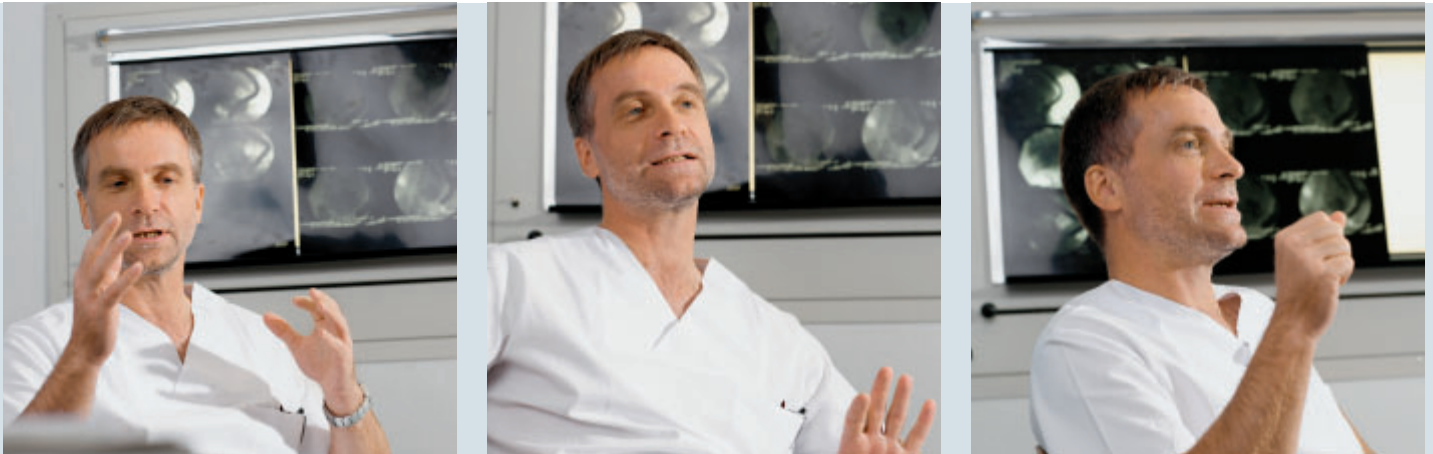


The multitalented ARCADIS Avantic examines more than just hearts and kidneys. The mobile 33-centimeter image intensifier opens up innovative opportunities for gastroenterologists. Journalist Martina Lenzen-Schulte interviewed Matthias Maier, MD, Head of the Department for Internal Medicine at the Knappschaft Hospital Püttlingen, Germany, to discuss the new C-arm.

## Better Abdominal Images



**Dr. Maier, you tested the new C-arm, ARCADIS™ Avantic, in your gastroenterological department. What can you tell us about the results obtained?**

MAIER: I want the system to be shown at all exhibitions relevant to our specialty. The quality is so convincing that even a short 'dry run,' as you can show at events like these, could make anyone take notice – anyone who knows about the requirements that a C-arm in gastroenterology has to meet.

**What characteristics of the new system impressed you most?**

MAIER: First of all, the performance-oriented image intensifier. Combined with

the generous image segment available for review, it provides excellent image impressions, not only qualitatively but also with respect to dimensions. This is of special advantage in endoscopic retrograde cholangiopancreatography (ERCP).

**Can you explain this in greater detail?**

MAIER: ERCP is one of the most frequent interventional procedures in gastroenterology that requires X-ray control. Using the endoscope, the entrance of the bile duct and pancreatic duct is reached via the duodenum. The digestive enzymes from the liver, gallbladder and pancreas empty into this opening. It is possible to visualize these pathways by using an X-ray

contrast medium. Unfortunately, they are partly located apart from each other. The large field of view of ARCADIS Avantic, however, allows me to simultaneously view all anatomical structures of interest for the actual intervention.

#### When and why is that important?

MAIER: We are frequently dealing with patients where bile or other liquids have collected because of obstructions in the duct systems – for example, through gallstones or tumors. When the interventional gastroenterologist applies drainages, and monitors them via contrast medium, it is very helpful to see everything at a glance without having to search around with the

in particular to patients who suffer from gallstones and frequently makes evaluations under fluoroscopy rather difficult – unless you have a system that has that much power. Even very thin wires of the instruments which were previously difficult to detect can be seen with ARCADIS Avantic.

Additionally, these wires are getting to be thinner and thinner; years ago they measured approximately 0.09 centimeters. Today, we are using a fraction of this with as little as 0.05 centimeters. For this reason, we are running into problems with average-sized patients as well if the resolution of the image intensifier is not high enough.

helpful in determining if the walls are smooth or in seeing the smallest irregularities that have to be considered. I consider ARCADIS Avantic to be an extremely precise system.

#### Does this apply to malignant changes as well?

MAIER: Most certainly. To eliminate small tumors, sometimes the image quality of conventional systems does not suffice. Again, it has to be emphasized that good documentation of these types of reports is of major importance. This applies also to cases where we place stents into the biliary tract as well as the esophagus to overcome constrictions and keep them



“Exact imaging is extremely helpful in determining the smallest irregularities. I consider the ARCADIS Avantic to be an extremely precise system.”

Matthias Maier, MD, Head of Internal Medicine,  
Knappschaftskrankenhaus Püttlingen, Germany

image intensifier. In addition, drainages are often applied percutaneously, that is, through the skin, to the liver or bile ducts [PTCD – percutaneous transhepatic bile duct drainage]. In this case, the structures to be evaluated are even further apart. It is not possible to see them together in one image by using conventional devices with small image intensifiers.

#### Actually, you are now addressing size. Could you also talk about advantages that arise from the improved image quality obtained?

MAIER: We are talking about more than one advantage here. We tend to deal frequently with adipose patients. This applies

#### This means that you have improved documentation because the images show the details.

MAIER: Correct. And it is not just advantageous for this indication. I simply see more with ARCADIS Avantic, especially when I have to evaluate the disease pattern of sclerosing cholangitis.

#### What do you mean and why is it so important with this particular disease?

MAIER: The narrowing of the biliary tract caused by scarred connective tissue may occur with chronically inflamed intestinal disease and has to be diagnostically separated from other diseases and blockages of the biliary tract. Exact imaging is extremely

open. Such constrictions may have been caused, for example, by malignant growths.

I expect that this procedure will become more frequent due to consistently improving chemotherapies. Survival rates are steadily increasing. As a result, stents have to be replaced more often, or constrictions have to be expanded through bougienage to provide patients with a better quality of life. In addition, the location of stents has to be checked over and over again when the patient is experiencing new disorders.

#### How did you experience the handling of ARCADIS Avantic?



The transportable ARCADIS Avantic allows for flexible application in the hospital.

## Summary

### Challenge:

- View all anatomical structures of interest during an gastroenterological intervention simultaneously
- Adipose patients and thinner wires make detection more difficult

### Solution:

- 33-centimeter image intensifier
- Improved spatial resolution

### Result:

- Optimized navigation with a performance-oriented image intensifier and generous image segment
- Improved documentation with an extremely precise system
- Easy handling of the operation panel
- Flexible application in the hospital

### Further Information

[www.siemens.com/Arcadis-Avantic](http://www.siemens.com/Arcadis-Avantic)

**MAIER:** It's a highly sophisticated device and not in the least cumbersome for such a large system. You don't need physical strength to operate it. In addition – and we consider this to be highly advantageous – you can swivel the control panel in any direction. If a coworker is located right next to the patient, he or she can turn the operating panel in his or her direction. I also consider it a huge advantage when I work alone.

### Can you explain this in greater detail?

**MAIER:** When I establish a drainage to relieve a cyst filled with fluid in the pancreas, for example, I like to set the images myself as well. The large image segment of ARCADIS Avantic allows me to see everything of importance without having to shift anything. I just need to have my colleague superimpose details, also with consideration of X-ray protection, which is a rather simple procedure. I can leave my hands on the endoscope. This reduces the chance of accidentally shifting guide wires.

**We have already talked about the enthusiasm of angiologists and cardiac**

**surgeons for the multifunctionality of the new image intensifier [Medical Solutions, June 2007]. Is this feature also of importance to you in your role as head and, thus, economic decision-maker, of the department?**

**MAIER:** I'd put my name to this. This is a mobile device and can be used anywhere. In a hospital that does not have several angiography suites, it's highly advantageous to have a backup. When the system breaks down, it ensures that emergency angiography procedures can still be performed. I consider this an important deliberation with respect to economic planning in a hospital that wants to offer many interventions.

### Is there room for improvement?

**MAIER:** I hope that many people use this system. I'd like to repeat what I said in the beginning: The system should be introduced more often to potential users at exhibitions.

*Martina Lenzen-Schulte, MD, is a physician, author, and medical journalist. She is a frequent contributor to medical magazines and the scientific pages of German-speaking public media.*