

A Siemens Biograph mCT Flow PET/CT scanner is shown in a clinical setting. The machine is white with a large circular gantry. A patient bed is positioned inside the gantry. Blue glowing lines and arrows illustrate the motion of the gantry and the bed, highlighting the 'FlowMotion' feature. The Siemens logo is visible on the gantry and the side of the machine.

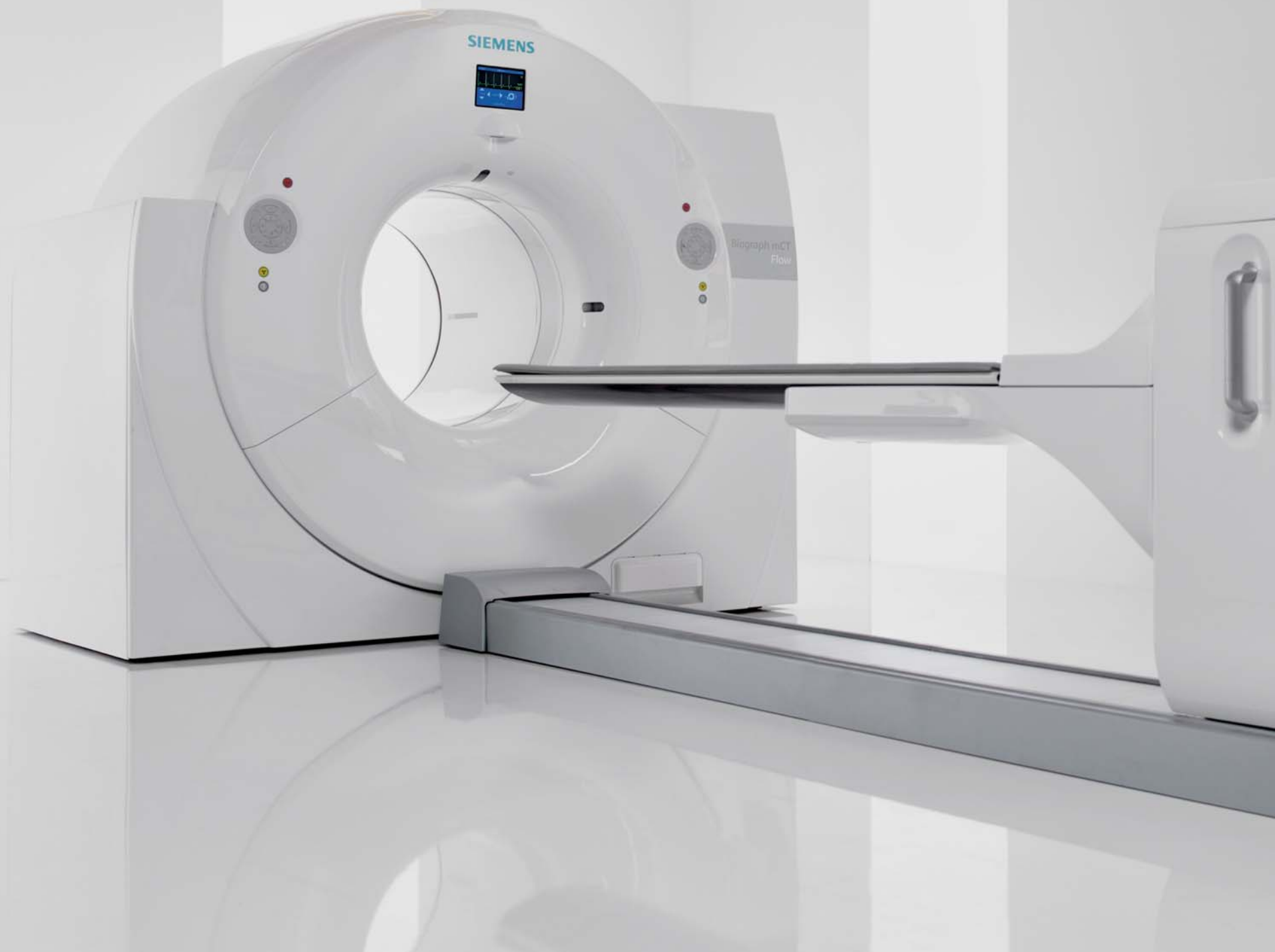
SIEMENS

www.siemens.com/mCT-Flow

Biograph mCT Flow

FlowMotion, the end of stop and go.

Answers for life.



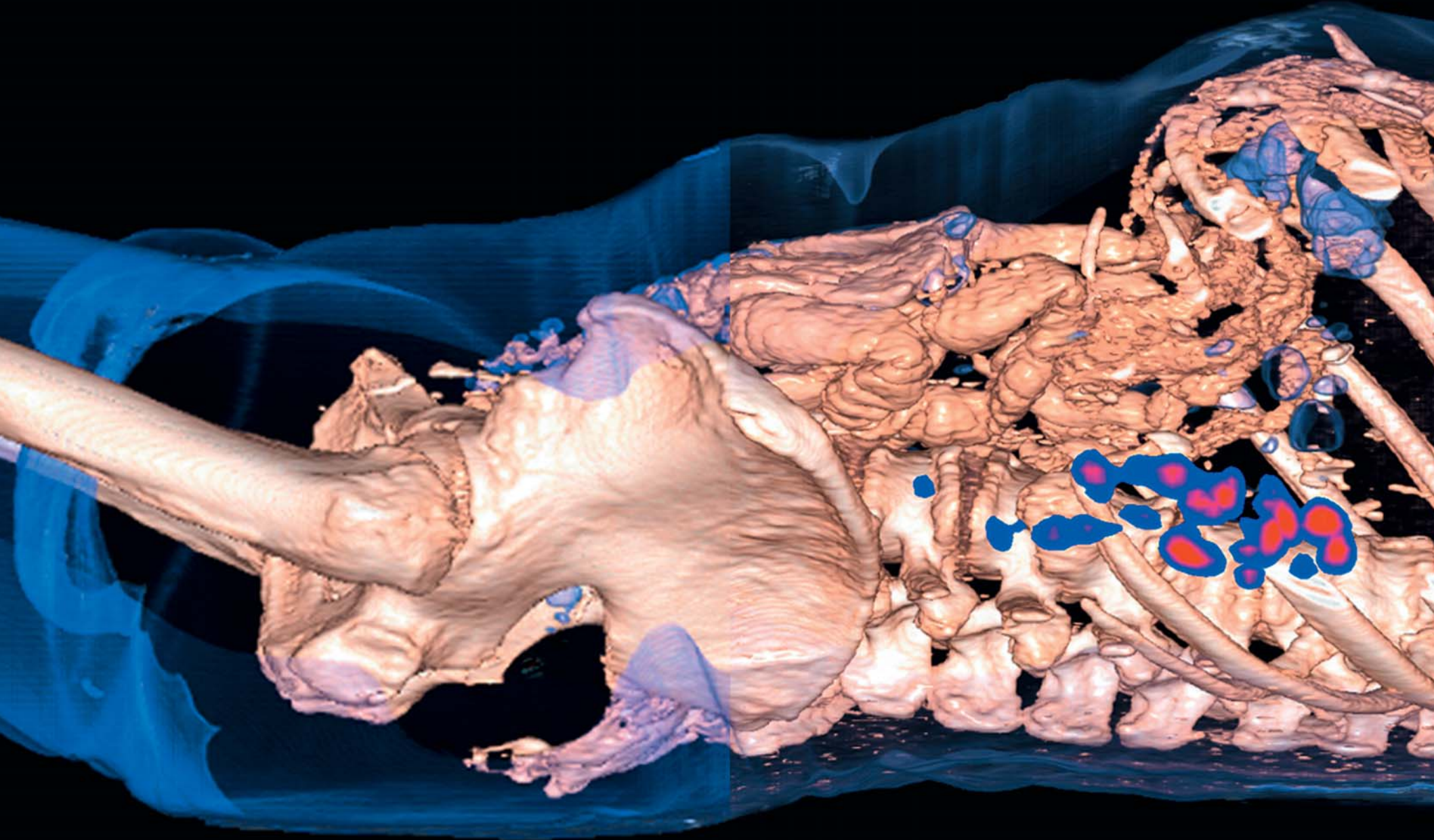


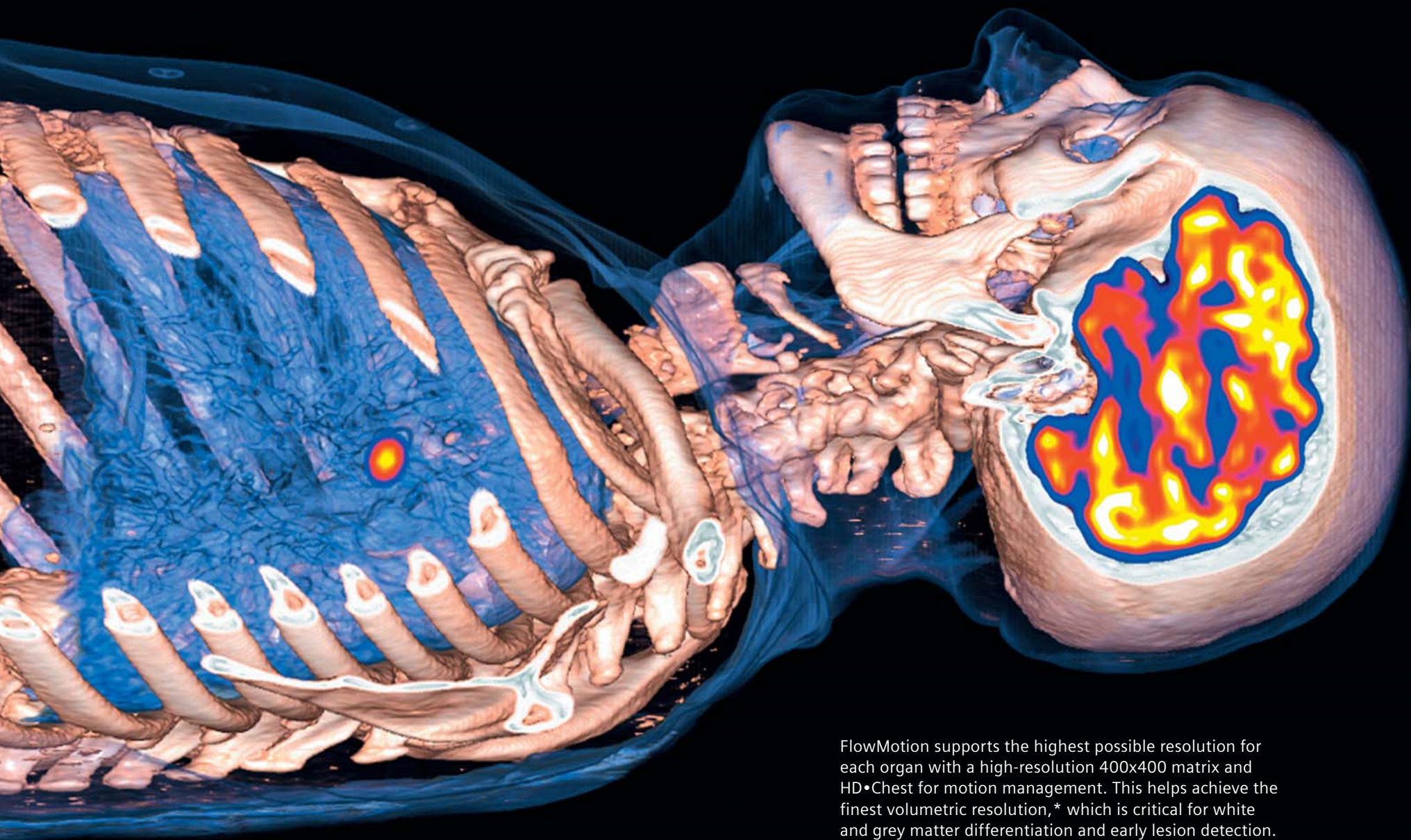
Leadership In Molecular Imaging

For more than 130 years, Siemens has been a recognized leader in medical innovation, believing that even the most distant technical horizons are temporary and could be surpassed with consistent dedication to improving healthcare. From the first electromedical devices in 1896 to the latest PET•CT technologies, Siemens has a long history of pioneering technological achievements that help make the impossible possible.

Siemens Molecular Imaging was founded on the belief that achieving the highest technical performance is only important when products help deliver clinical outcomes for improved patient health. This visionary approach, backed by the largest research and development budgets in the medical imaging industry,* has made Siemens an undisputed innovation leader in molecular imaging.

* Siemens Healthcare – Top 10 Medical Device R&D Budgets. FierceMedical Devices Website.
<http://www.fiercemedicaldevices.com/special-reports/top-10-medical-device-rd-budgets/siemens-healthcare-top-10-medical-device-rd-budgets>. Accessed May, 20, 2013.





FlowMotion supports the highest possible resolution for each organ with a high-resolution 400x400 matrix and HD•Chest for motion management. This helps achieve the finest volumetric resolution,* which is critical for white and grey matter differentiation and early lesion detection.

* Based on volumetric resolution of 87 mm³.
Based on competitive literature at time of publication. Data on file.

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FlowMotion, the end of stop and go.

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Diagnostic imaging is expected to deliver definitive and timely answers to clinical questions. And, in today's increasingly competitive and rapidly changing healthcare environment, these answers must be provided in the safest and most efficient way possible. While every hospital and physician strives to deliver the best care, patient expectations for a comfortable, stress-free imaging experience continue to increase. To meet these growing demands for higher-quality and more patient-centered care, PET/CT must overcome the limitations defined by conventional stop-and-go technology.

Until now, PET examinations have been performed in sequential bed positions, alternating between acquisition and patient table motion. As such, planning and

scanning have always been restricted by the fixed size of the detector array. The inherent complexity of stop-and-go scanning has limited the routine use of advanced PET/CT imaging technology, and often resulted in higher dose, greater patient anxiety, lower efficiency and the potential for patient motion and related image degradation.

Siemens understood the only way to break through the limitations of stop-and-go and enable further clinical advancements was to fundamentally change how PET imaging is performed. Powered by Siemens' revolutionary FlowMotion™ technology, Biograph mCT Flow™ is the world's first PET•CT system to eliminate the demand for stop-and-go imaging. Now with Biograph mCT Flow and FlowMotion, planning and scanning is based on a single continuous motion of the patient table.

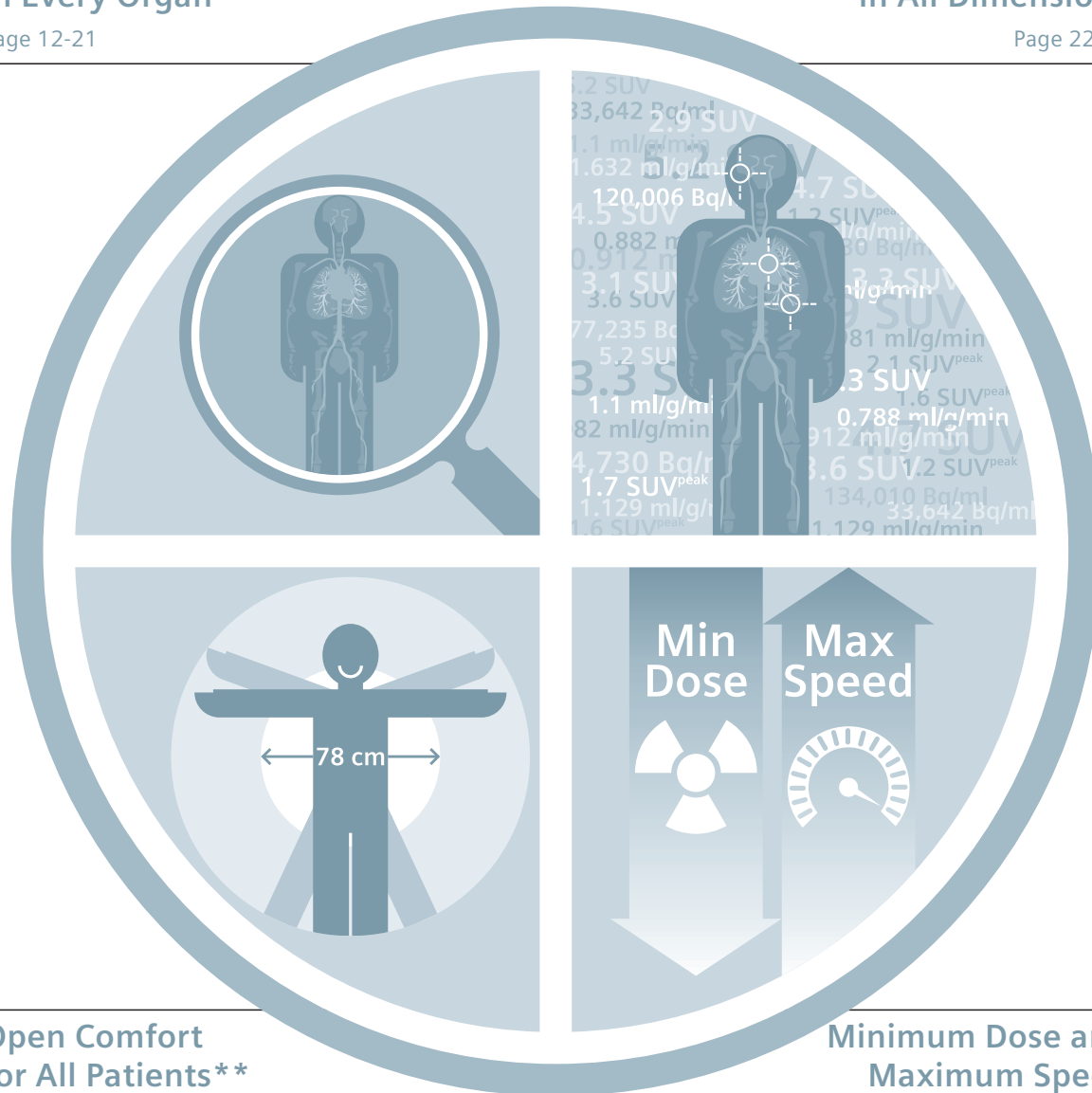
With the new Biograph mCT Flow, physicians benefit from the finest* image resolution in every organ and every scan. Furthering the ability to understand disease, now you can also confidently rely on molecular imaging with accurate and reproducible quantification in all dimensions. Simple and precise range planning eliminates over-scanning and the associated radiation exposure, while simultaneously streamlining workflow. Biograph mCT Flow incorporates a host of proven solutions that support the use of the lowest possible dose, all while scanning patients faster than ever before. Finally, FlowMotion's sense of continuous progress provides a more comfortable exam experience for patients.

Finest Detail in Every Organ*

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Open Comfort for All Patients**

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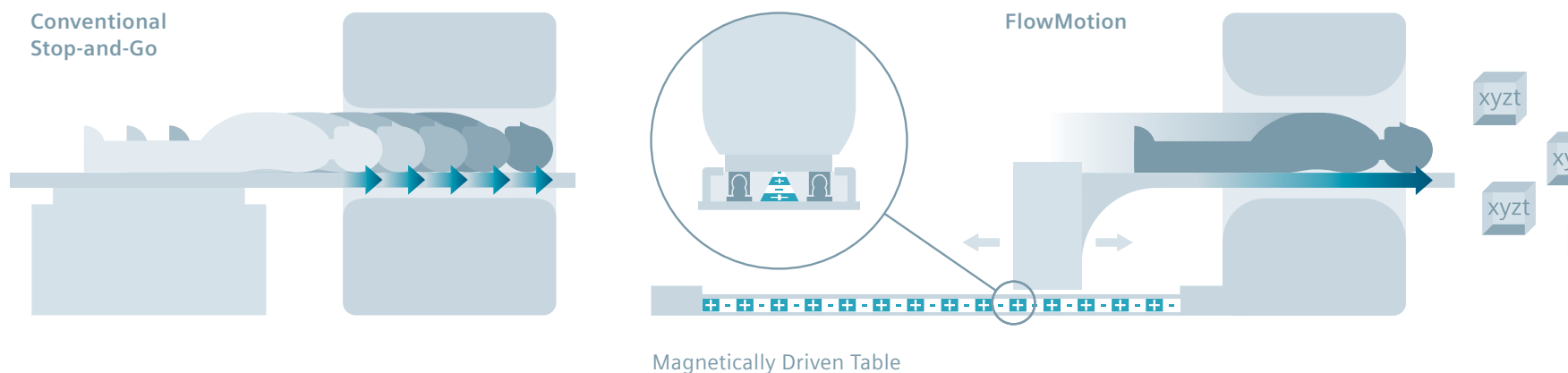
Minimum Dose and Maximum Speed

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Biograph mCT Flow paves the way for extraordinary progress in diagnosing and treating the most challenging diseases. It provides physicians the confirmation needed to redefine clinical decision making. Overcoming the limitations of conventional PET/CT systems, Biograph mCT Flow is the end of stop-and-go.

* Based on volumetric resolution of 87 mm³. Based on competitive literature available at time of publication. Data on file.

** Patients up to 227 kg (500 lb).



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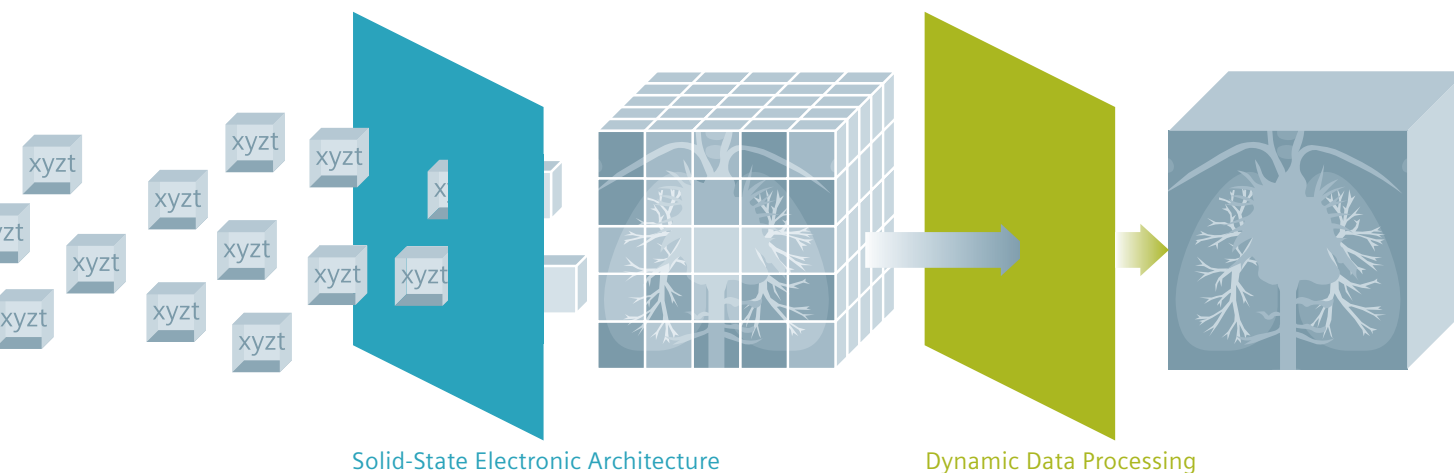
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A Revolutionary New Platform

From the beginning, PET was built on the principle of bed-based, stop-and-go scanning. As a result, every component of today's PET/CT systems, from the table and gantry to software algorithms and physics correction systems, has been designed to support this approach.

Fundamentally changing how PET is performed cannot be achieved with a simple update to current technology, but instead requires engineering a completely new platform, designed at every level to perform PET in a single, continuous scan. Biograph mCT Flow, the world's first FlowMotion PET•CT, is the result of more than a decade of relentless engineering backed by one of the largest research and development budgets* in medical imaging.

From creating revolutionary acquisition mechanics that feature a precise, magnetically driven patient table to reinventing the electronic architecture with ultra-fast, solid-state technology and new data processing models, every aspect of Biograph mCT Flow has been designed to realize the benefits that only FlowMotion scanning can provide.



Magnetically Driven Table

Traditionally, PET/CT has relied on belt-driven CT tables, resulting in delayed velocity response and imprecise, multi-axis deflection. Such tables cannot provide the high level of accuracy required for continuous scanning.

Siemens patented SMART patient handling system (PHS) contains a horizontal magnetic drive system that enables accurate change of table velocity, as well as a continuous motion with submillimeter positioning accuracy. Furthermore, its unique cantilevered design, eliminates differential deflection as the table travels through the gantry.

Solid-State Electronic Architecture

The computer architecture behind stop-and-go scanning is limited in both memory and processing power requirements.

Acquiring a continuous stream of counts required Siemens to design a new electronic architecture built on ultra-fast, solid-state components capable of continuously recording and storing detector addresses, as well as sub-milli-second timing information.

Dynamic Data Processing

Before PET data can be converted into an image, it must be normalized. Conventional data corrections are limited to algorithms that impose average normalization factors for each fixed bed position.

FlowMotion eliminates this generalization of data, by employing a dynamic normalization coefficient for each continuously acquired line of response signal.



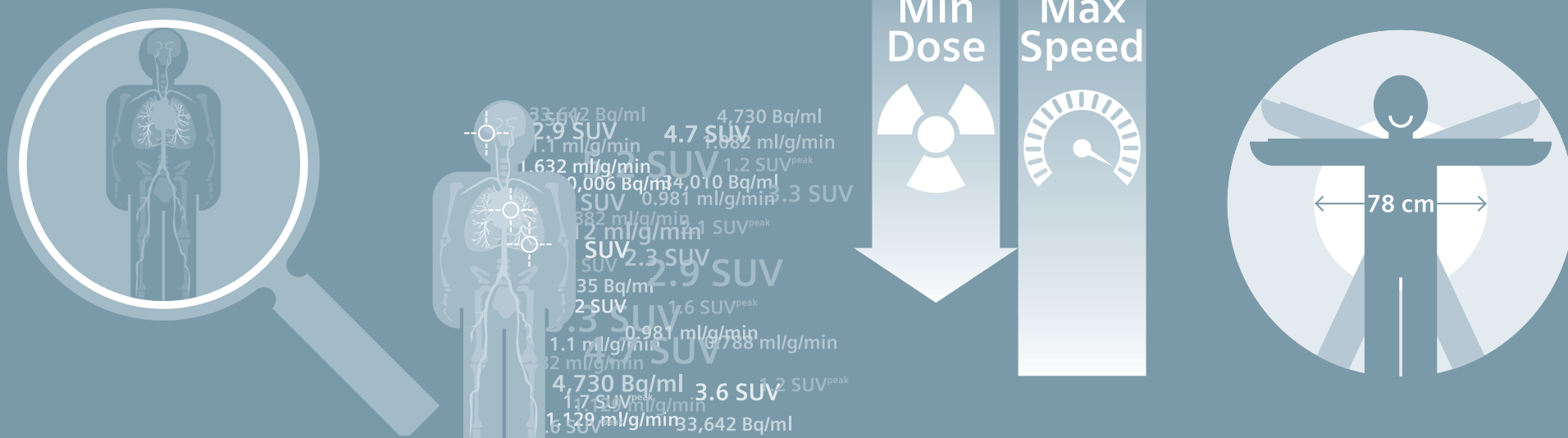
Return on Innovation

With a focus on fulfilling clinical, operational and financial needs, Siemens mandate is to deliver innovations that consistently meet the following three criteria:

- Lead the way in technological and medical advancement
- Maximize operational efficiency
- Make state-of-the-art affordable

Moving forward, Siemens will continue to provide customers with must-have, trendsetting innovations and shape the direction of molecular imaging, empowering physicians to make sound decisions that deliver outcomes, changing the way PET/CT is done.

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Finest Detail in Every Organ*

FlowMotion technology takes routine image quality to a new level by enabling imaging protocols based on the organ's need. It provides integration of variable speed, motion management and a 400x400 reconstruction matrix into a single-scan protocol based on the needs of each organ. This achieves the finest detail for every organ and enables a more confident diagnosis.*

Accurate Quantification in All Dimensions

FlowMotion provides accurate and reproducible quantification from edge to edge for precise disease characterization in therapy monitoring.

Therapy monitoring offers patients the ability to make early treatment decisions in order to help reduce the cost of ineffective therapies, which can exceed USD \$92,000 annually.**

Minimum Dose and Maximum Speed

Biograph mCT Flow meets the dual mandate for high patient safety while achieving maximum efficiency.

Biograph mCT Flow is capable of achieving a 5-minute diagnostic PET•CT, with flexible CT-like range planning and zero CT overscan.

With FlowMotion, physicians can truly offer As Low as Reasonably Achievable (ALARA) dose to every patient*** and referring physician.

Open Comfort for All Patients***

Biograph mCT Flow is engineered to be a patient-centric solution. The 78 cm large bore accommodates a wider range of patients.

This combines with FlowMotion, to potentially improve patient satisfaction with a continuous sense of progression throughout the scan.

* Based on volumetric resolution of 87 mm³. Based on competitive literature available at time of publication. Data on file.

** High Price of Cancer Drugs Is Harming Patients. Medscape Medical News Web site. <http://www.medscape.com/viewarticle/803415>. Accessed May 10, 2013.

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Biograph mCT Flow
combines industry-leading
volumetric PET resolution*
with advanced CT
capabilities for increased
diagnostic confidence.

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An accurate diagnosis starts with an accurate image for every organ. With conventional technology, small or low-grade lesions can go undetected or lose definition towards the edges of the field of view (FOV) and are subject to motion blurring, thereby lowering diagnostic confidence.

Biograph mCT Flow overcomes these limitations by providing images of unique clarity, in a single scan, for every patient without compromising efficiency. By using FlowMotion technology as the guiding principle, Siemens has transformed PET/CT acquisition from its origins of bed-based imaging. Setting the new standard for the future of PET•CT.

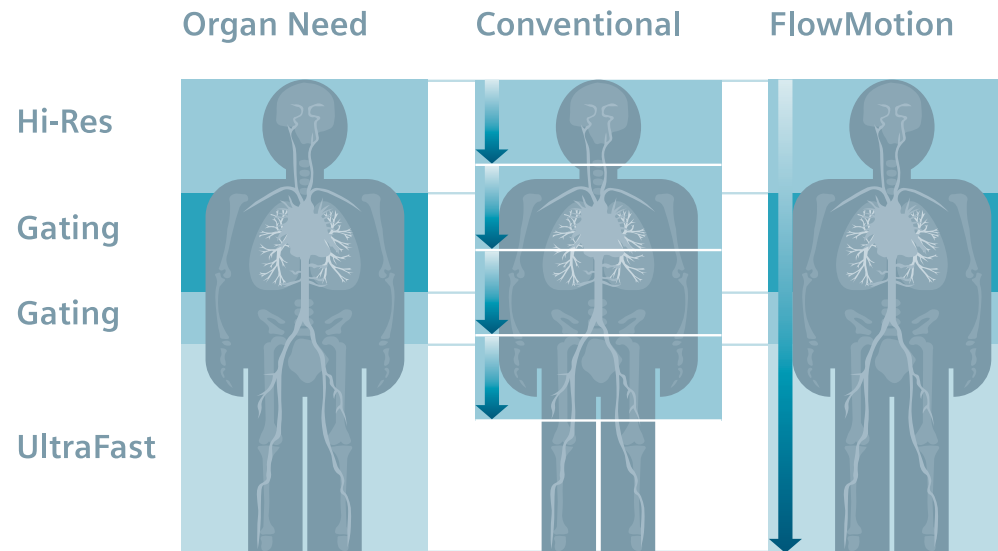
Industry's Finest Volumetric Resolution*

Siemens recognizes the foundation of an excellent image is an accurate detection system built with optimized components. From its earliest days developing PET•CT technology, the company has made image quality its highest priority, and this commitment still holds true today.

Biograph mCT Flow with its OptisoHD detection system optimizes each component of the imaging chain. From the design of the isotropic LSO crystals to the high-speed electronics and the industry's best 400x400 reconstruction matrix,* the result is the finest NEMA* and volumetric image accuracy.*

0.28 mm Isotropic Resolution**

Siemens ultraHD•PET delivers increased image quality that easily outperforms conventional PET/CT technology by combining two important innovations: HD•PET and Time of Flight (TOF), which improves signal to noise by a factor of two. With the addition of z-Sharp™ technology, which offers CT-isotropic resolution down to 0.28 mm** at any position within the scan field, Biograph mCT Flow continues to push the boundaries of spatial resolution.



Virtually Freeze Motion

HD•Chest is a breakthrough technology that eliminates the tradeoff between diagnostic confidence and examination time. Through an innovative combination of hardware and software, HD•Chest virtually freezes respiratory motion, enabling full HD lesion detection and accurate standard uptake value (SUV) quantification.

Precise Organ Imaging

Every organ in the human body is unique, with some presenting additional barriers to obtaining the necessary image quality to support confident diagnoses. While advanced technologies to overcome the challenges of managing motion and obtaining ultra-high resolution exist, they cannot be incorporated into a single scan, nor are they routinely utilized due to the complexity of setting up individual bed positions.

Biograph mCT Flow revolutionizes PET/CT acquisition by overcoming engineering challenges to offer the world's only FlowMotion PET acquisition, eliminating

the need for bed-based imaging.

As a result, examination parameters such as speed, image resolution and motion management can be easily adjusted to the precise dimensions of organs and routinely incorporated into a single scan for every patient. Best of all, with FlowMotion technology, physicians can have increased diagnostic confidence without adversely impacting patient schedules.

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Integration of HD•Chest Supports Detection of Small Lesions

The five-year survival rate for NSCLC may more than double if caught earlier, benefiting up to 85% of lung cancer patients.¹ FlowMotion simplifies integration of HD•Chest into every scan. Motion management can improve lesion resolution in areas impacted by respiratory motion supporting detection of small lesions.

Hi-Rez Increases Accuracy

Improved accuracy can change patient management in up to 40% of head and neck cancer cases.² FlowMotion technology additionally provides simple incorporation of Hi-Rez into the PET scan protocols. This PET reconstruction with the industry's highest* 400x400 matrix can increase resolution potentially resulting in improved detection.

25 Percent Scan Time Reduction

Biograph mCT Flow with FlowMotion enables organ-focused protocols in a single scan without limitations of bed positions. Conventional systems require a two scan protocol that includes a whole-body one-size-fits-all scan followed by a respiratory gated scan of the chest. FlowMotion's organ-focused single-scan protocol reduces scan time up to 25 percent over conventional multi-scan protocols.

Improved Image Quality May Speed Up Interpretation Time

Siemens leads the way in image quality.³ With FlowMotion every scan can provide the finest detail* for every organ. Improved visualization of lesions may reduce the time it takes to interpret the image with confidence and reduce over-reads.

Improving Lesion Detection Supports a More Accurate Diagnosis

Improving lesion detection can reduce false negative results and can limit exposure to costly malpractice suits.⁴ Having the ability to produce images with the finest detail for every organ enables better lesion delineation for a more confident interpretation.* In addition, the ability to provide better image and report quality increases referrals.

Improved Accuracy Reduces Re-scans

The ability to provide the finest detail* for every organ in every scan with FlowMotion improves accuracy and may reduce costly re-scans; as well as, their negative financial impact. Furthermore, delivering accurate results with Biograph mCT Flow can reduce the need for additional exams and procedures.

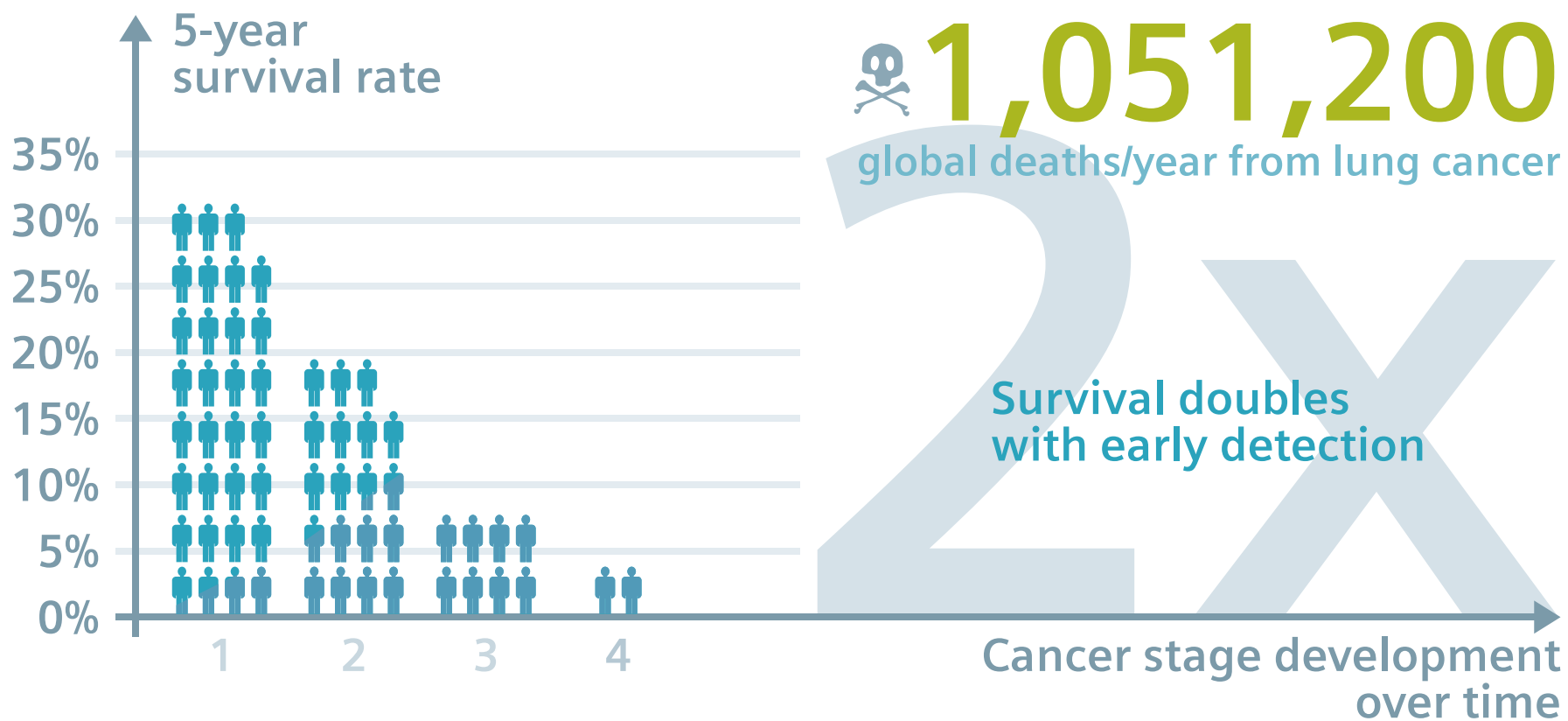
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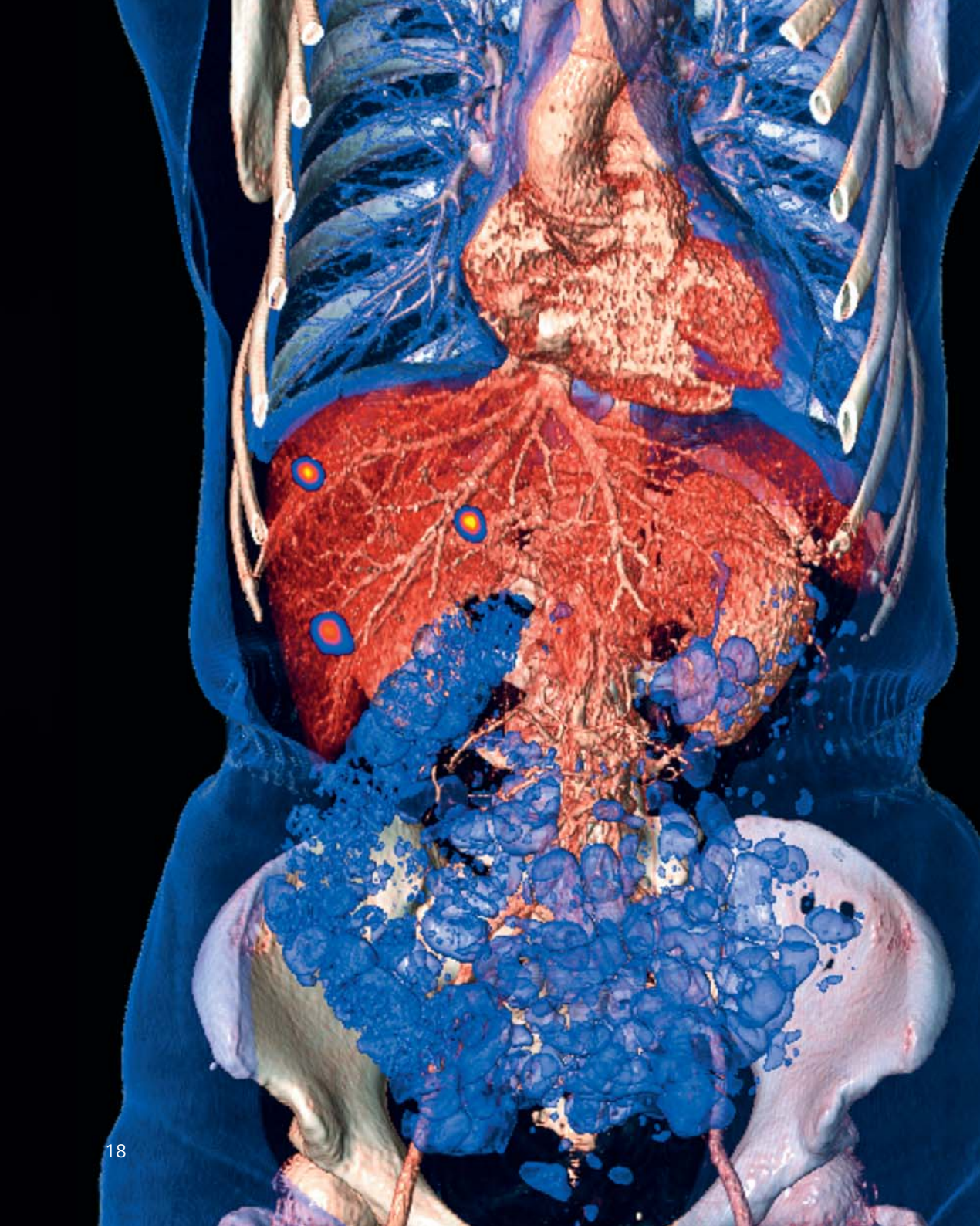
¹ Fangfang Chao and Hong Zhang, "PET/CT in the Staging of the Non-Small-Cell Lung Cancer," Journal of Biomedicine and Biotechnology, vol. 2012, Article ID 783739, 8 pages, 2012. doi:10.1155/2012/783739

² Yamamoto Y, et al. "Head and Neck Cancer: Dedicated FDG PET/CT Protocol for Detection – Phantom and Initial Clinical Studies". Radiology. 244(1). pp 263-272

³ IMV 2011 US PET Image Quality Survey Results & IMV 2011 European PET Image Quality Survey Results


⁴ Rodrigues, et al. 2009. J Nucl Med. 50:1205-1213

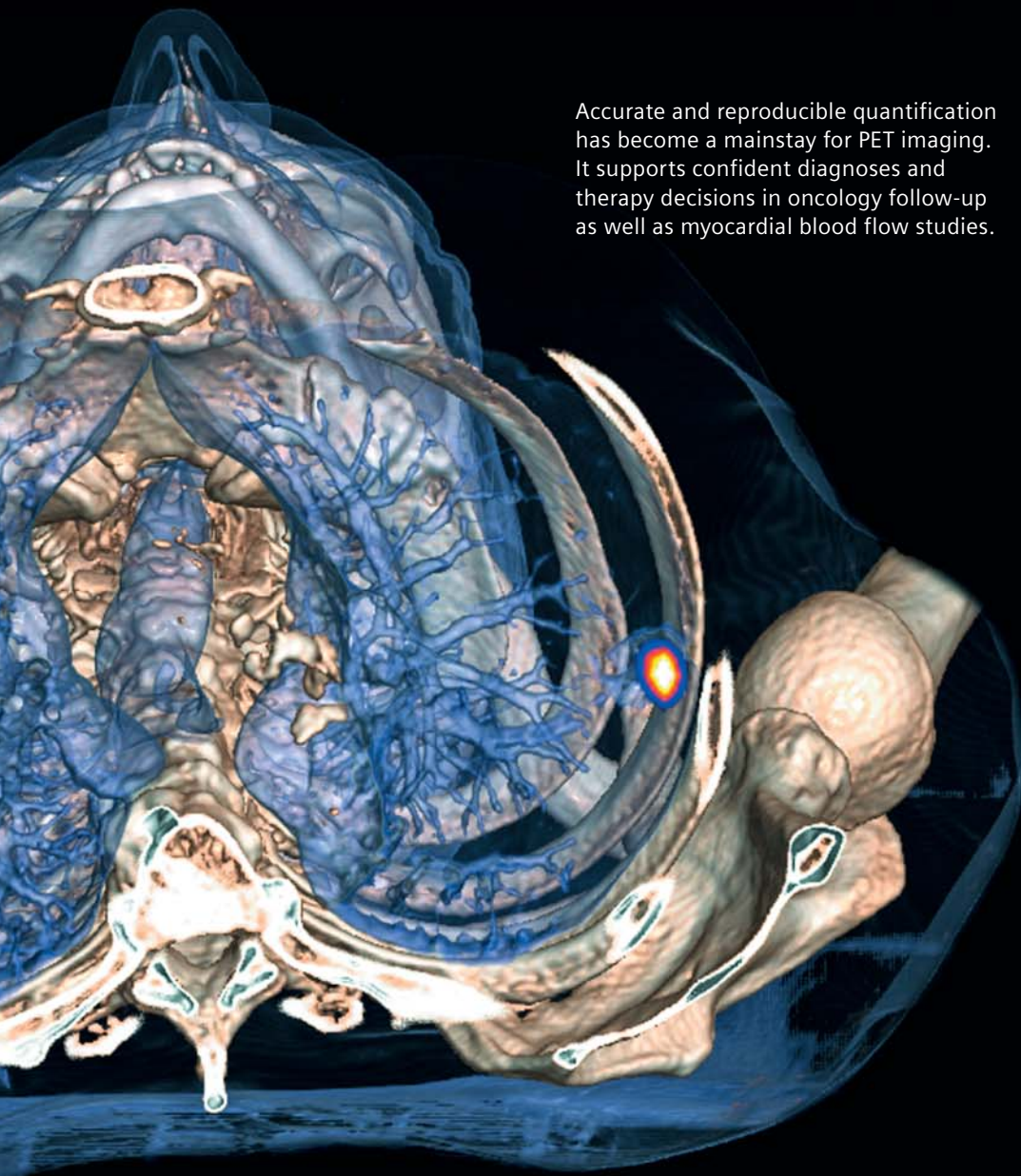




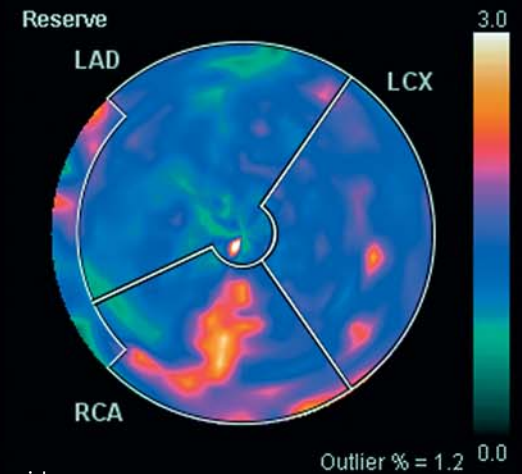
Early therapy response
assessment supports effective
treatment decisions.

Biograph mCT Flow provides
reproducible quantification
with daily calibration and
edge-to-edge accuracy.

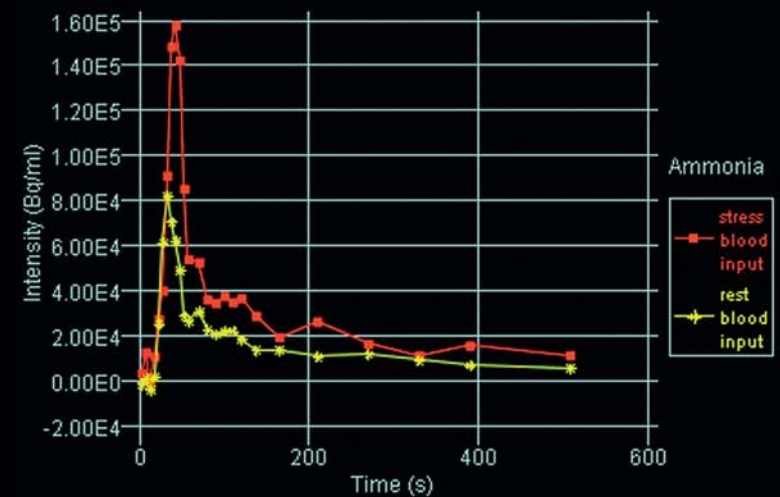




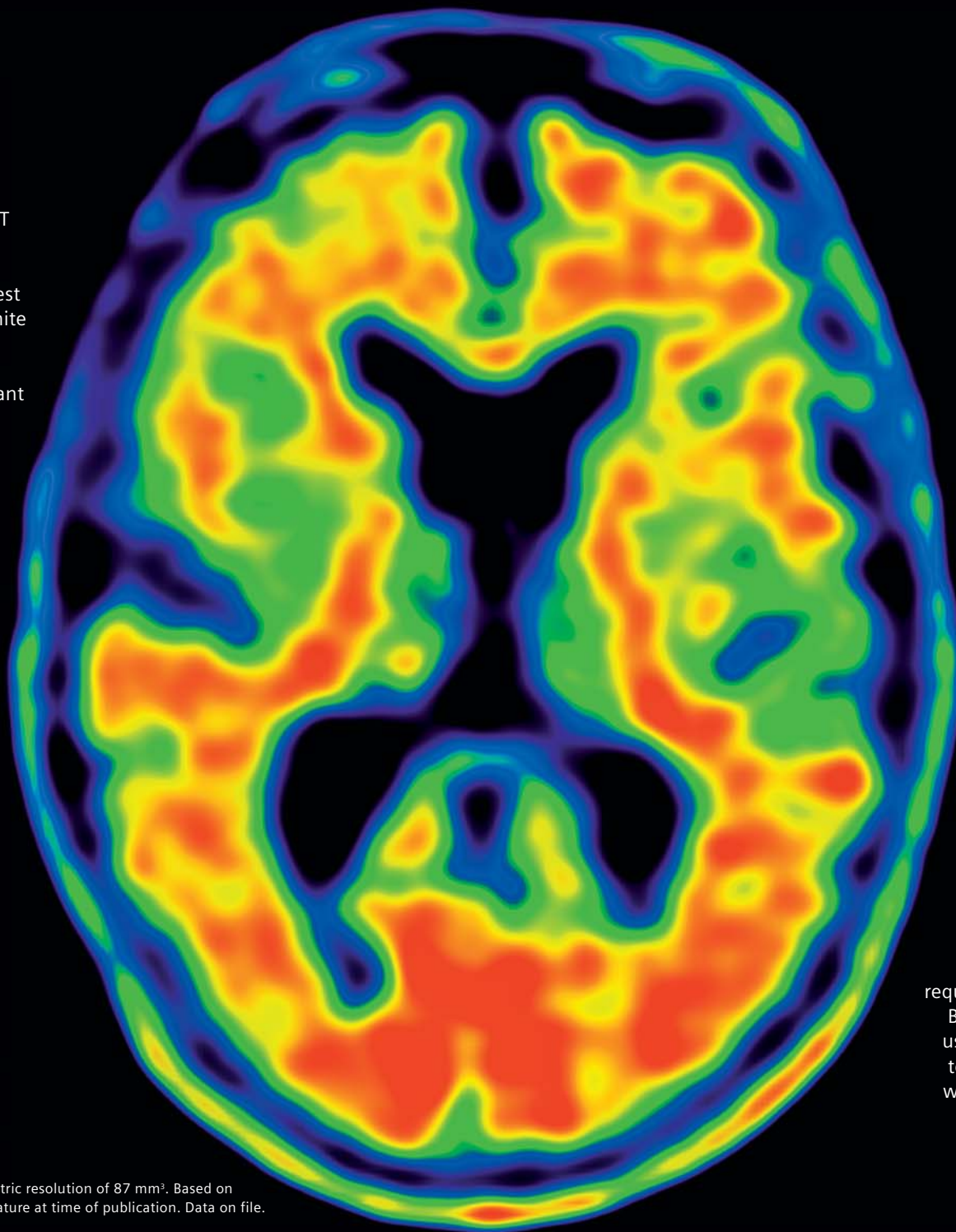
Accurate and reproducible quantification has become a mainstay for PET imaging. It supports confident diagnoses and therapy decisions in oncology follow-up as well as myocardial blood flow studies.



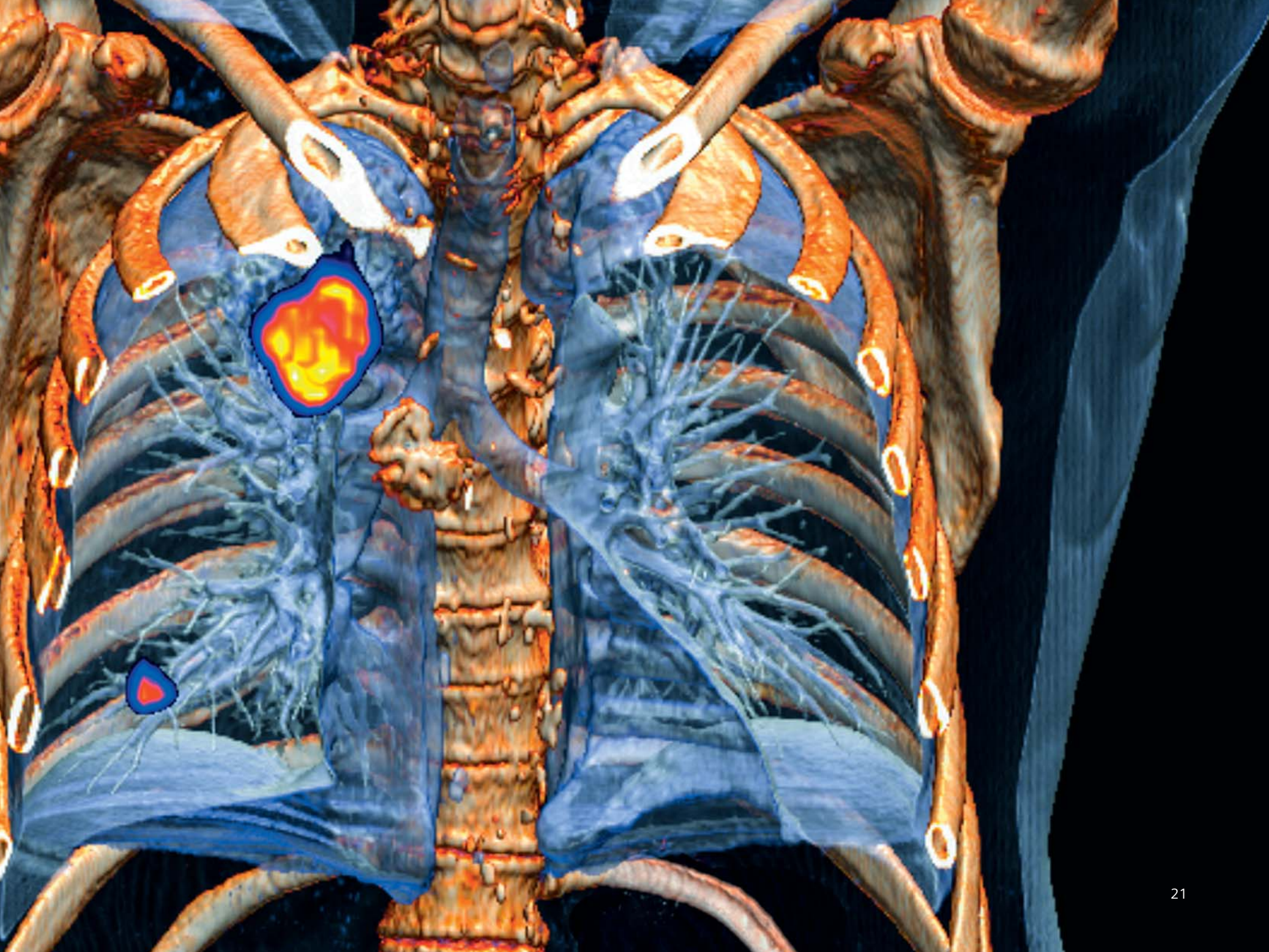
Myocardial blood flow provides an absolute quantification method to assess balanced disease in the myocardium.



With the recent introduction of PET amyloid plaque imaging, the importance of finest resolution* for white and grey matter differentiation is now more important than ever.



Accurate staging of lung cancer requires early detection of small lesions. Biograph mCT Flow allows for routine use of HD•Chest motion management techniques that enable delineation as well as quantification of small lesions.



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In order to help physicians make sound decisions, imaging must provide accurate and reproducible quantification. With conventional technology, users face the issue of variability in results.

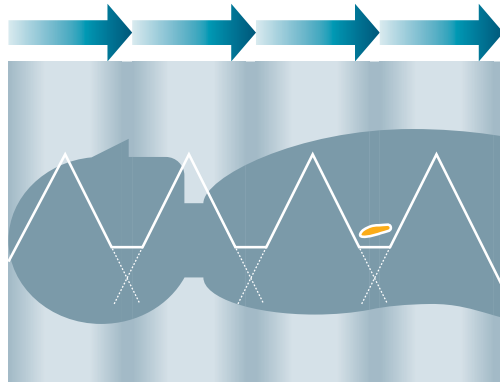
The new Biograph mCT Flow is the first-and-only PET•CT to completely address these challenges by providing consistent quantitative accuracy throughout the entire image, helping to make a difference in diagnostic confidence, therapy planning and early treatment monitoring.

FlowMotion Uniformity

PET detection systems suffer from intrinsic sensitivity degradation from the center to the edge of the axial field of view. Conventional stop-and-go imaging is designed to compensate for this constraint by overlapping sequential bed acquisitions. However, this approach leads to axially varying noise sensitivity, which results in non-uniform quantitative measurements.*

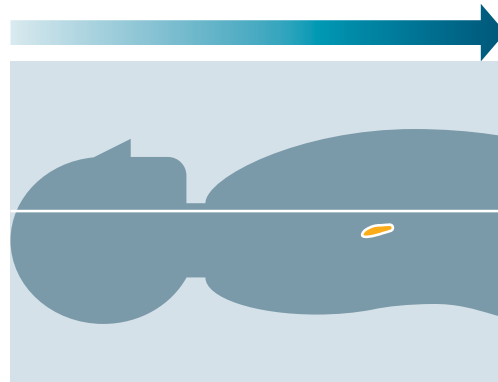
Biograph mCT Flow is the world's first PET•CT to offer improved axial noise sensitivity. By continuously moving the patient through the detection system, FlowMotion technology eliminates overlapping bed acquisitions and maintains uniform noise sensitivity across the entire scan range. Building on proven in-plane quantitative accuracy, FlowMotion expands precise quantifiable results to all dimensions.

Conventional Stop-and-Go



Noise sensitivity degradation

FlowMotion



Uniform noise sensitivity

Daily Normalization

Inherent scanner drift has a direct impact on accuracy of acquired quantitative data. Conventional line-source-based quality control is only designed to alert the user if the scanner drift falls outside the acceptable range.

Leaving nothing to chance, Biograph mCT Flow's automatic quality check process is designed to help assure that performance is consistent and measurements are accurate day after day. With Quanti•QC, users can begin each day knowing that overnight

the scanner's quantitative accuracy was automatically verified, and more importantly, normalized and precisely calibrated to the proper specifications. In addition, the tightly regulated water-cooled gantry helps ensure system temperature stability for consistent performance.

Accurate Attenuation Correction

Inaccurate attenuation correction resulting from misregistration of conventional anatomical and functional imaging technologies generates inconsistency in quantitative results.

The desire to overcome this challenge and achieve the best attenuation correction is the basis for developing Siemens Molecular & Anatomical Registration Technologies (SMART). Biograph mCT Flow employs a unique cantilevered patient handling system where the pedestal and table move as one unit, eliminating differential deflection between PET and CT. Auto Cardiac Registration automatically aligns CT and PET images and reduces variability between users. And, Siemens novel SMART Neuro AC enables attenuation correction of neurological PET data without a CT scan.

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Improve Quantitative Accuracy to the Edge

Quantitative accuracy to the edge of the field of view is achieved with FlowMotion technology. Due to the improved noise characteristics, the SUV bias is reduced and quantitative accuracy to the edge is improved. Siemens Biograph mCT Flow is the only PET•CT to achieve this noise uniformity to the edge. This enables a more confident interpretation for organs such as the brain.

Precise Quantification Enables Early Decisions

Stop-and-go PET/CT requires bed overlap to overcome sensitivity loss and increased noise at the edge of each bed. Too little overlap with conventional technologies can lead to inconsistencies in SUV_{max}. FlowMotion makes bed overlap a thing of the past. Precise quantification achieved with FlowMotion enables early treatment decisions that allow patients to avoid side effects from ineffective therapies.

Quanti•QC Reduces Quantitative Variability

Biograph mCT Flow provides automatic daily scanner quality control and calibration. The system utilizes 11 tests every day to correct for system variability that may result from external environmental sources, such as humidity or inherent detector drift over time. Quanti•QC helps assure the system is performing as accurately and reproducibly as possible every single day.

One-click Tumor Trending

syngo®.via provides a comprehensive suite of oncology tools for quantitative tumor assessment. *syngo*.MM Oncology enables the ability to perform PERCIST measurements; as well as, one-click tumor trending to provide a snapshot of tumor progressions or regression as a response to therapy. This intuitive client-server-based platform brings the quantitative capabilities of the Biograph mCT Flow to daily clinical routine.

Save the Cost of Ineffective Therapies

The financial burden of cancer treatment can exceed USD \$92,000 per year.¹ Biograph mCT Flow accurately and quantitatively enables physicians to monitor response to therapy and allows for early decisions regarding therapy effectiveness. The ability to save the cost of ineffective therapies can have a significant financial impact on both hospitals and patients.

Grow Beyond Oncology

syngo.via provides quantitative applications for imaging both amyloid plaque burden in the brain and absolute myocardial blood flow of the heart with *syngo*.PET Amyloid Plaque¹ and *syngo*.PET Myocardial Blood Flow (MBF), respectively.^{**} The ability to image both neurology and cardiology patients enables expansion of PET services beyond oncology. The ability to provide quantitative reports for oncology, neurology and cardiology makes it possible to attract more referring physicians.

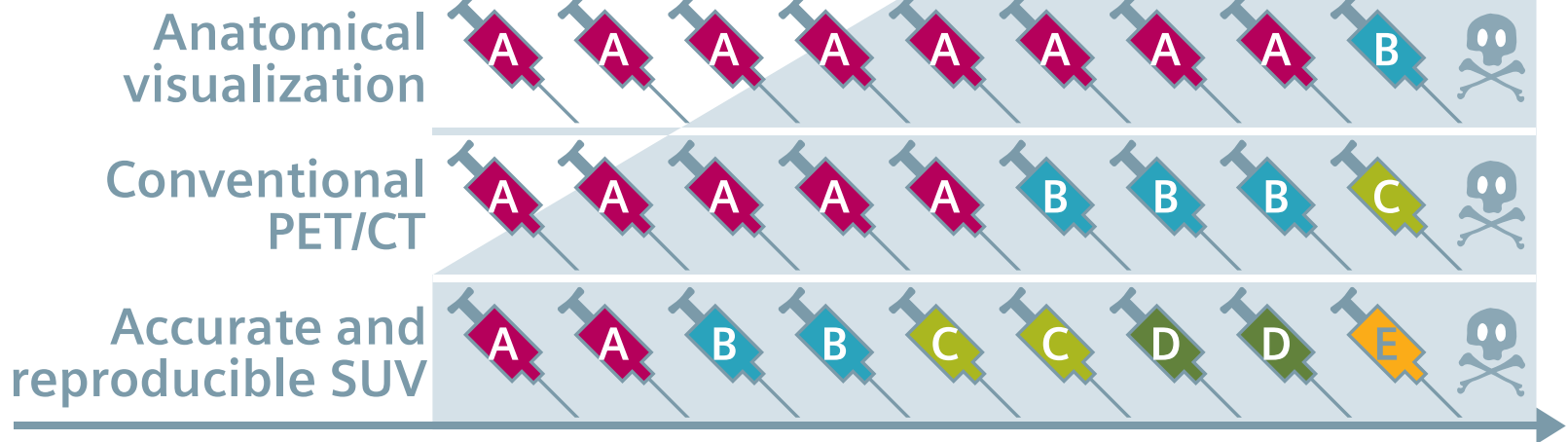
¹ High Price of Cancer Drugs Is Harming Patients. Medscape Medical News Web site. <http://www.medscape.com/viewarticle/803415>. Accessed May 10, 2013.

* *syngo*.PET Amyloid Plaque is intended for use only with approved amyloid radiopharmaceuticals in the country of use. Users should review the drug labeling for approved uses.

** These applications are part of *syngo*.MI Neurology and *syngo*.MI Cardiology, respectively.

92,000\$

Annual chemotherapy cost



Earlier monitoring increases chance for therapy adjustment

Possible therapy cycles



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Two of the most challenging issues facing healthcare today are the dual mandates to improve patient safety and increase productivity. Unfortunately, conventional PET/CT systems often require clinicians to choose between protecting patients through lower dose and enhancing productivity through faster scans.

Biograph mCT Flow offers innovative solutions that allow the lowest dose to be administered, while still scanning patients faster than ever before. Now clinicians can have it all—scans with half the dose and double the speed. And by reducing dose and increasing speed, patient safety and utilization are improved while costs are dramatically reduced.

Low Dose CARE

With CARE (Combined Applications to Reduce Exposure), Siemens has been highly successful in integrating many innovations that significantly reduce radiation dose.

TrueV improves count rate performance by 70%. When combined with ultraHD•PET, which improves the signal to noise up to two times, injected dose can be lowered up to 50%. Furthermore, the STRATON™ X-ray tube features a unique Adaptive Dose Shield lowering CT dose by up to 25%. Moreover, SAFIRE (Sinogram Affirmed Iterative Reconstruction) allows up to a 60% dose reduction* by utilizing raw-data-based iterative reconstruction.

Finally CARE kV, the only automated CT voltage setting technology, optimizes the contrast-to-noise-ratio to reduce dose by up to 60%.

Eliminating Over-Scanning

Because the CT is used for attenuation correction, the scan length must exactly match the length of the PET range. This creates a problem with conventional stop-and-go imaging, as the sequential bed dimensions often force the PET and CT acquisitions to expose an area beyond what is needed. Commonly known as over-scanning, this issue is an inherent drawback of stop-and-go PET/CT systems.

Conventional



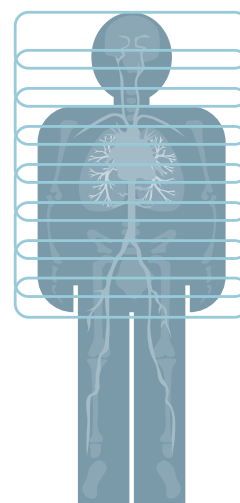
Stop-and-go overscanning

FlowMotion



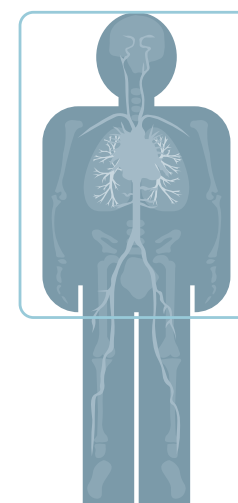
Precise scan range

Conventional



Complex bed position planning

FlowMotion



One click FAST planning

FlowMotion takes Siemens CARE commitment to the next level by allowing physicians to precisely and continuously plan and scan only the desired areas. As a result, only the targeted tissue is irradiated, completely eliminating over-scanning and the associated CT dose.

One Click FAST Planning

In the case of conventional stop-and-go, bed-based PET/CT, the complexity of setting up individual parameters for each sequential bed position is a tedious and prolonged process that lowers operator efficiency and potentially increases the likelihood for mistakes.

Utilizing FAST (Fully Assisting Scanner Technologies) innovations, time consuming and manual scanning procedures are now simplified and automated to improve workflow efficiency and feature utilization while optimizing the overall clinical outcomes. FlowMotion also eliminates the complexity of configuring, adjusting and optimizing individual bed positions through a simple, one-click setup.

Five-minute Scan

To help improve the efficiency of healthcare teams, examination times must be further reduced. However, conventional PET/CT scans require time consuming stop-and-go acquisitions that are further restricted by limited coverage of the detection system.

The new Biograph mCT Flow, coupled with TrueV, is the only solution that enables continuous scanning at twice the speed of conventional PET/CT. Thanks to the 30% wider axial FOV of 21.6 cm—the largest in the PET/CT industry,**—a 70% increase in count rate performance is realized. When combined with ultraHD•PET, five-minute scanning becomes a reality for routine clinical performance.

The arrival of high-speed, 10 mm/second FlowMotion PET scanning creates an opportunity that extends beyond providing the fastest examination. It is poised to unlock new medical applications and advance future areas of research like breath-hold PET lung imaging for scans virtually free of motion.

** Based on competitive literature available at time of publication. Data on file.

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Zero CT Overscan

FlowMotion technology provides complete flexibility in range planning for zero CT overscan and lowers radiation dose to reduce risk from ionizing radiation.

Breath-hold Lung Scanning

Biograph mCT Flow has the ability to perform breath-hold lung scans with a table acquisition speed of 10 mm/sec. The resulting motion-free respiratory image may improve lesion delineation.

Two Times Scan Speed

Biograph mCT Flow with TrueV boosts scan speed up to two times. This shortens the scan time to reduce motion and may improve image accuracy.

ALARA Dose for Every Patient

ALARA dose with FlowMotion for every patient with 60 percent less time-consuming user interactions than conventional imaging. The complexity of bed-based planning requires additional setup. This complexity is overcome with the CT-like planning workflow achieved with FlowMotion.

Five-minute Whole-body PET

The improved sensitivity with TrueV combined with ultraHD•PET enables the ability to perform a five-minute diagnostic PET scan of the whole body.

Up to 50% Radioisotope Cost Reduction

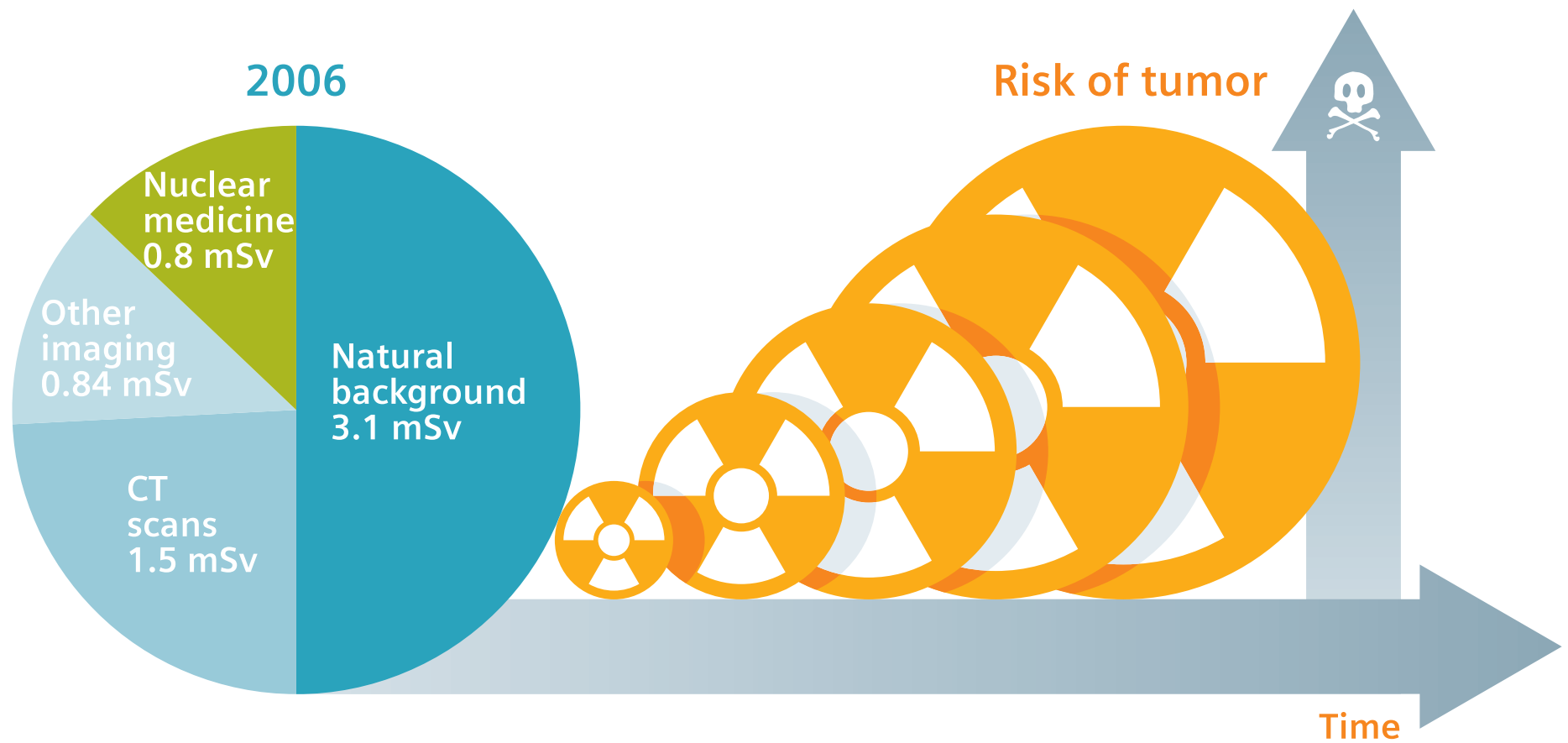
The ability to offer PET/CT imaging with reduced dose may attract more patients. In addition to marketing low dose to patients, lower dose can be beneficial from a radioisotope cost perspective. Biograph mCT Flow with TrueV enables up to a 50 percent radioisotope cost reduction for increased profitability.

Double Revenue with Two Times Faster Scan

Biograph mCT Flow with TrueV boosts scan speeds by up to two times. The prospect of doubling throughput and thereby doubling revenue makes TrueV an option that builds profitability.

Reduce User Error and Re-scan Cost

Simple CT-like planning enabled by FlowMotion provides an intuitive user interface and faster scan speeds. Easy planning may reduce user errors that lead to costly patient re-scans.



Open Comfort for All Patients*

Intro

Finest Detail
in Every Organ

Accurate Quantification
in All Dimensions

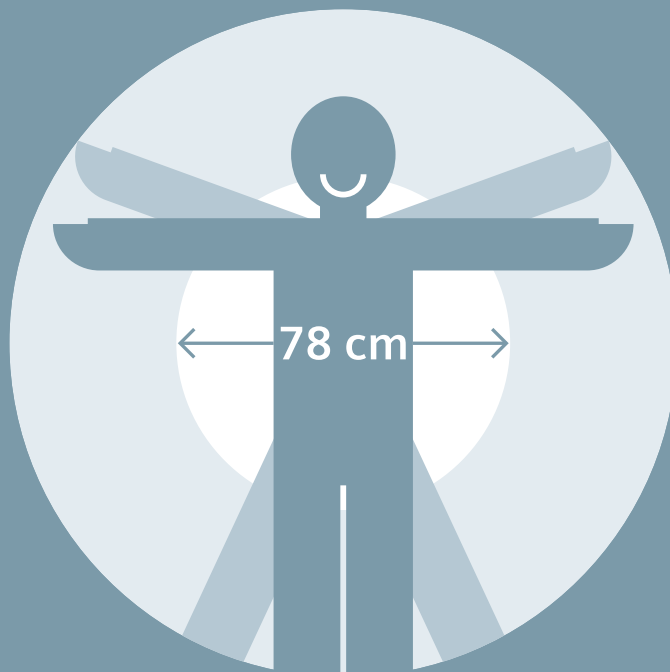
Minimum Dose
and Maximum Speed

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SIEMENS



Biograph mCT
Flow

Open Comfort for All Patients*

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In order to grow their businesses, healthcare providers require systems that offer the flexibility to accommodate virtually all procedures as well as individual patient needs.* A conventional PET/CT system, with a standard bore size and stop-and-go examination, is unable to address these needs because it cannot accommodate individuals of all sizes or provide them with a premium patient experience.

Biograph mCT Flow is designed to be a true patient-centric solution that helps healthcare providers accommodate a wider range of patients and improve their levels of satisfaction and increases business growth.

Maximizing Patient Base

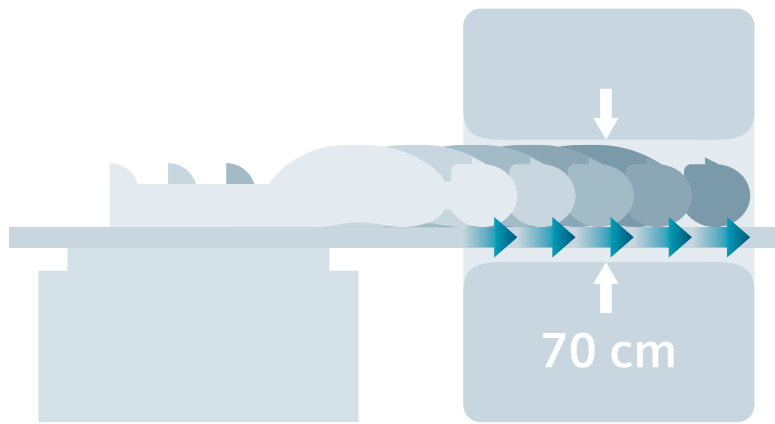
Today's conventional technology often falls short for one simple reason—it fails to accommodate a wide patient demographic and, therefore, limits the growth that a larger and more diverse referral base could generate.

Engineered for clinical flexibility and growth, Biograph mCT Flow features a large 78 cm bore, short tunnel and a 227 kg (500 lb) table capacity to improve patient comfort and accessibility. Additional features like a powerful 100 kW CT generator, which provides ample X-ray power for high-quality imaging, and HD field of view (FoV), which improves image quality beyond the standard CT diagnostic FoV, make bariatric PET imaging more accurate.

A Continuous Experience

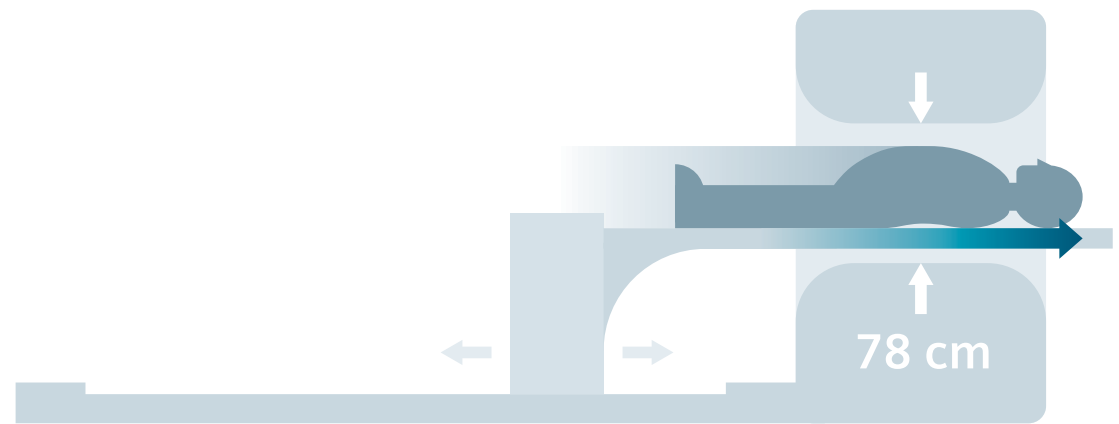
Providing excellence in diagnostic imaging is not only about offering the most innovative scanning technologies. It also requires elevating patient satisfaction by providing benefits no patient wants to miss. And as patients take a more active role in their care than ever before, a PET/CT must do more than simply be large enough for them to fit, it must provide a comfortable experience from start to finish. This becomes especially problematic with the conventional 70 cm PET/CT bore size and stop-and-go table motion as they can increase patient anxiety. Further complicating matters, the unexpected table movement increases the likelihood of motion-based image artifacts.

Conventional Stop-and-Go



Stop-and-go with restricted patient access

FlowMotion



Patient-centered experience

Biograph mCT Flow is the first-and-only PET•CT to combine a large 78 cm bore with FlowMotion's continuous sense of scan progress, and the ability to accommodate virtually all patients* and procedures. Furthermore, FlowMotion's continuous scan progress helps to not only prevent patient anxiety, but also improve image quality by eliminating motion artifacts resulting from unexpected table motion. Now the best PET/CT experience can be offered to virtually every patient* every time while potentially increasing referrals and improving patient satisfaction scores.

Maximize Modality Performance

Another component to providing the best patient experience is the ability to fulfill all diagnostic requirements in a single imaging session. Going beyond patient care and having a system that can fully serve multiple purposes is becoming more critical as the mandate to lower department costs while increasing system utilization expands.

Because conventional PET/CT systems are built on older-generation CT platforms with limited PET and CT capabilities they are typically used only for attenuation correction. This requires the patient to make an additional trip for a separate diagnostic scan on a dedicated CT. System utilization is also lowered while overall costs increase for separate systems with separate rooms, staff and service requirements.

Biograph mCT Flow is engineered as a true dual-modality scanner that integrates the highest performance of both PET and CT modalities, eliminating the need for a patient to schedule two examinations. Available in CT configurations of up to 128 acquired slices per rotation, it offers the capability of whole-body CT scans in just 10 seconds and whole-body PET scans in as little as five minutes. Moreover, Biograph mCT Flow transforms a single room into a fast, dual-modality scanning facility. Now comprehensive diagnostic CT and PET imaging can be offered with one room, one team and one integrated system. Such clinical flexibility saves precious hospital space, cost and patient time while maximizing dual-modality utilization, enhancing the patient experience and enabling business growth.

* Patients up to 227 kg (500 lb).

Return on Innovation

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Sense of Progress Reduces Surprise

The stop-and-go movement of bed-based imaging can startle patients and lead to motion that causes artifacts in the image. FlowMotion gives patients a continuous sense of progress during the entire scan and eliminates patient motion errors caused by unexpected bed movement in stop-and-go imaging.

Single-Scanner Dual-Modality Imaging

Biograph mCT Flow is built with the Siemens SOMATOM® Definition and Definition Edge CT platforms for premium CT imaging in a PET•CT scanner, enabling improved diagnostic confidence and patient convenience by combining the two exams. Combining two exams into one reduces the number of patient visits to achieve the same result in a single dual-modality scanner.

78 cm Bore

The large 78 centimeter bore provides greater access to the patients. This enables faster patient setup and accommodates positioning devices for radiation therapy planning and simulation.

HD•Cardiac Reduces Setup Time by 50%

Achieve single-trigger dual-gating with Biograph mCT Flow and HD•Cardiac. HD•Cardiac eliminates the need to setup a respiratory trigger device; therefore, preparation time is reduced up to 50 percent.

One-Stop-Shop PET/CT and Premium CT

Combined premium PET and CT platforms of Biograph mCT Flow can perform diagnostic CT scans as well as PET/CT scans. This one-stop approach eliminates the need for patients to have a separate exam scheduled for a diagnostic CT, also eliminated is the associated wait time and scan time.

Increase Patient Satisfaction

Elimination of stop-and-go scanning may improve patient satisfaction. Increased patient satisfaction may add referrals. Moreover, satisfaction levels will soon be tied to reimbursement in the United States and can affect income by up to 2%.¹

Increase Scanning of Bariatric Patients

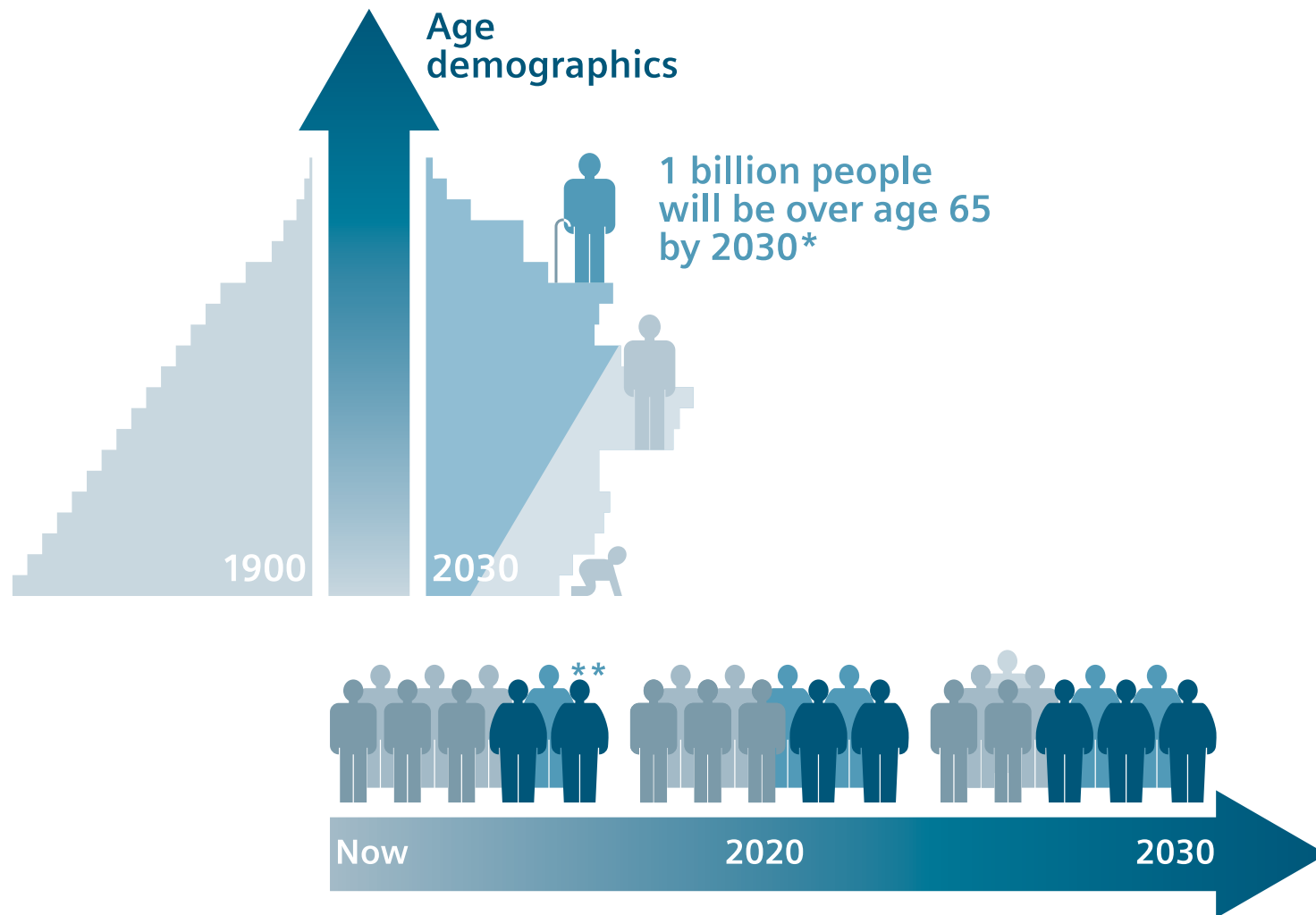
Obesity is a global problem and on the rise. The large 78 cm bore and SMART PHS can accommodate patients up to 227 kg (500 lb). Increasing bariatric imaging capabilities can provide up to a 12% boost in imaging volume.²

A Single Offering for PET/CT and CT

Perform both PET/CT and CT exams with a single integrated scanner. Biograph mCT Flow has this performance capability to meet the needs for both types of scans. This single-scanner dual-modality approach reduces operating costs associated with two separate systems and increases revenue potential.

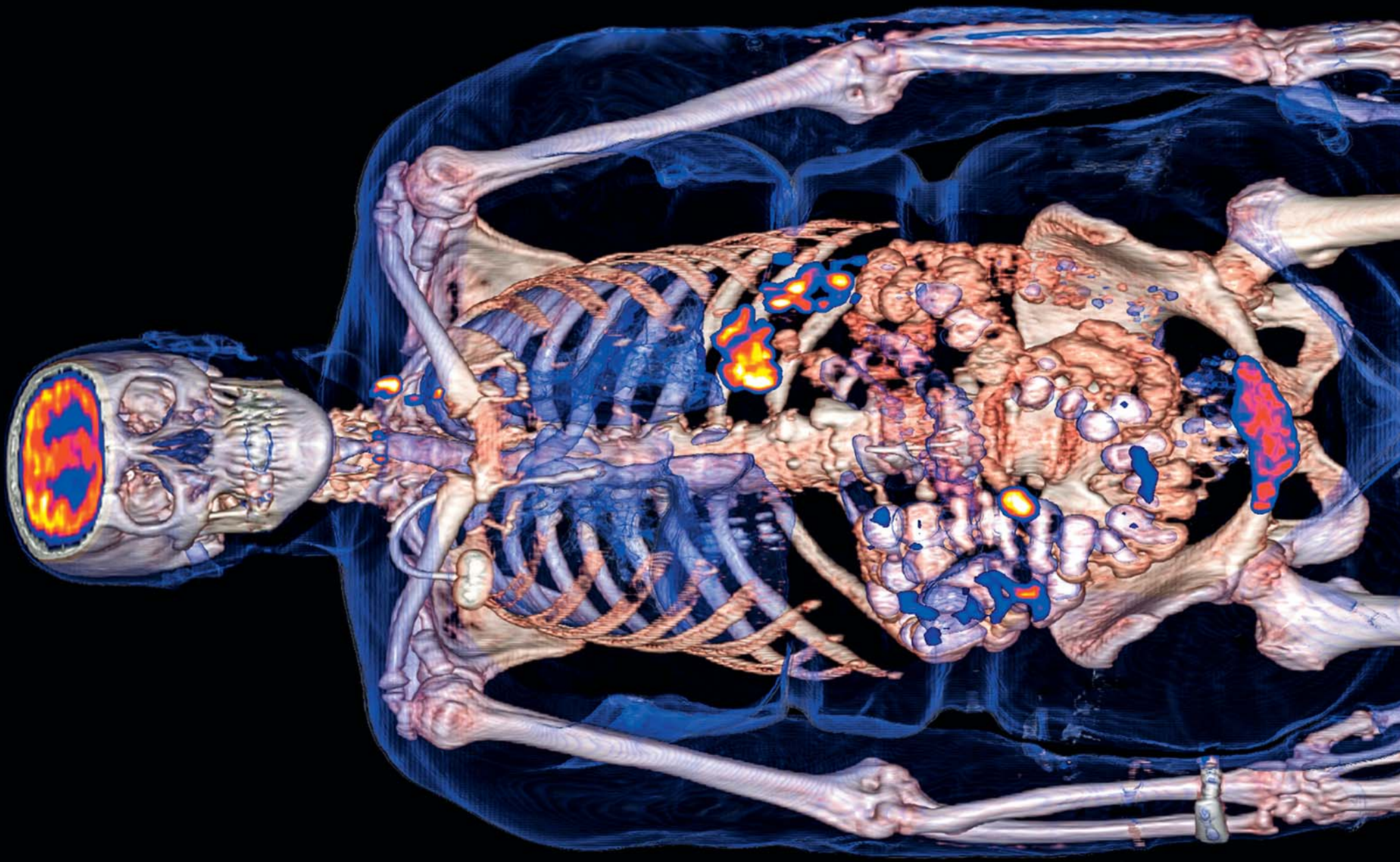
¹ USA Today. Medicare payments tied to patient surveys. <http://www.usatoday.com/story/money/business/2012/12/24/hospitals-satisfaction-surveys-medicare/1788833/>. Accessed May 23, 2013.

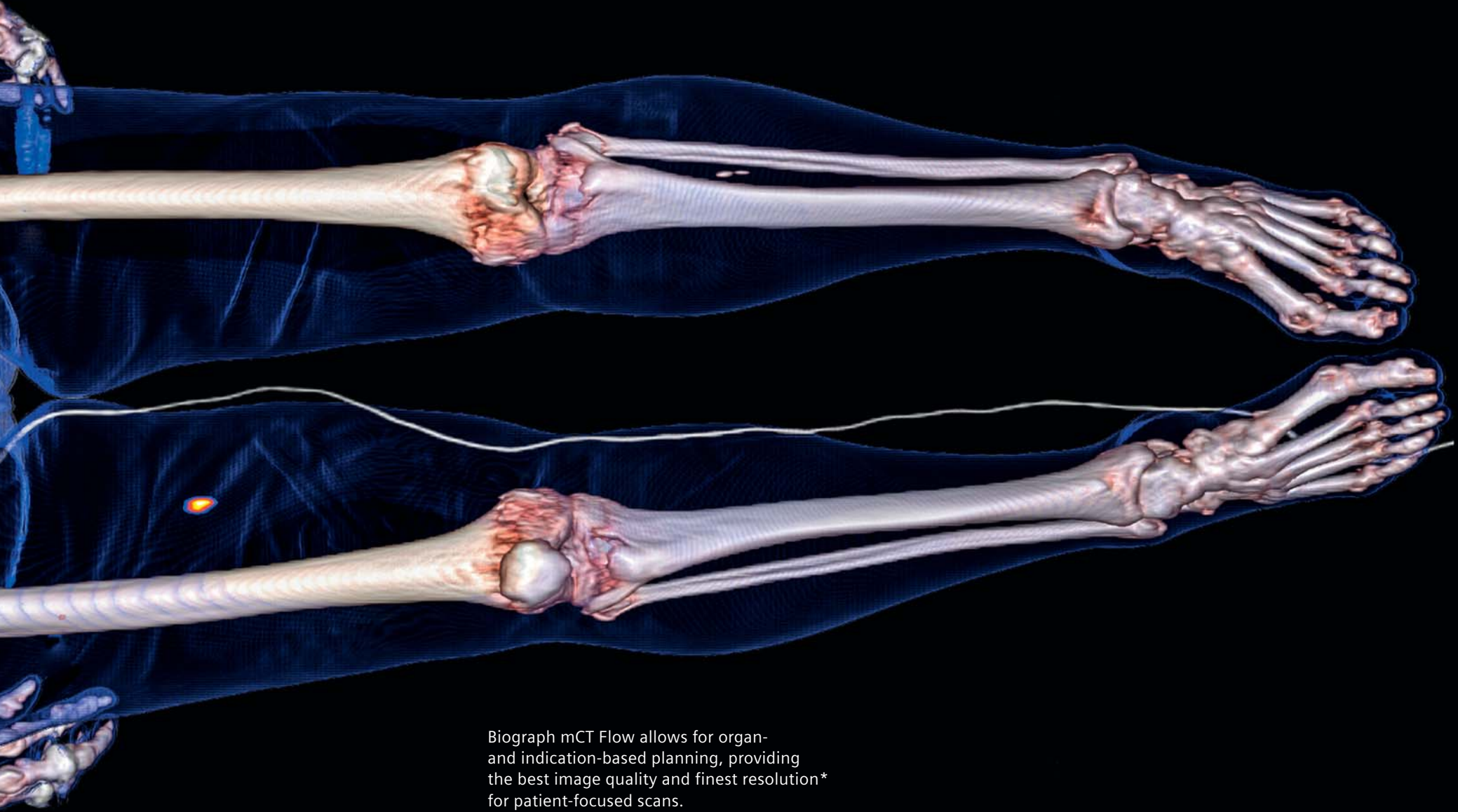
² World Health Organization. New WHO statistics report includes good news for women's and children's health. http://www.who.int/pmnch/media/news/2012/20120516_who_statistics/en. Accessed May 23, 2013.



* National Institutes of Health. Unprecedented global aging examined in new Census Bureau report commissioned by the National Institute on Aging. <http://www.nia.nih.gov/newsroom/2009/07/unprecedented-global-aging-examined-new-censusbureau-report-commissioned-national>. Accessed May 23, 2013.

** Finkelstein et al. Obesity and Severe Obesity Forecasts Through 2030. *Am J Prev Med* 2012;42(6):563–570





Biograph mCT Flow allows for organ- and indication-based planning, providing the best image quality and finest resolution* for patient-focused scans.

* Based on volumetric resolution of 87 mm³. Based on competitive literature at time of publication. Data on file.

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Anywhere,* Anytime Access to Integrated PET•CT Reading with Revolutionary Ease of Use

syngo.via is a multimodality reading solution that supports PET and CT on a single platform, including unified applications, which results in an effective and integrated workflow.

As a client-server-based platform, syngo.via provides collaboration and automation features that enable the full diagnostic and productive potential of hybrid scanners.

- syngo.via is intelligent
- syngo.via drives efficiency
- syngo.via is flexible
- syngo.via provides a multimodality platform for hybrid applications in molecular imaging

syngo.via is Intelligent and Reveals Molecular Information with Quantitative Tools

A comprehensive suite of quantitative tools for oncology follow-up, amyloid PET assessment and myocardial perfusion evaluation brings the quantitative capabilities of Biograph mCT Flow to clinical routine.

Quantitative trending: The SUV_{peak} metric together with automatic detection of liver and blood pool background SUV provides PET response criteria in solid tumors (PERCIST). The trending graph plots quantification metrics over time for quick therapy response assessment.

Hybrid coronary view: A correlative view of stenotic areas on the CTA together with hemodynamic impact based on PET results can be displayed. Myocardial surface projections can be selected from quantitative parameters including perfusion, blood flow, flow reserve, wall thickening and wall motion.

Quantitative assessment of PET amyloid studies: Visual interpretation is supported with SUV ratio analysis and amyloid normals database. Custom normals databases can be created to match an institution's patient population.



***syngo.via* Drives Efficiency with End-to-end Workflow Support from Case Preparation to Results Sharing**

syngo.via is more than a diagnostic tool. It orchestrates workflow all the way to the tumor board presentation. From processing to diagnosis and sharing, *syngo.via* provides a single common platform. Working on the same data set preserves results and eliminates redundancies.

Cases become instantly available from anywhere,* including PACS. *syngo.via* VA20 extends the collaboration capabilities to the

radiation oncology department. PET-based segmentations can be exported as DICOM RT Structures for use in radiation therapy planning. PET-based RT planning allows for innovative patient-friendly therapies by focusing dose on residual viable tumor and sparing other tissue.

***syngo.via* is Flexible Offering One Platform for All Modalities**

A department's reading solution is a key part of its infrastructure. As such, users rely on uptime and state-of-the-art functionality to remain productive and competitive. The *syngo.via* service offering includes upgrades to keep up with innovations at a predictable cost.

And *syngo.via* is fully scalable. Starting with the single user *syngo.via* workstation that does not require a server connection, yet runs all available *syngo.via* applications to the server solution that can be expanded with user and application licenses with growing needs.

syngo.via can be used anywhere if the following prerequisites are given: Internet connection to clinical network, DICOM compliance, meeting of Siemens minimum hardware requirements, and adherence to local data security regulations.

* *syngo.via* can be used as a standalone device or together with a variety of *syngo.via*-based software options, which are medical devices in their own rights. These products are pending regulatory clearance in some countries and therefore, not yet commercially available in all countries. Usage of *syngo.via* in an operating room or for an emergency case requires that the customer provides respective emergency measures in case of non-availability of the system or network.

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Flexible Scalability and Upgradability

Biograph mCT Flow offers a scalable and flexible range of PET and CT features, giving customers confidence that they will have access to options that enable business growth as their needs change. All advanced PET and CT features can be configured at system purchase or are available as an in-field upgrade. These flexible upgrade opportunities provide the best possible investment protection to keep the system clinically relevant for years to come.

MI University 360

Explore the world of MI University 360 and be surrounded with all the resources needed to grow business. MI University 360 is a single online source for valuable and practical molecular imaging information, offering an expansive library of molecular imaging references and tools that span oncology, neurology, cardiology and radiation treatment planning.

Healthcare providers can access MI University 360 for case studies, lectures, insights into new technologies, ideas for increasing molecular imaging utilization and improving productivity, methods and materials for marketing molecular imaging practices, continuing education, papers and publications and ongoing service and support offerings.

Siemens Guardian Program including TubeGuard

Biograph mCT Flow offers the dependability of Siemens Guardian Program™, including TubeGuard. This unique remote service provides real-time monitoring of the STRATON X-ray tube by utilizing more than 10 proactive sensors to monitor the performance of the tube continuously and assess its longevity. Based on real-time data, Siemens Guardian Program including TubeGuard determines the residual lifetime of the tube and predicts the probability and moment of tube failures, thus preventing workflow interruptions. Siemens promise, with Siemens Guardian Program including TubeGuard, is to predict nearly all potential tube failures on time. If this is not achieved, customers do not have to pay the annual fee for the service. This makes it possible to handle tube failure in advance, proactively and efficiently.



Evolve

As a pioneer in medical imaging, Siemens understands that today's clinical environment relies on continuous improvements in patient care. To help customers meet this goal, Siemens is committed to offering imaging solutions that advance diagnostic confidence and clinical productivity. With the *syngo* Evolve Package, Siemens offers long-term security for its customers' imaging investments in order to help them stay at the cutting-edge of clinical innovation.

The *syngo* Evolve Package provides access to the latest clinical applications and diagnostic functions, in addition to the computer technology to support them. This keeps our customers' PET•CT systems at the forefront of innovation, at all times, with up-to-date features to boost performance and optimize imaging capabilities.



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	Feature	Biograph mCT Flow – Edge 20/40/64-slice – 128-slice
Finest Detail in Every Organ*	Acquisition mode	FlowMotion or Stop-and-go
	PET performance	Optiso•HD
	LSO crystal size	4x4x20 mm
	Volumetric resolution	87 mm ³
	Spatial resolution (NEMA)	4.4 mm
	Peak NECR	100 kcps (175 kcps)
	Highest recon matrix size	400x400
	PSF (+TOF)	HD•PET (ultraHD•PET)
	Motion management	
	Amplitude-based gating	HD•Chest
	Single-trigger dual-gated cardiac	HD•Cardiac
	4D gating	Phase matched gating
	CT platform	SOMATOM Definition AS (20/40/64) – Edge (128)
Accurate Quantification in All Dimensions	Resolution	Up to 30 lp/cm
	Rotation time	0.33 s (20/40), 0.30 s (64), 0.28 s (128)
	Axial noise uniformity to edge of FOV	Yes (FlowMotion)
	Bed overlap	N/A (FlowMotion)
Minimum Dose and Maximum Speed	Daily normalization and calibration	Quanti•QC
	Patient pallet differential deflection	0 (SMART PHS)
	CT dose reduction	CARE technologies
	Overscan elimination, saving, up to	32%
	Dose modulation, saving, up to	CARE Dose4D and CAREkV, 68%
	CT dose shield	Yes, Adaptive Dose Shield
	Iterative reconstruction	SAFIRE
Open Comfort for All Patients**	Fast workflow	FAST technologies
	Increased PET speed 2x	TrueV
	PET-guided CT	Yes
	Continuous patient scanning	
	Bariatric imaging, bore size	78 cm
Other Features	Maximum patient weight	227 kg (500 lb)
	CT generator power	80 (20/40/64), 100 (128)
	Dual-energy acquisition	Single-source dual-energy
	Upgradeability	
	CT	20- to 40- to 64- to 128-slice
	PET	TrueV

All measurements expressed are typical.

* Based on volumetric resolution of 87 mm³. Based on competitive literature available at time of publication. Data on file.

** Patients up to 227 kg (500 lb).

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