

Higher Imaging Yield With CDS



Increased use of CT pulmonary angiography (CTPA) for the evaluation of pulmonary embolism has raised serious concerns about the harms of unnecessary testing. What's more, CTPA over-utilisation has been associated with decreasing diagnostic yields.

Researchers in the U.S. performed a study to determine whether clinical decision support (CDS) use can help increase imaging yields after controlling for selection bias. Results show that diagnostic yield was 38% higher for CTPAs when providers used the CDS tool, according to the study published online in the Journal of the American College of Radiology.

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"After propensity score matching to address for selection bias in tool use, the diagnostic yield for testing was 11.99% when the CDS tool was used and 8.7% when the tool was dismissed," study authors wrote.

Researchers with the Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, New York, conducted the study at the emergency departments of two tertiary care hospitals. During the 3-year study period, clinicians ordering a CTPA were routed to an optional CDS tool that allowed them to use Wells' Criteria for pulmonary embolism.

After propensity score matching for various patient factors – including age, sex, comorbidities, ED crowdedness, and test time – CTPA yield was calculated for the CDS-use and CDS-dismissal groups and stratified by provider type: attending physicians, residents, and physician assistants.

Key findings of the study included:

- A total of 7,367 CTPAs were ordered during the study period, with the CDS tool used in 2,568 (35%) of cases and dismissed (not used) in 4,799 (65%) of cases.
- CTPA yield was 11.99% in the CDS-use group and 8.70% in the CDS-dismissal group ($P < .001$).
- CDS use increased diagnostic yield by 56.5% for attending physicians, 38.7% for residents, and 16.7% for physician assistants.

"Meta-analysis of the impact of the use of [Wells' Criteria for PE](#) found similar results, with yields improving from 9% to 12% (33% increase," according to the research team, citing data from previous studies.

The research team also noted that the odds of CDS tool use were lower for older patients and Asian patients and higher for patients with more co-morbidities.

"We estimate that 1,422 CTPA scans could have been avoided if all tests had been ordered with the use of the CDS tool. This is assuming a CTPA yield of 11.99% in the CDS-dismissal group and no missed PEs," wrote the researchers, adding that further research is needed to

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discover successful strategies to increase provider use of these important CDS tools.

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