

A photograph of surgeons in an operating room, wearing blue scrubs and masks, focused on a patient. The scene is brightly lit with overhead surgical lamps. A large orange circle is overlaid on the bottom left of the image, containing the main text.

**Advance
Therapy Outcomes**
in EVAR with
ARTIS pheno

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 pre-procedural CT dataset is integrated for intraoperative guidance with fusion imaging through your procedure – regardless of patient condition or procedure complexity.



An assisted EVAR workflow for enhanced confidence and efficiency

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

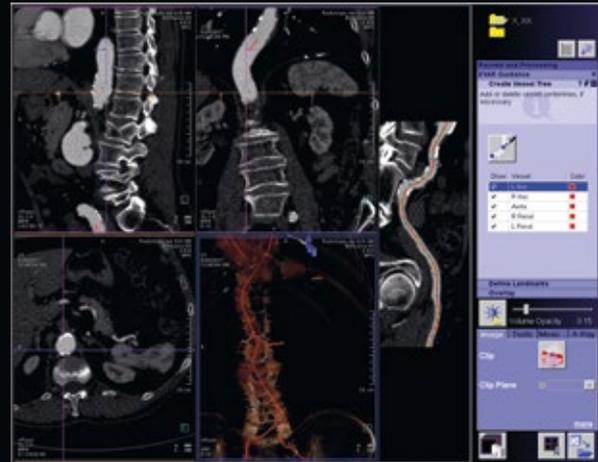


Assisted preparation of CT dataset saves time and allows precise stent sizing

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.

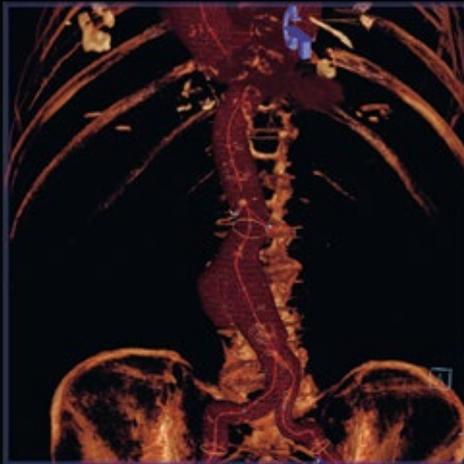


Segmentation of abdominal aorta

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



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

> **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.



Overlay of important landmarks

> **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



“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

A hybrid operating room for vascular surgery



Hybrid OR Rotes Kreuz Krankenhaus Bremen (RKK), Germany

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

Cutting-edge robotic imaging to drive minimally invasive procedures for multidisciplinary usage



No matter which patient

- StructureScout optimizes the visibility of devices at lowest possible dose to reduce radiation exposure
- *syngo* DynaCT allows faster intra-operative 3D imaging of vessels with less contrast media, even in the lower abdomen

No matter which procedure

- *syngo* EVAR Guidance – assisted workflow for fusion imaging during FEVAR and BEVAR to reduce operating time, radiation, and use of contrast media significantly
- *syngo* Needle Guidance – immediate treatment of endoleaks in the OR

Because infection control matters

- Antimicrobial covers and ceiling-free design contribute to better infection control
- Tableside pilot module ensures comfortable operation from sterile field even when covered with drapes

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