Canon

Oncology solutions

Made possible.

Made For life

Trends and challenges in Oncology

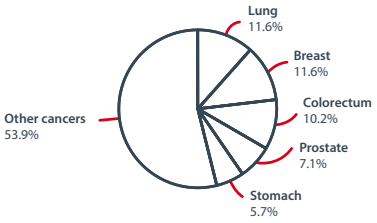
Burden of cancer

Europe contains only 9% of the world population but has a 23% share of the global cancer burden [1]. In 2018, there were an estimated 3.9 million new cases of cancer and 1.9 million deaths from cancer in Europe [2]. Environmental factors, such as tobacco smoking, urbanization and its associated pollution and changing diet patterns together with increased wealth associated with better medical services and extended life span, have been considered responsible for the increasing incidence rate of cancer, which will continue to grow. These factors directly have impact on rising costs for healthcare systems and put physicians under increasing pressure. To counter, screening, diagnosis, treatment and follow-up require optimized workflows and improved resource utilization.

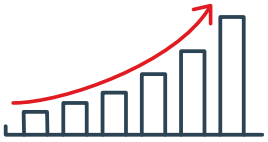
Number of new cases in 2018, both sexes, all ages

Global

18.1 million
lives per year



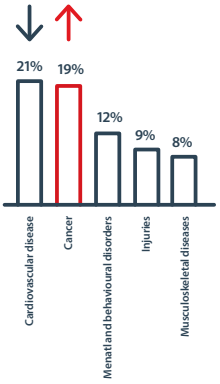
This number is steadily increasing



Europe

3.9 million
new cases per year
leading cause of mortality under <65 years

If current trends continue, cancer is set to become the biggest cause of disability in Europe



Patient-centered clinical care

Precision medicine is emerging; a better understanding of cancer's genetics, tumor size and the patient are needed to offer a patient-tailored treatment. All with the ultimate goal to reduce the burden of cancer and improve outcome and quality of life for the individual patient.

Patient-centered care can help decide what treatment will work for the patient. To achieve this, fast and quantitative imaging tools that provide the highest detail and accuracy in a safe and patient-friendly manner are a prerequisite. In addition, effective use of vast volumes of medical data and cumulative information is increasingly needed.

Canon Medical, leader in diagnostic imaging systems, advanced visualization and health informatics, is committed to help you realize patient-centered clinical care.

Sources:
http://gco.iarc.fr
https://www.who.int/cancer/PRGlobocanFinal.pdf
Ferlay, J. et al Eur J Cancer. 2018 Nov;103:356-387

What we can do for your cancer patients:

- Improve diagnosis, treatment and follow-up through Ultrasound's Liver Analysis Suite, a full package for the fatty liver to liver cancer range.
- Improve productivity and the diagnostic process of oncologic lesions using the intuitive, fast and accurate Olea Sphere®.
- Improve the diagnostic accuracy of pancreatic and billiary tumors by using the Ultra High Resolution of the Aquilion Precision CT in combination with Deep Learning Reconstruction for CT, AiCE (Advanced intelligent Clear-IQ Engine).
- Convert medical images into 3D printed models allowing patient specific models for a wide range of applications from patient education to planning of complex surgical and interventional oncology procedures.
- Guide your catheter with confidence to all tumor feeding arteries using the advanced Embolization Planning application.
- Offer your patient the best oncological care using Alphenix 4D CT suite; A platform to combine a wide area detector CT Aquilion ONE / GENESIS Edition, an Alphenix Sky+ C-arm and an Aplio i800 US-system. Together, a seamless integrated solution for the most advanced Oncology care.
- Perform diagnostic and therapeutic needle interventions efficiently using Ultrasound's Smart Fusion Technology to combine the 3D anatomical presentation of MR and CT to the real-time advantage of US .
- Visualize the smallest tumor angiogenesis with CT-Perfusion for the detection and localization of recurrences after ablative treatments in follow-up imaging.

Working together to understand your needs and challenges drives valuable outcomes that positively impact you and your patients' future. Our vision and commitment to improving life for all, lies at the heart of everything we do. By partnering to focus on what matters, together we can deliver intelligent, high quality solutions.

With Canon Medical, true innovation is **Made possible.**

Advanced Visualization

Canon Medical makes an important contribution in Oncology treatment. For more than 30 years, our Vitrea family of software solutions have helped clinicians deliver better care.

Vitrea Advanced Visualization is a modular viewing platform that provides a broad range of functions with the option of adding more functionality when you need it. We offer comprehensive toolsets that supply physicians with information for planning procedures and treating patients.

Vitrea is a multi-modality and multi-vendor solution. Our suite of advanced applications provide full-powered solutions for 2D, 3D and 4D advanced visualization used to process and analyze clinical data from multiple modalities – MRI, CT, CR, DX, RG, RF, US, XA, NM, PET, PET/CT and SPECT.

Vitrea Advanced Visualization is multi-vendor, which leads to consolidating the number of separate applications, and reducing the complexity of managing many independent applications and suppliers.

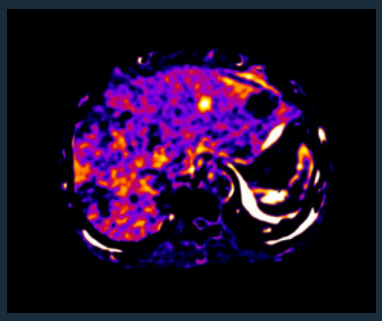
FROM VISIONS 32

"Using the advanced visualization software really enhanced our workflow. All the different items we need to access are pre-segmented and accessible from the first step. Because of the Vitrea software, many post-processing items have become a one-click solution for us."

Dr. Stefan M. Niehues
Department of Radiology,
Charité University Hospital, Berlin, Germany

Charité University Hospital

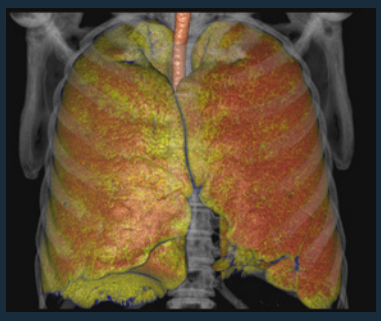
The Charité University Hospital in Berlin, Germany, is one of the largest university clinics in Europe. It has 70,000 employees and more than 7,200 students, and currently deals with more than 140,000 patients per year. Before the Hospital started to work with Canon Medical, its IT environment included large PACS with local post-processing facilities, which required the use of a specific room for examining images. This was quite inconvenient for the staff and made increasing the efficiency and capacity of the department difficult. The Vitrea Advanced Visualization software from Canon Medical enables a huge step forward for their Department.



CT Body Perfusion 4D

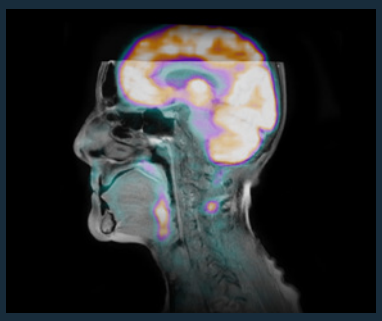
CT Liver Analysis

CT Lung Analysis

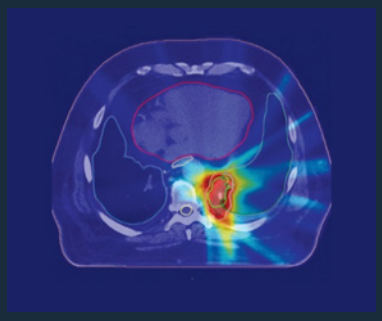


CT Lung Density Analysis

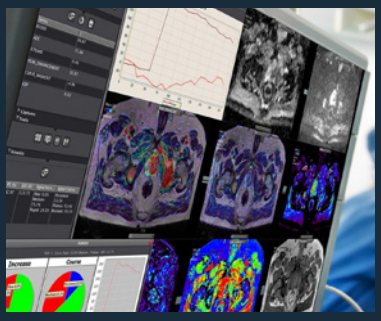
Visia CT Lung CAD



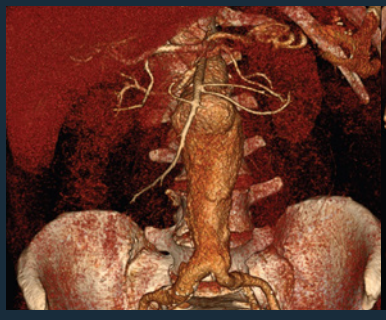
Mirada Oncology Fusion

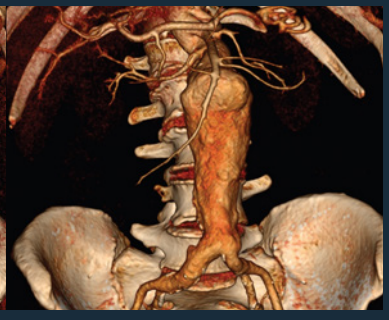


Mirada RTx



The MR Body package





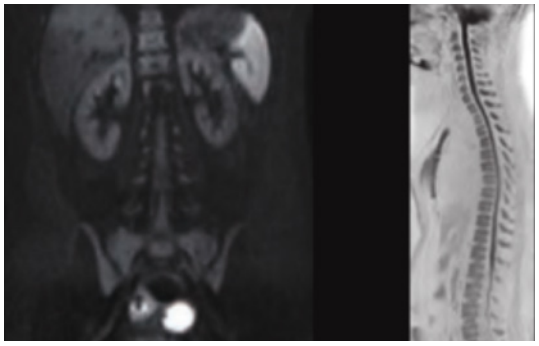
Vitrea Image Denoising

Global Illumination

Magnetic Resonance

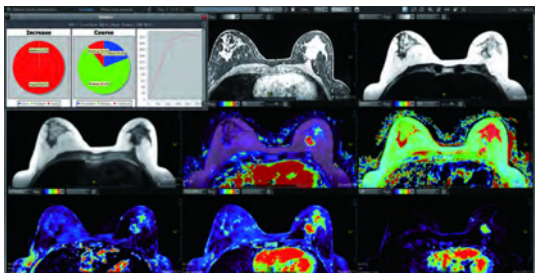
Tumor detection, characterization, risk stratification, prognosis, prediction and monitoring of response to treatment, are all areas in which magnetic resonance imaging (MRI) provides supporting data and images. Recent advances in MRI move beyond morphologic imaging to obtain functional information regarding various physiological processes of the tumor micro-environment such as oxygenation levels, cellular proliferation and tumor vascularization.

Systems:
- Vantage Galan 3T
- Vantage Orian
- Vantage Elan

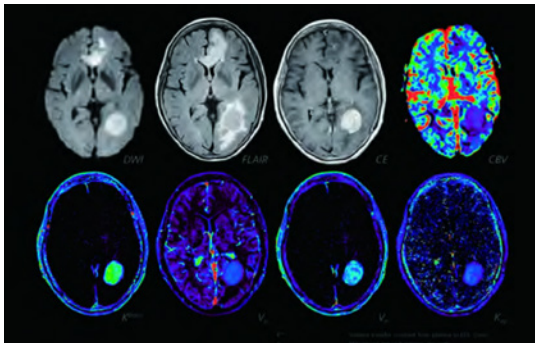


Whole Body Diffusion
Diffusion weighted imaging (DWI) is a powerful clinical tool for imaging patients. Thanks to advances in both hardware and software, Canon Medical's MRI systems offer excellent diffusion imaging quality. In combination with Olea Sphere, intravoxel incoherent motion (IVIM) for quantifying parameters that reflect tissue microcapillary perfusion and tissue diffusivity is now available in routine clinical practice.

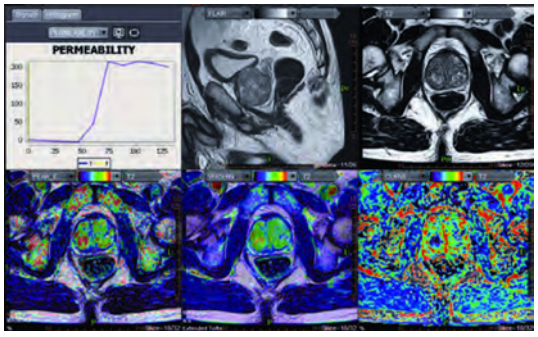
MR body package by Olea Medical
The MR Body package, powered by Olea Medical, provides users with access to the latest tools and applications for Breast, Prostate and Body Imaging.



Breast MRI
Breast MRI is a highly sensitive method for imaging breast tissue.



MRI Image Interpretation and Analysis
Olea Sphere allows the estimation of advanced qualitative and quantitative perfusion and diffusion parameters, providing instant access to multiparametric analysis as well as rendering and reporting tools to assist in diagnosis and communications.

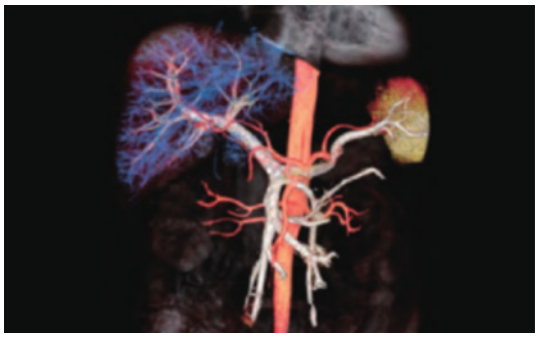


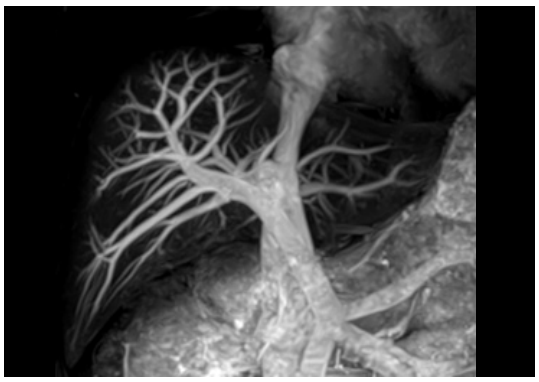
Prostate Imaging
Canon Medical's PURERF technology provides clinicians with the high resolution anatomical images required for MR imaging of the prostate. Multi b-value DWI, IVIM, and perfusion analysis can all be performed to assist with visualization, and all of them can be enhanced with the Olea Sphere Body package to provide a complete analysis package.

FROM VISIONS MR SPECIAL

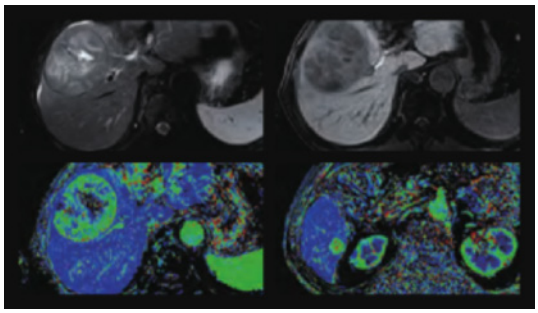
"My aim is to have the best image quality possible. New applications are explored with the latest developed sequences. With the Vantage Galan 3T, Canon Medical has a real competitive product offer in this market."

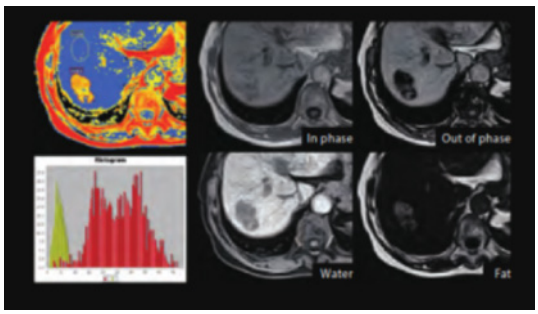
Dr. Xavier Alomar
Head of Radiology,
Clinica Creu Blanca, Barcelona, Spain





Time-SLIP / mASTAR
Time-SLIP technique may be helpful for preoperative imaging of the donor candidates for living-donor related liver transplantation. It may be helpful in imaging the following vascular variants: hepatic arterial variation, portal venous variation and biliary variants without contrast enhancement of MRI. Time-SLIP may also be useful for imaging of Hepatic artery complications including Collateral Vessels before Transcatheter Arterial Chemoembolization and Radiofrequency ablation which are focal interventional procedures used to treat Hepatocellular Carcinoma.





Dynamic MRI and Fat Fraction analysis by Vitrea
Dynamic MRI and Fat Fraction analysis by Vitrea is useful in not only quantifying the perfusion metrics of hepatocellular carcinoma (HCC) and liver parenchyma, but also assessing perfusion changes after HCC chemoembolization. Angiogenesis is largely involved in the metastatic growth and progression of HCC, which is treated with transarterial chemoembolization (TACE) and systemic molecular targeted therapies. The same kind of index can be produced using Dynamic contrast enhanced MRI per below, requiring IV injection of contrast agents, and allows for the quantification of tissue and a tumor's vascular characteristics. The Fat Fraction is helpful for diagnosis with the DIXON MR Image.

Ultrasound

From early stage small lesion visualization through complex interventional procedures our Aplio i-series, Aplio a-series and Xario 200G deliver integration of ultrasound into the patient care plan in oncology. Advances in image resolution allow improved visualization, while new intervention tools assist the care team in providing a greater range of treatment options.

Systems:
- Aplio i-series
- Aplio a-series
- Xario g-series

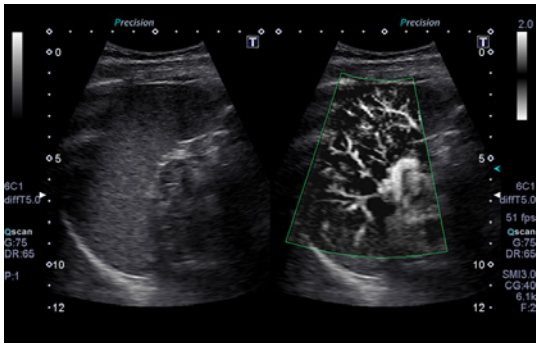
FROM VISIONS 30

"My Aplio has become indispensable in my day to day management of patients with cancer. I have confidence in my decision-making based on the consistently high image quality I can achieve on even the most difficult of patients."

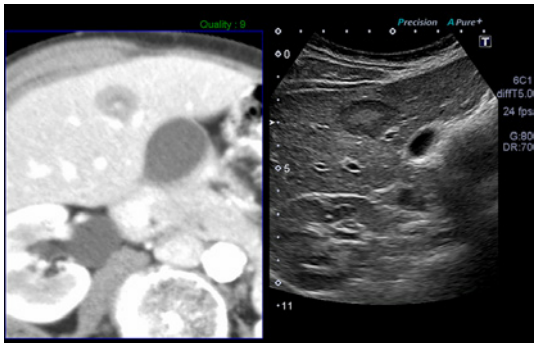
Prof. Afshin Gangi
Professor of Radiology,
Chief, Interventional Radiology,
University Hospital Strasbourg, France

Strasbourg University Hospital

Strasbourg University Hospital is recognized in the region for it's leading position in the initial or continuing training of health professionals in Alsace. The collaboration is exemplary between Strasbourg University Hospital and the University of Strasbourg. Each year Strasbourg University Hospital is classified in the ranking of Shanghai (ranking lists of the best universities of medicine in the world). The CHU Strasbourg offers expertise in all areas of medicine and surgery.



Superb Micro-vascular Imaging (SMI)
SMI expands the range of visible blood flow to visualize low-velocity micro-vascular flow never before seen with diagnostic ultrasound. SMI's level of vascular visualization, combined with high frame rates, advances diagnostic confidence when evaluating suspicious lesions. It can even be possible to determine if a lesion is benign or malignant by depicting the vascularity of the lesion.



Smart Fusion and needle tracking
Smart Fusion offers the best of both worlds by synchronizing ultrasound with CT, PET or MR images to help locate hard-to-find lesions and improving confidence during ultrasound-guided needle interventions. Matching the transducer position with the pre-acquired 3D data set is a simple and one of industries quickest registrations. Besides a quick and easy workflow, Smart Fusion can help you prioritize safety and radiation dose during the interventional procedures.

Liver disease is one of the major challenges in the field of Radiology. To provide confidence in the diagnosis of liver disease, from a fatty liver to liver cancer, unique applications have been developed to allow visualization of changes in liver status. Attenuation Imaging provides the capability to quantify changes in attenuation coefficient of the liver that arise when fat component of liver increases

FROM VISIONS 30

"The Aplio i800 is a game changer in ultrasound guidance. The image quality is really incredible and the system includes features that are perfectly suited to Interventional Radiology, such as dedicated micro-convex probes, fusion imaging and needle-tracking. With the help of fusion and small probes, we can perform procedures that were previously not thought to be within the scope of ultrasound-guidance."

Dr. Julien Garnon
Interventional Radiologist,
University Hospital of Strasbourg, Strasbourg, France

Computed Tomography | Positron Emission Tomography

Oncological imaging using CT imaging is daily business for nearly all radiology departments. From screening to staging to treatment guidance to follow-up imaging, CT can be present in every step of the process. Our range of CT systems provide features across the product line up from volumetric CT to the world's first Ultra High Resolution CT to ensure for every oncological pathway the best image quality.

Systems:
- Celesteion PET/CT
- Aquilion Precision
- Aquilion ONE / GENESIS Edition
- Aquilion Prime SP
- Aquilion LB

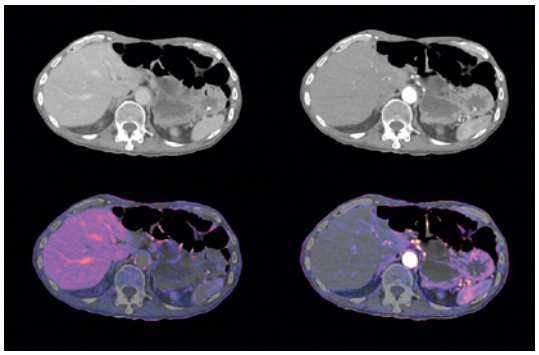
FROM VISIONS CT SPECIAL

"SURE Subtraction Iodine Mapping increases the diagnostic information available for any routine multiphase body protocol by extracting the iodine enhancement on each phase. The iodine signal is displayed in color blood flow maps to help assess local vascularization. These maps can be widely applied and aid, for example, in differentiating solid from cystic lesions, evaluating treatment effects, distinguishing hypo-from hypervascular lesions, and establishing organ ischemia."

Prof. Mathias Prokop
Professor and Chairman of Radiology and Nuclear Medicine, Radboud University Medical Center, Nijmegen, the Netherlands

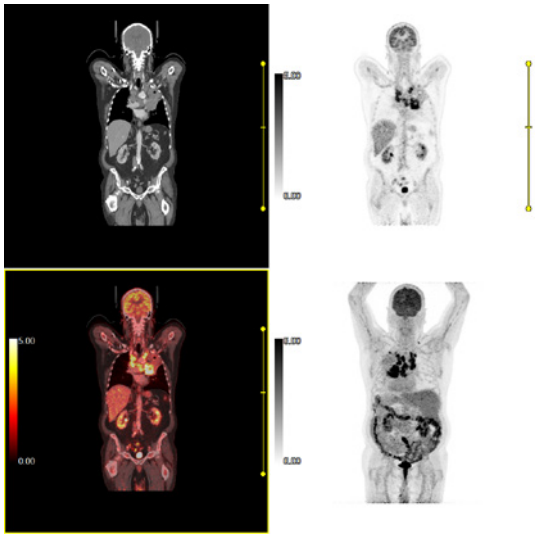
Radboud University Medical Center

Radboud University Medical Center specializes in patient care, scientific research, teaching and training. Based in Nijmegen, their mission is to have a significant impact on health care. They aim to be pioneers in shaping the health care of the future. By delivering care in an innovative patient-centered manner and in close collaboration with their network. This way, all patients receive the best possible care, both now and in the future.

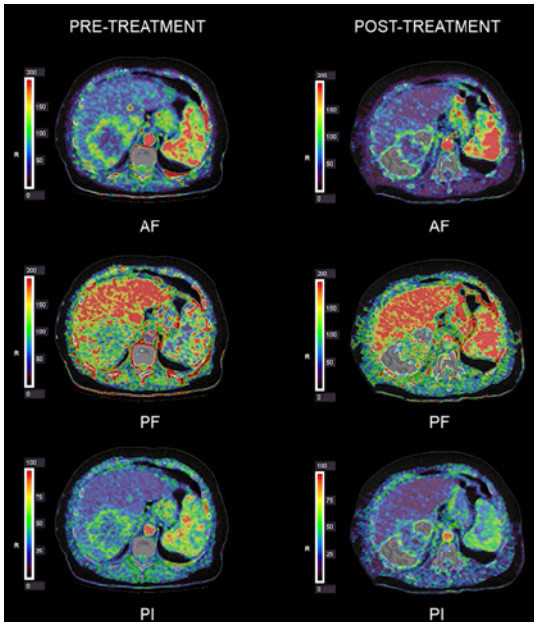


SURE Subtraction iodine mapping
SURE Subtraction can create iodine maps to enable the assessment of the distribution of contrast media within the body to visualize local perfusion. These maps can be applied to assess the local vascularization and therefore differentiate solid from cystic lesions and evaluating treatment effects in the field of Oncology.

Ultra-High Resolution CT



PET-CT Viewer
The Celesteion PET-CT is designed with patients in mind. With the industry's largest bore of 90 cm (CT) and 88 cm (PET), a true scan field of view at 70 cm (CT and PET) and Time-of-Flight technology, Celesteion can enable facilities to improve care in the field of metabolic lesion assessment and effectiveness of treatment plans.



Whole Organ Perfusion

Interventional X-Ray

Over the past few years, minimal invasive image-guided oncology interventions have emerged as a complement to invasive approaches. The Alphenix family supports you in delivering the best possible outcome to your patients. Whatever the clinical setting, Alphenix is designed around the concept that not every procedure is the same. The range of C-arm positioners provide coverage from head-to-toe and fingertip-to-fingertip. In the 4D CT setting, the volumetric CT and its applications can boost your Interventional Oncology procedures to a new level of care.

Systems:
- Alphenix Sky
- Alphenix Sky +
- Alphenix Core +
- Alphenix Biplane
- Alphenix 4D CT

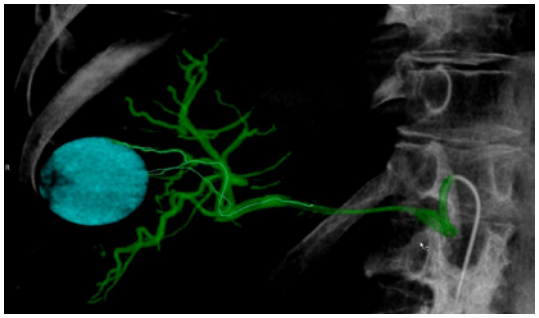
FROM VISIONS 29

"Our use of Interventional Radiology has increased by 400% over the last three years. Our current priority is to develop techniques on thermoablation of tumors of the liver using multi-modality imaging, which combines CT scan, ultrasound and angiography. Nearly 40% of liver tumors are not detectable with ultrasound and 20% cannot be picked up with CT scanning. The combination of these imaging modalities, as well as the ability to mark the tumors endovascularly, has enabled us to perform three times more thermoablation treatments over the last three years with subsequent Interventional follow-up."

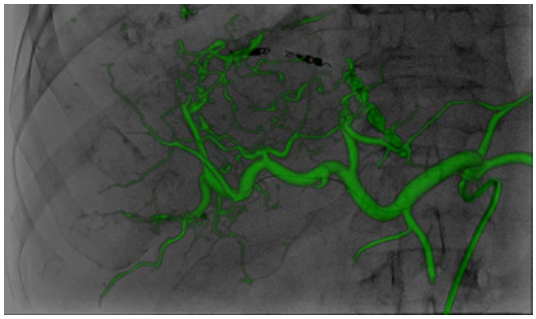
Prof. Boris Guiu
Head of the Radiology Department,
University Hospital in Montpellier, France

University Hospital

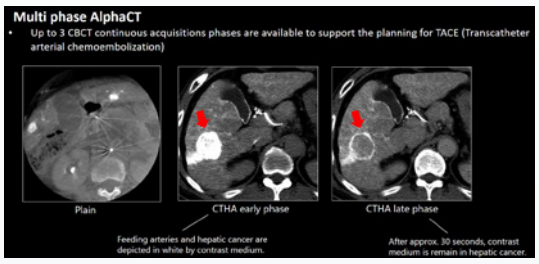
The University Hospital in Montpellier, France, is a unique regional health center specialized in the treatment of patients with liver cancers. The center contributes to developing new treatments of these cancers through advanced Interventional Radiology techniques. With a growing Radiology Department, the center has recently acquired an Canon Medical's 4D CT system.



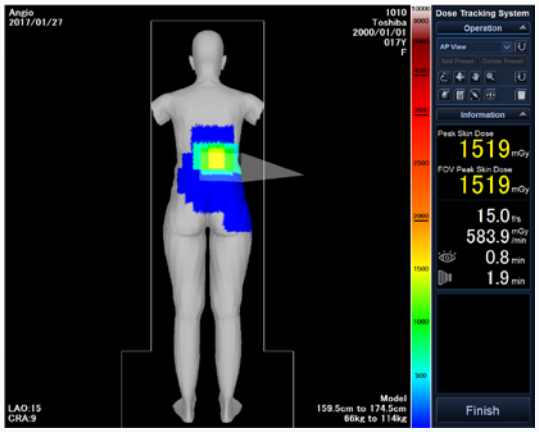
4D CT
Canon Medical Systems' Alphenix 4D CT seamlessly integrates the interventional lab and CT scanner for a paradigm shift in interventional workflow. The Angio-CT room helps to expand treatment capabilities and is ideal for a variety of interventional oncology procedures. Capture a complete vessel tree of the liver in a single rotation using the wide area detector CT Aquilion ONE GENESIS Edition, while seamlessly change to the Alphenix Sky+ C-arm for guiding your catheter to the tumor feeding arteries visualized by the Embolization Planning application.



Multi Modality Roadmap
Multi Modality Roadmap enables the overlay of a 3D prepared dataset from 3D Angio, CT or MR on live fluoroscopy in real time to provide additional 3D information of vessel architecture, surrounding anatomy or simple landmarks. Resulting in less use of iodine contrast and reducing procedure times



Multiphase Alpha CT
The Alphenix C-arms have a unique feature of Multi Phase Alpha CT scans. Allowing for conebeam CT scans over multiple phases. Visualizing contrast media corresponding to arterial, venal and capillary blood flow providing valuable insight in identification of for example hepatic tumor feeding vessels.



Dose Tracking System (DTS)
DTS estimates dose delivery to the patient's skin in real time and displays it on a color-coded map, allowing the physician to choose a different approach during a long procedure avoiding regions where dose thresholds are almost reached.

Collaborative imaging
Made possible.

Made For life

Our new **Made possible** campaign is a natural extension of our corporate **Made for Life** campaign that has been running over the last years. This new phase reinforces our clinical solutions approach, covering Oncology, Cardiology, Neurology, MSK | Sports Med, Women's Health and also supports HIT, AI and Service solutions like Cyber security.

As always, we continue to drive our **Made for Life** philosophy through this campaign, reflecting relevant outcomes for patients thanks to our high quality products with advanced technology, such as high image resolution, that can help detect symptoms earlier.


MODE 01
Settings
D:\DATA
SYS DR.3
SYS DR.3
SYS DR.3
MEDi T2
Code analyzing
SYS:\ DIR

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Canon Medical Systems Corporation meets internationally recognized standards for Quality Management System ISO 9001, ISO 13485. Canon Medical Systems Corporation meets the Environmental Management System standard ISO 14001.