The Keys to Successfully Implementing Spectral CT

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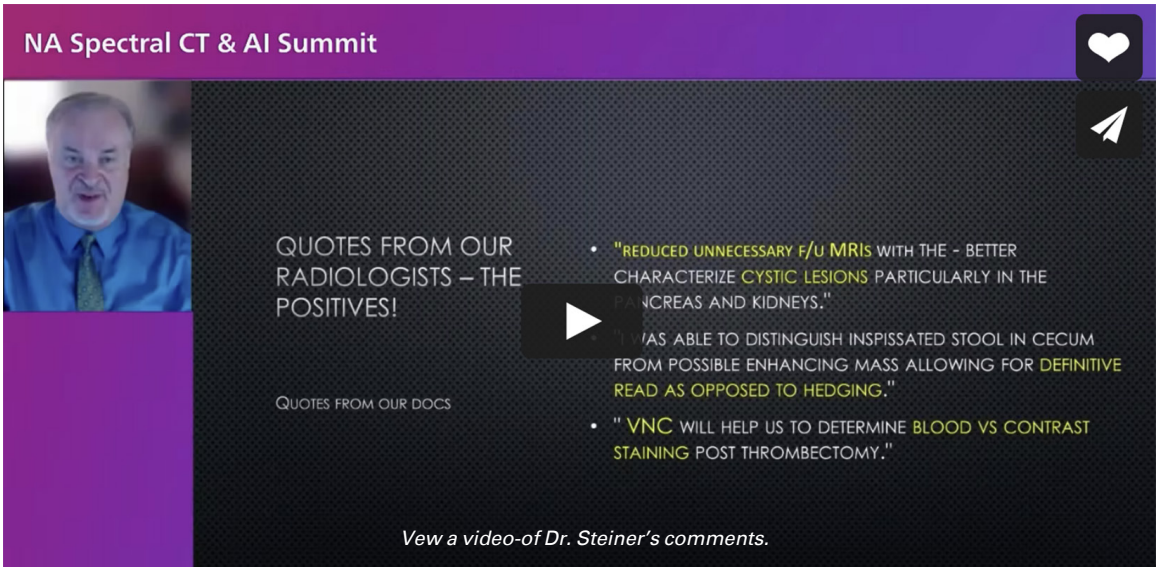
With locations in Central Pennsylvania and Maryland, WellSpan Health is an integrated health network that comprises seven small- and medium-sized community hospitals, several teaching hospitals, a Level 1 trauma center, and a comprehensive stroke center. In 2020, the network updated its fleet of computed tomography (CT) scanners with two IQon spectral CT scanners and three Spectral CT 7500 systems, both from Philips.

Unlike conventional CT scanners, spectral CT leverages photon-counting detectors to help salvage sub-optimal injection scans without patients having to be re-scanned, shortening the time to diagnosis. The Spectral CT 7500 was designed for first-time-right diagnosis and has demonstrated a 34% reduction in time to diagnosis, a 25% reduction in repeat scans and a 30% reduction in follow-up scans.[1]



Vew a video-of Dr. Steiner's comments.

Benefits of Spectral CT

The Spectral CT 7500 features "always on" spectral imaging so every scan offers both conventional and 100% spectral results. Because spectral-detector CT is always on, radiologists have certainty in routine spectral imaging, without an increase in radiation dose. They can scan as usual for layers of rich spectral results in a single scan, on demand, even retrospectively. "The 'always on' aspect is critical. This is where the Philips system shines," said Edward Steiner, MD, FACR, chairman of imaging and radiation oncology at WellSpan Health.

WellSpan radiologists have praised the new spectral CT systems for reducing the need for follow-up magnetic resonance imaging (MRI) exams and helping them better characterize cystic lesions, particularly in the pancreas and kidneys. "At our

interesting case conferences every month, many radiologists send me studies to say spectral CT helped them. I just read a case where they thought they needed to go to MRI for a cyst. We did iodine quantification and found it was a tumor, not a cyst. That is critical to adopting spectral CT. It gives us definitive diagnoses instead of hedging," Dr. Steiner said.

The Keys To a Smooth Implementation

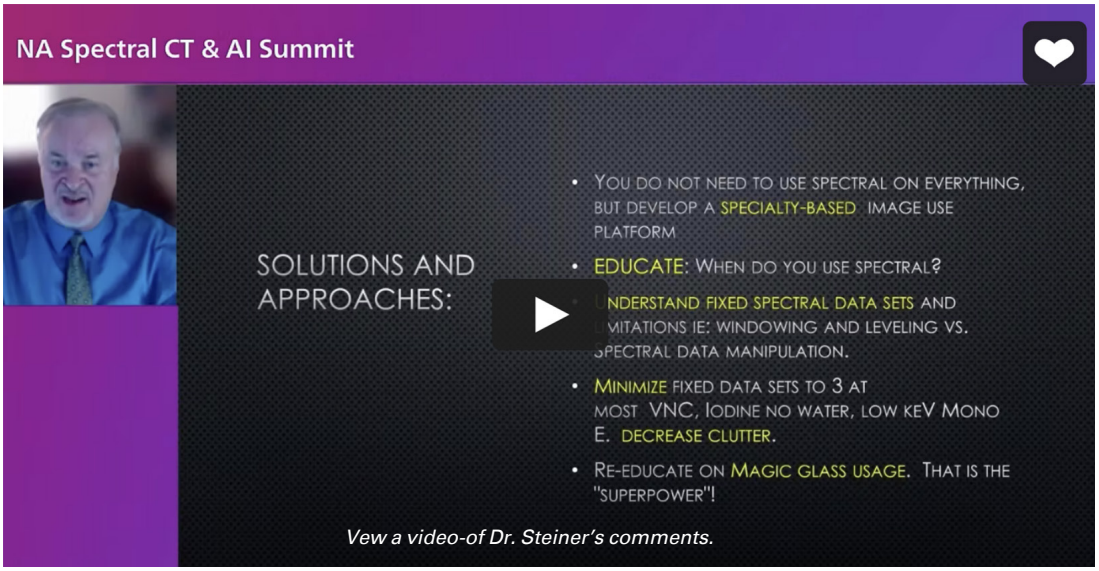
Although spectral CT is new to many radiologists, it can be easy to implement and adopt when a few guidelines are followed. First, Dr. Steiner emphasized the importance of providing continuous education to minimize fear and frustration among technologists, radiologists and referring physicians.

"The key to success is engaging your staff, including residents if you have them, as well as referring physicians. Keep teaching them and stress that, at the end of the day, this is a CT scanner and nothing else," he advised. "If we can learn MRI with multiple pulse sequences, we can certainly learn spectral CT. It's no different than using multiple pulse sequences, but you're using it more purposefully," he said.

Second, Dr. Steiner advises departments to be mindful of image quantity. WellSpan relies on teleradiology, making it vital for the radiology department to be able to send spectral images to their teleradiology vendor. The number of data sets can be challenging to manage; Dr. Steiner recommended integrating PACS hanging protocols to minimize image quantity. He also noted that image data sets should be based on specialty. "An MSK radiologist will look at the images differently, so they need to have different hanging protocols," he said.

Third, Dr. Steiner said, is to optimize every aspect of images from slice thickness to contrast delivery. At WellSpan, radiologists use Spectral Magic Glass, which enables on-demand simultaneous viewing and quick comparison of up to five spectral results for a region of interest, including monoenergetic, iodine density, virtual non-contrast, iodine no water, and Z-effective maps.

Magic Glass is important "because optimizing spectral CT images is critical. It's our superpower with the Philips spectral system. It allows us to do all manipulation at the desktop, not back at the server or the unit," Dr. Steiner said. "What I've noticed is that the more familiarity radiologists have with Spectral Magic Glass, the more they use it and the more they use spectral imaging."



Two years after implementing the spectral CT scanners, Dr. Steiner still believes the clinical utility of spectral CT outweighs its learning curve. "I tell radiologists and technicians, this is a regular CT. You just have the ability to interrogate images at a much higher level," he said.

Reference

1, Analysis by CARTI Cancer Center, Little Rock, AR, USA. Results from case studies are not predictive of results in other cases. Results in other cases may vary.