Clinical Dose Optimization Service (CDOS) enhances quality, safety of imaging operations

Welcome to the first LANDAUER CDOS Briefing Series featuring three significant outcomes achieved at facilities as a result of the CDOS partnership – to find and fix patient dose issues with CT scanners.

Developed by LANDAUER medical physicists expert in dose optimization, CDOS assists health care organizations establish a program that meets Joint Commission accreditation requirements, fulfills state regulations and meets American Association of Physicists in Medicine recommendations. Patient radiation dose data is analyzed to identify causes of overdoses, performance is compared with internal and external benchmarks, and imaging protocols are optimized. State-of-the-art physics support and counsel are provided in these services.

Staff Education

The find:

In this example, *Figure 1A*, an examination revealed a higher than expected dose and the cause was unknown to the facility.

The examination was compared to a normal dose exam of a similar-sized patient, *Figure 1B,* (CTDI of 8.2 mGy and 2.6 mGy for the high-dose and normal-dose examination, respectively). Investigation showed that in the high-dose examination, the scan region extended beyond the localizer range. (CT scanners use the localizer to determine the correct dose when automatic exposure control is employed.) Because the scanner went beyond the localizer range, the administered dose was more than 3 times higher than necessary.

Figure 1A I High dose procedure. Orange box indicates scanned range beyond localizer.

Figure 1B I Normal dose procedure. Orange box indicates scanned range within localizer.

The fix:

Staff was educated on the importance of scanning within the localizer range to avoid future cases exceeding the expected dose index range.

CT Best Practices Resource

The find:

An organization requested assistance with its Adult Head protocol for dose optimization, Figure 2. It was determined that the tube current was higher than necessary to achieve diagnostic image quality.

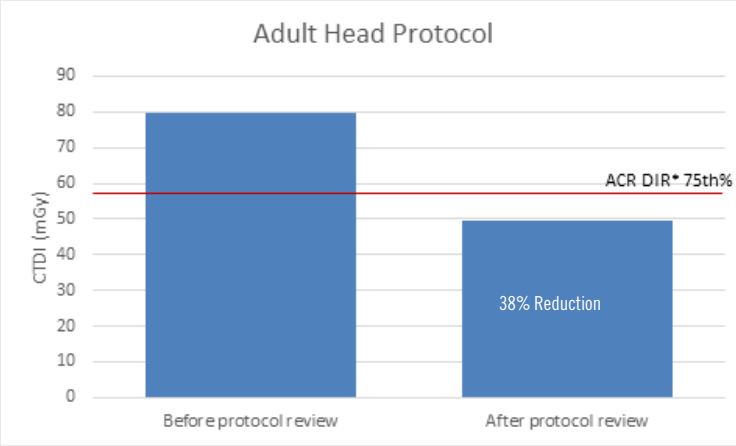

Figure 2 | Demonstrates value of CT Protocols Library
**American College of Radiology Dose Index Registry*

The fix:

Referencing LANDAUER CT Best Practices Protocols, a growing set of thousands of protocols representing multiple manufacturers, a lower-dose protocol was identified. The new protocol was adopted and the change resulted in a 38% reduction with high satisfaction voiced by the radiologists at the facility.

Scanner Setting Corrections

The find:

The Chest Pulmonary Embolism (PE) protocol was identified for dose optimization as noted in a CDOS report, Figure 3.

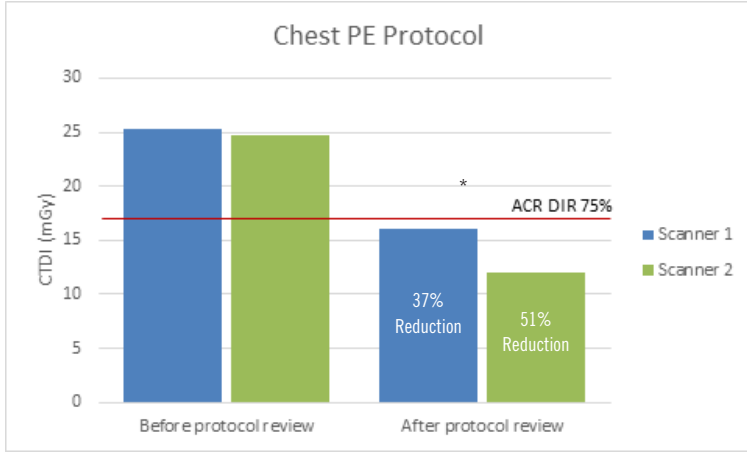

Figure 3 | Demonstrates CDOS Expertise
**American College of Radiology, Dose Index Registry*

The fix:

The reason for the elevated doses was due to incorrect slice thickness settings. Once the problem was corrected, the doses were reduced by 37% and 51% for Scanner 1 and Scanner 2, respectively. The radiologists were satisfied with the images from the new protocols.

Because CDOS has a national reach, our growing CT Best Practices Protocols Resource provides you with the unique opportunity to benefit from real-life best practices.

Learn more

Visit landauermp.com/cdos or email imagingsales@landauer.com

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