

Improving requesting and reporting of CTPAs for pulmonary embolism – a review of 1000 CTPAs

Taha Shiwani¹, Kathleen Akpokomua¹, Simon McPherson¹
¹Leeds Teaching Hospitals NHS Trust



Background

A computed tomographic pulmonary angiography (CTPA) scan is the investigation of choice for most people in whom a pulmonary embolism (PE) is suspected (1). However, the signs and symptoms of a PE can be non-specific, and there are concerns that CTPA scans are being overused in the evaluation of patients with cardio-respiratory symptoms, with low diagnostic yield (2)

Standards

National guidelines produced by the National Institute of Care and Excellence (NICE) advise that a CTPA should only be requested if a Wells score for PE is greater than 4, or if there is a positive D-dimer result (1).

If requested appropriately, The Royal College of Radiologists (RCR) has suggested that more than 15% of CTPAs should be positive for PE (3).

The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) for PE further advised that all CTPA reports should document the presence or absence of right heart strain if a CTPA is positive for PE, to allow adequate risk stratification (4).

Local guidelines also require that all positive scans have a ‘PE alert’ added to the report to ensure appropriate haematology follow up.

Methodology

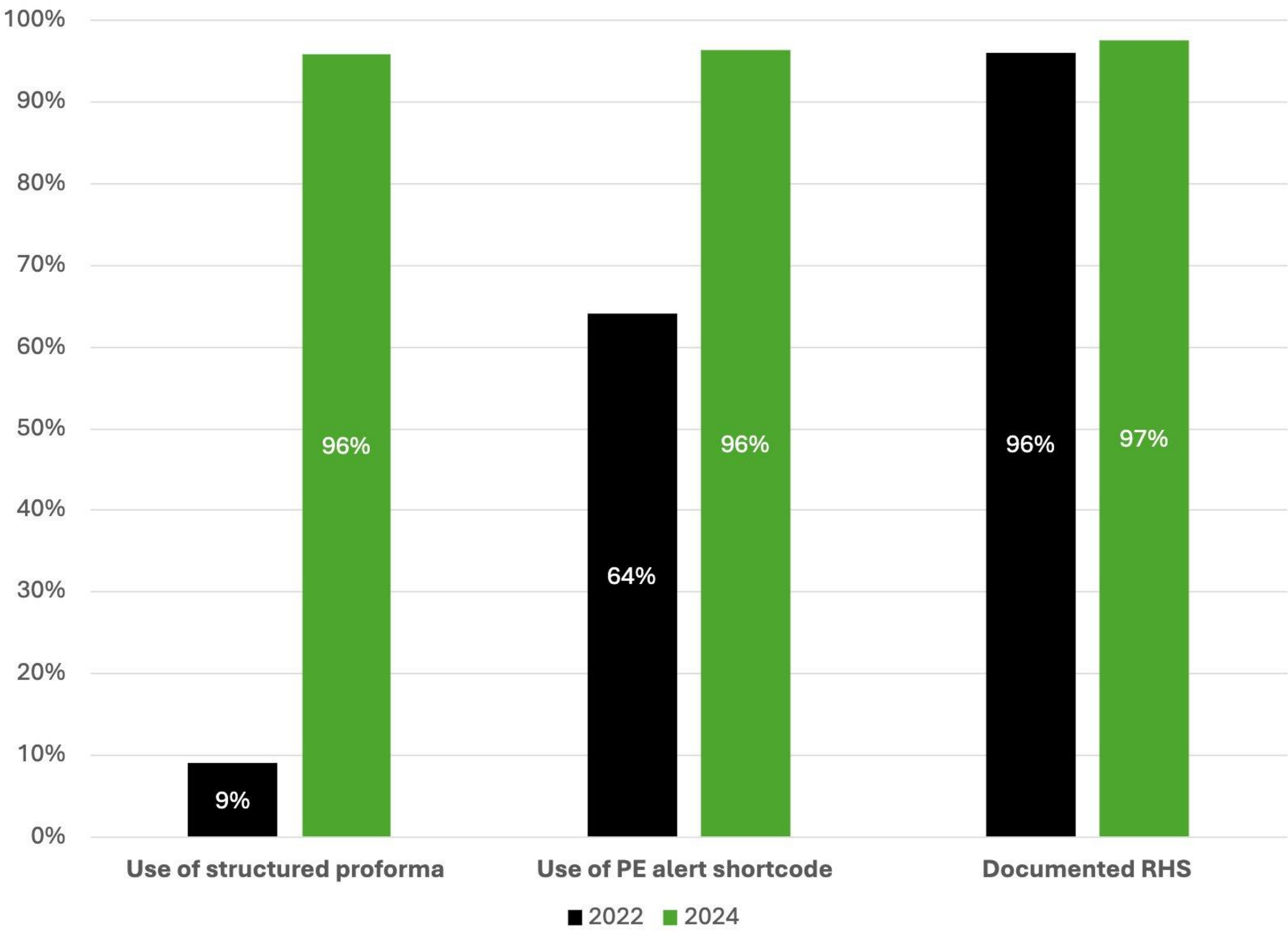
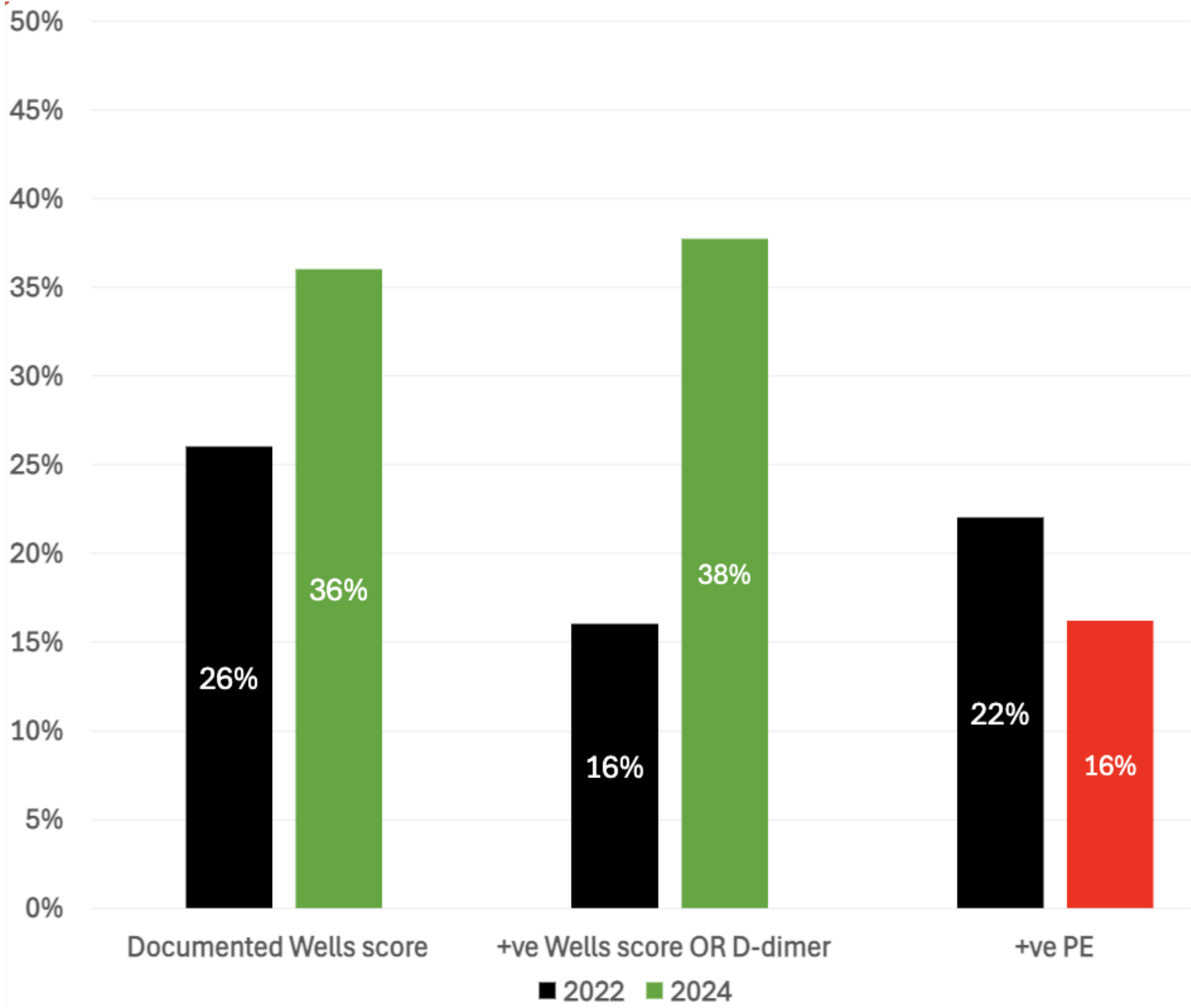
The requests and reports of 500 consecutive CTPAs in Leeds Teaching Hospitals NHS Trust were reviewed in 2022.

Following the results of this audit, a mandatory electronic questionnaire was added to CTPA request forms that required all users to input a Wells score or D-dimer result when requesting a CTPA. A structured proforma for reporting CTPA scans was also introduced – this automatically entered a PE alert shortcode if a scan was positive and also contained a section on right heart strain.

The audit was then repeated in 2024 to assess the impact of these changes.

Results

		Target	2022	2024
Requests	Documentation of Wells' score	100%	26%	36%
	Documentation of Wels' score >4 or raised D-dimer	100%	16%	38%
Reports	Positive rate	>15%	22%	16%
	Use of structured proforma	100%	9%	96%
	Documentation of right heart strain	100%	96%	97%
	Use of PE alert shortcode	100%	64%	96%



Conclusions

The mandatory questionnaire improved compliance with requesting guidelines, but was often not completed appropriately, resulting in lower than expected compliance. The rate of scans positive for PE also fell, which may have been due to increasing use of D-dimer tests in patients with low suspicion for PE. The structured proforma significantly improved use of the PE alert shortcode, and ensured documentation of right heart strain.

References

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