

## Introduction

High-risk pulmonary embolism (PE) patients have an in-hospital mortality rate of 20.6%. In the subset of these patients who are extremely ill and who are hemodynamically compromised, mortality rate can be upwards of 42.1%.<sup>1</sup> Timely diagnosis and triage of these patients, the availability of advanced therapies, and development of a pulmonary embolism response team (PERT) are critical to optimal management.<sup>2</sup> Computer-aided PE diagnosis has demonstrated effectiveness for improving diagnostic capabilities in PE assessment.<sup>3</sup> Combining computer-aided detection software with a mobile application is a proven technique for mobilizing clinicians and interventionalists in the PE care pathway.<sup>4</sup> Multidisciplinary PERT teams utilizing computer-aided detection algorithms and supporting mobile applications with AI-powered notifications facilitate swift, efficient and effective emergent care for PE patients.

## Case Study

### Patient Background

#### 45-year-old, Female

- History of partial bowel resection for perforated diverticulitis with surgical repair 4 months prior.
- Patient suffered sudden onset of severe dyspnea.



## Discussion

This case emphasizes the important role of AI-powered technology in rapid identification and notification of high-risk PE patients to PERT teams. It also highlights the ability of this technology to facilitate timely resource allocation among hospitals within a network. Utilizing the RapidAI PE (iSchemaView, Inc.) AI module, the suspected PE was promptly identified shortly after CTPA acquisition. The Rapid mobile application alerted relevant stakeholders and enabled seamless communication between PERT members, facilitating a quick assessment of the patient's deteriorating condition and informed decision-making regarding treatment. This real-time communication infrastructure played a pivotal role in orchestrating the multidisciplinary response required for emergent PE care.

Efficient team coordination compressed the timeline from diagnosis to intervention significantly. Within minutes, the patient progressed from CTPA to tPA administration and activation of the ECMO team, culminating in an emergent catheter-based thrombectomy intervention. This rapid escalation of care directly contributed to a successful outcome, evidenced by ROSC following tPA administration and immediate hemodynamic improvement post-thrombectomy.

The activation of PERT exemplifies proactive management of high-risk PE patients. Though escalation of care beyond thrombectomy was not needed, the ECMO team was on standby and ready to act due to advanced notification.

In conclusion, AI technology integration has improved the management of acute medical emergencies like PE. By facilitating early detection, real-time communication, and multidisciplinary collaboration, these innovations have significantly improved treatment timelines and patient outcomes, ultimately saving lives.

## References

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