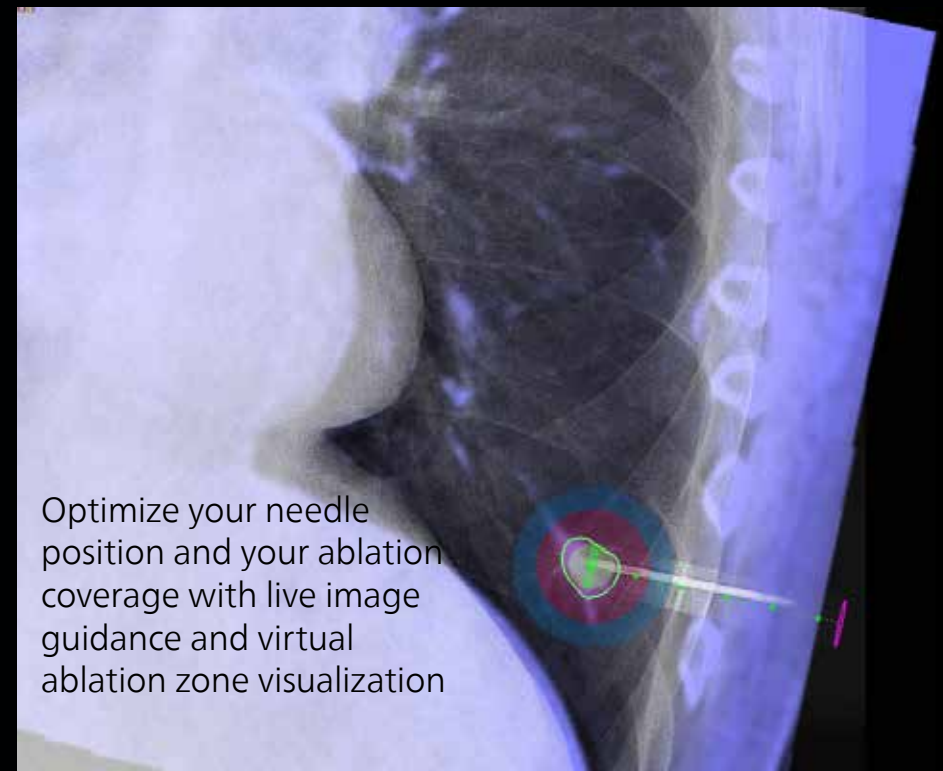
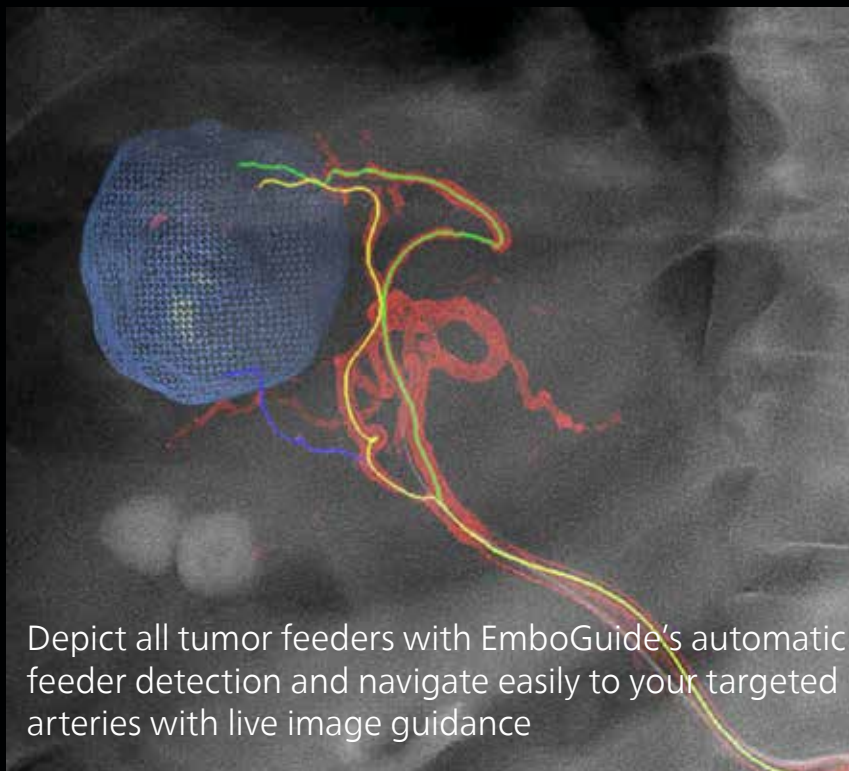
Key benefits Onco suite

- Provides a comprehensive solution for planning and guidance of embolization as well as biopsy and ablation procedures
- Supports treatment of multiple lesions simultaneously with advanced image guidance
- Assures lesion detection with high spatial resolution and enhanced contrast-to-noise performance
- Increases system utilization to help decrease your total cost of ownership



Visualizing full tumor enhancement and feeding arteries through dual phase CBCT acquisitions

Overlay your pre-procedural PET/ MR or CT images for excellent needle path planning with XperGuide



SmartCT – The next leap in **simplifying and advancing 3D imaging** to enhance interventional confidence

The Philips Image Guided Therapy clinical application software SmartCT, part of the Azurion image guided therapy platform, enriches our exceptional 3D interventional tools with clear guidance that is designed to remove the barriers to acquiring 3D images in the interventional lab.

Easy guided 3D image acquisition

Studies have shown that 3D imaging in the Angio lab can enhance diagnostic accuracy^{4,5,6}, improve patient outcomes^{7,8} and increase procedural efficiency⁹. However, 3D image acquisition can be quite challenging for the occasional and less experienced users.

SmartCT supports state of the art quality of care regardless of the user's level of experience* with 3D imaging. SmartCT offers step by step guidance throughout the whole 3D image acquisition leaving you no room for guess work and empowering you to deliver superior care to your patients.

Easy table side control within the sterile field

Once acquired, the 3D image appears within a few seconds on the touch screen module and the FlexVision. All 3D visualization and measurement tools can be accessed on the touch screen module at table side. You can quickly perform two-point measurements on the touch screen module, cut away structures that obstruct the 3D visualization of the anatomy of interest, choose and store the projection angles for your treatment. Many tasks, such as 3D lesion segmentation or center line with vessel contour detection are semi-automated and made available on the touch screen module to speed up your 3D image analysis. SmartCT gives you total control of 3D imaging at table side while remaining in the sterile field which can potentially help you save time during your procedures.



Provide superb care

Increases clinical confidence with advanced 3D imaging, visualization and measurement tools.



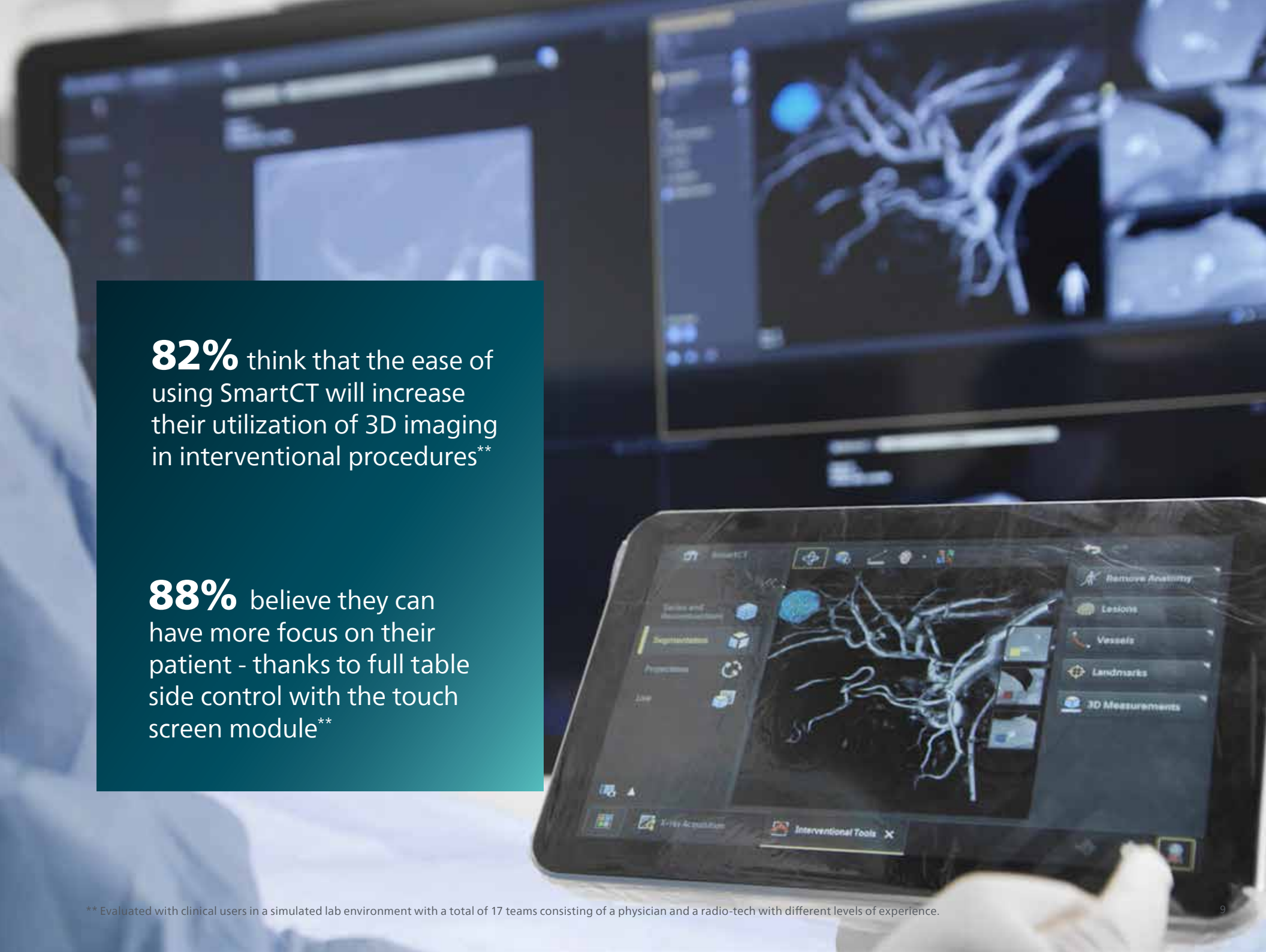
Optimize lab performance

Easily control advanced 3D acquisition, visualization and measurements at table side to improve lab flexibility and efficiency.



Outstanding user experience

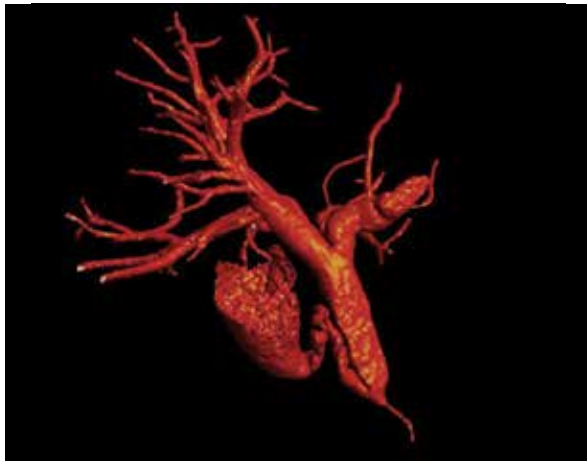
Easily acquire 3D images and interact with all SmartCT 3D features in a more natural and effortless way.



82% think that the ease of using SmartCT will increase their utilization of 3D imaging in interventional procedures**

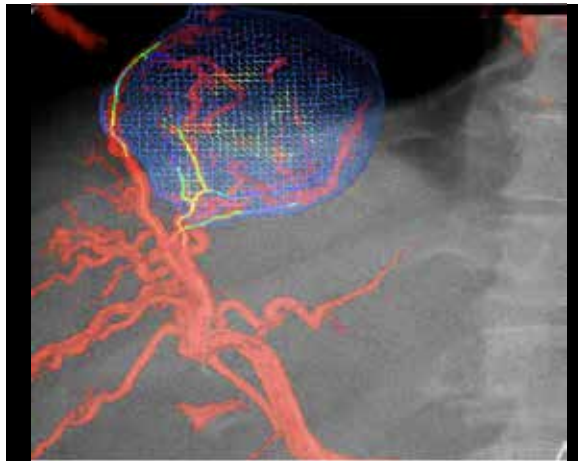
88% believe they can have more focus on their patient - thanks to full table side control with the touch screen module**

Improve visibility of anatomy with clinically tailored acquisition and roadmap protocols



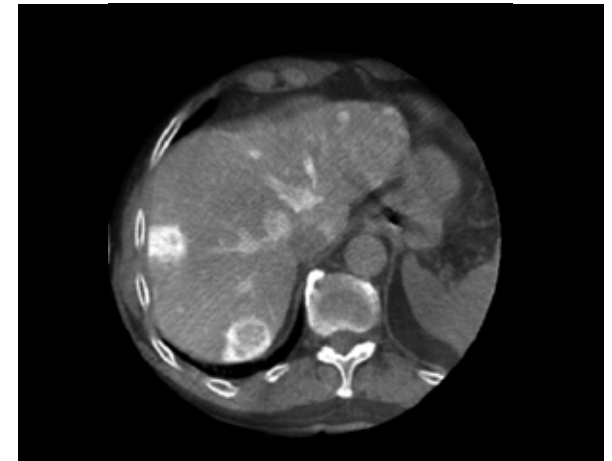
SmartCT Angio

SmartCT Angio generates a complete high-resolution 3D visualization of cerebral, abdominal, cardiac and peripheral vasculature– all controlled via the touch screen at the table. This can improve visibility of tortuous anatomy.




SmartCT Roadmap

SmartCT Roadmap provides a live 3D image overlay that can be segmented to emphasize the targeted vessel and lesions, supporting catheter navigation. The SmartCT Roadmap overlays a 3D reconstruction of the vessel tree, vessel segments, or annotations with live fluoro images.



SmartCT Soft Tissue

SmartCT Soft Tissue generates a CT-like visualization of soft tissue in relation to other structures during procedures – all controlled via the touch screen at the table. You can use the CT-like images to assess soft tissue, bone structure and stent deployment before, during and after interventional procedures.



A study showed that the recurrence rate of liver cancer within 36 months after TACE treatment is

52%

Using 2D
imaging alone

30%

Using CBCT
monitoring

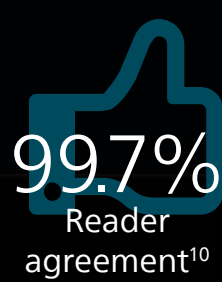
"Intraprocedural CBCT monitoring of embolized areas reduces the local tumor recurrence."⁷



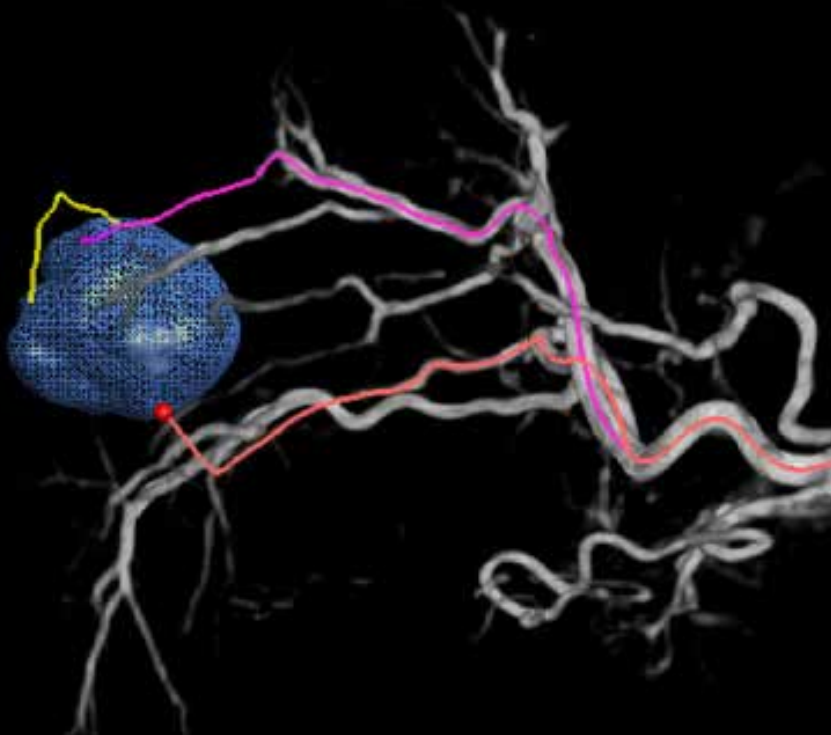
86%
Sensitivity¹⁰



57%
Less false
positive¹⁰



99.7%
Reader
agreement¹⁰



Automatic Feeder Detection with EmboGuide

Our Automatic Feeder Detection solution can significantly improve feeding artery detection compared to using Cone Beam CT alone. EmboGuide supports you in maximizing the efficacy of your TACE procedures as it potentially enhances your sensitivity, reduces false positives and maximizes inter-reader agreement.

Tumor embolization

Effective guidance in treatment and decision making

Adoption of chemo/radioembolization techniques such as TACE and SIRT drives the need for standardization and efficiency. Case after case, you must reliably and consistently locate the tumor(s), identify all feeder vessels, and plan/execute the appropriate interventional approach.

The ability to detect and differentiate hepatic nodules and identify tiny feeder vessels is critical to determining proper therapy. Navigating to the region of interest by reaching all feeders, while remaining selective to the lesion, increases the opportunity for success. Confirmation of treatment endpoint and treatment success while the patient is still on the table boosts clinical outcome confidence.

Onco suite provides workflow options that empower you to provide high standard of care to your patients. They support each step of your procedure – as you decide, guide, treat, and confirm results.

Decide

Guide

Treat

Confirm

Optimized lab workflow and dose management

20" detector

High-resolution imaging over a large field of view with full projection flexibility.

FlexVision

Displays all necessary and available information on the screen, eg: live, reference, planning, roadmap overlay, patient monitoring or dose info.

Zero Dose Positioning

Manage dose and enhance workflow.

ClarityIQ

Excellent visibility at ultra low X-ray dose levels for a comprehensive range of clinical procedures with ClarityIQ technology.

Touch screen module Pro

Allows table side control of images and applications with tablet ease to save time and unnecessary walking in and out of the sterile area.

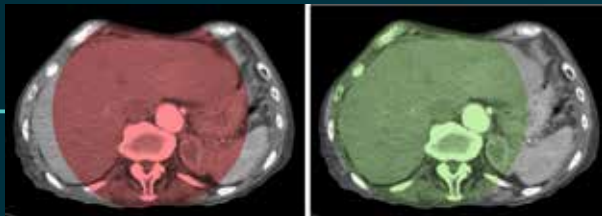
SmartCT Soft Tissue
for CBCT imaging

EmboGuide
for Automatic Feeder Detection

Tumor embolization

Effective guidance in treatment and decision-making

Decide



Whole liver coverage with CBCT Open

By opening the arc to the left of the patient, CBCT open allows off center positioning of the patient table and therefore better centering of the FOV. It significantly increases image coverage to help visualize tumors on the periphery of the organ.¹¹



Excellent artery and tumor visualization with CBCT Dual

CBCT enables 3D soft tissue image acquisition of an arterial phase to visualize vascular structures and a post-arterial (delayed phase) to visualize accumulation of contrast medium, in a single automatic step.

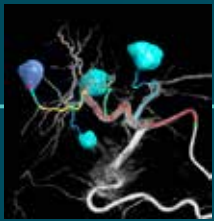
Image fusion with DualView

DualView allows simultaneous visualization of two CBCT datasets (pre- and post). Both arterial and delayed phase can be displayed next to each other or in a single fused overlay view.

Guide

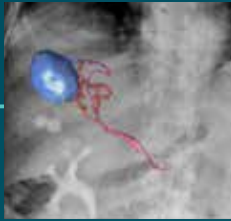
Treat

Confirm



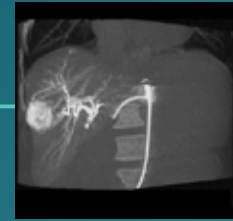
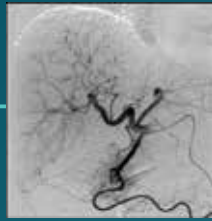
Automatic Artery Feeder Detection with EmboGuide

EmboGuide provides efficient, workflow-based live 3D guidance with automatic feeder detection to navigate to each segmented tumor target for selective or super-selective embolization of hypervascular tumors



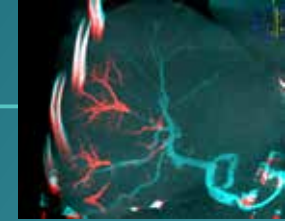
Treatment monitoring using low dose Fluoroscopy with ClarityIQ

ClarityIQ produces tuned, high definition low dose images with superb vascular detail to monitor the embolization.



Post embolization 3D imaging with CBCT open

A post embolization 3D acquisition allows to visualize the targeted deposition of embolic material, such as Lipiodol or radiopaque beads in the tumor.



Pre- and post-embolization 3D image fusion with DualView

DualView allows simultaneous visualization of pre-embolization arterial phase CBCT image and the post embolization CBCT image to assess treatment endpoint and predict outcome.

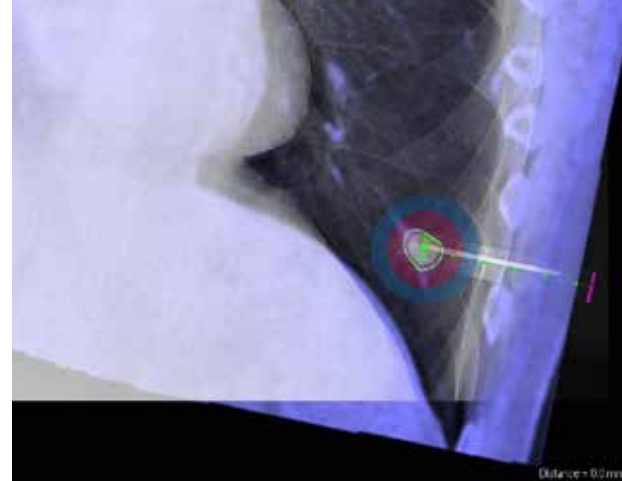
Biopsy and Ablation

Comprehensive approach supports successful outcomes

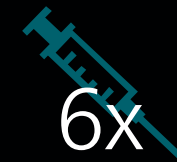
With the increasing adoption of screening programs in lung, early lung cancers manifesting as small nodules have been detected more frequently than ever before. 14.5% of a screened population was observed to have nodules ≤ 10 mm.^{12, 13} Biopsy procedures for small nodules must be accurate and safe.

Percutaneous ablation (radiofrequency, microwave, and cryoablation), is a well-established minimally invasive treatment of kidney, liver, lung and bone tumors. It is critical to define the tumor boundaries and decide on an optimal number of needles and corresponding needle trajectory to be able to perform a complete tumor treatment and not to cause damage to surrounding tissue.

Navigating accurately at low dose to the lesion of interest without needle repositioning increases the opportunity for success and reduces risk for complications of your biopsies or ablations. Confirmation of ablation treatment endpoint can be accomplished with 3D imaging while the patient is still on the table.



More accurate needle positioning compared to conventional CT¹²



Less needle repositioning compared to conventional CT¹²



Lower skin dose compared to conventional CT¹²

Highly accurate and safe needle interventions with XperGuide and CBCT.

Lesion heterogeneity and lack of conspicuity limit the quality of specimens as well as the feasibility of biopsies when performed under ultrasound or conventional CT.

Our needle navigation technology with CBCT increases precision, and enables the targeting of smaller (≤ 1 cm) or heterogeneous lesions more accurately with less needle repositioning and at lower dose than conventional CT.^{12, 13}

Decide

Guide

Treat

Confirm

Optimized lab workflow and dose management

20" detector
High-resolution imaging over a large field of view with full projection flexibility.

FlexVision Pro
Gives you full control of all system inputs including CX50 ultrasound for your soft tissue biopsies at tableside to save time and unnecessary walking in and out of the sterile area.

Zero Dose Positioning
Manage dose and enhance workflow.

Touch screen module
Allows table side control of images and applications with tablet ease to save time and unnecessary walking in and out of the sterile area.

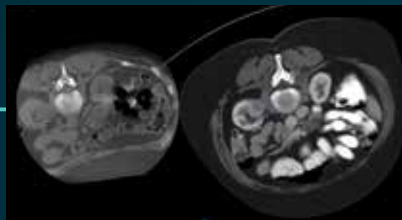
SmartCT Soft Tissue
for CBCT imaging

XperGuide Ablation
for excellent needle trajectory planning and guidance

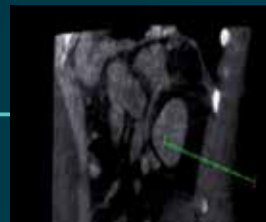
Tumor ablation

Comprehensive approach supports successful outcomes

Decide



Align a pre-procedural image with an intra-procedural CBCT image using DualView
XperGuide's DualView allows the overlay of a pre-procedure 3D image (CT/MR/PET-CT) on an intra-procedure 3D CBCT to better visualize the lesions and access critical input for needle planning.



Plan your needle path with XperGuide Ablation
XperGuide Ablation provides comprehensive assistance for treatment planning and live image guidance for needle trajectory. Offers unique Parallax Correction to plan needle trajectories for off-center lesions.

Guide



Optimize the needle position for effective ablation with XperGuide Ablation
Displays the virtual needle path to assist in multiple needle planning. Shows needle characteristics such as ablation zone/ isotherm to confirm complete tumor coverage prior to ablation.

Treat



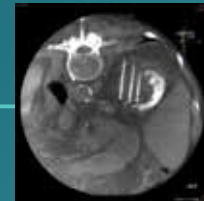
Monitor your needle insertion at low dose with ClarityIQ

Produces finely tuned high-definition fluoroscopic images with superb detail to assist with needle progression to target.

Live trajectory guidance with XperGuide

XperGuide provides highly accurate live image guidance of each needle to a targeted position by overlaying pre-planned trajectories with fluoroscopic imaging.

Confirm



Confirm the completeness of your ablation with SmartCT Soft Tissue

Acquire a post-ablation CBCT to demonstrate the extent of tumor + margin coverage and confirm completeness of your treatment.



17% reduction in procedure time³

This is just one of the many improvements in lab performance achieved by the Interventional Vascular Department at St. Antonius Hospital after installing the Azurion system. The impressive results achieved in this first Azurion lab performance study have been verified by an independent third party.



Onco suite solutions

We offer a comprehensive range of options and support to help you realize a suite that fits your clinical and budgetary requirements. Our offerings also include advanced education, efficiency programs, and RightFit service agreements.

Azurion – one platform, an endless array of clinical possibilities

With its wide range of intervention tools, Azurion is designed to help you perform procedures more efficiently and consistently with fewer complications. It also offers greater user customization and control over every aspect of your interventions.

System configurations

- Azurion 7 C20
- Azurion 7 C20 with FlexArm
- Azurion 7 C20 with FlexMove
- Azurion 7 B20/15
- ClarityIQ technology

Oncology products

- SmartCT Soft Tissue
- SmartCT Angio
- SmartCT Roadmap
- SmartCT LUMI
- EmboGuide
- XperGuide
- XperGuide Ablation

Integrated tools

- IntelliSpace Portal
- DoseAware

Integrated tables



Increase value

throughout your Onco suite lifecycle









Stay clinically and operationally relevant with Technology Maximizer

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	Standard offer	Mid-level offer	Premium offer
	Technology Maximizer Plus	Technology Maximizer Pro	Technology Maximizer Premium Cardiac/Vascular
	Azurion system SW version upgrade		✓ ✓ ✓
	Enhanced 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)		✓

1. World Health Organization; <http://www.who.int/cancer/en/>
2. Medtech 360 2016-2019, Millennium Research Group
3. Philips whitepaper 12nc 4522 991 30501; Reduction of procedure time by 17% with Philips Azurion in independently verified study; <https://www.philips.com.au/healthcare/resources/landing/azurion/lab-performance-study-results>.
Results are specific to the institution where they were obtained and may not reflect the results achievable at other institutions.
4. Carcinoma by C-arm Dual-Phase Cone-Beam Computed Tomography During Hepatic Arteriography With Conventional Contrast- Enhanced Magnetic Resonance Imaging Cardiovasc Intervent Radiol. 2012, 35 (1), 97-104.
5. Berman et al. ,The use of threedimensional rotational angiography to assess the pulmonary circulation following cavopulmonary connection in patients with single ventricle. <https://www.ncbi.nlm.nih.gov/pubmed/22419358> Catheter Cardiovasc Interv. 2012 Nov 15;80(6):922-30.
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12. Cone Beam vs Conventional CT Navigation for Image-Guided Biopsy; N Abi-jaoudeh et al (2016), J VascIntervRadio 127:1342- 1349.
13. Percutaneous transthoracic needle biopsy of small (1 cm) lung nodules under C-arm cone-beam CT virtual navigation guidance; Ji Yung Choo Eur Radiol (2013) 23:712-719.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

