



Delivering on promises

Veradius is the clear choice for a busy vascular access center

Who/where

Lubbock Vascular Access Center
Lubbock, Texas
USA

Challenge

Deliver high quality fluoroscopy images at a busy vascular access center while reducing contrast agent use to protect the remaining kidney function of dialysis patients.

Solution

The Philips Veradius mobile C-arm system with flat detector provides imaging with superb contrast resolution and lower X-ray dose.

Lubbock Vascular Access Center selects Philips Veradius mobile C-arm with flat detector to help dialysis patients preserve a viable quality of life.

Maintaining open vascular access for renal disease patients is critical to providing life sustaining dialysis.

Interventional nephrologist Dr. Clarence Joseph 'CJ' Wheeler helps keep this lifeline open for his patients. On a typical day, he and his clinical team perform angioplasties and thrombectomies to maintain access. In addition they conduct angiograms, stent placements, vessel mapping, fistula maturation and fistula repair.

"One of the biggest issues in managing dialysis patients on a day-to-day basis," says Wheeler, "is maintaining adequate vascular access via a fistula, catheter or graft. The problem with each of these is that they become dysfunctional."

An access must have adequate flow and be large enough to cannulate for dialysis. A stenosis or clot can restrict the access and impact a patient's treatment schedule. Many of Dr. Wheeler's patients are repeat visitors who require ongoing support. "If done properly," Wheeler explains, "we can maintain one access for years."

Demanding more from a mobile C-arm

The Lubbock Vascular Access Center serves about 600 patients on a regular basis. They average six to eight procedures a day and must rely on quickly acquired, detailed images to identify and correct any vascular flow issues.

Immediately upon opening its doors in the fall of 2009, The Center's clinical team found that the new mobile C-arm (purchased from a competitor of Philips) was not giving them the image quality they needed. "Not being able to accurately establish a diagnosis was our concern," Wheeler recalls. "There were a good 10% of procedures where we were not sure. And that's an incredibly high number when you're talking about a daily volume of patients."



PHILIPS

sense and simplicity

“Not only was the image better on the Philips system, but we were using a lower X-ray dose and less contrast.”

Greg Sebastian, Radiologic technologist

A question of clarity

“The image was too grainy. There was too much noise – it was too mottled. We could not get a clear outline of the vessels,” says Greg Sebastian, Radiologic Technologist at the Center. “Various people came in and told us they could fix it – they could make it better. So our C-arm would go down for a few hours while they worked on it.”

Repeatedly, service engineers and specialists tweaked and adjusted the equipment, seeking to improve the image quality. “We finally said to them ‘Look, this isn’t going to work. You can’t produce what you promised, so we want to bring in a Philips machine.’”

Philips representatives responded quickly and arranged for delivery of a new Veradius mobile C-arm system with flat detector for a demonstration.

Veradius shines in side-by-side comparison

To assure themselves the Philips system would meet their requirements, Wheeler and Sebastian requested that a comparison test be conducted. “We did a side-by-side case study,” says Sebastian. “One of the doctors let us do half of an angiogram with the Philips machine and the other half with our original machine. Not only was the image better on the Philips system, but we were using a lower X-ray dose and less contrast.”

He continues, “With the Philips system, stenosis was apparent. We opened the angioplasty balloon, placed it where we saw the stenosis, dilated it and the resulting waste confirmed it. The other C-arm had missed it completely.”

With proof they’d selected the right technology, the original system was returned to the other vendor and the Veradius took its place.

Patients benefit from reduced contrast agent use

According to Wheeler and Sebastian, their center has since been able to reduce the use of contrast media due to the improved image quality they have experienced with the Veradius. Using the lowest possible level of contrast means patients with renal insufficiencies can better tolerate repeated maintenance procedures. In some cases Wheeler and Sebastian have been able to dilute the contrast medium down to only two cc’s of dye and still acquire excellent images.

“For dialysis patients we don’t like to use a lot of contrast because they have little or no kidney function and it does not come back out,” says Wheeler.

“We’ve cut our contrast concentration in half with the Veradius,” Sebastian adds. “We’re able to use less contrast and still get a better image than when we were using higher strength contrast on the previous system.”

Sebastian has also been pleased to be able to easily reduce patient and staff exposure to X-ray dose when using Veradius. According to Sebastian, “Everything that we do on the Veradius is pulsed. So during our cine runs we’ve gone from 15 pulses per second (pps) down to eight pps. And if we’re working on an extremity, we can even cut it down to four pps.”

Image quality and user-friendly operation

The Veradius’ super thin flat detector brings new clarity to C-arm imaging through innovative design improvements:

- High dynamic range provides excellent contrast for the most demanding procedures
- Unique automatic calibration assures consistent high quality imaging
- 1.6 x 1.4K image matrix delivers high resolution in a C-arm
- Neither magnetic nor geometrical distortions affect the flat detector

“Efficiency in our work is very important. Patients move in and out of here in just one hour. With the Veradius, we’re able to quickly save their access and deliver a better quality of care.”

Dr. Wheeler, Interventional Nephrologist



“I believe our case time has dropped dramatically, simply because we do not have to re-image so often.”

*Greg Sebastian,
Radiology technologist*

For Greg Sebastian, it adds up to more first-time-right imaging. “As a technologist,” he says, “when a physician says the image is no good, I take that personally because it’s my job to produce the best image. With this C-arm I don’t have to worry. The detail offered by the Veradius has made a world of difference for us and for our patients. We’re definitely more confident in what we’re seeing now.”

Assisting Sebastian are Veradius’ simple-to-use post-processing features. Those he finds most useful during vascular access procedures include:

- **Pixelshift** – This tool realigns the mask with the contrast images to compensate for patient movement during acquisition. “We don’t have to redo the run, re-inject contrast or re-expose the patient.”
- **Magnification** – The ‘magnifying glass’ can be used to zoom in on areas of interest. “If we’re looking for a specific area of stenosis and the vessels are very small, we use the magnify feature to confirm what we’re seeing and mark exactly where it’s located.”
- **Measurement** – A small set of virtual calipers help properly fit devices such as balloons and stents. “If we’re using a 5 French catheter, we can use the calipers to measure it for reference. Then we can measure the vessel and determine the size of the angioplasty balloon.”

Intelligent design

With its compact design, the Veradius fits well into a crowded room. The super thin flat detector frees up valuable space and promotes staff communication. The small footprint of the Mobile View Station allows it to be positioned exactly where the physician needs it.

“We like to have the detector close to the patient to get good resolution,” says Wheeler, “but we’re able to work underneath it and still communicate with the operator on the other side.” Sebastian agrees that there is more freedom to interact. “The flat detector makes it easier for the physician and the tech to work together,” he says. “It helps everyone see each other better.”

The 12” monitor on the C-arm stand gives the operator a clear view of the live image. This handy feature is a favorite of Sebastian’s. “It makes a world of difference for me. Now I don’t have to stretch to look over at the mobile view station monitors, which are often turned away (towards the physician) so I can’t see them.”

“That monitor is a huge help – one of the system’s greatest advantages,” adds Wheeler.

Improved workflow directly benefits patients

Ease-of-use, reliable image quality and fast acquisitions have helped to successfully handle the Center's growing patient volume. The Veradius has been able to support an effective workflow, where re-imaging is virtually non-existent.

"Previously, every time we had to stop and redo a run, not only were we exposing the patient to more radiation, we were giving them more contrast and delaying the procedure time – making the next patient wait longer than necessary," explains Sebastian. "And waiting increases anxiety."

"Today," he says, "I believe our case time has dropped dramatically, simply because we do not have to re-image so often."

Patients dealing with end-stage renal failure are already burdened with strenuous hemodialysis treatment, so when maintenance of their vascular access is fast and uncomplicated, it improves their outlook. Wheeler insists, "Efficiency in our work is very important. Patients move in and out of here in just one hour. With the Veradius, we're able to quickly save their access and deliver a better quality of care."

First class service

New technology is only as good as the customer service that supports it. And as part of the setup and installation process, Philips made certain the team at the Lubbock Vascular Access Center was fully versed in the operation of the Veradius. Dr. Wheeler describes the involvement,

"Philips provided us with a dedicated technician from day one who went through every operational aspect with our technologists. When he left, he made certain that our staff didn't have any questions."

Ongoing support is crucial to business success. Philips makes every effort to handle service and maintenance issues quickly, resolving them with minimal disruption to the procedural schedule. Recently, Wheeler found that such an issue had very little impact on his routine. "I never missed a procedure," he recalls. "That's how great the service is."

A perfect fit

Designed by Philips in-house imaging experts, the Veradius' dynamic flat detector builds on expertise gained from fixed cardiovascular systems. When this advanced technology is specifically engineered for a mobile C-arm, it provides superb image quality at low X-ray dose.

Staff at the Lubbock Vascular Access Center has found the Veradius' capabilities to be a perfect fit. It gives them the clarity, space and convenience to carry out all vascular access procedures with renewed confidence. "Being able to see good images with low volume contrast, in a short period of time, using eight fps, is exactly what we need," concludes Wheeler.

Sebastian agrees, "The Veradius is the whole package. I would say, don't waste your time looking at a different system."



© 2010 Koninklijke Philips Electronics N.V.
All rights are reserved.

Philips Healthcare reserves the right to make changes in specifications and/or to discontinue any product at any time without notice or obligation and will not be liable for any consequences resulting from the use of this publication.

Philips Healthcare is part of Royal Philips Electronics

www.philips.com/healthcare
healthcare@philips.com

Printed in The Netherlands
4522 962 64761 * SEP 2010