Results from a feasibility pilot for integrated TB & lung cancer screening in Vietnam

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<u>**Type selection**</u>
Category: Public health practice
Prefered presentation type: Oral abstract presentation

<u>**Track selection**</u>
Track: D2: Lung health epidemiology across the life course (COPD, pneumonia, asthma and other lung health conditions)
2nd Track: A4: Imaging and image analysis for diagnostics (including AI)

<u>**Title**</u>

<u>**Public Health Practice Abstract Text**</u>
Background and challenges to implementation: An integrated TB and lung cancer screening model was piloted in Vietnam, using artificial intelligence (AI) software to identify potentially malignant nodules on chest X-ray (CXR) when people were initially being screened for TB, in order to indicate further lung cancer screening using a computed tomography (CT) scan.
Intervention or response: From October 2022 to March 2024, CXR images were collected from community-based TB screening events in Ho Chi Minh City (HCMC) and Hai Phong, as well as from individuals undergoing clinical consultation at the Pham Ngoc Thach Hospital in HCMC and the Hai Phong Lung Hospital. CXR images were processed using qXR AI software (Qure.ai, India) to identify those eligible for a CT referral. An on-site radiologist reviewed CT scans, confirmed the presence of malignant nodules and indicated follow-on testing in line with Vietnam social health insurance policy. Follow-on testing, lung cancer diagnosis and treatment data for people with malignant nodules were exported from each hospitals medical record system.
Results/Impact: 136,629 people were screened by CXR, resulting in the detection of 2,366 (1.7%) potentially malignant nodules by the AI software. 745 (35.1%) of these individuals were diagnosed with TB or already had a lung cancer diagnosis, leaving 1,376 (64.9%) eligible for a CT referral. A total of 518 (21.9%) participants got a CT scan, and 324 (62.5%) had radiologist-identified malignant nodules. Follow-up tests were completed for 259 (79.9%) participants, resulting the diagnosis of 122 (47.1%) and treatment of 79 (64.8%) for lung cancer.

	Total	Community	Hospital
Participants screened by CXR	136,629	47,577	89,052
AI-detected nodules on CXR	2,366 (1.7%)	245 (0.5%)	2,121 (2.4%)
Eligible for CT referral	1,597 (67.5%)	221 (90.2%)	1,376 (64.9%)
CT scan peformed	518 (32.4%)	113 (51.1%)	405 (29.4%) *
Radiologist-identified malignant nodule on CT	324 (62.5%)	28 (24.8%)	296 (73.1%)
Follow-on tests conducted (e.g. bioposy)	259 (79.9%)	15 (53.6%)	244 (82.4%)
Diagnosed with lung cancer	122 (47.1%)	3 (20.0%)	119 (48.8%)
Started on a lung cancer treatment	79 (64.8%)	1 (33.3%)	78 (65.5%)
CT scan referrals were stopped in the pilot during the week when 500 CT scans were achieved due to funding constraints.			

Conclusions: AI-assisted CT scan referrals for lung cancer screening were feasible to implement within community- and facility-based TB screening programs. However, community screening suffered from lower yields and more loss in the referral and post-CT scan cascade. Future studies may evaluate the added value of the AI software to detect potentially malignant nodules and early lung cancer detection.

<u>**Summary**</u>
Summary: An integrated TB and lung cancer screening model was piloted in Vietnam, using artificial intelligence (AI) software to identify potentially malignant nodules on chest X-ray (CXR) when people were initially being screened for TB, in order to indicate further lung cancer screening using a computed tomography (CT) scan.

<u>**Other Fields**</u>
Country of research: Viet Nam
Did you benefit from the [Abstract Mentor Programme (AMP)?](#): No

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