

Deployment and Evaluation of Commercial AI Tools to Aid Radiological Diagnosis of Pulmonary Embolism

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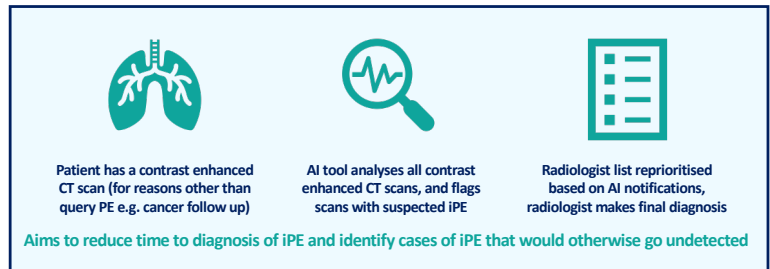
Pulmonary embolism (PE) varies in both presentation and clinical risk.¹ To support earlier and more accurate diagnosis, a commercial company has produced two AI-powered tools designed to detect and risk stratify PE on CT imaging. These tools have been approved by regulatory authorities in the UK, Europe and the US for clinical use. One tool focuses on detecting incidental PE (iPE), the other is designed for intermediate-high risk (IHR) PE.

The Problem

1. Incidental PE (iPE)

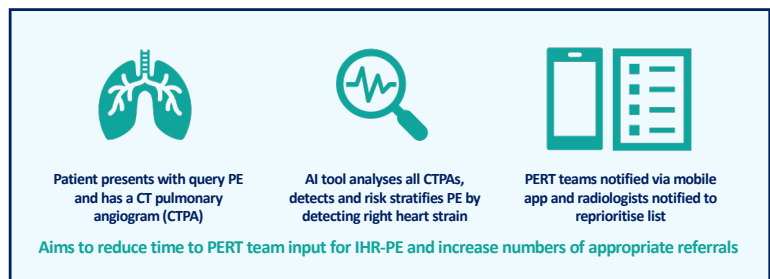
- When clinically suspected, PE is typically diagnosed by radiologist interpretation of CT pulmonary angiography
- However, some patients are asymptomatic or present with non-specific symptoms, and PEs may be detected incidentally on contrast-enhanced chest or abdominal CTs that include the lungs¹
- At Guy's and St Thomas', large backlogs of unreported CTs can contribute to delays in incidental PE (iPE) diagnosis and management

The AI Solution



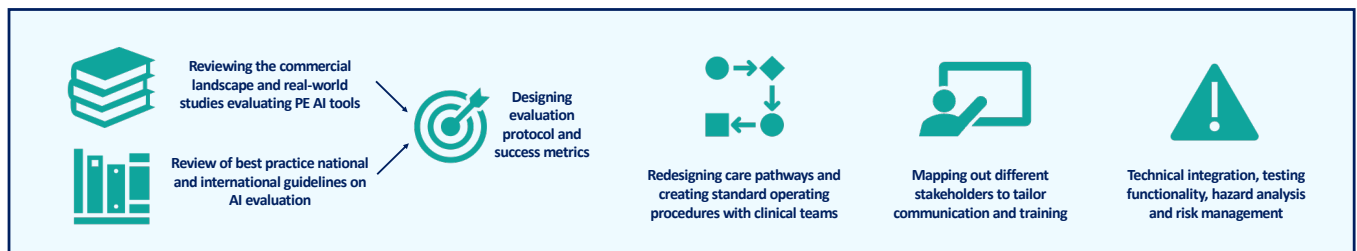
2. Intermediate-high risk PE

- Intermediate-high risk (IHR) PE is defined by right heart strain without hypotension yet carries a 5–15% mortality
- Patients may appear stable and are often under-recognised
- PERTs (Pulmonary Embolism Response Teams) improve outcomes by accelerating diagnosis and guiding treatment
- PERT use is recommended by the 2019 National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report³
- At Guy's and St Thomas', timely PERT referrals for IHR-PE remain lower than expected despite educational interventions



Preparing for Live Deployment & Prospective Evaluation

Following retrospective evaluation of these tools for diagnosis of PE,³ a trial prospective evaluation period was planned for 4-6 months. This required a range of preparatory steps:



Deployment & Evaluation

Live deployment began in March 2025. A mixed methods evaluation has included questionnaires, interviews and quantitative analysis of key metrics. From 13th of March to 22nd of April:

- Of 358 CTPA scans analysed, 40 (11.2%) PE cases detected and of 3355 non-CTPA CT scans, 31 iPE (0.9%) cases detected.
- Of 71 positive PE/iPE cases, 49 had signs of right heart strain with an RV/LV ratio >1; 3 cases had a ratio >1.5, indicating significant strain.

Early qualitative findings from interviews with 11 radiologists show:

- Variability in clinical engagement, shaped by personality, perceived clinical value, and workflow integration.
- Clear implementation pathways, a seamless user interface, evaluation of training impact and cost-effectiveness analysis identified as priorities.

Next Steps

- Full findings of the evaluation will be used by decision makers to inform future procurement decisions.
- As one of the Trust's first AI deployments, learnings from this evaluation will inform future adoption and evaluation of AI tools across the Trust.

References

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