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#### Siemens Healthineers Headquarters

Siemens Healthcare GmbH  
Henkestr. 127  
91052 Erlangen, Germany  
Phone: +49 9131 84-0  
[siemens-healthineers.com](https://www.siemens-healthineers.com)



## An assisted EVAR workflow for enhanced confidence and efficiency

Advance Therapy Outcomes  
in EVAR with ARTIS pheno

[siemens-healthineers.com/evar](https://www.siemens-healthineers.com/evar)

# Therapy challenges for treatment of complex abdominal aortic aneurysm

The treatment options for patients with abdominal aortic aneurysms always depend on patient condition and procedure complexity. A minimally invasive treatment with endovascular repair can lower the complication rate and even reduce the risk of mortality compared to open surgery. An appropriate workflow for precise stent deployment is needed to ensure good clinical outcomes.

Now there is a way to make endovascular aortic repair safer and more comfortable. *syngo* EVAR Guidance provides automated support before, during, and after stent deployment that helps to achieve shorter procedure time, less contrast media and reduced radiation exposure.

## Ready for fusion imaging in EVAR

ARTIS pheno with *syngo* EVAR Guidance allows comprehensive assistance in every step during complex EVAR procedures. The preprocedural CT dataset is integrated for intraoperative guidance with fusion imaging through your procedure – regardless of patient condition or procedure complexity.



# Clinical Case

A 83-year-old male patient presented with a large infrarenal abdominal aortic aneurysm with a diameter of 54 mm and a neck of 19 mm. Implant selection, device sizing and access planning have been done preoperatively based on computed tomography.

For treatment a transfemoral access and suprarenal aortic stent graft for endovascular exclusion have been chosen.



Preprocedural diagnostic CT

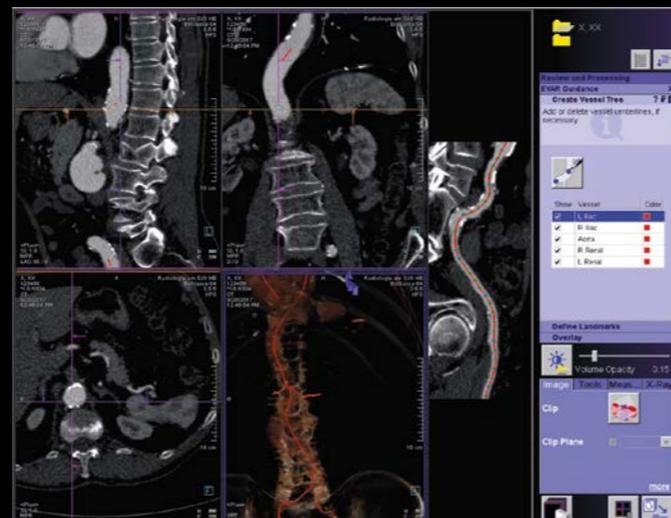
## Step 1

# Assisted preparation of CT dataset saves time and allows precise stent sizing

*syngo* EVAR Guidance provides preparation of preprocedural CT dataset including segmentation and labeling of the vessels.

The software detects the vessel wall of the aorta and all main branching vessels. Centerlines are rapidly calculated based on the mesh modeling of the aortic wall.

The iliac and renal arteries are automatically labelled. Individual landmarks for additional vessels like SMA or celiac trunk can easily be added to the vessel tree.



Segmentation of abdominal aorta

*syngo* EVAR Guidance calculates the ostia rings of all main branching vessels and suggests landing zones for stent positioning.

Perpendicular views of vessels are required for precise stent deployment. For each landing zone, *syngo* EVAR Guidance calculates the required C-arm angulation of ARTIS pheno. These C-arm angulations are stored for use during stent deployment directly in the OR.

The segmentation and preparation are typically performed in less than one minute.



Verification of landmarks

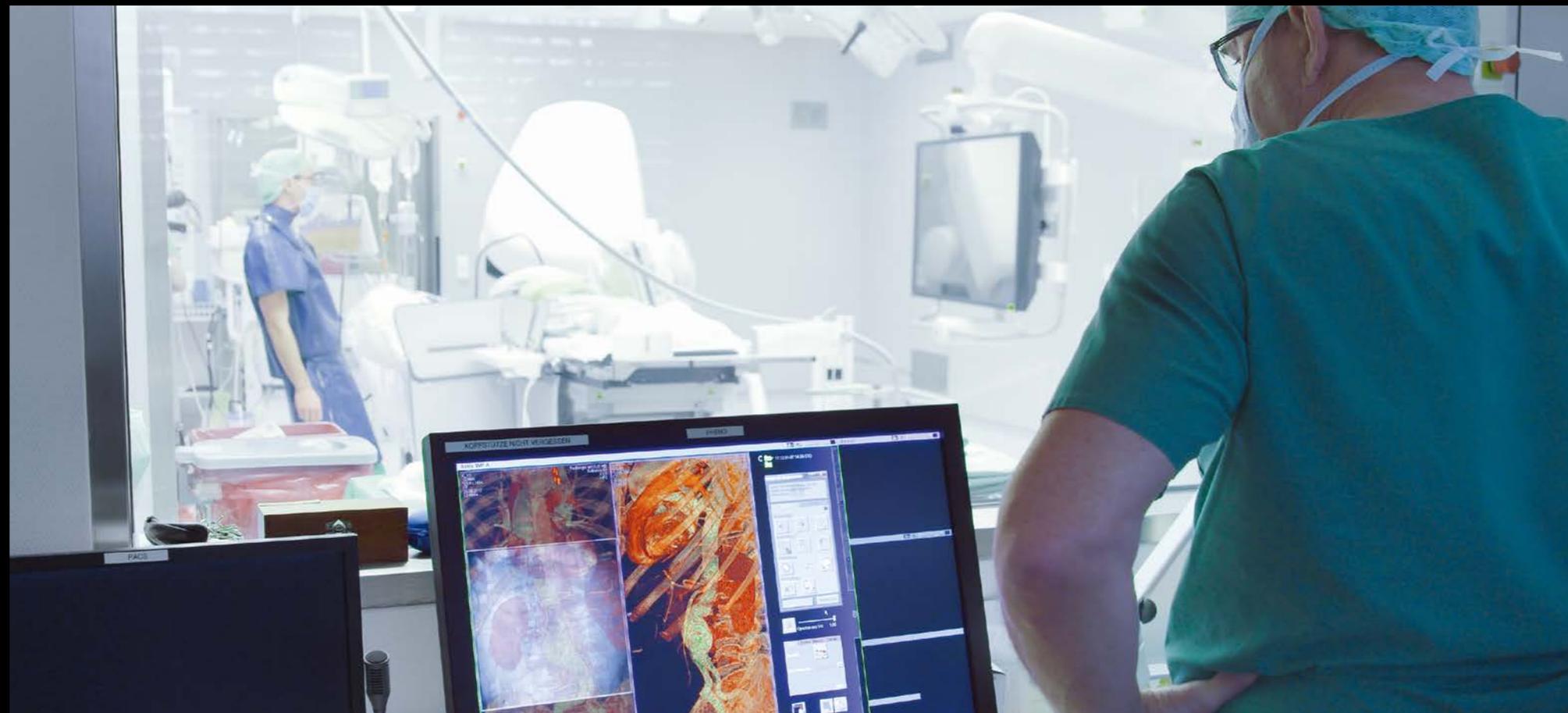
## Step 2

# Easy 2D/3D registration saves time and radiation dose

Registration of the pre-operational 3D dataset in the angio system with syngo EVAR Guidance requires only two fluoro projections and can be done right at the table.

The alignment of the fluoro scenes with the CT volume is supported by assisted registration of anatomical landmarks like the spine or contrast-filled aorta.

The 2D/3D registration requires only five minutes.



2D/3D registration

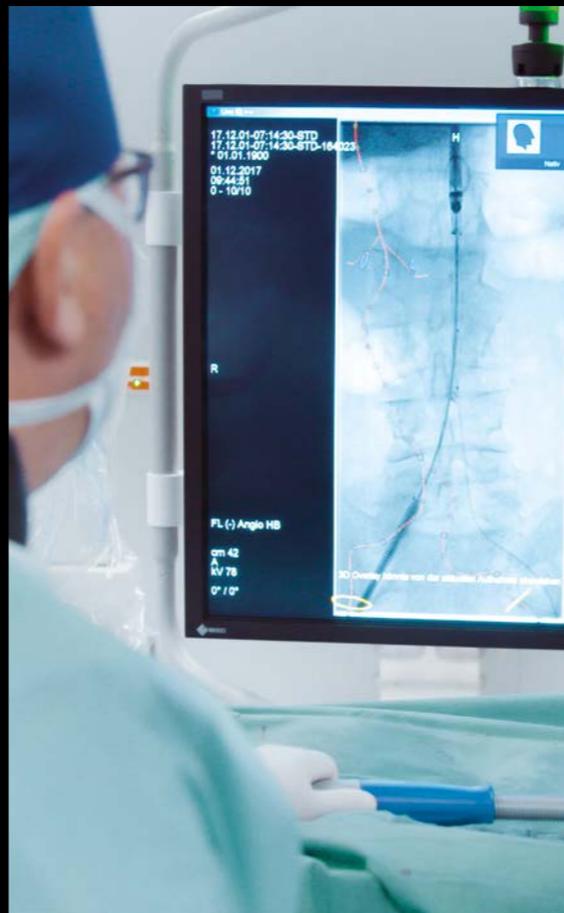
### Step 3

## Fusion imaging for easy and precise stent deployment and reduction of contrast media

ARTIS pheno with *syngo* EVAR Guidance provides continuous 3D guidance throughout the whole procedure in each angulation.

After the target vessel is chosen from the heads-up display in the OR, the C-arm automatically moves into the optimal viewing angle without any radiation exposure.

An overlay of the important landmarks of the CT dataset is always visible to provide a better understanding of the anatomy.



### Step 4

## Immediate 3D assessment of stent position reduces early reinterventions

ARTIS pheno with *syngo* DynaCT enables immediate 3D assessment of stent deployment with the patient still on the table.

Standardized workflow protocols guide the user to achieve high-quality 3D imaging. Fast image acquisition in only four seconds reduces contrast agent usage.

Endoleaks and thrombi can be diagnosed intraoperatively for immediate treatment.



Verification of proper deployment

# A hybrid operating room for vascular surgery

- ARTIS pheno robotic angiography system
- Maquet Magnus table
- 55" Large Display
- syngo EVAR Guidance
- syngo DynaCT



*“ARTIS pheno with syngo EVAR Guidance enables us to treat our patients with less radiation exposure, faster and more efficiently. Especially complex procedures like fenestrated stent grafts or TEVAR procedures are extremely simplified.”*

Dr. med. Frank Marquardt,  
Rotes Kreuz Krankenhaus Bremen, Germany



### System information

For further information, please see [siemens-healthineers.com/artis-pheno](https://www.siemens-healthineers.com/artis-pheno) or contact your local sales representative.

## Benefit of the Robotic C-arm in the Hybrid OR

1. Precise targeting and automatic image fusion using pre-operative MRI and *syngo* DynaCT with *syngo* Fusion Package
2. Intraoperative image control with *syngo* DynaCT without patient transfer, saving a significant amount of time
3. Increased procedural success by using intraoperative 3D imaging for quality control
4. Less radiation dose compared to workflows that include perioperative CT
5. Increased patient safety by reducing patient transfer and anesthesia times
6. Financial benefits for the hospital through optimized resources and higher utilization of the Hybrid OR

### Want to know more?



For more information on our workflows, products, and solutions, please scan the adjacent QR code or open [siemens-healthineers.com/evar](https://www.siemens-healthineers.com/evar)