GE Healthcare

CUSTOMER STORY

King Fahad Cardiac Centre

Innova 2100 angio suite can cut contrast dose in half, help minimize radiation, and save users 25% up front

When it comes to diagnosing and treating the full range of cardiac conditions, there are not many facilities in the world that are more advanced than King Fahad Cardiac Centre (KFCC) in Riyadh.

KFCC is an academic facility that always puts the patient first, said Centre Director Mohammad Kurdi, M.D., an interventional cardiologist and teacher. "Our mission is to improve the health of patients throughout the communities we serve, by delivering world-class patient care, teaching, and research."

Towards these ends, KFCC has invested aggressively in advanced technologies, said Dr. Kurdi. A prominent example: the acclaimed Innova* 2100 interventional x-ray system from GE Healthcare.

The facility

King Fahad Cardiac Centre,
King Saud University Hospital,
Riyadh, Saudi Arabia

The equipment

Innova 2100 interventional x-ray system

GE imagination at work

healthymagination

Quality that's exceptional

"I have been using Innova systems since 2005," Dr. Kurdi said, "and there is no doubt that this technology is remarkable. When I compare the images we're acquiring today to what we've seen in the past, there's a huge difference. It helps to support better clinical decision-making for us, and better outcomes for our patients."

A major reason for the Innova 2100's performance is its application of a 20.5x20.5-cm digital flat-panel detector with high DQE and a wide dynamic range. It eliminates the image quality problems associated with older technology, including dynamic-range and veiling-glare issues, and makes exquisitely detailed imaging routine across a wide range of patients and anatomy.

To this foundation, he said, GE has added a large complement of advanced capabilities.

"Rotational angiography is one example," he said. "It makes it far easier for us to detect problems such as tiny aneurysms. We also take advantage of capabilities such as 3D reconstruction of the coronary and carotid arteries – it's a very impressive capability, one that's especially interesting for research purposes."

Senior Technician Hassam Dawoud agreed. "The Innova 2100's resolution is excellent, making it very easy to read the fine details. This system also makes it easier to generate accurate measurements for stent and balloon selection. Its autocalibration feature automatically determines the calibration factor directly from a single anatomic parameter supplied by the user. Moreover, each measurement is delivered with its accuracy range, facilitating the final decision-making for the choice of device."

Minimizing dose to reduce risk

Lowering dose is also critical for Dr. Kurdi and his colleagues.

"We're always concerned about reducing risk to patient and staff alike," he said. "That means minimizing our radiation dose as well as the contrast we administer."

The Innova 2100's inherently dose-efficient technology is enhanced by dose-management tools1 that may allow KFCC to decrease total radiation and contrast dose.

"Rotational angiography is an especially important tool in this regard," Dr. Kurdi said. "As it is implemented on the Innova 2100, it has allowed us to capture the entire coronary tree with just two or three injections rather than eight or nine, using total of 20 or 25 cc of contrast rather than 40 or 50. Each run is sufficiently short to keep each individual injection below 10 cc, which is obviously critical to patient safety. This of course greatly reduces the risk of potentially dangerous side effects such as renal dysfunction."

Eliminating radiation entirely would be the ideal, he said, chuckling. "But until that happens, knowing that we are using a low dose makes me much more comfortable on our patients' behalf."

Enhancing access for patients everywhere

The Innova 2100 is already increasing patient access to advanced cardiac care at KFCC, Dr. Kurdi pointed out, simply because shorter procedures allow the facility to accommodate more patients every day.

But its impact promises to be even more dramatic in the years to come, he said, because he and his colleagues are using the Innova 2100 to train future generations of cardiologists, interventionalists, and technologists.

The system's contributions to hands-on training are striking. But Dr. Kurdi said its role in the conference room may be even more crucial. "By interfacing our Innova 2100 system with the Centricity* PACS, we're able to provide our students with a truly exceptional educational experience. It translates into better teaching today and – in the not-too-distant future – it may mean improved access to advanced care for patients everywhere."

In the final analysis, Dr. Kurdi and his team believe that the Innova 2100 was precisely the right choice for their facility.

"As an academic institution, we are of course focused on the future," he said. "But we are also vitally concerned with today's patients. Our goal is to provide them with excellent cardiac services, at low risk. If we can do that, we have done a real service for our community. And this is precisely what the Innova 2100 equips us to do, day after day."

Lowering the cost of high performance

Perhaps surprisingly, the Innova 2100 is delivering this level of performance at a fraction of the cost of competitive systems.

"The Innova 2100's initial cost was about 25% lower than that of the other systems we looked at," said Dr. Kurdi. "But even more important in the long run, it has improved our workflow before, during and after the exam – and that has made it an even more cost-effective machine for us."

It starts up front, said Dawoud, with automatic transfer of patient information from the facility's Mac diagnostic ECG equipment.

"This transmission is error-free," she said. "But if we do need to change something, it's very easy to make and save corrections. With other systems, it can be very complicated."

The Innova 2100's efficiency is particularly noteworthy during the exam, they agreed.

"Its configuration makes it simple to capture whatever views we need," Dawoud said. "And in emergency cases, we can quickly and easily move the table, or access the patient if we should need to, to conduct CPR. The system even equips us with sensors to prevent collisions with the patient."

The Innova 2100 speeds most procedures, Dr. Kurdi added. "And with rotational angiography, you can finish in far less time. I did seven cases the other day, five on the Innova 2100, and I was done before noon."

The system also promotes efficiency after the exam.

"If we need to, we can go back into the exam later for further review," said Dawoud. "There's generally no need to repeat a procedure. And accessing the images is incredibly convenient, because our Innova 2100 is interfaced to the GE Centricity PACS. This allows us to transmit and recall them almost instantly."

The experience

Excellent digital imaging

- Exquisite detail in even the most challenging applications

Potential for minimizing risk to patients and staff

- Possibly significant reductions in both radiation dose and contrast media requirements

Reduced costs

- Competitive pricing up front
- Substantial improvements in patient throughput

Improved access

- Efficient training of future generations of clinicians

About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our "healthymagination" vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access, and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com

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1. In clinical use, the results of the application of dose reduction techniques will vary depending on the clinical task, patient size, anatomical location and clinical practice. The intended operator – e.g., interventional radiologist – assisted by a physicist as necessary has to determine the appropriate settings for each specific clinical task.

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GE imagination at work