Jackson-Madison County General Hospital performs some 120,000 X-ray exams per year, more than half of them using mobile X-ray systems. Given that volume, administrators were concerned about moving from analog to digital X-ray, yet intrigued by the prospect of better workflow and image quality in the digital world. Working with GE Healthcare, the Jackson-Madison team over several years completed a journey to all-digital mobile X-ray. The change has helped the hospital significantly improve efficiency and handle growing patient volume with the same staff and a smaller mobile X-ray fleet. Digital technology has also helped enhance image quality and consistency, sharply reduce retakes and improve dose management.

The GE Optima™ XR220amx and Optima XR200amx digital units quickly overcame technologists’ reservations about switching from the familiar, reliable and easy-to-use GE AMX mobile platform. In fact, they found the compact Optima units easier to drive through corridors and to maneuver in patient rooms without moving patient beds or other furniture.

Optima XR220amx

“The next generation AMX is a fully digital mobile x-ray system that brings advanced digital imaging technology to patients”
"The staff loves the footprint of the Optima portable. Once those units got here, they didn't want to try anything else."

Kelly Massey, Radiology Technologist

"The staff loves the footprint of the Optima portables," says Kelly Massey, Radiology Technologist. “Once those units got here, they didn’t want to try anything else. It was just like a technologist had designed them.”

The staff also found flexibility to complete more types of exams in patient rooms instead of wheeling patients to the radiology department. “For spine exams, we can leave patients in the bed and help avoid the possibility of causing discomfort by moving them over to a table,” says James Black, Radiology Technologist. “It makes patients feel special that we come to them instead of them coming to us.”

Patients and clinicians alike appreciate the instant availability of images and the automatic pushing of images to PACS for interpretation. “Years ago, nurses and doctors would have to tell patients, ‘We’re waiting on your radiology report,’” says Kelly Yenawine, Executive Director of Imaging Services. “That doesn’t often happen now. It’s a credit to the technology, our technologists and our radiologists. Our report turnaround times are very good.”

Multiple advantages

Jackson-Madison technologists, doctors and radiologists quickly saw the benefits of digital technology. With more exams performed in patient rooms, the radiology department was able to eliminate one of three X-ray rooms.

Instant display of the images means technologists no longer spend 15 to 20 minutes carrying batches of CR cassettes to the first-floor radiology department for processing. “The workflow is so much faster,” says Black. “Doctors aren't waiting until we process a batch of CR images. If the ER doctors order a few exams at a time, we shoot them all right in a row. The doctors can stand beside me and see the images right then. And they’re sent to PACS right then to be read.” Yenawine notes that the ER consistently scores in the 90th percentile or higher on a Press-Ganey patient satisfaction survey question related to X-ray.

Radiology Manager Lori Patterson reports that image quality has improved significantly and retakes have become a rarity: “It’s once in a blue moon that a radiologist calls about a bad image. Doctors can’t tell now if we’ve done an exam in the radiology department or with the portables, because all the detectors are the same.”

Automated exam protocols help the technologists optimize image quality and dose, although they still often rely on their experience with digital systems and patient body types to fine-tune exam parameters. Kelly Massey, Radiology Technologist says “We’re able to increase the kV and lower mAs and acquire very high-quality images.”

The Jackson-Madison staff members also point to other benefits:

Reliability. The FlashPad™ detectors automatically charge while stowed in the bin, so that they are always ready for exams. “I don’t recall ever having to stop an exam because the detector wasn’t charged,” Black says.

Careful transition

Jackson-Madison serves the large rural area of Tennessee between Memphis and Nashville. As part of West Tennessee Healthcare, it is affiliated with three community hospitals, a comprehensive mental health facility, and several medical practices and specialty clinics.

The move toward digital mobile X-ray began in 2001 when the hospital replaced its analog portable units with GE AMX 4 computed radiography (CR) systems. In 2006, these were replaced by GE AMX Definium 700 all-digital units.

Starting in 2011, the hospital phased in the latest-generation Optima systems, in the process reducing the mobile fleet from 12 units to eight. Three Optima XR220amx units with 16-inch-square detectors reside in the emergency department and three in radiology. Surgery and the special care nursery each have one Optima XR200amx. Those units have 14- by 17-inch and 10- by 12-inch detectors to accommodate specialized procedures.
Staff satisfaction. “Everyone likes the look of them,” says Patterson. “You can tell a technologist designed them because of the storage area in front. It creates a slick appearance.”

Easy training. An intuitive user interface helped the staff get up to speed. “It was a slight learning curve, but everybody caught on fairly quickly,” says Patterson.

Working together
GE Healthcare guided the hospital through the phase-in of the Optima digital units. During the transition, Jackson-Madison was able to re-deploy some of the CR and digital units it replaced to affiliate hospitals as upgrades for their much older equipment. Says Yenawine, “They couldn’t justify brand new digital equipment, but the units we phased in exceeded their expectations compared with what they had before.”

Yenawine credits the GE team for working cooperatively with the hospital staff early in the deployment of the Optima systems, when the first unit delivered did not perform to expectation. “It was a bit of a bump in the road, but the units we’ve received since have been very good. We’ve enjoyed a long-term working relationship with GE on the equipment side as well as OEM service. Overall, it has been a good relationship.”

About the facility
The 635-bed not-for-profit Jackson-Madison County General Hospital is the flagship of West Tennessee Healthcare. As the only tertiary care hospital between Memphis and Nashville, it serves 17 counties home to 400,000 residents. The hospital encompasses six centers of excellence: the West Tennessee Heart and Vascular Center, Kirkland Cancer Center, West Tennessee Women’s Center, West Tennessee Rehabilitation Center, West Tennessee Neuroscience and Spine Center, and Emergency Services.

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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 and efficiency around the world.

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