

# REACHING THOUSANDS IN NEED: USING ARTIFICIAL INTELLIGENCE IN MOBILE VANS



Image: Socios en Salud

## PROJECT OVERVIEW



Lima, Peru



February-  
December  
2019



CAD4TB (Delft  
Imaging Systems)



Socios en  
Salud

## AI INTERVENTION

With an estimated 38,000 cases in 2020, Peru has the second highest rate of Tuberculosis (TB) in the Latin American and Caribbean region, accounting for 14% of cases detected there.<sup>1,2</sup> Lima, the capital, is home to approximately nine million people and reports 64% of the country's TB cases.<sup>1</sup> Here, TB case finding activities by health services are limited and are **not meeting national screening targets**. Facing this head on, Stop TB Partnership's TB REACH Initiative supported local partner Socios en Salud to perform **large-scale TB case finding using mobile vans equipped with advanced technology, including artificial intelligence (AI)**, in three districts of Northern Lima, home to roughly one million people.

From February to December 2019, Socios en Salud deployed a multipronged strategy to tackle the high burden of TB in these districts. **Mobile vans were stationed at 214 different locations providing TB services for eight hours every day**. Anybody above the age of three who came to a van received a chest X-ray that was automatically read by AI software (CAD4TB). If the image received a score greater than 50/100 on AI, the person was given a highly sensitive molecular diagnostic test (Xpert). Anyone who received a positive Xpert test result, or was judged to have TB by an on-site doctor, was treated at local health facilities. In one district, family, friends, and colleagues who had been in contact with a person diagnosed with TB **were also tested at the vans** in the same way. Even if they did not show any signs of the disease, close contacts were provided with treatment (isoniazid) to prevent them later developing TB.



Mobile van providing TB care in northern Lima. Image: Socios en Salud

AI resulted in **rapid identification of people in need of further testing**, while mobile vans brought services closer to the communities that needed them most. Together, this led to an increase in the annual number of TB cases identified in the project's target areas. Healthcare workers were initially concerned about using AI, but they quickly adapted and **learned how to use the tool**. For every 151 people screened using X-ray and AI, one person with TB was identified.



Project workers outside of the mobile van encouraging people to be screened. Image: Socios en Salud

## PROJECT IMPACT

- ✓ **51,691** people screened using AI and X-ray.
- ✓ **12,244** people tested for TB with diagnostic tests.
- ✓ **1,089** family, friends, and colleagues of people with TB screened.
- ✓ **Over 100** people successfully treated for TB.
- ✓ **Around ¼** of people in one district now on TB treatment were first identified by the project

This experience gave the project a sharp insight into the potential of AI for rapid TB screening in high-risk populations like immigrants or prisoners. Following the success of AI in mobile screening vans, Socios en Salud began using **another AI software system (qXR) to screen inmates at female and juvenile prisons for TB** in August 2020. During the COVID-19 pandemic, Socios en Salud took the opportunity to pilot AI for co-screening of TB and COVID-19 and is looking ahead to the feasibility of using AI to ensure treatment reaches people with other diseases, such as cancer.



**AI NOT ONLY CLOSED THE GAPS  
IN ACCESS TO HEALTH BUT DID IT  
AT SPEED AND AT A FRACTION OF  
THE USUAL SPEED AND COST.**

**– JESUS PEINADO**  
PROGRAMME MANAGEMENT  
DIRECTOR, SOCIOS EN SALUD

Photo: Socios en Salud

## REFERENCES

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## ABOUT THIS DOCUMENT

This document is one of a series spotlighting the experiences of these early implementers when using artificial intelligence (AI) / computer-aided detection (CAD), to highlight the added value of CAD for TB programmes and inspire prospective implementers to innovate. Funding of this project was provided by the Stop TB Partnership's TB REACH initiative, launched in 2010 by Global Affairs Canada. In 2012, TB REACH first worked with implementing partners to pilot CAD software. Since then, it has implemented 3 different CAD products in 13 different countries in Sub-Saharan Africa, Latin America, Eastern Europe, and South and South-East Asia.

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