

AI may equal trained staff in spotting TB on chest X-rays

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Artificial intelligence (AI) may help clinicians diagnose tuberculosis in

parts of the world where radiologists are scarce, a new study suggests.

AI software successfully identified tuberculosis (TB) from cellphone photos of chest X-ray images, researchers reported at a European conference this week.

"We've shown that AI software is at least as good at detecting TB as a trained radiologist and that a simple mobile phone photograph is sufficient for analysis," said study leader Dr. Frauke Rudolf, of the infectious diseases department at Aarhus University Hospital, in Denmark.

Chest X-rays play an important role in detecting TB in patients unable to produce good quality sputum (phlegm) samples for microbiological analysis. Using software to help diagnose conditions based on the X-rays could help in areas with [limited resources](#) and few radiologists.

Rudolf's team set out to determine the accuracy of this method. They compared the performance of AI software in assessing chest X-rays with that of two Ethiopian radiologists with different levels of experience.

The AI was given mobile phone photographs of non-digital chest X-rays.

Among 498 patients, 11% had been diagnosed with TB, 41 clinically and 16 through PCR tests, the study authors noted.

The [software](#) was as good or better than a trained radiologist at identifying the PCR-confirmed cases. It correctly identified 75% of all PCR-confirmed cases and about 86% of non-TB cases.

By comparison, the less-experienced radiologist's assessments correctly picked up about 63% of the PCR-confirmed cases and correctly identified nearly 92% of those who didn't have TB.

The experienced radiologist correctly chose 75% of the PCR-confirmed cases and 82% of those that didn't have TB.

"With an estimated 3 million undiagnosed patients in 2021, there is an urgent need to develop novel strategies and technologies aimed at improving TB detection in low-resource, high-incidence settings," Rudolf said in a news release from the European Congress of Clinical Microbiology & Infectious Diseases (ECCMID).

TB is a major cause of death and disease worldwide, killing 1.6 million people each year. It is the 13th leading cause of death globally and the second biggest infectious killer, after COVID-19.

"In low-resource areas with a high incidence of TB but a shortage of [radiologists](#), chest X-rays could be photographed with a [mobile phone](#) and the image sent to be analyzed remotely by the AI," Rudolf said. "This would allow more chest X-rays to be read properly and, crucially, allow more cases of TB to be diagnosed."

The study was scheduled for presentation Monday at the ECCMID, in Denmark. Findings presented at medical meetings should be considered preliminary until published in a peer-reviewed journal.

More information: The U.S. Centers for Disease Control and Prevention has more on [tuberculosis](#).

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