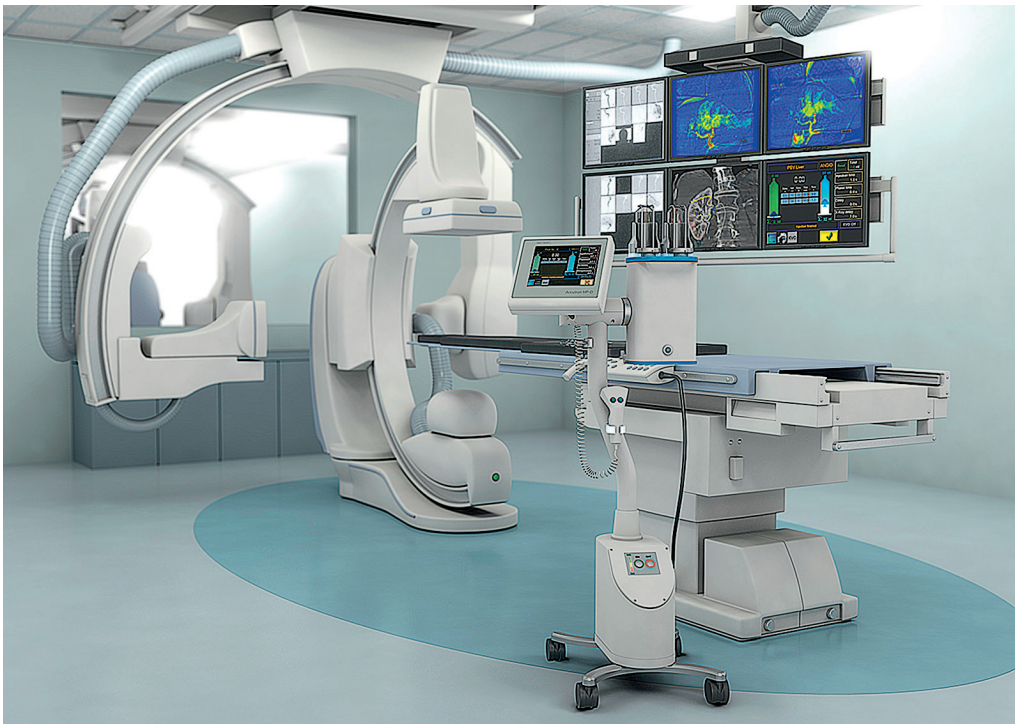
Sahlgrenska University Hospital and Medtron AG

Creating a refined contrast media injector



Shortly after the hospital opened the new hybrid operating room the SUH planned and built an extension specifically for the most advanced imaging facilities. The centre has theatres for both surgery with advanced imaging equipment and guided catheter-based interventional procedures, including cardiovascular and neurological as well as other organ and tumour treatment areas. The building houses nuclear medicine with gamma and PET cameras as well as diagnostic capability with radiography, computed tomography, ultrasound and magnetic resonance imaging.

It counts two neuro labs, three hybrid labs and four peripheral labs, yielding nine labs altogether in the two Interventional suites as well as a hybrid operating theatre with three hybrid ORs.

In the interventional department and in the hybrid operating theatre, the radiography department nurses work together with the operating nurses in shared facilities.

Medtron AG is a leading manufacturer of contrast media injectors, which has made its name on the international market: Across the globe, many thousand hospitals and diagnostic centres place their trust in the firm's contrast media injectors made in Germany.

Medtron's dual head angiographic injectors Accutron HP-D are frequently used in both the hybrid operating theatre and the neuroradiology department. The neuroradiologists alone operate three Accutron HP-D injectors and perform four to six interventions daily. The injectors are used for digital subtraction angiography (DSA), 3-D angiography and VasoCT.

Clear user requirements drove the redesign

A team of Sahlgrenska's radiologists, biomedical engineers and specialised nurses have been involved in the second evolution of the Accutron HP-D injector. Sahlgrenska has very experienced professional staff that was able to determine needs and technical features they were really looking for.

Roya Razzazian, radiography nurse at Sahlgrenska, explains which benefits she wanted to achieve: 'Clear view of the injection unit and control panel of the injector is important, and complete access around the table is critical.'

Roya's conclusion on the results after the redesign of Accutron HP-D are very positive: 'We are satisfied with the new Accutron HP-D. The injector serves us well.'

These top features were most requested by Sahlgrenska's experts:

- With the injection unit that is now 10 cm higher than before we have clear vision of the syringes at all times. Thus, we can ensure there are no air bubbles in the syringes.
- With the control panel that is now 15 cm higher than before, we can see the on/off-button and

the screen at all times. Thus, we can control if the injector is working and see the current status of the injection.

- With the control panel that can now be swivelled by 180 degrees, we can operate it from both sides of the operating table. Thus, we can work alone or in a team.

- The wireless and mobile injector can be moved to and from the table quickly and easily. Thus, the injector fits easily into the crowded space around the operating table. There are no cables that could hinder us in any way.'

Technologically demanding and committed to cooperation

Magnus Eriksson, a biomedical engineer at Sahlgrenska, has an explanation for the success of the joint development project: 'We are innovators who push manufacturers to deliver better med tech. Also, we are cooperative and involve the whole team'.

The double head injector brings additional benefits to Gothenburg, as it enables dilution of contrast media with the help of saline. This is important in a hybrid operating theatre, which provides cutting edge equipment for various radiology procedures and in neuroradiology, e.g. when contrast is injected through microcatheters to perform 3-D imaging of the complex brain vasculature.

In DSA, Accutron HP-D is connected to the catheter when the radiologists and vascular surgeons are running imaging series or performing a 3-D angiographic procedure.

An advantage for the patient is the possibility of direct intervention in the case of narrowing or aneurysmatic vascular changes and bleeding. For example, if it turns out during the imaging that there is a constriction that can be treated with a catheter procedure, the therapy can take place in the same session.

Most importantly, by improving the procedures in the above described way, the new Accutron HP-D offers enhanced safety for the patients. It can help to reduce the contrast dose impact on the patient without affecting image quality.

A most reliable device

Reliability is important in Sahlgrenska's busy imaging and intervention centre. Magnus confirms: 'The Accutron HP-D is a very reliable device that always works. We don't have any issues or problems with it. It just works.'