

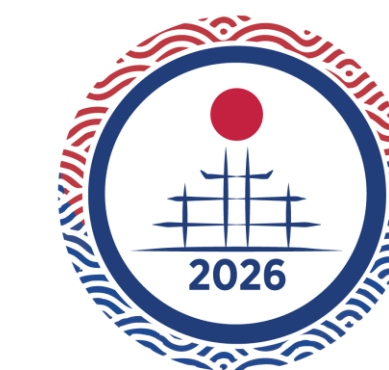


EP04.17 Impact of AI on Lung Cancer Detection and Radiology Workflow in a Vietnamese Public Hospital

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INTRODUCTION

Late diagnosis dominates lung cancer in Vietnam.

- 70–80% of lung cancers in Vietnam are diagnosed at stage III–IV; aggregate 5-year survival is 14.8%. [1]
- The health system meets only 30–40% of cancer care demand, and most patients are diagnosed 3–6 months after symptom onset. [1]
- AI can match or exceed radiologist accuracy on CXR, though higher sensitivity may bring more false positives [2]; real-world evidence from resource-constrained settings is limited.

Objective

To assess the real-world impact of AI diagnostic support for chest X-ray (CXR) and CT on lung cancer detection and radiology workflow at a Vietnamese provincial general hospital.

70–80%

of lung cancers diagnosed
at stage III–IV

14.8%

aggregate
5-year survival

METHODS

Design

Single-centre, before-and-after implementation study at Ha Dong General Hospital, a provincial public general hospital in Ha Noi, Vietnam.

AI system

A commercially available AI system for CXR analysis (6-finding detection) and CT lung nodule detection (regulatory-certified; manufacturer-reported sensitivity 98.3%), deployed 24 Oct 2025.

Comparison & outcomes

October 2025 – April 2026 (AI deployed 24 Oct 2025) vs. the same seven months of the previous year. Monthly imaging volume 4,366→4,030 CXR and 282→352 CT. Primary outcomes: lung cancer diagnoses recorded department-wide (not restricted to AI-detected cases), CT nodule detections, CXR→CT referrals and suspected TB detections, extracted month by month from PACS / RIS / HIS and pathology records; rate ratios per study performed. Secondary: stage at diagnosis and the positive predictive value of CXR→CT referral.

Additional measurements

Reading time was measured per reader per case: four radiologists (15, 10, 5 and 1 years' experience) each read 50 CXR and 10 CT studies with and without AI, with AI output available at the workstation. Nodule characteristics and TB confirmation were exported from the AI / PACS system for one post-implementation month.

AI-assisted CXR reading workflow

- CXR acquired
- Auto-sent to AI; findings and abnormality alerts returned
- Initial read by junior radiologist; high-risk cases escalated
- Lead radiologist confirms / modifies / rejects AI output, issues report
- Referral to clinical team for CT or MDT conference

On chest CT the order is reversed: the AI result is already on the workstation and adds no reading step; the radiologist interprets first and consults AI last, as a safety check for small nodules.

DISCUSSION AND CONCLUSION

Key findings

- Lung cancer diagnoses doubled (17 → 35/month) while CXR volume fell 8%.
- All four detection outcomes increased significantly; none showed a pre-existing upward trend in the 12 months before deployment (lung cancer, Figure 1).
- Reading time fell 36% on CXR (2.75 → 1.75 min) and 11% on CT (9.0 → 8.0 min).

Interpretation

Lung cancer diagnoses rose while CXR volume fell 8% — a higher yield per radiograph, not more radiography. CT volume rose 25%, reflecting more CXR→CT referrals. The radiologist retained final authority: AI triaged on CXR and was consulted as a second read on CT, a design shown to improve detection without increasing false positives [3]. Because AI is consulted rather than added as a step, the modest 11% fall in CT reading time is consistent with a shorter confirmatory review, not removal of a step. Confirmed TB rose alongside suspicion (15 → 23/month): the extra alerts were not noise.

Informal feedback from the reading team

A senior radiologist (20 years' experience) found the second-reader function most useful during peak-hour shifts, giving more confidence in ruling out pseudo-lesions and fewer missed faint nodules. A colleague with 10 years' experience reported that automatic sizing and highlighting saved roughly 20–30% of review time. Collected informally, not a systematic survey.

Limitations

- Lung cancer diagnoses include cases identified outside chest radiography; the rate ratio per CXR is a crude standardisation for workload, not an AI-attributable yield.
- False-positive and recall rates were not measured, so the diagnostic cost of a shortened confirmatory review could not be assessed.
- The 8% fall in CXR volume was not investigated; a case-mix shift cannot be excluded.
- Single-centre, non-randomised, short follow-up. Reading time came from a small sub-study (4 readers) reading the same cases with and without AI; order and washout were not recorded. Rate ratios use monthly aggregates, unadjusted for clustering.

Conclusions

Lung cancer detection doubled and reading time fell after AI implementation.

REFERENCES & ACKNOWLEDGEMENTS

References

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Ethics

This study was conducted as a service evaluation / quality improvement activity and did not require ethics review.

AI Use Disclosure

AI-assisted tools were used for drafting and formatting of this poster. All scientific content, data and conclusions were reviewed and approved by the authors.

RESULTS

Monthly outcomes before vs. after AI implementation

Outcome	Pre-AI	Post-AI	RR (95% CI)	p
Lung cancer cases	17	35	2.22 (1.78–2.77)	<0.001
CT lung nodule detections	63	100	1.27 (1.12–1.43)	<0.001
CXR → CT referrals	116	158	1.47 (1.35–1.61)	<0.001
Suspected TB on CXR	50	63	1.36 (1.19–1.57)	<0.001

Monthly means over the seven-month comparison period; rate ratios per study performed.

This poster presents an updated analysis incorporating data collected after abstract submission; figures therefore differ from the submitted abstract.

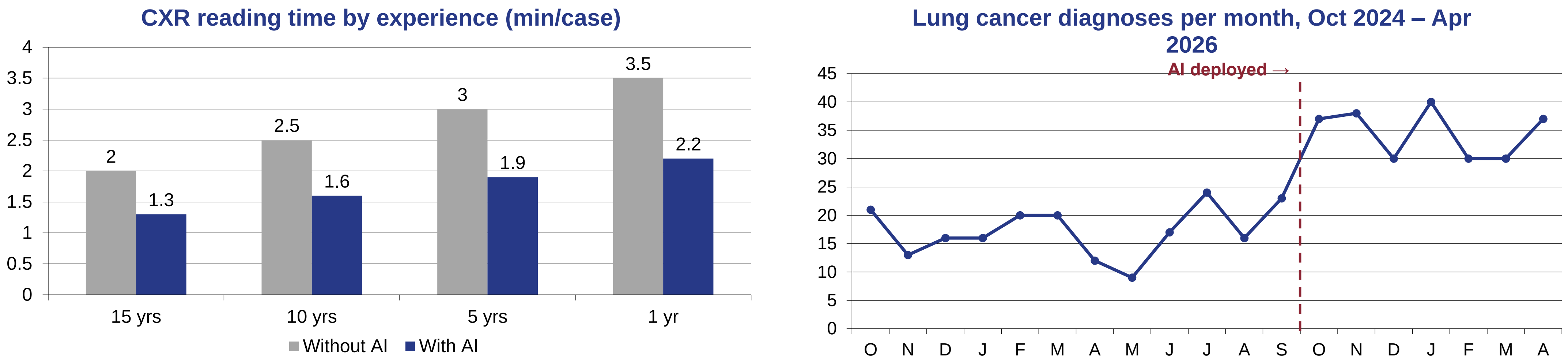


Figure 1. No upward trend before deployment (linear trend $p=0.55$); pre- and post-implementation ranges do not overlap (9–24 vs 30–40 cases/month).

2.2×

rate ratio for lung cancer diagnoses
per CXR (17 → 35 per month)

73.6%

of 87 reviewed CXR → CT referrals
showed significant CT findings

–36%

measured CXR reading time
2.75 → 1.75 min per case

Lung cancer detection rose while CXR volume fell — a higher yield per radiograph, not more radiography.

Positive predictive value from a departmental review of 87 CXR→CT referrals. “Significant abnormality” = nodule, mass, infiltrate, pleural effusion, pneumothorax or any lesion requiring follow-up or treatment — not malignancy alone.

Stage at diagnosis

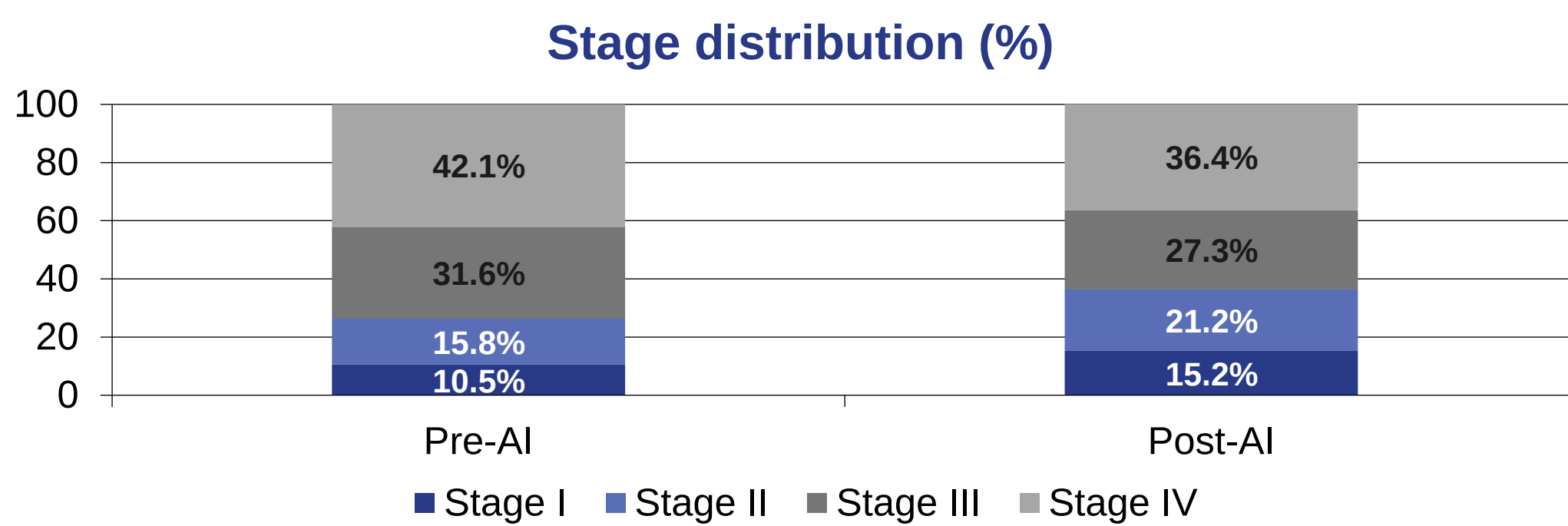
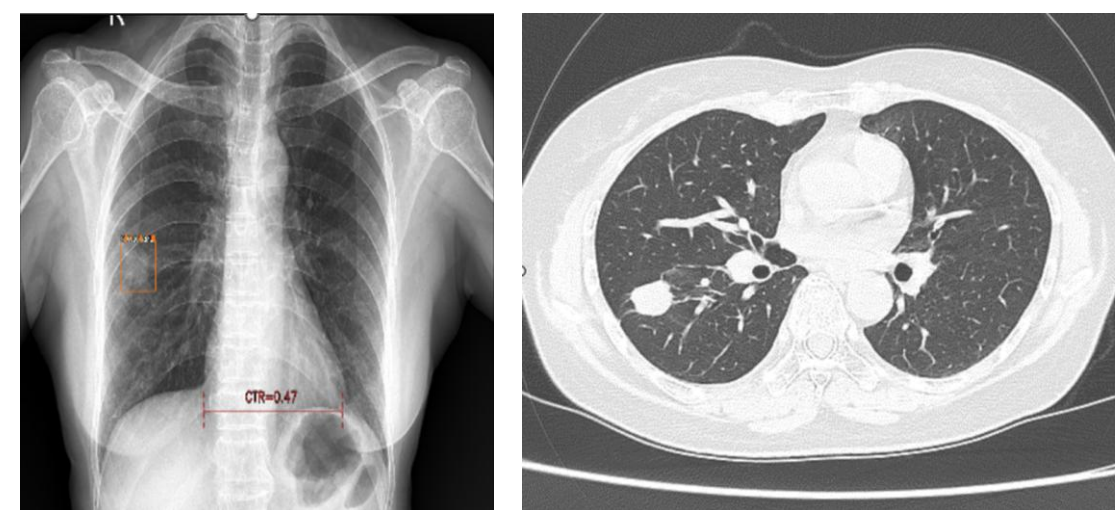


Figure 2. Stage at diagnosis (Pre-AI $n=19$, Post-AI $n=33$ cases with recorded stage). Departmental estimate; the rise in early-stage share (26.3%→36.4%) was not statistically significant ($p=0.46$) and is exploratory.

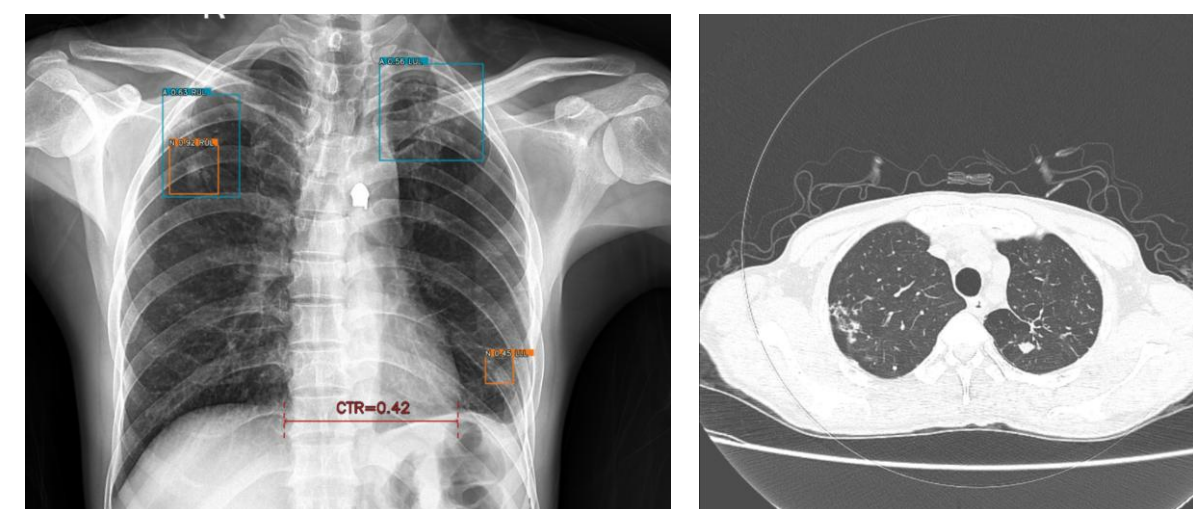
Additional measured data

CT nodules (n=99)			
By size	<6 mm 52	6–8 mm 28	>8 mm 19
By character	Solid 65	Part-solid 12	Ground-glass 22
Tuberculosis		Suspected on CXR	Confirmed
Pre-AI	50	15	
Post-AI	63	23	

Representative AI-detected cases



Case 1. Female, 59, non-smoker, imaged for cervical lymphadenopathy. AI flagged a right lower lobe nodule on CXR; CT confirmed a solid nodule 22×20 mm. Lung cancer, stage IVB → chemotherapy. Alive, no growth at 2 months.



Case 2. Male, 39, non-smoker, persistent cough. AI flagged bilateral upper-lobe opacities on CXR; CT showed nodules with fibrotic bands and calcification. Pulmonary tuberculosis → anti-TB regimen. Symptoms resolved.

Figure 3. In both cases, AI-flagged findings on CXR (orange / blue boxes) are shown with the corresponding CT. Images de-identified by the hospital before provision.