



Live Image Guidance

AlluraClarity delivers up to 83% less radiation in endovascular interventions

Who/where

St. Antonius Hospital, Nieuwegein, the Netherlands, Center for cardiac, vascular and lung diseases, 584 beds
Interventional radiology: two interventional suites that treat over 2,000 patients per year. Interventions include angioplasty, stenting, thoracic & abdominal endograft placement, embolizations, biliary interventions, and vertebroplasty.
Who: Dr. Marco van Strijen, interventional radiologist, specializes in endovascular and interventional oncology treatments. Principal investigator of the AlluraClarity study.

Challenge

Perform a wide range of endovascular interventions while minimizing the X-ray dose exposure for the patients and the staff.

Solution

Philips AlluraClarity: proving equivalent diagnostic image quality up to 83% less X-ray radiation.

The interventional radiology suite at the St. Antonius Hospital in Nieuwegein, the Netherlands has been one of the first installs of AlluraClarity worldwide. The ClarityIQ technology has been used for several months in one of its angiography suites. Dr. Marco van Strijen, interventional radiologist, reports that the images acquired by the new system have equivalent image quality as the ones acquired with conventional X-ray dose. However, these images have been generated with 83% less radiation, which decreases significantly the risks related to prolonged X-ray exposure for staff and patients.

As a tertiary referral center for vascular diseases, the significant majority of the hospital's work is in vascular interventions. This is also a referral center in the region that treats pulmonary arteriovenous malformations (PAVMs). Dr. Marco van Strijen says, "About 70% of my work is in interventional radiology and I perform the full range of procedures, from head to toe. My areas of interests are pulmonary embolization, peripheral angioplasty as well as interventional oncology procedures, especially tumor ablation."

Key concerns for interventional radiology

In interventional radiology Dr. van Strijen says, "Our first and foremost concern, of course, is image quality. Top quality images are absolutely necessary to optimally treat our patients.

Radiation levels are also a major concern.

As a tertiary referral center, we tend to treat patients that have quite extensive disease. These are in general quite complicated cases that necessitate long fluoroscopy time as well as a fair number of DSA runs."

"Generally cardiovascular patients' tend to be treated several times during their life span to maintain their quality of life, neglecting however about the stochastic effects that repetitive X-ray exposure can have on the long run.

"Especially in these cases, reducing X-ray exposure for the patient is crucial."

Key advantages with ClarityIQ

- Provides equivalent diagnostic IQ while reducing X-ray dose by 83% in endovascular interventions
- X-ray dose is reduced any time you step on the pedal, requiring no changes in workflow
- Lower patient X-ray dose and as a consequence scatter radiation for the staff
- Potentially reduces the risk of prolonged and repeated exposures

PHILIPS



Dr. Marco van Strijen

"For us as doctors and technicians it is very important to keep our X-ray doses below the limits set."

Not to forget, in a high volume center like this, for my staff and me personally, it is of course desirable to have the dose as low as possible while preserving the quality of the images."

The same diagnostic image quality at a fraction of the X-ray dose

"ClarityIQ aids us in reducing X-ray dose up to 83% while providing us the same diagnostic IQ that we had before. We use ClarityIQ in all the cases we do in this interventional suite and the images are just the same as what we had before. Also there is no impact at all on the procedure workflow. What is so different is that the dose reduction is obtained regardless from the generic measures to reduce dose, such as lowering the detector as much as possible and placing shutters and collimators. Also the dose reduction is independent from which physician is operating the X-ray system. It is very comforting to know that anytime we are working with AlluraClarity, the radiation levels are significantly reduced, both for the patient and for us," says

Dr. van Strijen. Because of the high volume of procedures that the interventional radiologists perform, they tend to be at the upper limit of what is legally allowed for radiation exposure.

"Do I worry about radiation levels? Not every day."

Dr. van Strijen says, "But there is always a little voice at the back of my mind that says I really should reduce my exposure levels, but before ClarityIQ was invented, there was no other way I could reduce my dose. I really wonder what my final dose reading this year will look like, I am expecting positive surprises."

Potential benefits of ClarityIQ

Dr. van Strijen feels that the lower radiation levels of ClarityIQ will allow them to treat young patients with less dose exposure or to perform more complex cases that require long exposure times. "For instance,

ClarityIQ technology is particularly useful in abdominal and thoracic cases where the IQ is affected from the breathing motion.

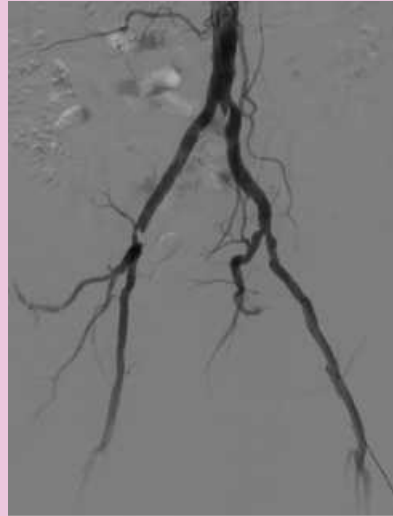
In order to visualize the required anatomical details we often have to perform multiple DSA's. In interventions such as mesenteric arteries embolization, endovascular aortic repair, but also iliac stenting and PTA's, ClarityIQ provides us the same image quality but at a fraction of the dose. This re-defines the ALARA principle."

Experience in PTA interventions

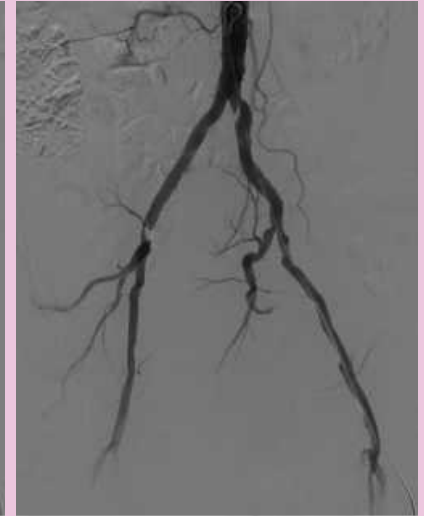
Iliac interventions are main stream procedures for the interventional radiology group, performing about 3 to 4 cases a day in one interventional suite.

Dr. van Strijen says, "We are conducting a clinical trial to validate AlluraClarity and preliminary results shows that ClarityIQ offers major advantages for these interventions because we can perform our procedure exactly as we normally would, but with 83% less radiation exposure. We have performed 200 iliac cases in the past few months with the ClarityIQ technology and the images looks the same as what we were used to. The edges sometimes even tend to be a bit sharper. The best part is that we use ClarityIQ and it works just like our normal interventional system. We don't necessarily realize we are even using it."

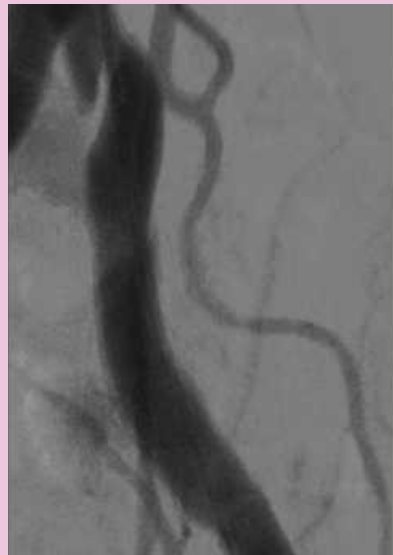
"To conclude what I can say: the AlluraClarity images speak for themselves. I feel they fully satisfy my need of superb image quality, but also address my X-ray dose concern. This is really the best of both worlds."



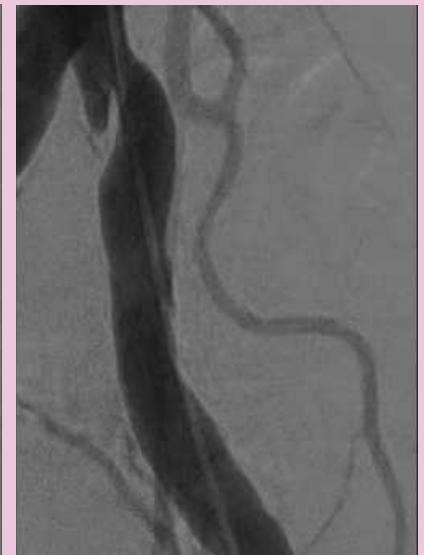
AlluraXper



AlluraClarity with 83% less X-ray dose

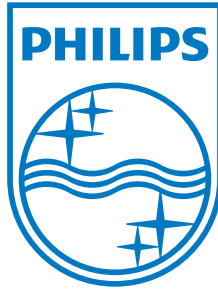


Zoom AlluraXper



AlluraClarity with 83% less X-ray dose

AlluraXper		AlluraClarity	
DSA DAP	3338 mGy·cm2 / frame	DSA DAP	464 mGy·cm2 / frame
DSA AK	8.5 mGy / frame	DSA AK	1.2 mGy / frame



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