SIEMENS


www.siemens.com/symbia-SPECT

# Symbia SPECT

## Symbia Evo Excel and Symbia Evo

Answers for life.

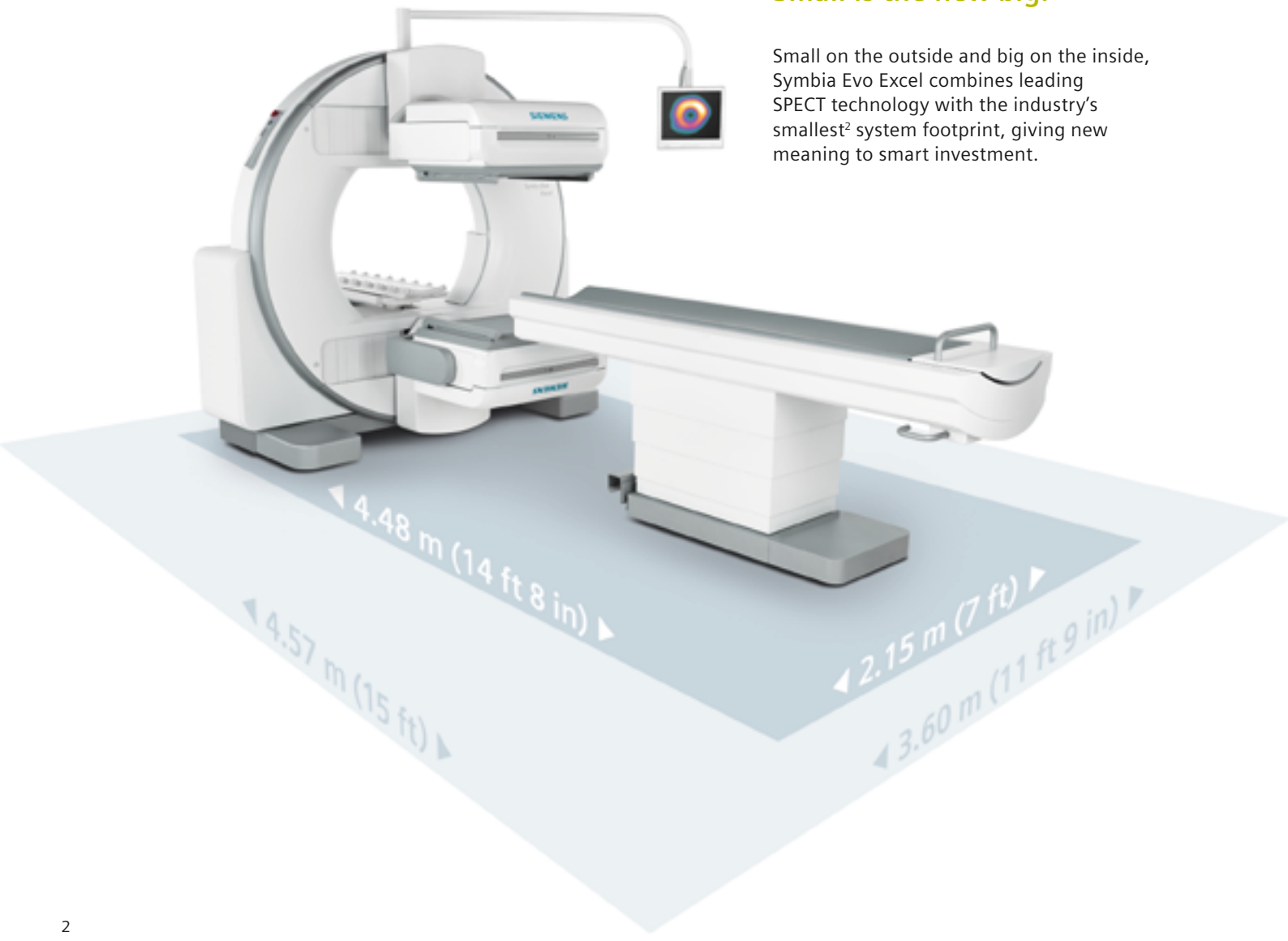
# Symbia SPECT Portfolio

**Siemens has redesigned its Symbia™ SPECT portfolio to maximize the value that molecular imaging can bring to your institution. Symbia Evo™ Excel[1] and Symbia Evo[1] promote sustainable growth by enhancing your ability to serve an increasingly diverse patient population, modernize amid budget constraints and increase system utilization.**

## Symbia Evo Excel

### Small is the new big.

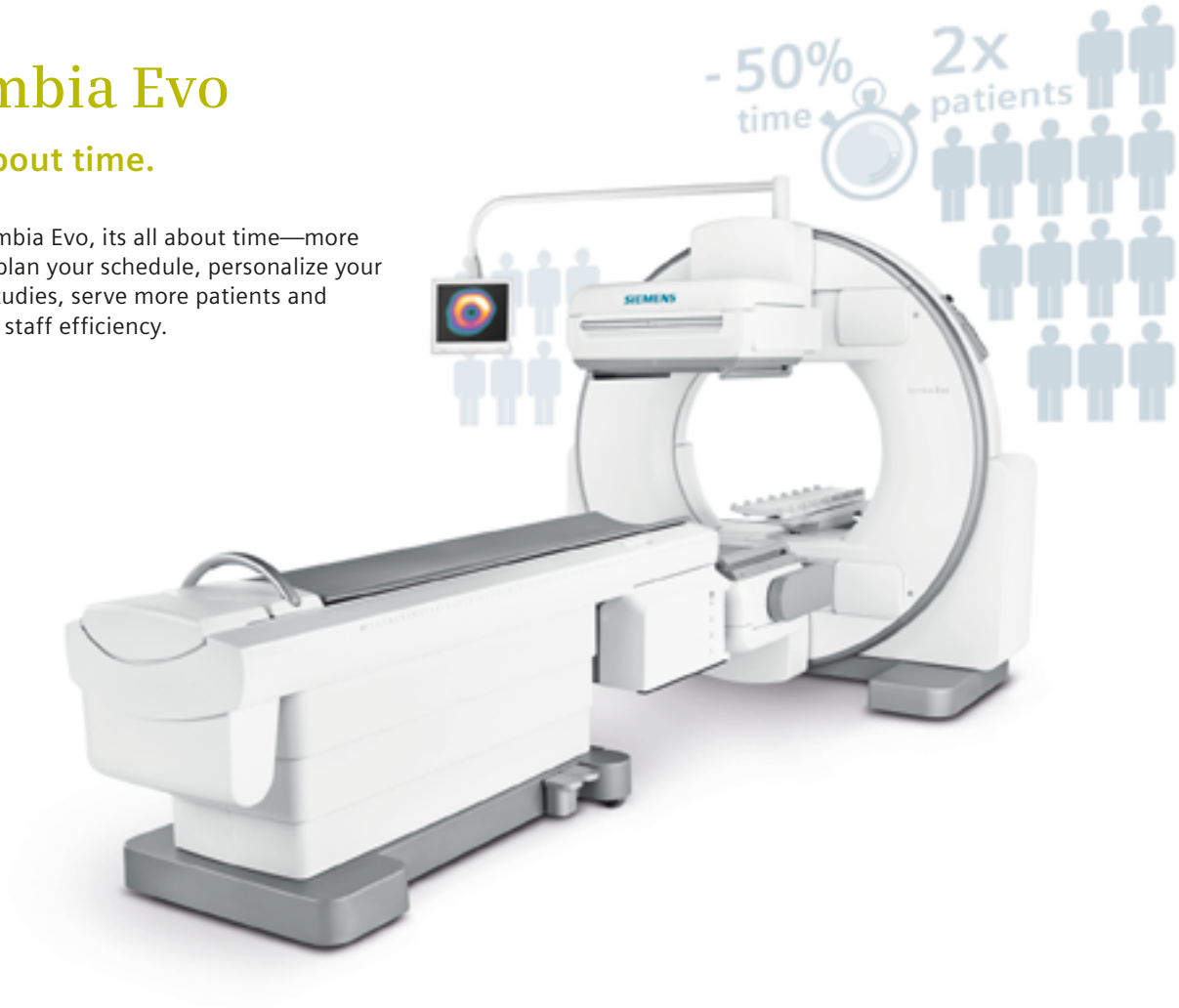
Small on the outside and big on the inside, Symbia Evo Excel combines leading SPECT technology with the industry's smallest[2] system footprint, giving new meaning to smart investment.

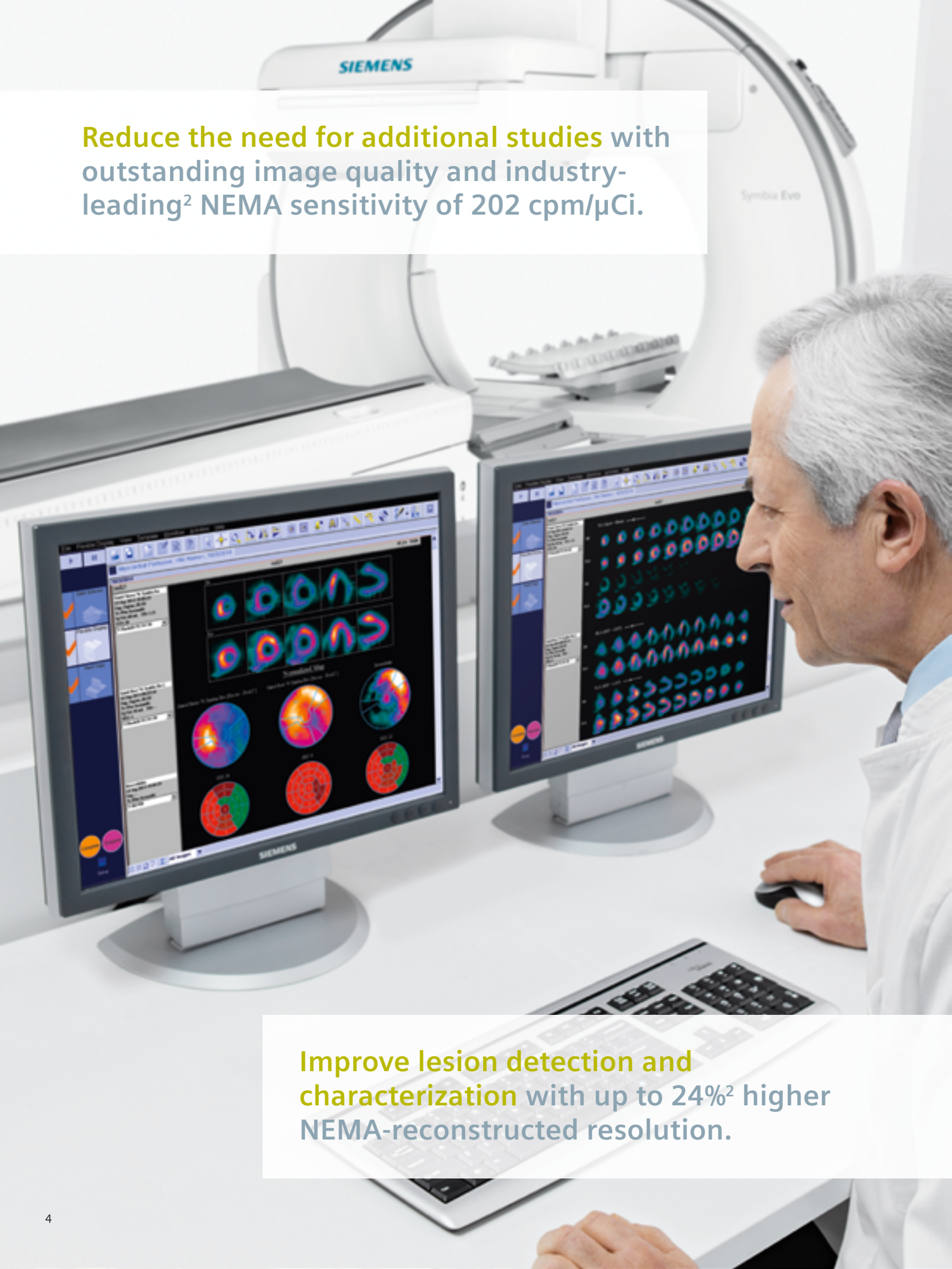


# Symbia Evo

## It’s about time.

With Symbia Evo, its all about time—more time to plan your schedule, personalize your SPECT studies, serve more patients and improve staff efficiency.






**Reduce the need for additional studies** with outstanding image quality and industry-leading[2] NEMA sensitivity of 202 cpm/µCi.

**Improve lesion detection and characterization** with up to 24%[2] higher NEMA-reconstructed resolution.

Symbia Evo Excel and Symbia Evo

# Read with confidence

Reliable and reproducible clinical information is vital to support sound physician decision making. The low sensitivity and sub-par reconstruction techniques of traditional SPECT systems can limit the amount of clinical information available to physicians.

Equipped with leading high-definition detector technology, Symbia Evo Excel and Symbia Evo offer the highest[2] collimator sensitivity and the best[2] NEMA-reconstructed resolution.

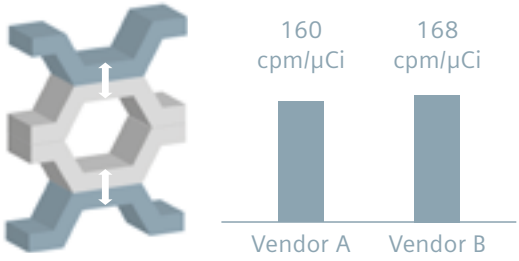
With industry-leading[2] image quality, Symbia Evo and Symbia Evo Excel deliver accurate and reproducible clinical information to support physicians' diagnostic confidence, potentially leading to improved clinical outcomes and reduced readmission rates.

# Industry-leading[2] sensitivity

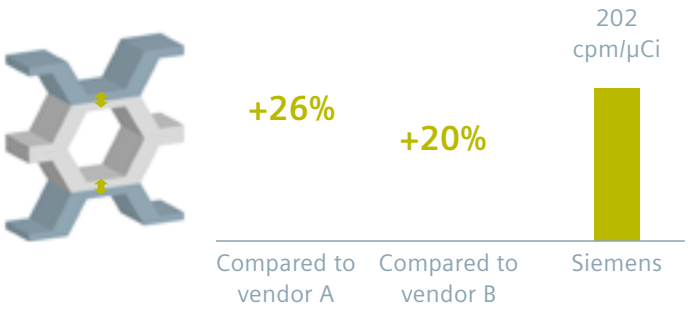
Siemens is the only equipment manufacturer that designs and produces its collimators in-house. The uniform septa wall thickness of Siemens AUTOFORM collimators delivers the industry's highest[2] sensitivity with up to 26%[2] more counts, while maintaining image resolution.

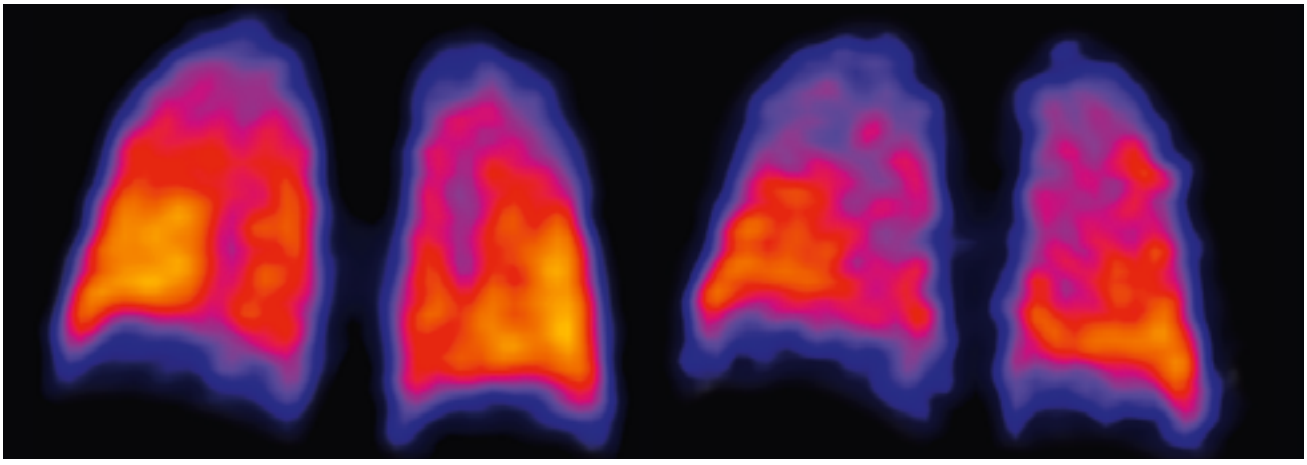
## LEHR collimator sensitivity

### Conventional collimators




### Siemens collimators



Lung perfusion

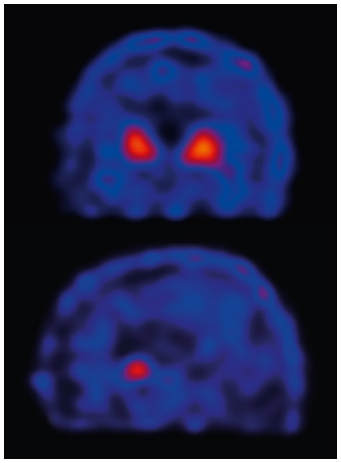
Data courtesy of radprax MVZ, Wuppertal, Germany.

# Highest[2] resolution

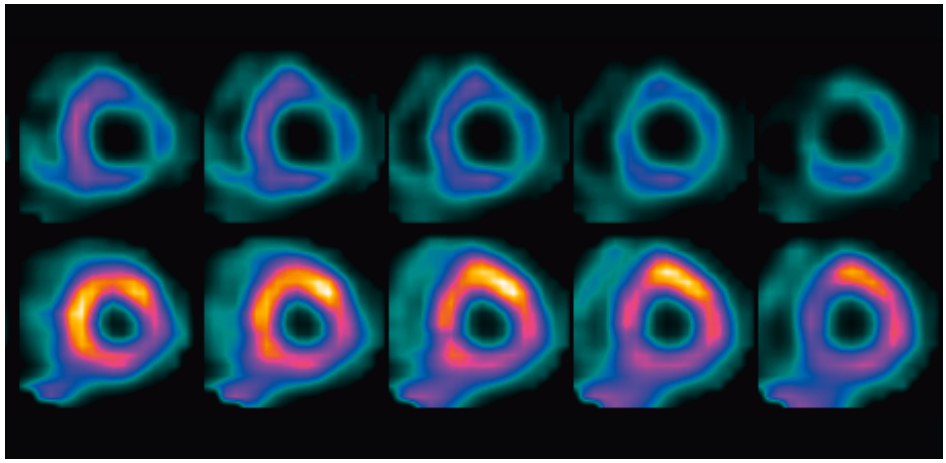
With Symbia 3D iterative reconstruction (Flash 3D), the spatial resolution of the collimator is modeled to maintain the precise shape of the lesion. As a result, images are reconstructed with more counts in the correct volume, increasing image contrast. When compared to traditional reconstruction methods, Flash 3D offers up to 24%[2] higher resolution to support physicians in both lesion detection and characterization.

## NEMA-reconstructed resolution

| | Vendor A | Vendor B | Siemens | | Up to % higher resolution |
|---|---|---|---|---|---|
| NEMA measurements | Without scatter | With scatter | Without scatter | With scatter | |
| Center resolution | 5.2 mm | 6.4 mm | 4.4 mm | 5.8 mm | +15% |
| Radial resolution | 5.0 mm | 5.7 mm | 4.0 mm | 5.0 mm | +20% |
| Tangential resolution | 5.1 mm | 5.1 mm | 3.9 mm | 4.1 mm | +24% |



Brain striatal uptake



Cardiac perfusion

Data courtesy of radprax MVZ, Wuppertal, Germany.

**Accommodate all patients** up to 227 kg (500 lbs) with Symbia's high-capacity bed.


**Improve the comfort and satisfaction of large or claustrophobic patients** with a 30%[4] larger bore and shorter tunnel length.

Symbia Evo Excel and Symbia Evo

# Image every[3] patient

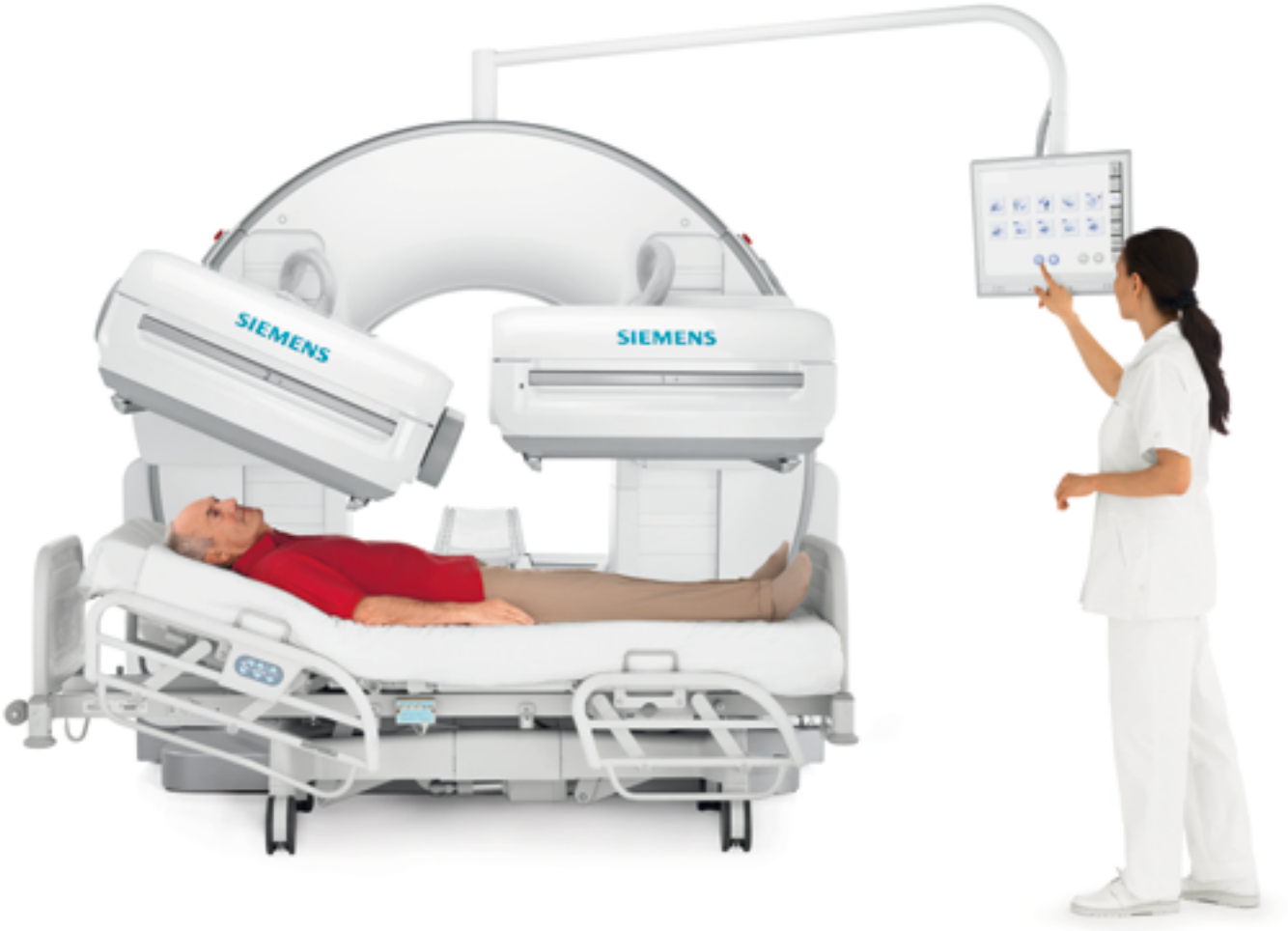
Delivering high-quality care means being able to scan every[3] patient regardless of their size or condition[3]. Most SPECT systems today are limited in their ability to image large patients and often are not flexible enough to accommodate critically ill patients who are unable to move.

With exceptional detector flexibility, Symbia Evo Excel and Symbia Evo support gurney and hospital bed imaging. The patient beds support up to 227 kg (500 lbs), while the lowest bed position offers easy access to patients with limited mobility.

Increase your scannable population and improve patient comfort with a 30%[4] larger bore; a high-capacity, low-height patient bed; and gurney and hospital bed imaging capabilities.

# Increased flexibility

Scan virtually any[3] patient with a higher bed capacity, larger bore and the unique ability to image patients on a gurney or in a hospital bed. Eliminating the need to manually lift and move the patient can enhance patient comfort and optimize workflow.



# Exceptional detector versatility

The Symbia Evo Excel and Symbia Evo detector heads easily rotate into numerous positions, including caudal/cephalic tilt, offering comprehensive imaging positions for all of your nuclear medicine needs. This versatility enables faster patient set-up for ambulatory, wheelchair and gurney planar imaging, making a whole range of otherwise difficult scans possible.

**Minimize downtime** and **maximize workflow** with a smooth transition to your new system, including installation in five days or less.

With the smallest[2] room size in its class, Symbia Evo Excel **fits into virtually any existing nuclear medicine exam room,** often eliminating the need for costly room renovation and expansion.

Symbia Evo Excel

# Optimize your investment

Modernization is essential when managing the pressing demands of today's healthcare environment. With conventional SPECT systems, this often requires substantial time and cost, which includes renovation of existing infrastructure and additional unplanned spending.

Engineered to manage key life-cycle costs, Symbia Evo Excel is the most[2] cost-effective solution in its class. The system design addresses space requirements, as well as maintenance and serviceability, making it an investment that works for you.

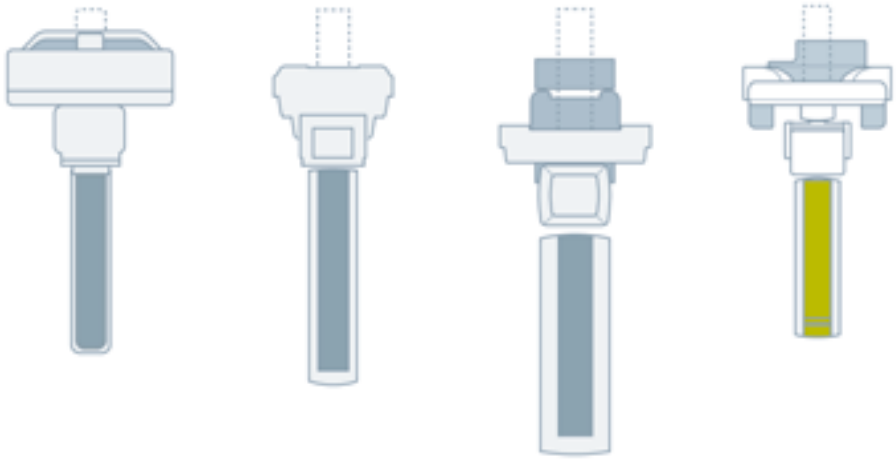
With the smallest[2] room size in its class, up to 29%[2] smaller than conventional SPECT systems, Symbia Evo Excel significantly reduces costs associated with room remodeling and expansion. Lower up-front costs mean a faster return on investment, while lower life-cycle costs equate to a lower total cost of ownership.

# Lower total cost of ownership

Designed to lower your lifecycle costs by minimizing your upfront investment, installation time, overall energy consumption and system maintenance, Symbia Evo Excel offers the investment protection you need without compromising performance.

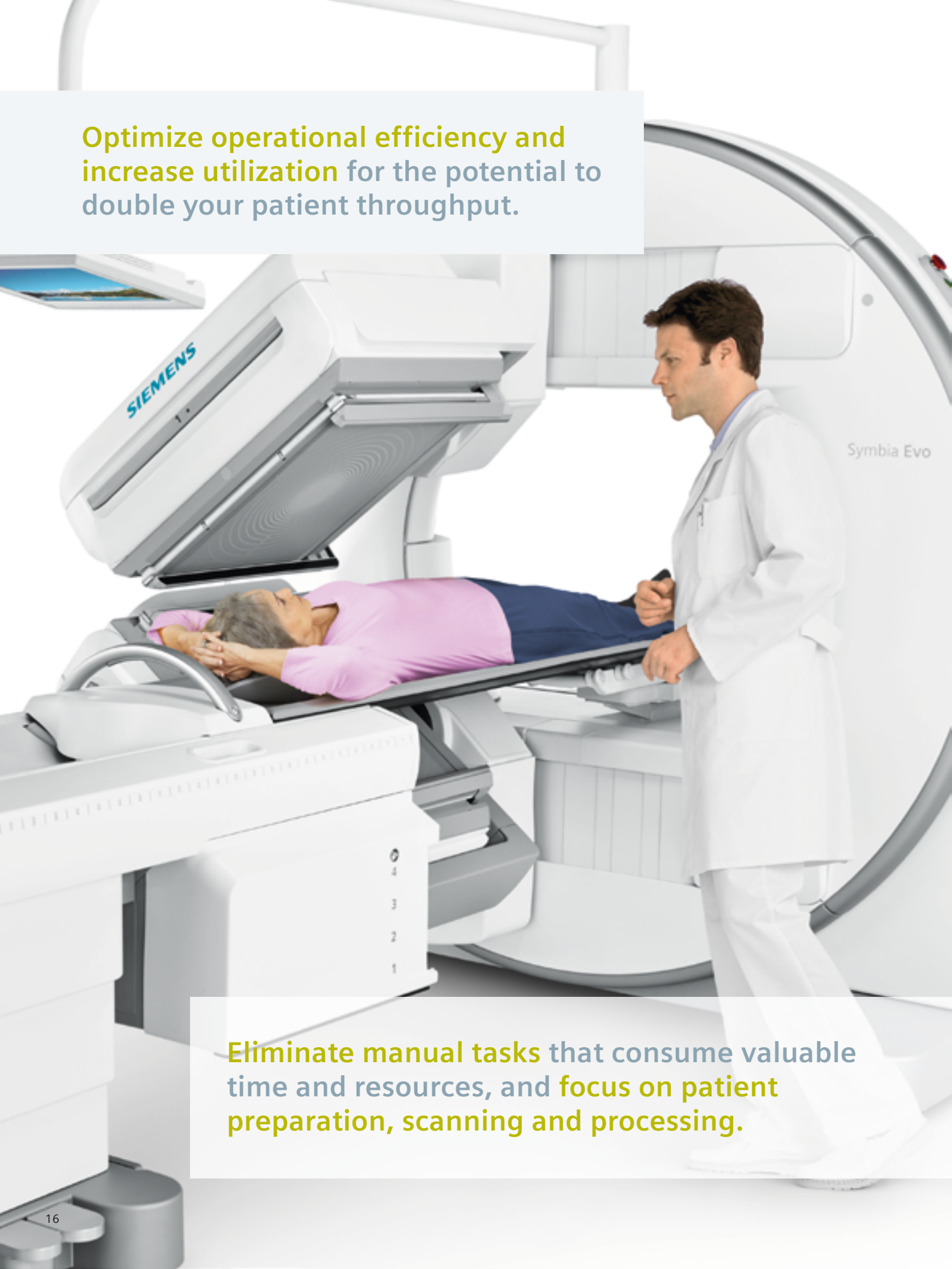
# Designed for small spaces

With the smallest[2] system footprint, just 16.5 sq m (177 sq ft), Symbia Evo Excel fits into virtually any nuclear medicine exam room. The minimal room size requirement reduces infrastructure-related costs, such as room remodeling and expansion.



| | Vendor A | Vendor B | | Symbia Evo Excel | % Difference |
|---|---|---|---|---|---|
| Length | 4.72 m (15 ft 5 in) | 5.12 m (16 ft 9 in) | 5.49 m (18 ft) | 4.57 m (15 ft) | - 20% |
| Width | 3.66 m (12 ft) | 3.74 m (12 ft 3 in) | 3.86 m (12 ft 7 in) | 3.60 m (11 ft 9 in) | - 7% |
| Footprint | 17.3 sq m (186 sq ft) | 19.1 sq m (206 sq ft) | 21.2 sq m (228 sq ft) | 16.5 sq m (177 sq ft) | - 29% |

**Optimize operational efficiency and increase utilization** for the potential to double your patient throughput.




**Eliminate manual tasks** that consume valuable time and resources, and **focus on patient preparation, scanning and processing.**

Symbia Evo

# Double the throughput

The long exam times and routine manual tasks of conventional SPECT systems often limit workflow efficiency, consuming time and resources that could be directed toward more valuable patient-oriented activities.

Symbia Evo automates your routine tasks with exclusive features, such as Automated Quality Control and Automated Collimator Changer. Cardiac throughput can also be significantly improved with IQ•SPECT's four-minute acquisition.

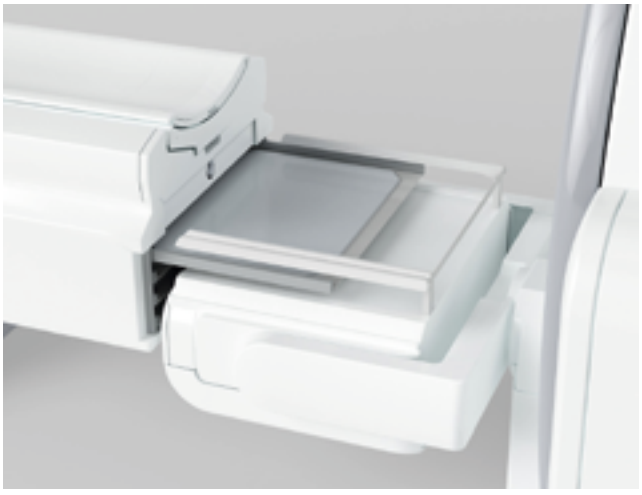
With a focus on increasing your productivity, Symbia Evo offers you the ability to save up to 50%[2] more time and the potential to double patient throughput.

# Automated productivity features

Siemens Automated Quality Control runs automatically overnight, with a report ready for the technologist the next morning. This offers the potential to save up to one hour each day, so you are always ready to scan patients. The Automated Collimator Changer exchanges the collimators with a simple click, so you save about five minutes per exchange to perform additional tasks.

## Automated Quality Control

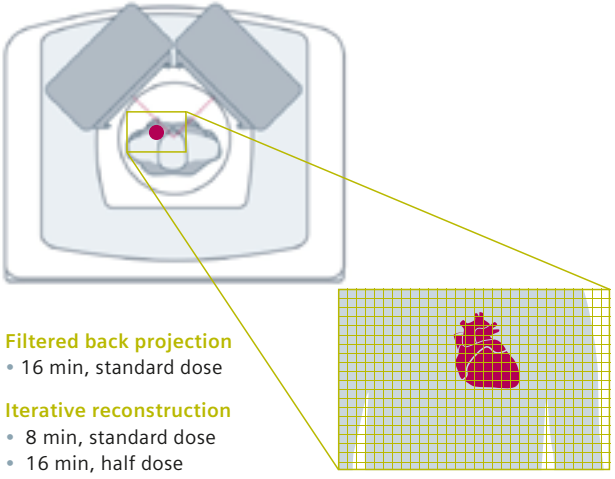
## Automated Collimator Changer



# Ultra-fast cardiac imaging

Routine cardiac studies can take up to 16 minutes to perform, limiting the number of patient scans that can be performed each day. Additionally, longer acquisition times increase the potential for patient movement, which can lower image quality. Symbia Evo with IQ•SPECT is the only general-purpose system that enables four-minute ultra-fast cardiac imaging without sacrificing image quality.

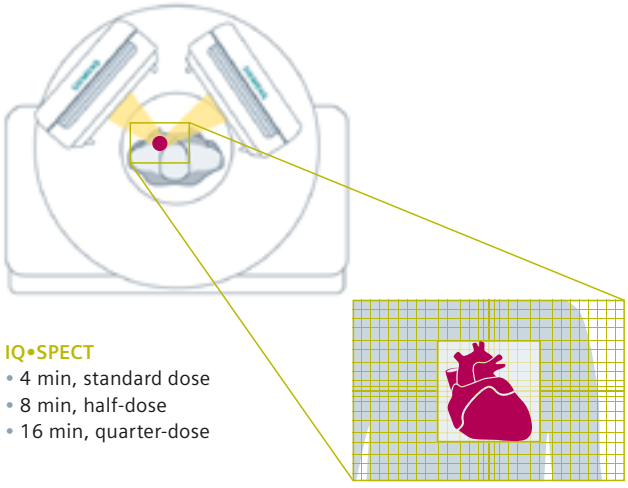
## Conventional cardiac imaging



**Filtered back projection**
- 16 min, standard dose

**Iterative reconstruction**
- 8 min, standard dose
- 16 min, half dose

## IQ•SPECT cardio-centric orbit

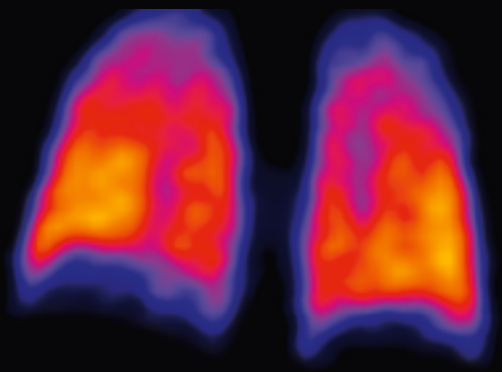


**IQ•SPECT**
- 4 min, standard dose
- 8 min, half-dose
- 16 min, quarter-dose

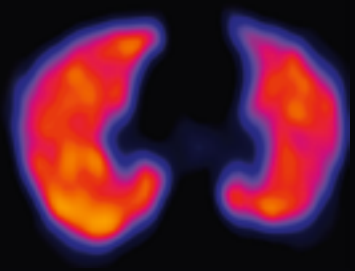
# Lung perfusion imaging

A lung ventilation/perfusion SPECT study performed on a 29-year-old male patient with suspected pulmonary embolism. The SPECT scan shows normal perfusion and ventilation in both lungs.

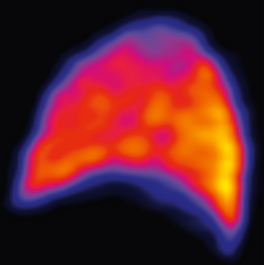
**Perfusion coronal**



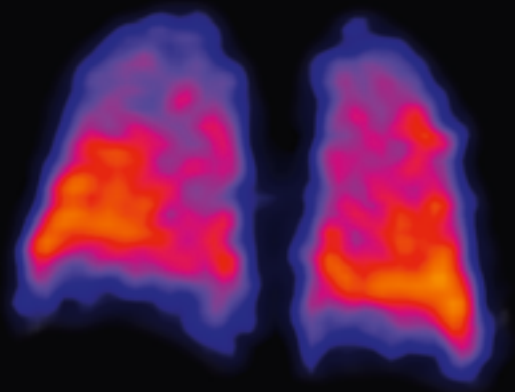
**Perfusion transverse**



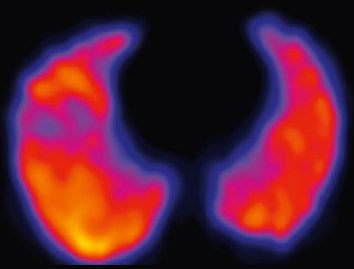
**Perfusion sagittal**



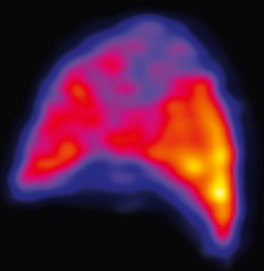
**Ventilation coronal**



**Ventilation transverse**



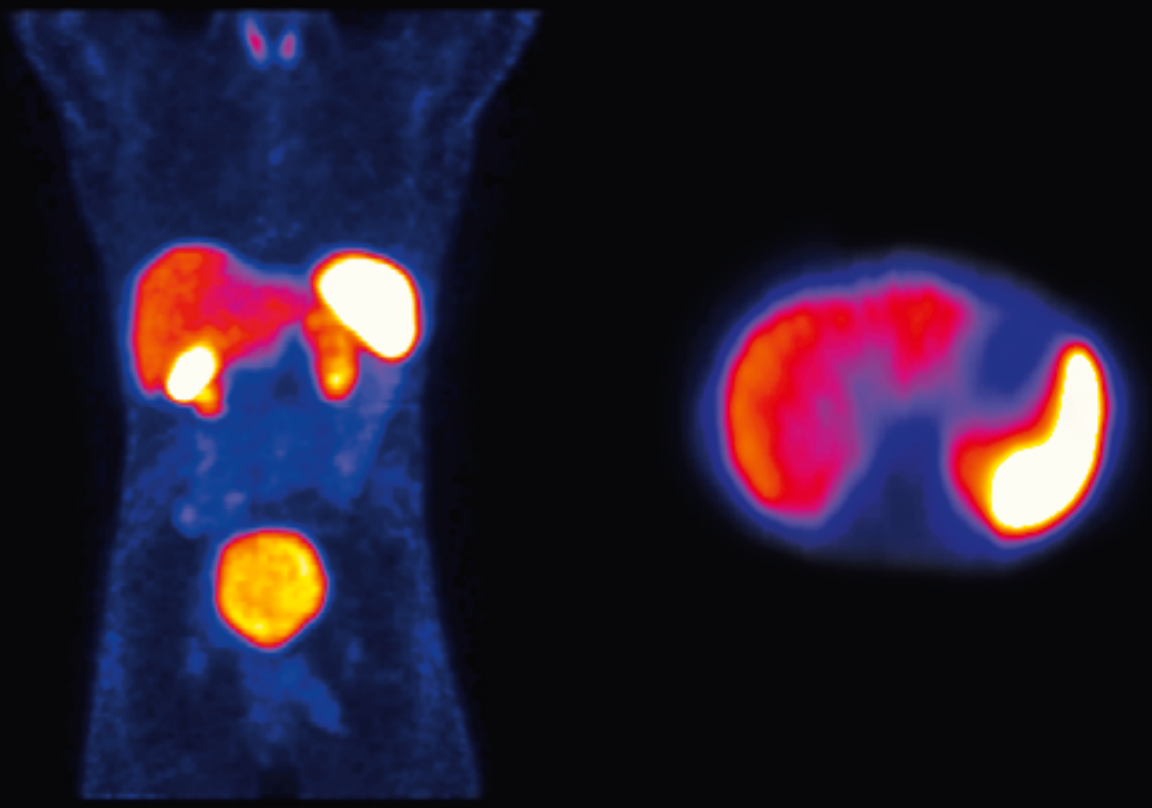
**Ventilation sagittal**



Data courtesy of radprax MVZ, Wuppertal, Germany.
Parameters: perfusion: injected dose135 MBq (3.65 mCi) $^{99m}$Tc MAA; 64 frames, 15 sec/frame; 3DOSEM reconstruction, 8 iterations/8 subsets; ventilation $^{99m}$Tc DTPA aerosol; 64 frames, 15 sec/frame; 3DOSEM, 6 iterations/8 subsets

# $^{111}$In Octreotide[5] SPECT

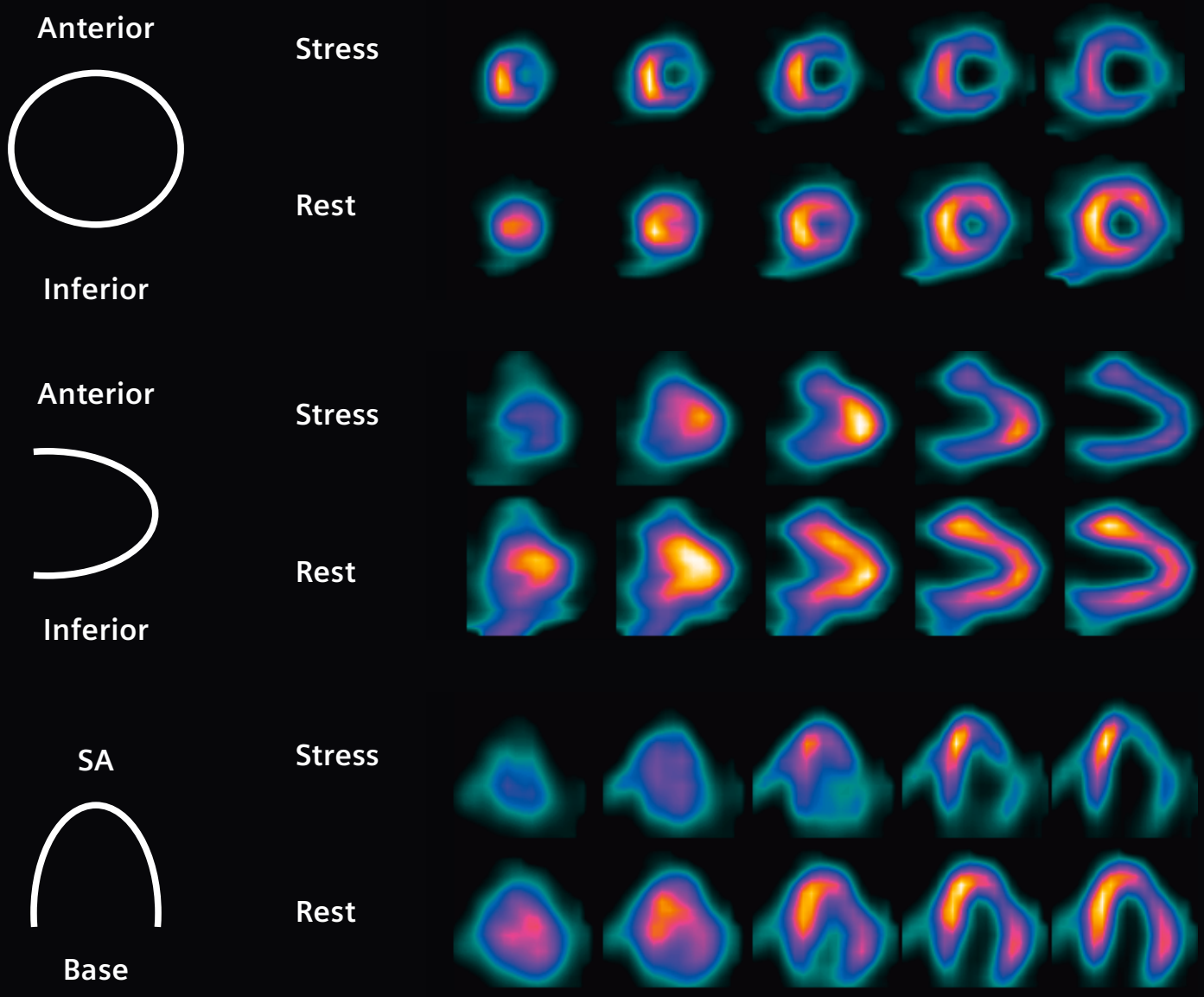
A normal $^{111}$In Octreotide SPECT performed on a 20-year-old male patient with history of an intestinal neuroendocrine tumor that was treated with surgery. The study shows normal distribution of the tracer in the liver, spleen and gallbladder, with no indication of metastasis.



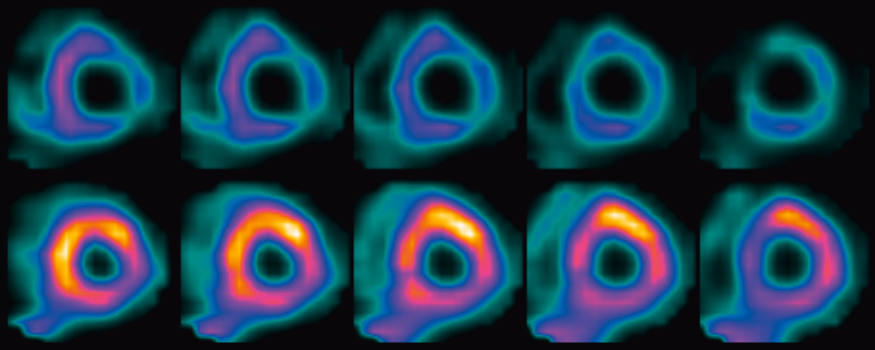
Data courtesy of radprax MVZ, Wuppertal, Germany.
Parameters: injected dose: 673 MBq (18.2 mCi); 64 frames, 20 sec/frame;
3DOSEM reconstruction, 6 iterations/2 subsets/2 bed positions

# Myocardial perfusion imaging

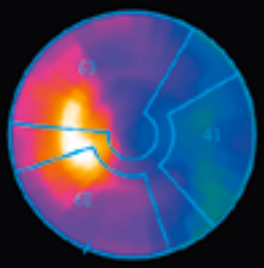
Reversible ischemia in a patient with multi-vessel coronary artery disease. $^{99m}$Tc MIBI myocardial perfusion SPECT performed on a 46-year-old male with chest pain and breathlessness on exertion. The scan is suggestive of severe, but reversible, myocardial ischemia consistent with triple vessel disease with severe stenosis of the left circumflex. Decreased uptake of the tracer throughout the entire left ventricle at peak stress, especially in the inferolateral and lateral walls, but with complete reversibility shown by normal tracer uptake throughout the myocardium at rest. The patient was referred for revascularization.

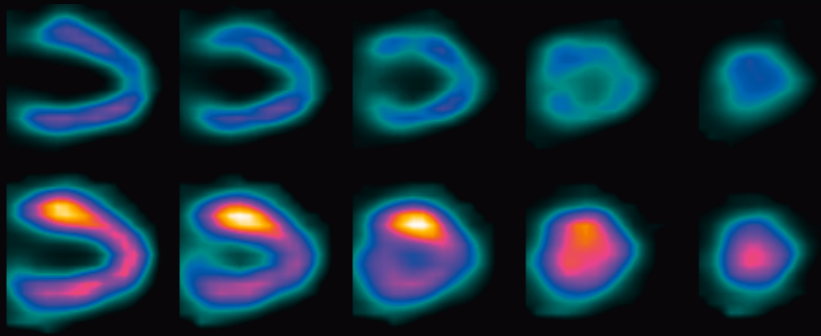



Data courtesy of radprax MVZ, Wuppertal, Germany.
Parameters: injected dose: stress 443 MBq (11.9 mCi) $^{99m}$Tc MIBI 64 frames, 20 sec/frame;
rest 444 MBq (12 mCi) $^{99m}$Tc MIBI 64 frames, 20 sec/frame; 3DOSEM, 8 iterations/12 subsets

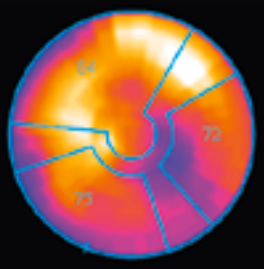


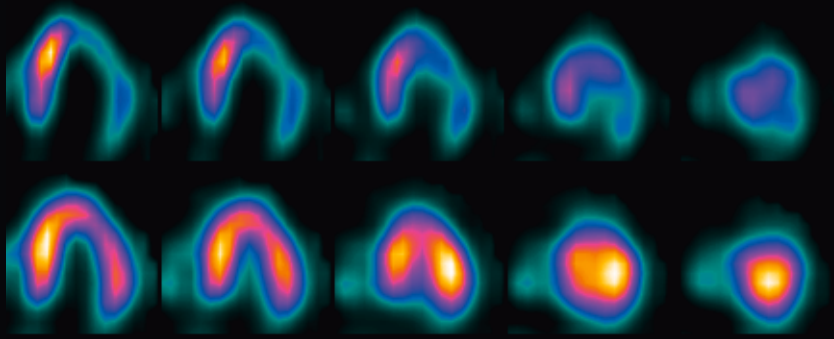
Gated stress



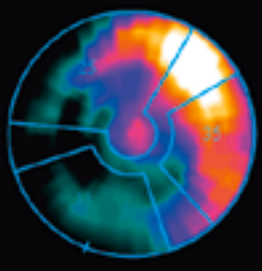


Gated rest



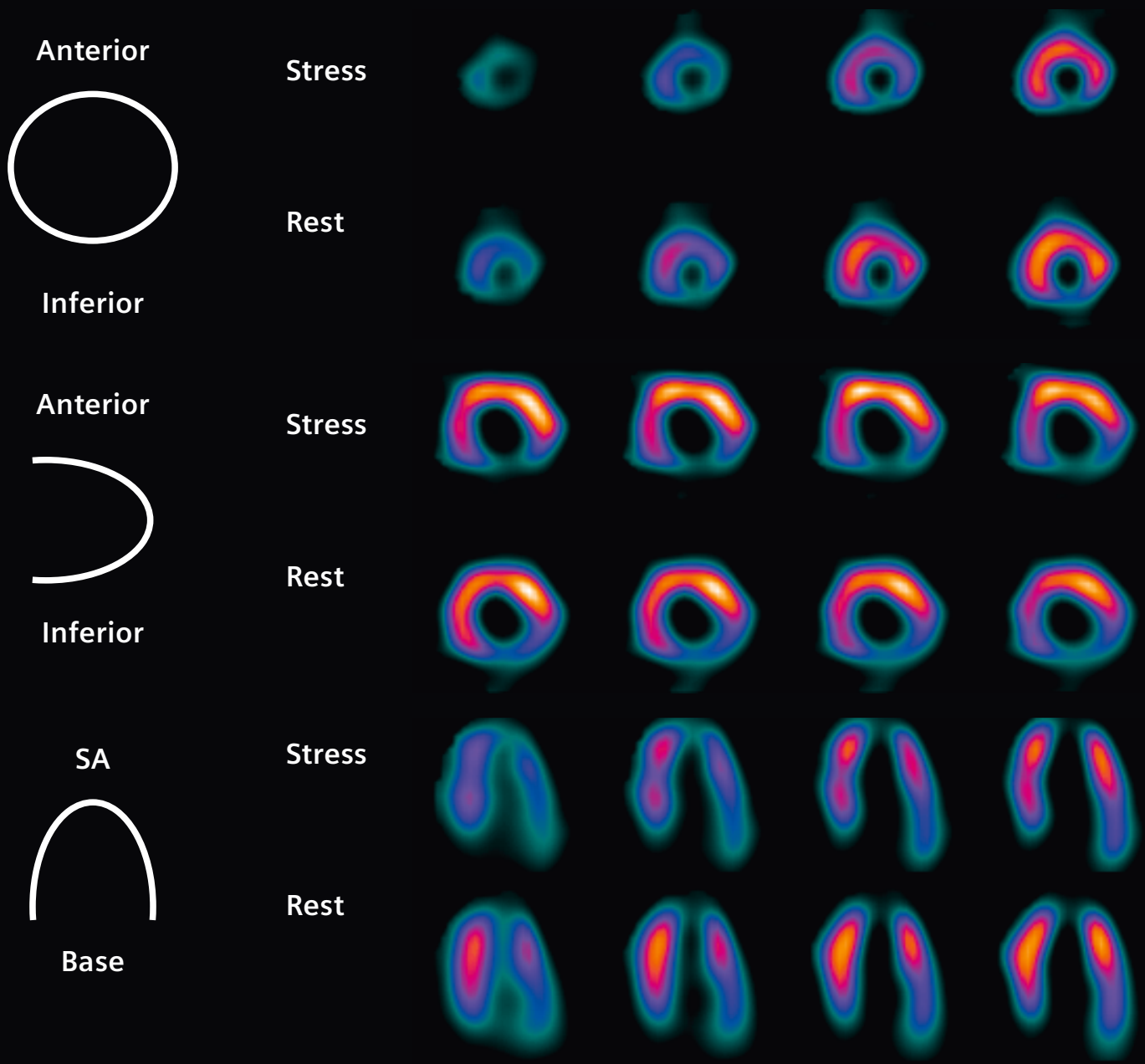


Reversibility

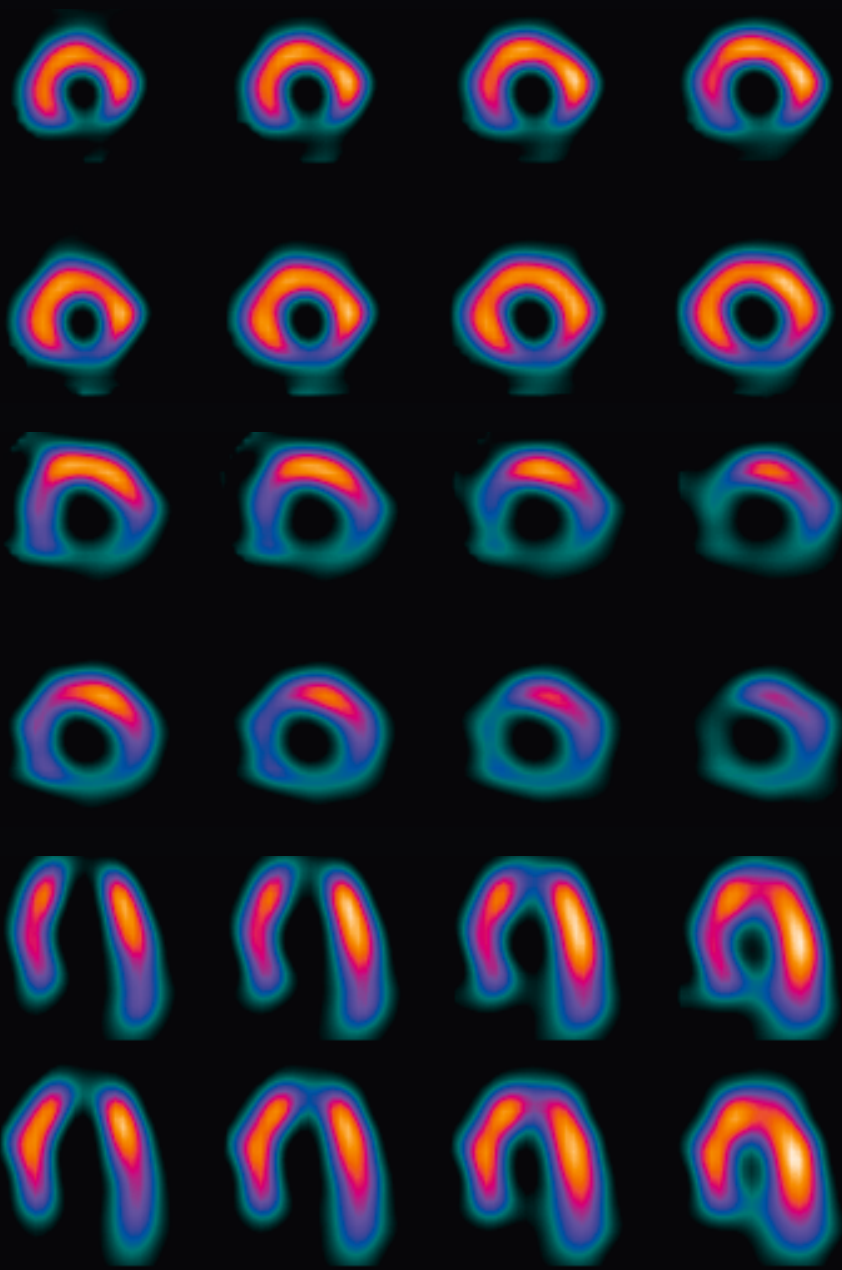


# IQ•SPECT 4-minute myocardial perfusion imaging

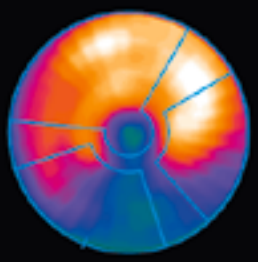
A 76-year-old male with a history of a prior coronary artery bypass grafting (CABG) and persistent chest pain underwent $^{99m}$Tc MIBI stress-rest myocardial perfusion imaging using IQ•SPECT 4-minute cardiac acquisition to evaluate the presence of inducible ischemia. Scan is suggestive of transmural infarct involving apex and adjacent inferior wall with peri-infarct ischemia.



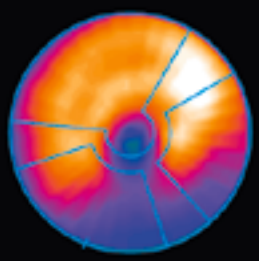

Data courtesy of CHU de Québec, Québec City, Canada.
Parameters: Stress, 20 mCi (740 MBq); rest, 20 mCi (740 MBq) $^{99m}$Tc MIBI;
4 min IQ•SPECT (stress/rest); 17 frames, 12 sec/frame



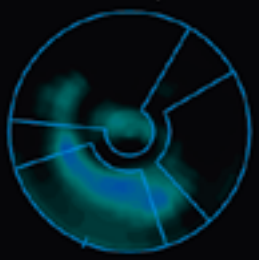
Stress IQ•SPECT



Rest IQ•SPECT



Reversibility



# Base system highlights


## HD detectors

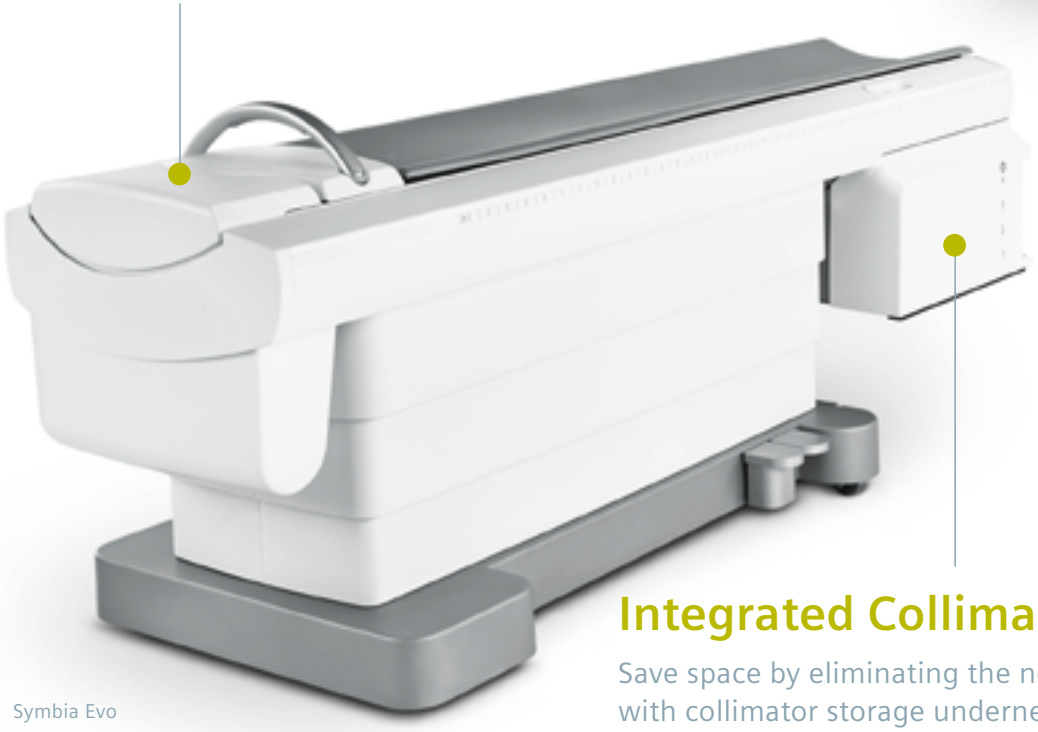
High-definition digital detectors that deliver the best[2] image quality and provide energy-independent performance

## Detector tilt

Wide variety of detector configurations adjustable to any study and patient type

## Internal electrocardiogram (ECG)

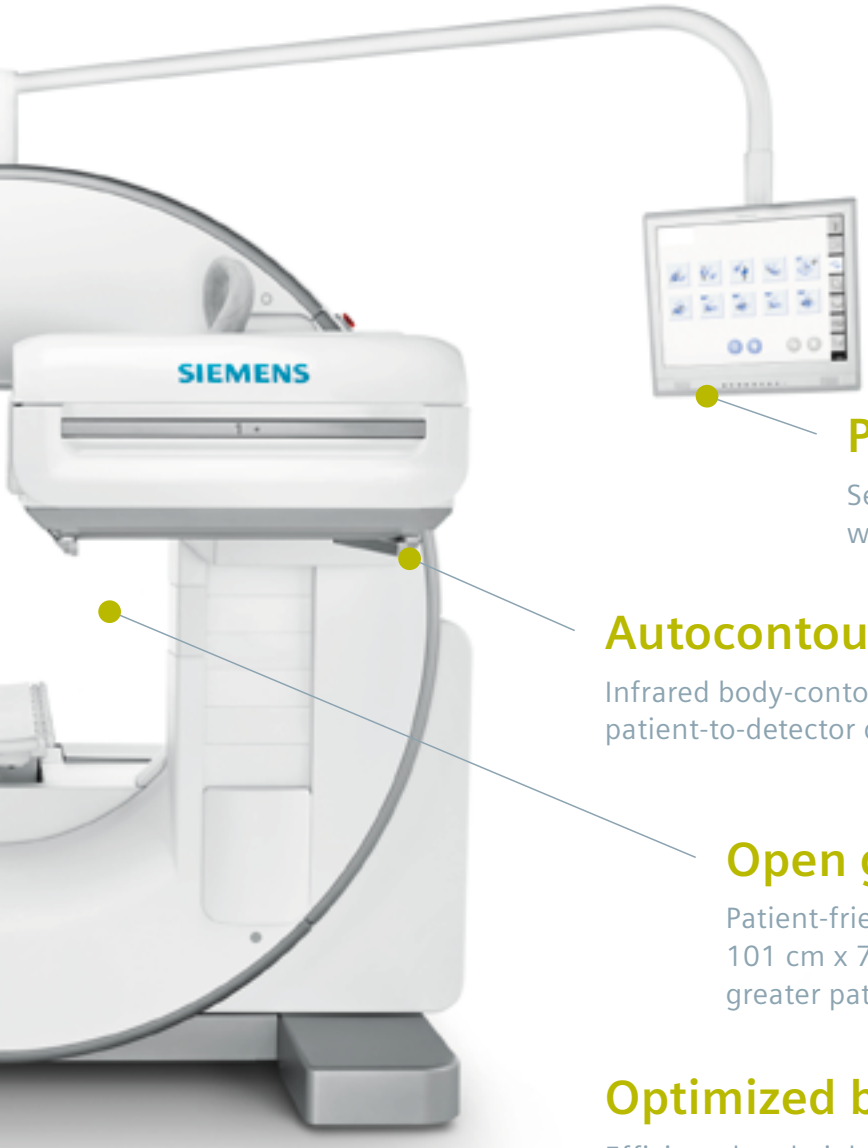
The ECG integrated into the patient bed allows for fast setup and less cumbersome cables



Symbia Evo

## Integrated Collimator Changer

Save space by eliminating the need for a collimator cart with collimator storage underneath the patient bed




## Patient positioning monitor

Self-guided touch screen user interface with intuitive icons makes patient setup easier

## Autocontour

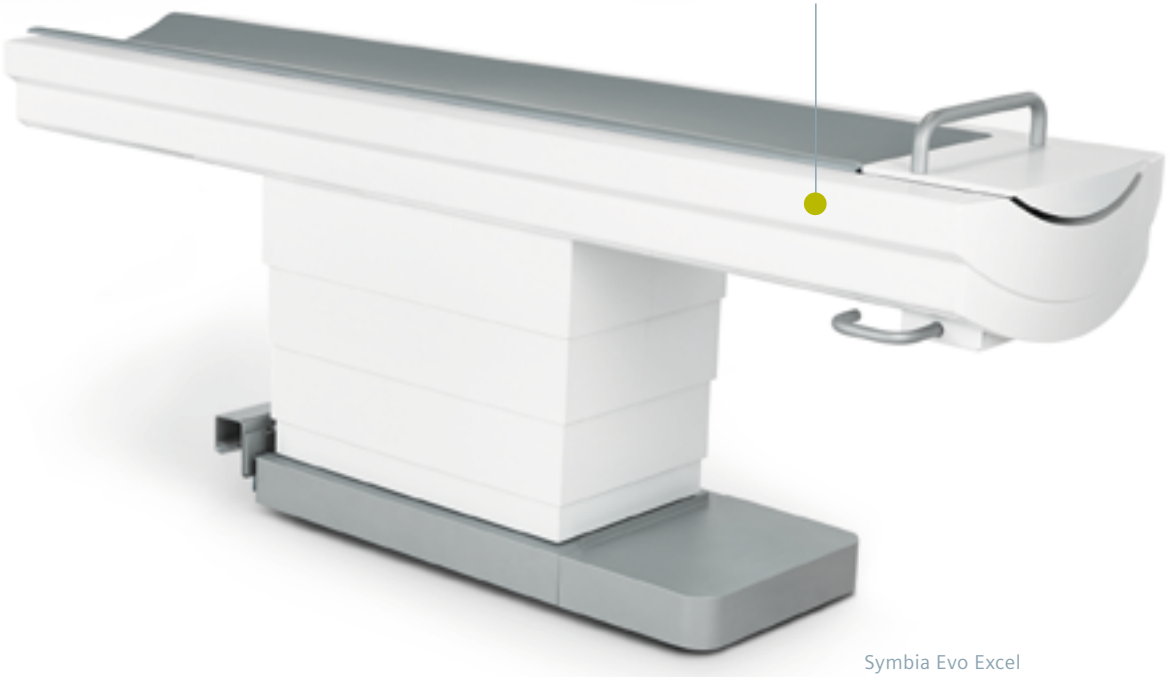
Infrared body-contour system minimizes patient-to-detector distance for optimal image resolution

## Open gantry

Patient-friendly integrated gantry design with 101 cm x 78 cm (40.2 in x 30.7 in) opening for greater patient comfort regardless of size

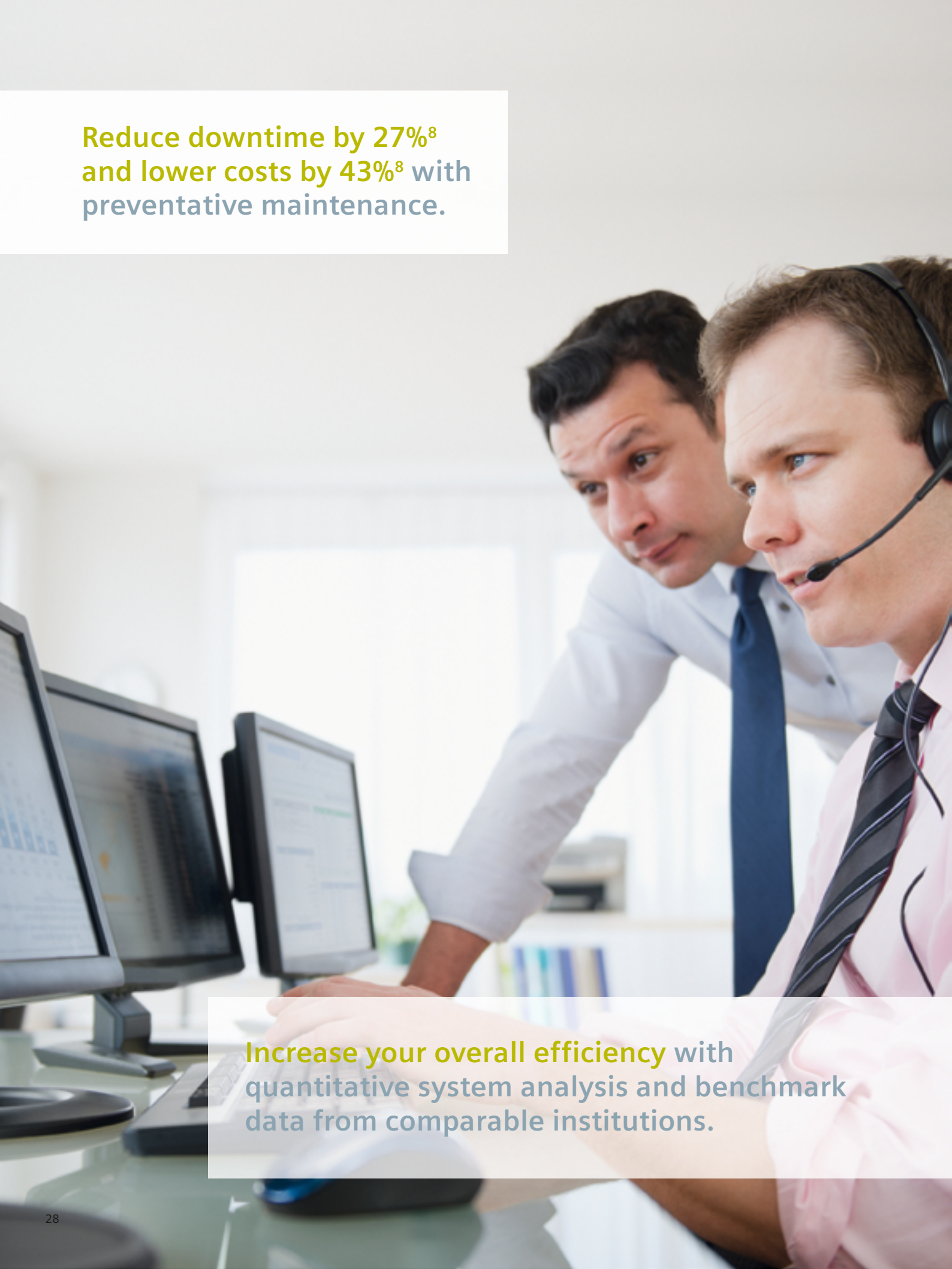
## Optimized bed design

Efficient, low-height patient bed with movable table top enables easy access and use of ergonomic patient comfort accessories



Symbia Evo Excel

**Reduce downtime by 27%[8] and lower costs by 43%[8] with preventative maintenance.**



**Increase your overall efficiency with quantitative system analysis and benchmark data from comparable institutions.**

# Proactive service solutions

## Siemens Guardian Program

Peak performance and higher uptime are achieved by proactively ensuring system availability. Siemens remotely monitors and repairs equipment to forecast, diagnose and often prevent system issues before they occur. Our preventative maintenance approach is both interactive and proactive, providing peace-of-mind protection throughout your service contract. With Siemens Guardian Program™, downtime can be predicted ahead of time, so you can plan maintenance around your schedule for increased system utilization.

## Utilization Management

Productivity is improved through increased workflow and process optimization. This, along with Siemens consulting tools, help improve efficiency, system utilization and return on investment. Learn about your strengths and improvement potential across all professional groups.

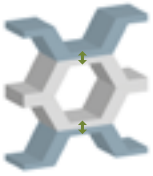
Utilization Management tracks and analyzes quantitative data from your system's daily operations via Siemens Remote Service, a secure remote connection. The result is a detailed and flexible system-specific utilization report that improves your ability to monitor patient wait-time, personnel efficiency, system utilization rates, and study volume and mix.

**Patient and procedure mix** + **System utilization** + **Benchmark data**

# Key features

## AUTOFORM

- Unique LEHR collimators
- 26%[2] higher sensitivity



## Integrated ECG

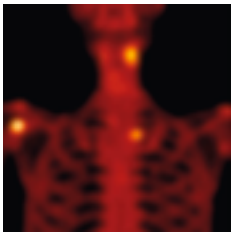
- Fast patient set-up
- No additional space/cables

## Detector flexibility

- Gurney and hospital bed imaging
- Detector tilt
- 76° cardiac configuration

## Flash 3D

- 3D interative reconstruction
- Cardiac half-time or half-dose imaging
- Highest[2] reconstructed resolution



## AQC

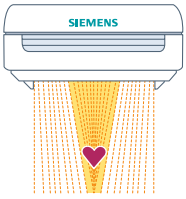
- Automated Quality Control
- Saves up to 1 hour each day

## ACC

- Automated Collimator Changer
- 4 collimators integrated into system bed

## IQ•SPECT

- Ultra-fast cardiac imaging
- Up to 80%[2] lower injected dose or faster imaging




## e.media

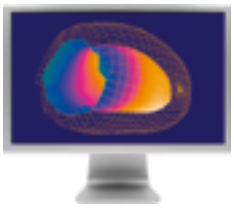
- Integrated entertainment solution
- Helps keep patients still and comfortable

## Specialty pallets

- Pediatric
- Mammography

## Symbia.net

- Anywhere[6], anytime image processing and reconstruction solution



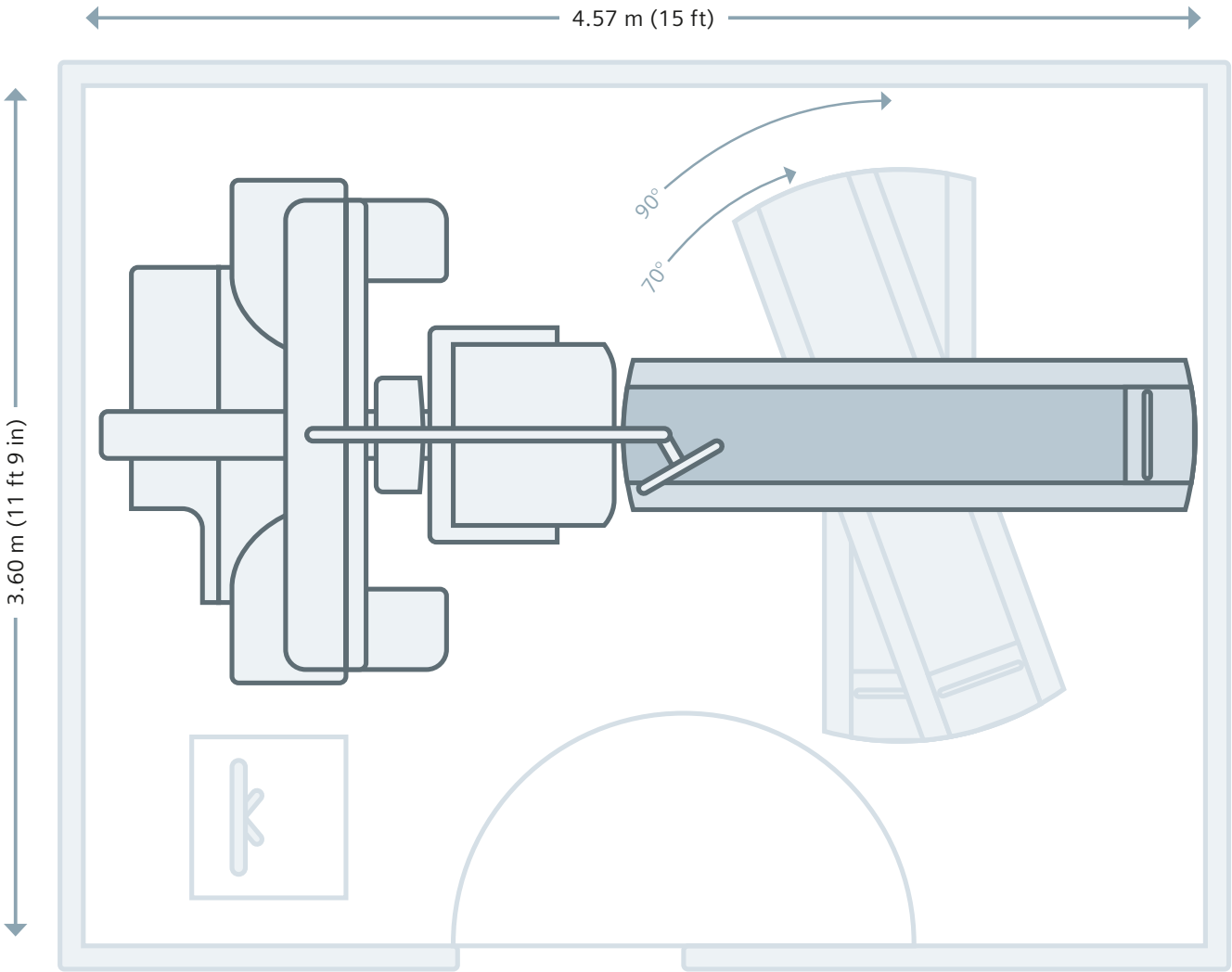
## Standard and optional features

| Feature | Symbia Evo Excel | Symbia Evo |
|---|---|---|
| AUTOFORM collimators | ● | ● |
| Detector flexibility | ● | ● |
| Flash 3D | ○ | ● |
| e.Media | ○ | ○ |
| Symbia.net | ○ | ○ |
| Integrated ECG | – | ○ |
| Integrated Collimator Changer | – | ○ |
| Automated Collimator Changer | – | ○ |
| Automated Quality Control | – | ○ |
| IQ•SPECT | – | ○ |
| Pediatric pallet | – | ○ |
| Mammography pallet | – | ○ |
| Siemens ImageGuard™ | ○ | ● |
| Utilization Management | ○ | ● [7] |

● Standard ○ Optional – N/A

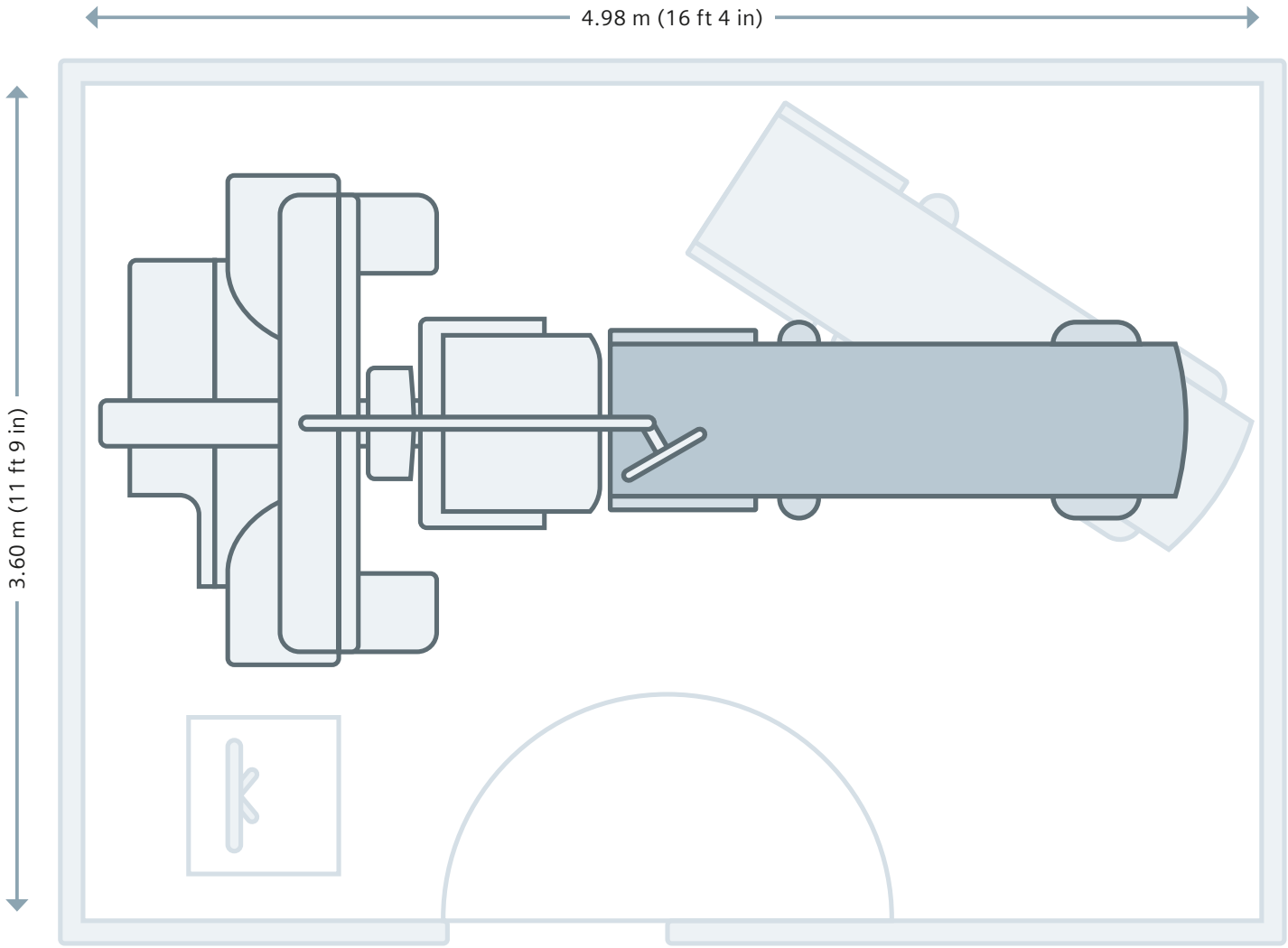
# Minimum room size

## Symbia Evo Excel




| | |
|---|---|
| **Room size** | 3.60 m (11 ft 9 in) x 4.57 m (15 ft) |
| **Ceiling height** | 2.44 m (8 ft) |
| **Hung ceiling height** | 2.29 m (7 ft 6 in) |
| **System length** | 4.48 m (14 ft 8 in) |
| **System width** | 2.16 m (7 ft 1 in) |

# Symbia Evo



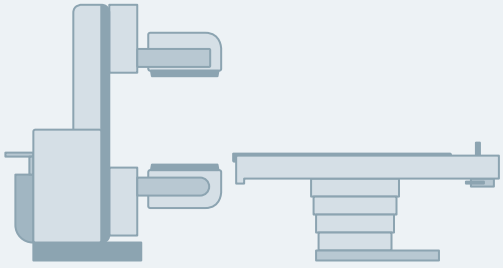

| | |
|---|---|
| **Room size** | 3.60 m (11 ft 9 in) x 4.98 m (16 ft 4 in) |
| **Ceiling height** | 2.44 m (8 ft) |
| **Hung ceiling height** | 2.29 m (7 ft 6 in) |
| **System length** | 4.63 m (15 ft 2 in) |
| **System width** | 2.16 m (7 ft 1 in) |

# Symbia upgrade path

Clinical and technological requirements in nuclear medicine are evolving rapidly. To accommodate the ever-changing needs of healthcare facilities, physicians and patients, the Symbia family of SPECT and SPECT/CT systems is fully scalable and can be tailored to meet your clinical, operational and financial objectives.

## Symbia Evo Excel

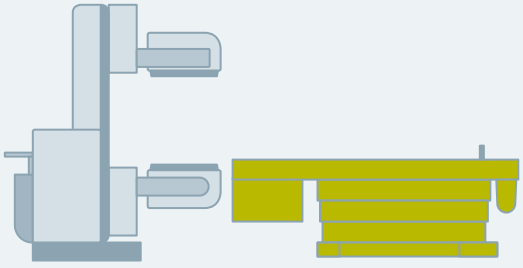
### SPECT



- General-purpose SPECT
- Smallest[2] footprint in its class

## Symbia Evo

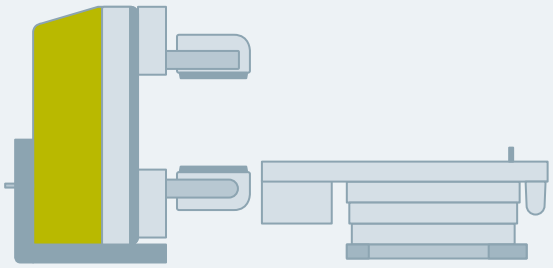
### SPECT



- General-purpose SPECT
- Integrated Collimator Changer
- Automated Collimator Changer
- Automated Quality Control
- Integrated ECG
- Specialty pallets
- IQ•SPECT

## Symbia Intevo Excel[1]

### SPECT/CT



- General-purpose SPECT/CT
- 2-slice CT for attenuation correction
- Integrated Collimator Changer
- Automated Collimator Changer
- Automated Quality Control
- Integrated ECG
- Specialty pallets
- IQ•SPECT

## Symbia Intevo[1]

### SPECT/CT


- General-purpose SPECT/CT
- 2-, 6- and 16-slice all-purpose CT
- xSPECT Bone[1]
- xSPECT Quant[1]
- Calcium scoring
- CT iterative reconstruction
- Integrated Collimator Changer
- Automated Collimator Changer
- Automated Quality Control
- Integrated ECG
- Specialty pallets
- IQ•SPECT

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[1] Symbia Evo Excel, Symbia Evo, Symbia Intevo, Symbia Intevo Excel, xSPECT, xSPECT Bone and xSPECT Quant are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens organization for further details.

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

[3] Patients up to 227 kg (500 lbs).

[4] Compared to previous systems.

[5] $^{111}$In Octreotide is not currently recognized by the U.S. Food and Drug Administration (FDA) or other regulatory agencies as being safe and effective, and Siemens does not make any claims regarding its use.

[6] Requires network connection and minimum hardware requirements. Server management with at least 1 client required for iPad access.

[7] Standard during warranty period and optional thereafter.

[8] 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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