



# Ready for the Future

With the new Artis **zeego**, Siemens Medical Solutions is first to market with an angiography system that delivers both outstanding imaging quality and greater flexibility.

Interview with  
Prof. Dr. Maximilian Reiser

Artis Artis **zeego**\* is a multi-axis, angiographic system for interventional procedures. It has more freedom of positioning to accommodate nearly all projections. Fluoroscopy can be performed easily on the patient from head to toe. With a flexible isocenter that enables the physician to adjust the exam table to the most comfortable working position, operation is easy and precise. The *syngo* DynaCT application has been expanded and can be used even more flexibly for 3D reconstruction, because a larger volume\* is covered, expanding the view of the patient's anatomy. Not only are individual parts of the body imaged, but the entire abdomen. Images are acquired in landscape or portrait mode. In addition, Artis **zeego**'s flexible park positions make it ideal for hybrid rooms. The very first Artis **zeego** system in the world is located at the Institute for Clinical Radiology of the University of Munich. The institute is one of the largest of its kind in Germany. Its director is Prof. Dr. Dr. h.c. Maximilian F. Reiser. As former president and acting representative of the German Radiological Society and President of next year's European Congress of Radiology (ECR), he is one of the most influential radiologists in Europe. Siemens Medical Solutions spoke with him about his experience of Artis **zeego**.

\* 510k pending

Prof. Reiser, your clinic is a specialty center for oncological interventions. You do hundreds of interventions every year. Now you have the first Artis **zeego** in the world. Why did you choose this system? Oncology greatly profits from image-guided minimally invasive therapies. We hope that the greater flexibility and the extended park positions, better overview due to a larger acquired volume and excellent three-dimensional image quality will help us get even better treatment results. With Large Volume *syngo* DynaCT, we can now see entire organs, such as the whole liver. Moreover, lots of interventions are very complex. We deal primarily with patients that cannot be treated surgically. Either because the disease has progressed too far or vital anatomical structures are at risk or the patient's general condition simply won't allow open surgery. The more flexibility we have in caring for these patients, the broader the treatment options are, which reduces the burden on the patient. We also are dealing with many more obese patients. We should be able to take advantage of the larger field of view for access planning.

What oncological interventions do you perform most often and how important do you think image-guided tumor treatment is in treating cancer?

Many patients we treat with image-guided therapy have liver metastases, a hepatocellular carcinoma, a tumor in the lungs

or kidneys. Most of the interventions are palliative in nature. We recently published a randomized study together with our oncological colleagues to compare the results of combined chemoembolization and radiofrequency ablation in treating hepatocellular carcinoma to the results from surgery. All study participants were patients who were also good surgical candidates. Therefore, we were not forced into choosing interventional therapy. The study showed that the results of both procedures were almost the same. I think that's very encouraging.

Do you think that image-guided tumor control and surgery will soon be on equal footing?

I can't really say yes or no. That will need to be decided on a case-by-case basis. For benign bone tumors and osteoid osteoma, radiofrequency treatment is the treatment of choice. It replaced surgical resection. The data from the study I just talked about is also interesting. But I do want to point out something else. When we have a three-dimensional view of the vessels, we can see what path we're on and how the tumor is being fed. We can then target precisely those vessels that are vital to the survival of the tumor. The excellent imaging also helps us verify if the spread of the embolizing agent in the desired manner. We're able to directly verify the success of the treatment. That's where I also see a lot of potential.



Artis **zeego** enables you to acquire and reconstruct images in both landscape and portrait format. This means you can see the entire spinal column. What do you think of this feature?

We're evaluating it, including for vertebroplasties, a minimally invasive procedure we use to stabilize osteoporotic and neoplastic vertebral fractures and reduce bone pain. Tumor patients are often pain free afterwards, are able to stand and undergo chemotherapy. Bone cement is used to reinforce bone lesions. None of the cement should get into the surrounding tissue. Having an excellent view during this procedure is essential. We usually perform the procedure under CT guidance. We're interested in seeing what capabilities the Artis **zeego** has to offer.

What do you think of being able to flexibly adjust the table with Artis **zeego**?

Anyone who has ever performed an intervention knows how important it is to work in the most comfortable and optimal position. Positioning is not trivial. We're looking forward to using this capability.

What's next for image-guided therapy? What kinds of innovation can we expect to see?

Ideas are coming out of stem cell research, molecular medicine and gene therapy. Let me explain. In interventions, we work specifically at the target site: treatment is very precise, quite different from a systemic approach. We embolize vessels and stop bleedings. We cut off the tumor by



**Prof. Dr. Dr. h.c. Maximilian Reiser**

Professor of radiology and director of the institute for clinical radiology of the Ludwig Maximilian University of Munich. Prof. Reiser studied medicine in Munich, was professor of radiology at the Münster University Hospital and later professor and director of the Radiological Clinic in Bonn. For three years Prof. Reiser headed the radiology division of the German Institute for Standardization in Berlin. Since 1993 he is heading the radiology department of the Ludwig Maximilians University hospital in Munich. For five years he was member and vice chair of the board of directors of the hospital and is presently

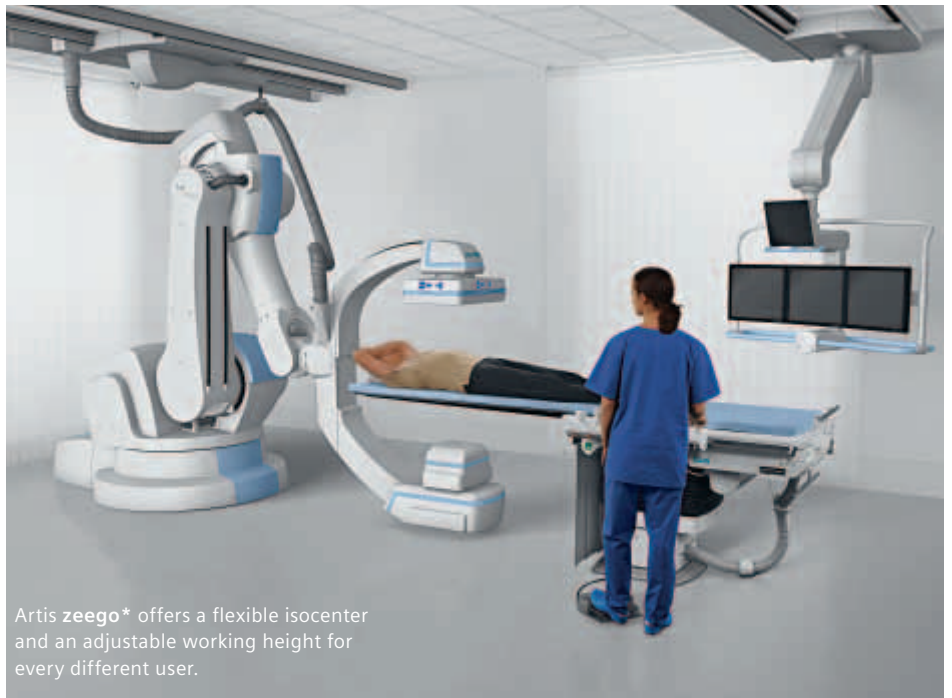
appointed as vice dean of the medical faculty. Prof. Reiser was awarded an honorary doctorate for veterinary medicine from the University of Munich. He is the author of over seven hundred scientific publications, a member and honorary member of many national and international professional societies, including the German Academy of Sciences Leopoldina. Prof. Reiser has been the recipient of numerous awards, including the Holthusen Ring from the German Radiological Society. He was President of the German Radiological Society and is currently its acting representative. Prof. Reiser additionally holds numerous offices at the European level.

cauterizing its feeding vessels. We apply cellular poisons, radioactive substances or high frequency alternating current, which enables us to locally control the tumor. Experimentation with stem cells has also been going on for some time, with work having been done on the heart and the pancreas. Infarct scars have been repaired and islet cells transplanted. The more experience we gain, the wider the range of potential applications. It's only a matter of time. Then it will be the job of interventional radiology to place stem cells exactly where they are needed. I also expect contributions from molecular medicine. Consider target specific biomolecules. Some are administered systemically, others locally. An agent for inducing angiogenesis is a possible candidate for local application. It could be inserted in the wall of an infarct scar in an attempt to improve circulation. Not much can be said about genetic therapy at the moment. It's still too early, but we can certainly expect interesting things from this field as well.

*Interviewer: Hildegard Kaulen, PhD is a molecular biologist. After having studied at the Rockefeller University in New York and the Harvard Medical School in Boston, she has been writing for scientific publishers and newspapers in Germany since mid-90s.*



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Artis zeego\* offers a flexible isocenter and an adjustable working height for every different user.

\* 510k pending