SIEMENS

siemens.com/biograph-horizon

Biograph Horizon

More within reach.

Bring high-quality care to more patients. Biograph Horizon™[1] gives you the flexibility to address a wide variety of clinical indications while introducing new efficiencies and cost savings. Designed with technologies that set the standard in PET/CT, Biograph Horizon offers you premium performance at an attractive level of investment.

Better care starts at the molecular level

In today's healthcare environment, small details can lead to significant value—for patients, caregivers and enterprises. Siemens Healthcare's market-leading advances in molecular imaging help you reveal critical details that result in meaningful improvements for all.

Rethink what PET/CT can do

The demand for value-based care continues to grow. In response, healthcare providers are finding new ways to improve care pathways while driving down long-term asset costs. Biograph Horizon helps you offset these expenses, expands your clinical capabilities and simplifies your operations.

Reach more patients

CLINICAL VERSATILITY

Use all commercially available PET tracers to address a broader range of oncology, neurology and cardiac indications. With premium LSO-based detectors and Time-of-Flight technology, you can go beyond the capabilities of BGO-based PET/CT scanners for high count-rate applications.

Do more with your time

ENHANCED PRODUCTIVITY

Help your staff focus on what matters most: your patients. Biograph Horizon offers protocol-based exams to support a more standardized workflow and is equipped with built-in capabilities that automate routine tasks.

Create more opportunity

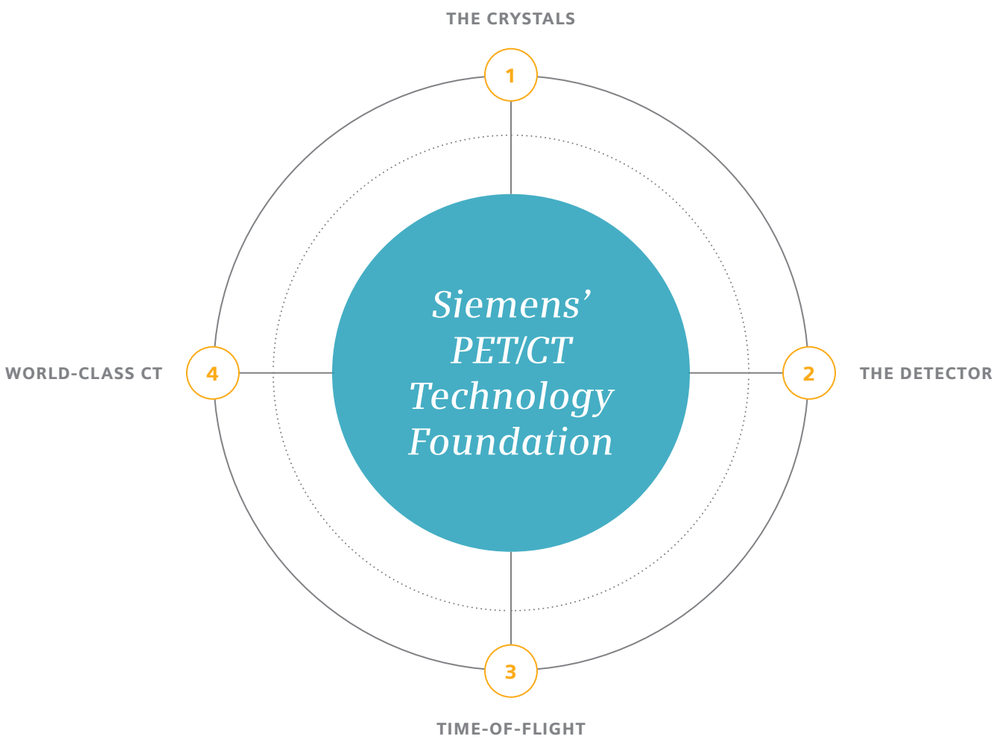
FINANCIAL PERFORMANCE

Built to run as efficiently as possible, to reduce operating costs and to extend the economic life of your system, Biograph Horizon supports your business. Offering the standard in PET/CT technology at an attractive total cost of ownership, your scanner has the flexibility to grow with you.

The finer points of a high-quality image

The value of PET/CT in patient care is in the details—more precise information leads to greater potential for an earlier diagnosis and a more definitive treatment strategy.

Our PET/CT technology foundation delivers excellent lesion detectability, spatial resolution and quantification accuracy. With this distinct level of quality and reproducibility, you can bring the standard of care to more patients.



1

The crystals

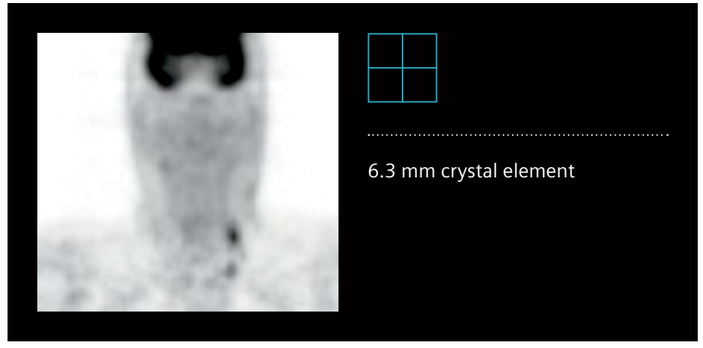
Siemens' unique LSO crystals are grown in-house for consistent quality. Compared to BGO crystals[2], they scintillate faster and have a higher light output, providing better image quality and enabling Time-of-Flight.

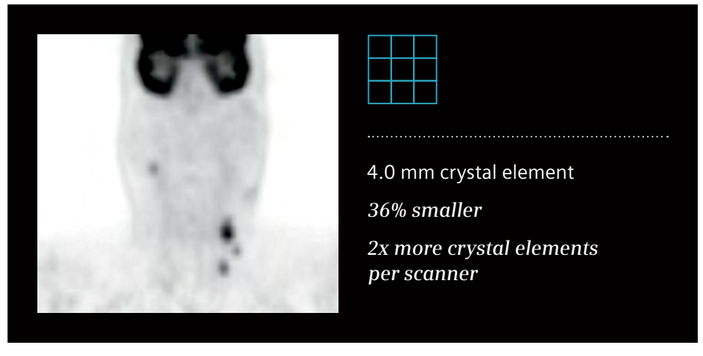
2

The detector

The smaller the crystals, the sharper the image. Biograph Horizon's OptisoHD detectors feature LSO crystals cut into 4 mm elements and arranged with no gaps between detector blocks to provide very high spatial resolution and lesion visualization.

Example of the impact of crystal size in the visualization of small structures. In this head and neck cancer case, two additional small lesions are identified. *Data courtesy of University of Tennessee, Knoxville, Tennessee, USA.*





3

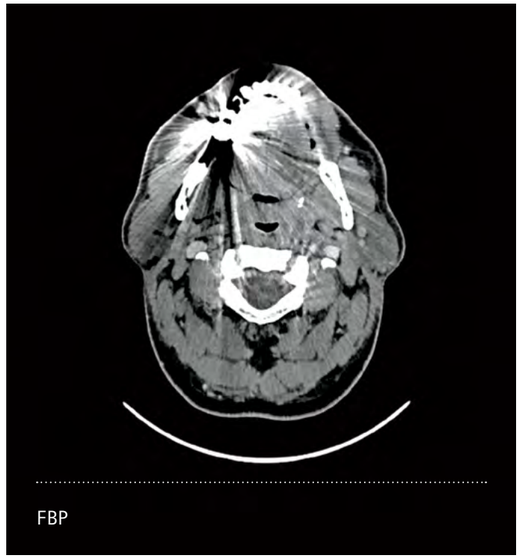
Time-of-Flight

Biograph Horizon's LSO-based detectors and high-speed electronics support Time-of-Flight[3] for improved signal-to-noise ratio. This enables faster scans, lower injected dose and better image quality.

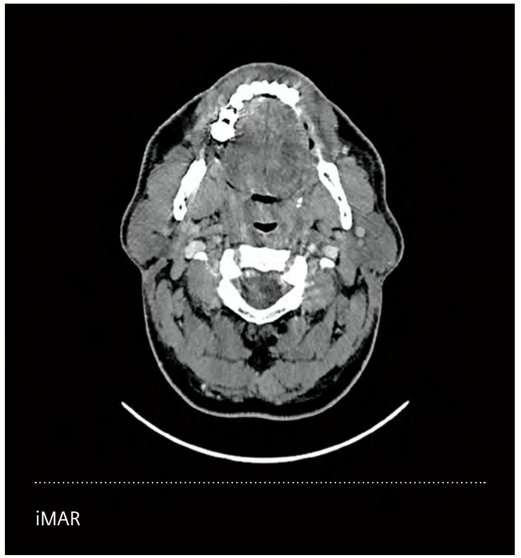
4

World-class CT

Siemens' market-leading CT technologies further enhance your imaging capabilities. They also give you the ability to scan a wider variety of patients and more fully utilize your system. For example, SAFIRE[3] lowers dose by up to 60%[4], and iMAR[3] reduces metal artifacts.



FBP



iMAR

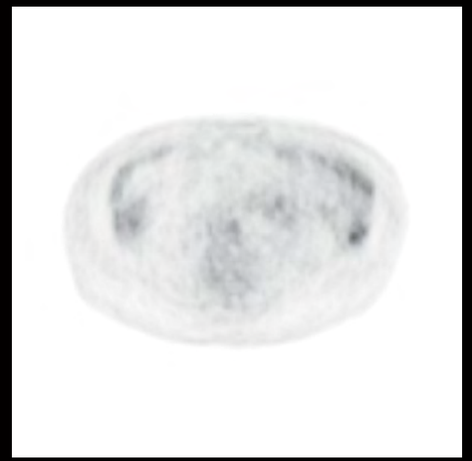
Example of iMAR metal artifact reduction in CT images.
Data courtesy of Clinique de Meudon, Meudon la Forêt, France.

TIME-OF-FLIGHT

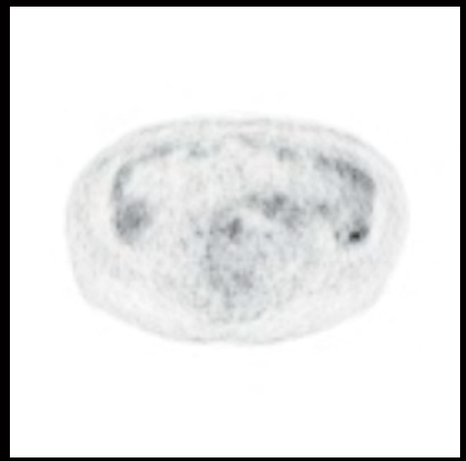
Up to 200% improvement in signal-to-noise ratio and image contrast to support identification of small lesions

Example of improved image quality in a bariatric patient with Time-of-Flight.

Data courtesy of Praxis Für Fusionierte Bildgebung, Halle, Germany. Parameters: Weight: 107 kg; height: 160 cm; BMI: 42; injected dose: 354 MBq; 8 beds, 2 min./bed.



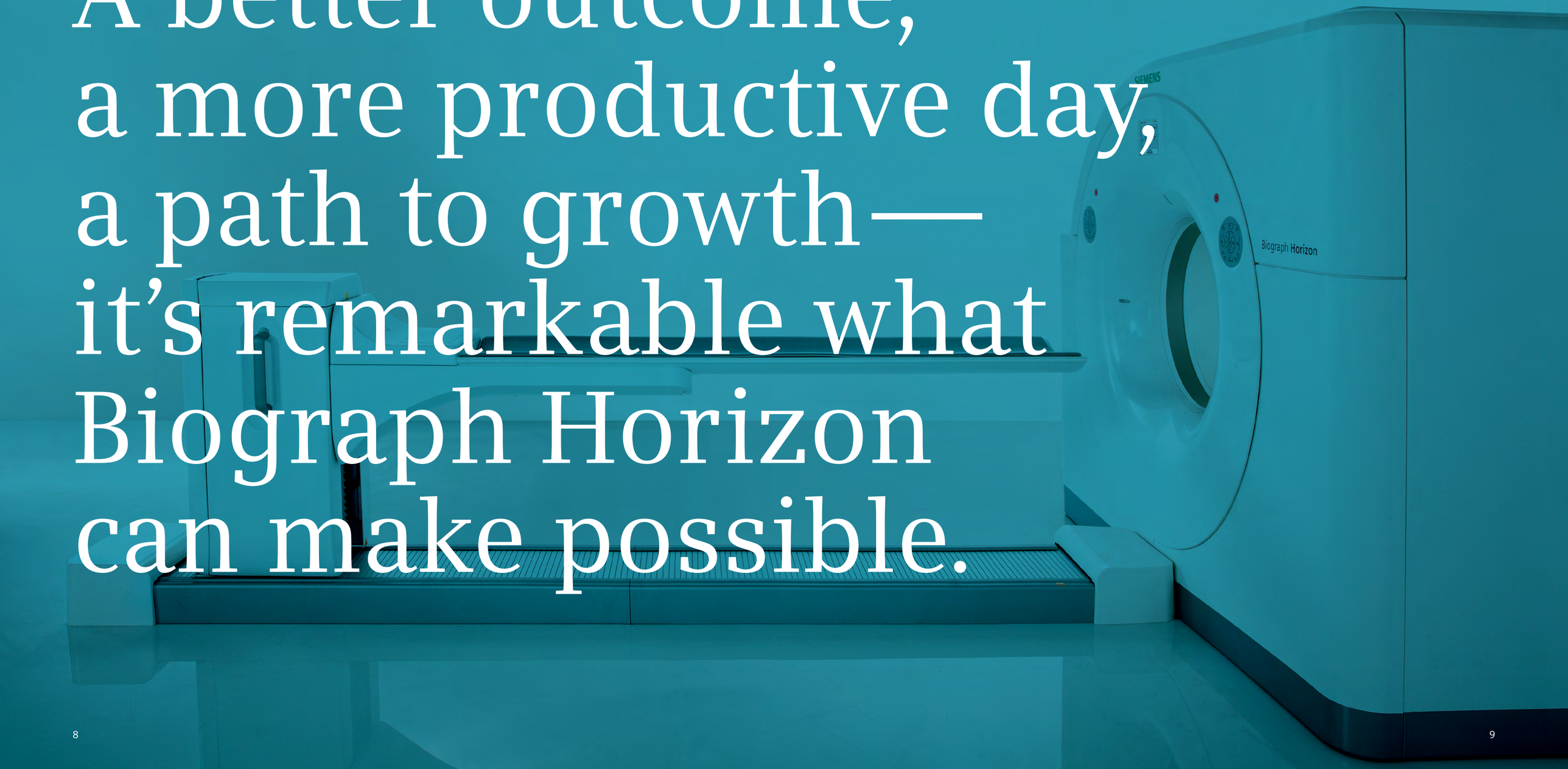
Non-Time-of-Flight



Time-of-Flight

Data courtesy of Praxis Für Fusionierte Bildgebung, Halle, Germany.
Parameters: Weight: 97 kg; injected dose: 350 MBq; 9 beds, 1.5 min./bed.

A better outcome[5], a more productive day, a path to growth— it’s remarkable what Biograph Horizon can make possible.

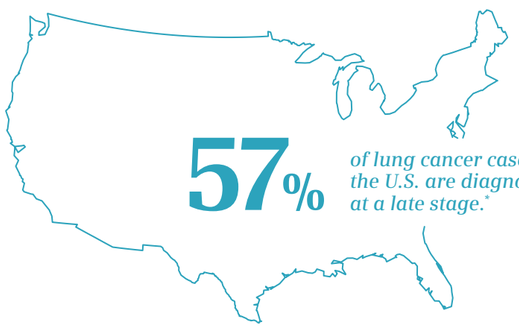


Set your sights on quality care and better outcomes

Engineered to create outstanding images for a broad range of indications, Biograph Horizon gives you the clinical versatility you need to serve a more diverse patient mix at any point on the care pathway.

Catch smaller lesions, earlier

Biograph Horizon's high image quality supports early identification of distant metastasis, leading to a more accurate disease staging. These factors can help physicians determine an effective treatment strategy, reducing costs and patient side effects related to ineffective therapies.



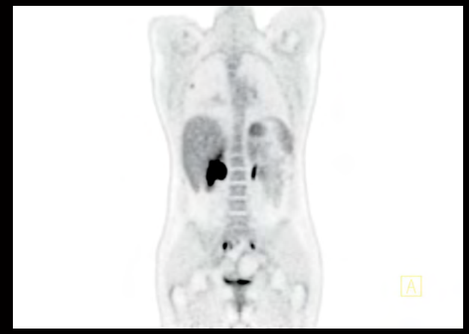
*The addition of PET/CT to conventional workup can help prevent unnecessary surgery in up to 1 in 5 patients with suspected non-small-cell lung cancer.***

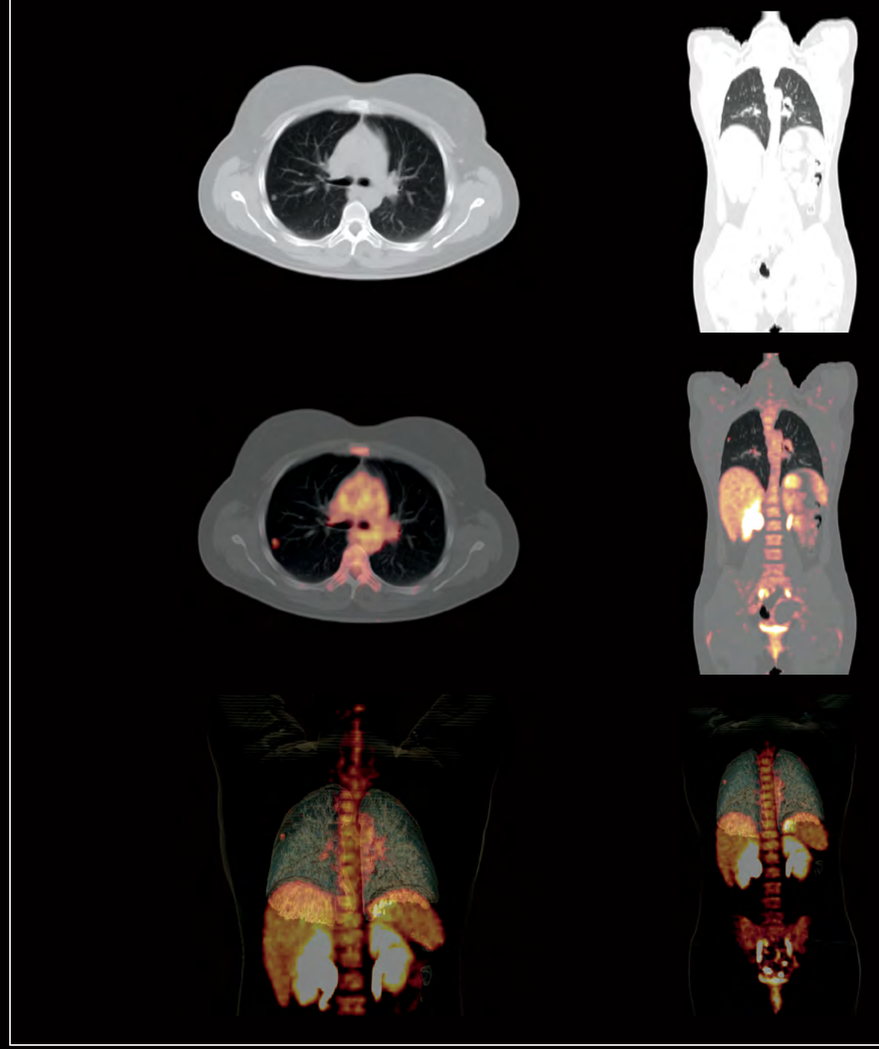
** U.S. National Institutes of Health, National Cancer Institute, SEER Cancer Statistics Review, 1975–2011.*

*** Effectiveness of positron emission tomography in the preoperative assessment of patients with suspected non-small-cell lung cancer: the PLUS multicentre randomised trial, The Lancet, 2012.*

LUNG CANCER

Identification of a suspicious 8 mm lung nodule showing metabolic activity





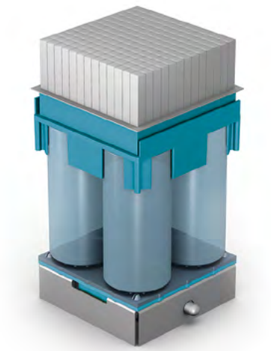
Data courtesy of Praxis Für Fusionierte Bildgebung, Halle, Germany.
Parameters: Weight: 80 kg; injected dose: 326 MBq; 8 beds, 2 min./bed.

The power of clarity and precision

To help you visualize small lesions, Biograph Horizon features a combination of technologies that enhance image quality and productivity.

SIEMENS' PET/CT TECHNOLOGY FOUNDATION

With 4 mm LSO crystals and Time-of-Flight, Biograph Horizon delivers the capabilities you need for more detailed scans.



OptisoHD detector

syngo.via FOR MOLECULAR IMAGING

syngo.via® offers a suite of automated tools to instantly visualize diagnostic information, measure with confidence and report more comprehensively across a number of applications.

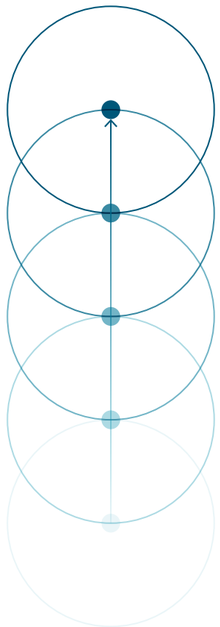
For example, with EQ•PET[6] you can normalize SUV measurements across different scanners throughout your patients' extended treatment plan for more precise calculation of changes in tumor uptake.

ultraHD•PET

ultraHD•PET[3], combined with Time-of-Flight reconstruction, delivers better image contrast.

200%

better image contrast



CONSIDER THE IMPACT

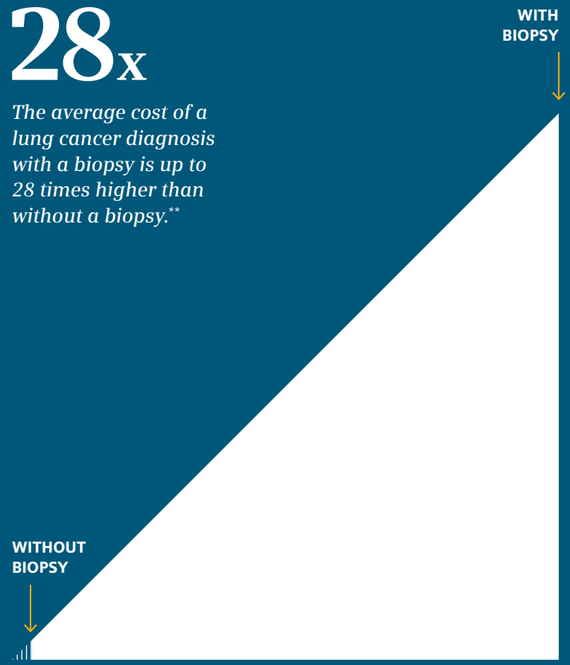
PET/CT is proven effective in initial evaluation of suspicious lung lesions

1 IN 6

*lung biopsies results in an adverse event.**

28X

*The average cost of a lung cancer diagnosis with a biopsy is up to 28 times higher than without a biopsy.***



43%

*of biopsy results for initial diagnoses of lung cancer come back negative.***

* *"Population-Based Risk for Complications After Transthoracic Needle Lung Biopsy of a Pulmonary Nodule: An Analysis of Discharge Records," Annals of Internal Medicine, 2011.*

** *"Costs of the Diagnostic Workup for Lung Cancer: A Medicare Claims Analysis," International Journal of Radiation Oncology, 2014.*

A better workflow can lead to more satisfied patients

New efficiencies do more than free up staff time and reduce costs. They are seen and felt by the patients who have a simpler, faster, more positive experience at your facility. Biograph Horizon streamlines your day-to-day work, giving you more time to focus on your patients.

The value of patient satisfaction

Patient experience can have a significant, quantifiable impact on your organization. Time-consuming manual processes can be a barrier to delivering top-quality care, as shown in the case study below. Investing in workflow tools that create more time for patients can help you reduce costs, increase profits and improve your reputation.

Experience of a 370-bed hospital system prior to implementing workflow efficiencies. The Advisory Board Company, iRound for Patient Experience, 2015.

More time for more patients

Biograph Horizon simplifies your daily routine by automating manual tasks and offering protocol-based exams to increase your productivity and time spent with patients.

1. CALIBRATION

Quanti•QC automatically runs quality control procedures overnight.

Save 30 minutes per day

2. ACQUISITION

Protocol-based exams create a faster and more standardized workflow. TrueV[3], with Time-of-Flight, completes scans in 5 minutes.

Save up to 15 minutes per scan

3. RECONSTRUCTION

Reconstruction runs alongside acquisition for image delivery just 30 seconds after the scan.

Save up to 9 minutes per scan

4. EVALUATION

Start reading your cases right away. *syngo*.via automates pre-fetching, pre-processing, and display and comparison of previous findings. And *syngo*.via's ALPHA technology features automatic registration with exclusive organ-based recognition capabilities.

Up to 45%[7] faster processing

CONSIDER THE IMPACT

If you scan 6 patients per day, saving up to 24 minutes per scan with fast acquisition and image delivery and 30 minutes each day with automated quality control, your staff would have up to 14 additional hours per week for patient-focused activities.

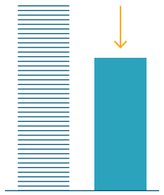
A smart investment with a small footprint

Never compromise quality in pursuit of lowering your costs. Biograph Horizon offers investment protection that supports your clinical needs and helps create new efficiencies with each scan. As the smallest[8] PET/CT system on the market, you can minimize your initial capital investment, while low operating and maintenance costs help keep your overhead expenses under control.

Predict issues before they occur

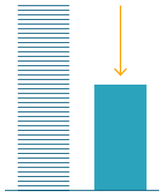
Preventive maintenance gives you peace of mind throughout the life of your system. With Siemens Guardian Program,™ downtime can be predicted ahead of time, so you can plan maintenance around your schedule for increased system utilization.

REDUCE DOWNTIME BY



28%[9]

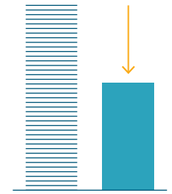
LOWER COSTS BY



43%[9]

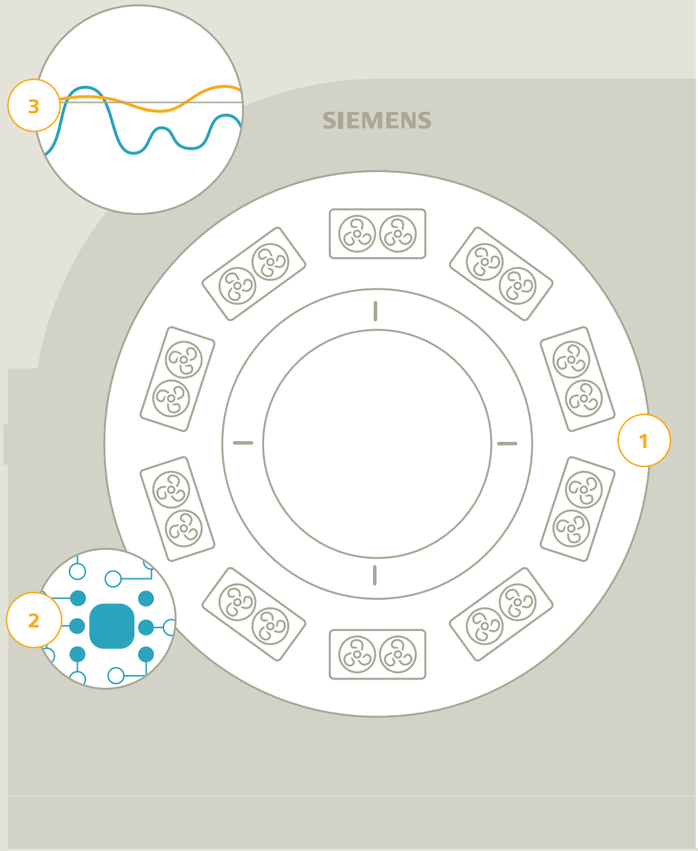
Save on upfront and operating costs

Manage your total cost of ownership with automated technologies that extend the economic life of your system. Gentle system warm-up reduces damage, and automatic standby lowers your power consumption. Also, with the lowest[8] PET/CT power requirement, Biograph Horizon may help reduce your build-out costs.



42%

less downtime with the eTemp cooling system's redundant design and advanced remote monitoring capabilities



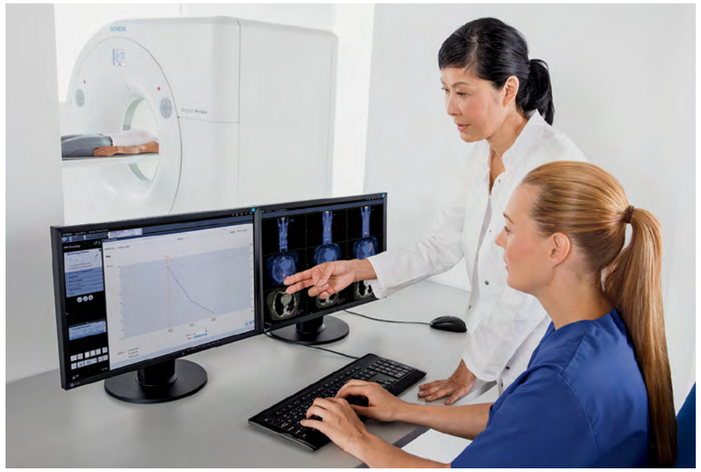
1. REDUNDANT FANS
maintain a defined temperature and help ensure a consistent temperature if one fan is down, stabilizing the quality of information delivered from the scanner.

2. SENSORS
monitor temperature and drive fan function for optimal performance.

3. TEMPERATURE DATA
is reported by the system and pushed to the cloud for proactive monitoring.

Scale up as you grow

Agile technology that adapts to your organization's requirements is central to successful asset management. Our scalable services and solutions, such as tailored service agreements and easy on-site upgrades, give you the flexibility you need to benefit from your investment over the long term.

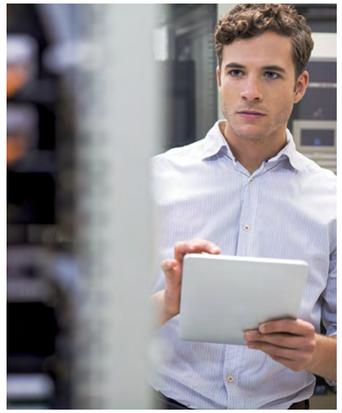


syngo.via MOLECULAR IMAGING WORKPLACE

Configured specifically for Biograph Horizon, *syngo*.via Molecular Imaging Workplace[3] is a cost-effective image processing solution that can expand to meet your clinical needs.

FIELD UPGRADES

On-site upgrades make it easy to increase your capabilities as new features and updates are released to the market.



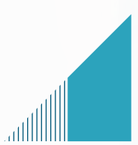
CUSTOMER SERVICES

Establish a service solution that's right for you with our customizable agreements.

More within reach.

TIME-OF-FLIGHT[3]

Up to 200% improvement in signal-to-noise ratio and image contrast



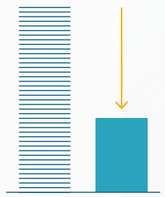
2x
better image contrast

ultraHD•PET[3] + TrueV

A combination of technologies that offers the potential for 5-minute and 5 mCi PET scans

SAFIRE[3]

CT iterative reconstruction for up to 60%[4] lower dose



60%
lower dose

For a complete list of features, visit siemens.com/biograph-horizon.

BARIATRIC IMAGING AND LONG SCAN RANGE

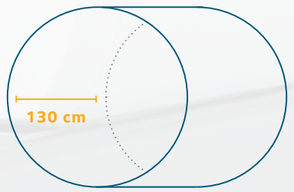
Wide pallet supports up to 227 kg (500 lbs) and allows 2 m scan ranges

EXCLUSIVE BED DESIGN

Zero differential deflection between PET and CT for accurate attenuation correction, and TG-66 compliant for radiation therapy

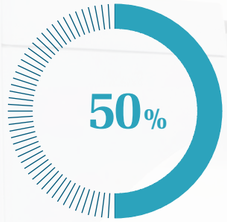
SHORTEST[8] TUNNEL

130 cm tunnel improves patient comfort and allows more room for patient positioning



TrueV[3]

TrueV increases the axial field of view to enable two-times faster scans or half the injected dose, as well as more coverage, without compromising image quality



lower injected dose

INTEGRATED CARDIAC AND RESPIRATORY GATING[3]

All gating inputs are built into the patient table for fast patient setup

4 MM LSO CRYSTALS

Better image quality and greater NEMA spatial resolution than BGO crystals[8]

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Disclaimers

[1] Biograph Horizon is not commercially available in all countries. Due to regulatory reasons, its future availability cannot be guaranteed. Please contact your local Siemens organization for further details.

[2] Pepin, et al (2004). Properties of LYSO and Recent LSO Scintillators for Phoswich PET Detectors. *IEEE Transactions on Nuclear Science, 51, 3*.

[3] Optional.

[4] In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. The following test method was used to determine a 54-60% dose reduction when using SAFIRE reconstruction software: Noise, CT numbers, homogeneity, low-contrast resolution and high-contrast resolution were assessed in a Gammex 438 phantom. Low-dose data reconstructed with SAFIRE showed the same image quality compared to full-dose data based on this test. Data on file.

[5] Compared to non-hybrid imaging modalities. Addition of PET imaging changes therapy in 33% of cases (2009). The Impact of Positron Emission Tomography (PET) on Expected Management during cancer treatment, *National Oncologic PET Registry, 115:410–418, PMID: 19016303*.

[6] Requires calibration to NEMA parameters for measurement normalization.

[7] For oncology diagnosis.

[8] Based on competitive literature available at the time of publication. Data on file.

[9] Quantification based on Siemens ticket hour statistics from active Guardian-capable systems in global installed base of AX, CT, MR and MI business units from FY2013.

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