

Dose Management Solutions



Oaklawn Hospital, Marshall, MI

Community Hospital in Michigan Proves to be Leader in Dose Management

Background

Oaklawn was founded in 1925 as a 12-bed hospital in a residential home, funded by a group of visionary philanthropists. Now, more than eight decades later, the independently owned non-profit hospital in Marshall, Michigan has evolved into a highly regarded regional healthcare organization, licensed for 77 acute care beds and a 17-bed inpatient psychiatric unit.

Leadership at the hospital is forward thinking, and prides itself on providing facilities, equipment and technology usually only found at larger health systems. This progressive culture permeates the organization, including the radiology department. Led by Rick Johnson, director of radiology, the

department has one direct capture diagnostic imaging room, one R&F, a wireless digital portable, two ultrasound rooms, two nuclear medicine rooms, a vascular ultrasound room, a 3T MRI, a 64 slice VCT CT scanner, and a Women's Center with mammography and Dexa scanner and an ultrasound room.

The radiology department is staffed with 50 plus technologists who are each dedicated to a specific modality. The State of Michigan doesn't require American Registry of Radiologic Technologists (ARRT) certification, but at Oaklawn each CT technologist is certified to ensure proper dose management.

Key Challenges

Serving patients in a small community means physicians and staff at the hospital often personally know the patients they treat. These relationships



make it personal for the team members at Oaklawn to always do what's best for the patient. In the radiology department, this means providing the best diagnostic and treatment care with the least amount of dose required.

Amber Herman, Radiology Quality Coordinator, has taken a special interest in dose and championed a low dose philosophy at the hospital. Herman dedicated countless hours to researching the standards and implications of radiation dose, and while she believed the hospital was on the right track gathering and analyzing data to confirm this was a major challenge.

"At Oaklawn, one of our core values is to have state of the art technology. We strive to continuously improve our equipment and our patient care by keeping current with industry standards through careful analysis of new technology. Our dose reduction efforts are just another of the many ways in which Oaklawn sets the standard for imaging which is in our patients' best interests."

— Rick Johnson



Rick Johnson, R.T.(R), Radiology Department Director; Amber Herman, R.T. (R)(CT), Radiology Quality Coordinator

"Our Radiation Safety Officer, a member of our radiologist group Radiology Consultants, was very instrumental in lowering our CT doses even before we purchased our 64-slice VCT. Once we revised our protocols with ASiR and DoseWatch, we were able to reduce our doses dramatically. Our radiologists continue to encourage us to push the limits on our doses, and we are continually tweaking them."

— Amber Herman, R.T. (R)(CT), Radiology Quality Coordinator

The Solution

Oaklawn turned to long-time trusted partner GE Healthcare to implement DoseWatch*, a comprehensive, standards-based dose management solution. DoseWatch directly connects to the 64 slice VCT CT scanner to capture the data from each exam. Oaklawn also installed GE Healthcare's ASiR on their medical device, a reconstruction technology that enables reduction in pixel noise, thereby boosting signal noise and improving image quality.

The Results

Implementation of DoseWatch and ASiR gave the Radiology staff the information they needed to confirm that their low dose efforts were paying off. In November 2012, when the American College of Radiology (ACR) released its annual National Radiology Data Registry (NRDR), which compares performance to regional and national benchmarks, Oaklawn Hospital was lauded for scoring below the 25th percentile for dose in all four comparison categories for Size-Specific Dose Estimates (SSDE). Furthermore, when considering four specific exam types, Oaklawn showed the lowest dose in eight categories (see Figure 1).

Figure 1
Oaklawn Hospital Showed Lowest Dose

Exam Type	Categories
CT brain w/o	<ul style="list-style-type: none"> • Lowest Dose for Midwest Region • Lowest Dose for Community Hospital
CT abd/pelvis w/o	<ul style="list-style-type: none"> • Lowest Dose for Midwest Region • Lowest Dose for Community Hospital
CT stone protocol	<ul style="list-style-type: none"> • Lowest Dose for Suburban Location • Lowest Dose for Midwest Region • Lowest Dose for Community Hospital
CT LS Spine	<ul style="list-style-type: none"> • Lowest Dose for Community Hospital

"DoseWatch provided confirmation that on a patient-by-patient basis we were delivering lower dose," explained Amber Herman, Radiology Quality Coordinator. "Before, we knew we had consistent study descriptions and the proper protocols enabled, but didn't have a way to confirm this or demonstrate this to quality stakeholders."

Herman went on to point out that the reporting and analysis functionality of DoseWatch enabled them to easily review protocols and improve training. Every Monday, she reviews reports on exams performed during the prior week to identify outliers, review alerts and cumulative dose. Using one of the reports that lists the 10 patients with the highest cumulative dose, Herman identified a patient who had received the same exam seven times in six months ordered by six different physicians. She worked with the radiologist and physician to understand the patient's cumulative radiation dose and recommend a different procedure.

DoseWatch also led to the discovery that a patient received multiple scans within minutes of each other for the exact same study description. Review of the Picture Archiving and Communications System (PACS), however, showed only one exam was

logged. Herman discovered the technologist was deleting exams before sending them to PACS, which led to PACS not reflecting an accurate value. This visibility prompted re-education of the technologists to ensure all exams were administered properly and ensure they understood the importance of dose management. It also serves as another example of how DoseWatch support's Oaklawn's progressive, patient-centered culture.

About DoseWatch

DoseWatch is a dose management solution that captures, tracks, and reports radiation dose directly from the medical device. You can deliver the right dose by detecting the causes of excessive radiation and producing sharp and focused diagnostic images with the lowest possible exposure.

With GE Healthcare's DoseWatch, you can:

- Analyze radiation data across modalities and devices
- Identify and alleviate the causes of dose outliers
- Turn raw data into standards-based information

For more information on DoseWatch, visit www.doseoptimization.gehealthcare.com



"Oaklawn Hospital strives for perfect patient care every time, and we put the patient first in every decision we make. The amount of radiation our patients are exposed to is an important part of our patient care philosophy, and when looking at equipment and tools to measure and monitor

our dose, we want to set the standard. Oaklawn has had many firsts in our radiology department, such as the first southwest Michigan hospital to have digital mammography, a direct capture radiology room, totally wireless direct capture portable x-ray unit, and the first to have spiral CT which has progressed into two consecutive multi-slice scanners. This equipment was purchased because it was better for our patients, just like providing the best image with the lowest amount of radiation."

— Sherry Boyd, Chief Support & Ancillary Services Officer

About GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

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