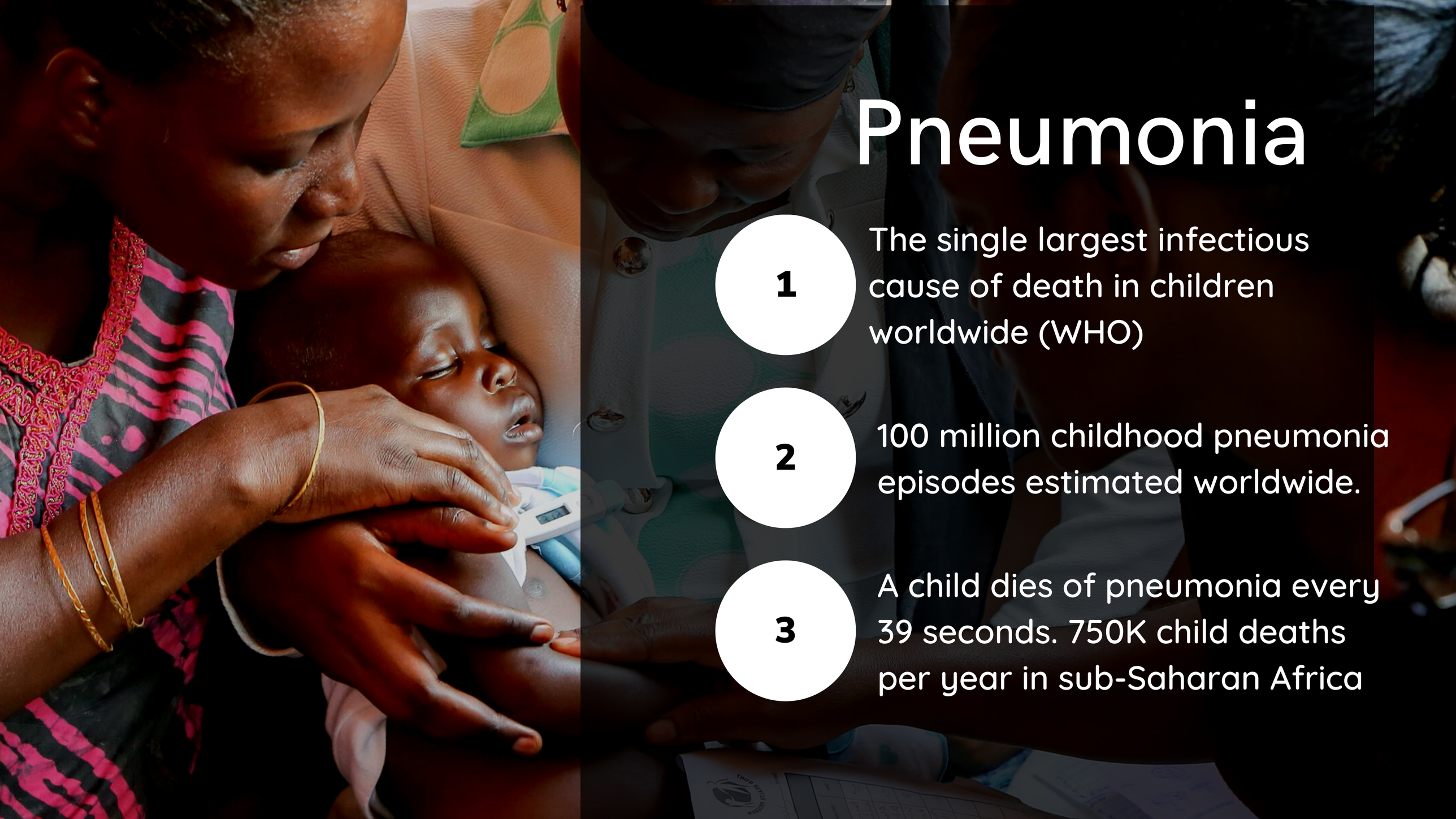
MinoHealth AI Labs

Democratizing quality healthcare

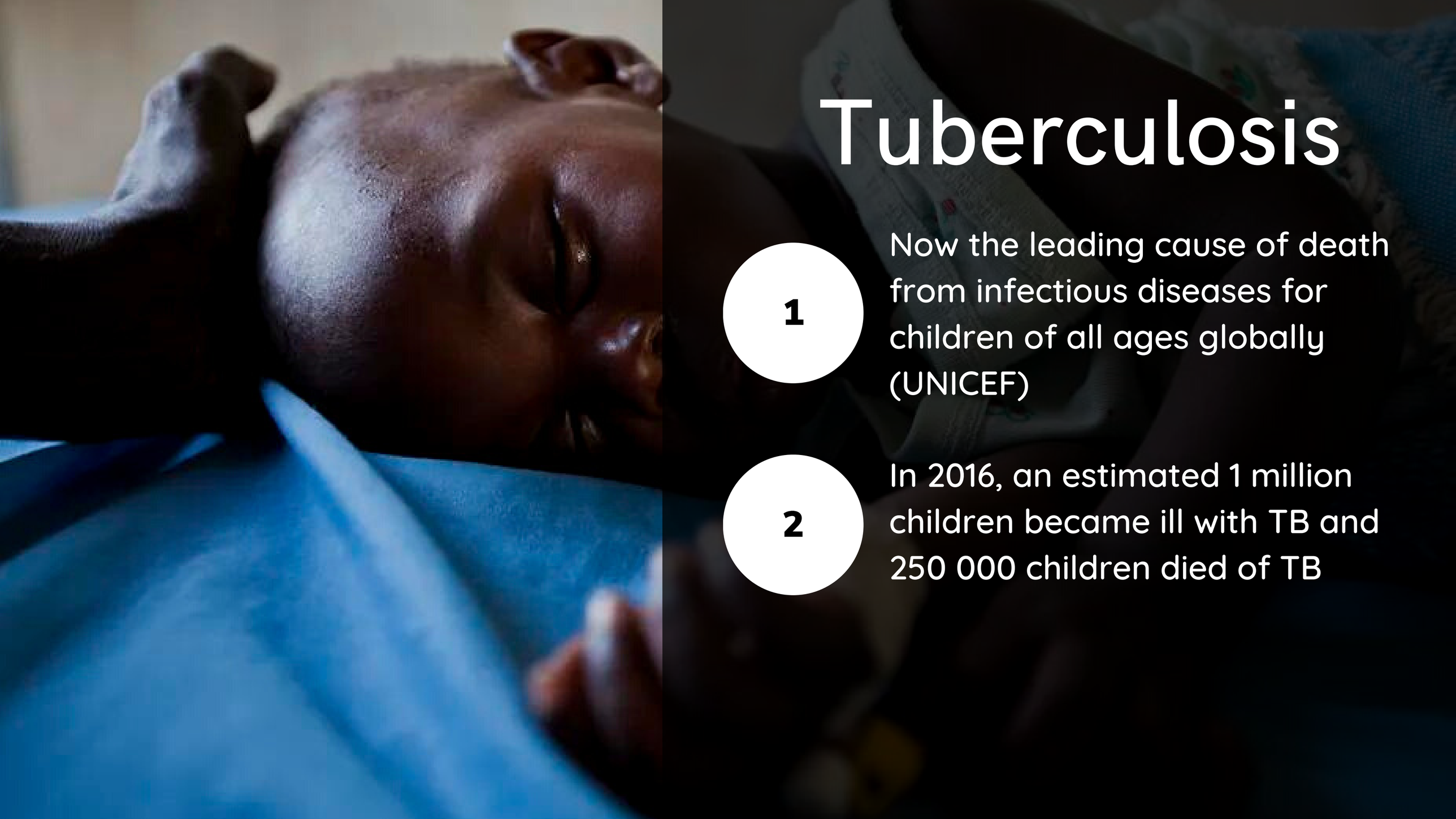
Darlington Akogo
Founder, CEO

PROBLEM



Pneumonia

1. The single largest infectious cause of death in children worldwide (WHO)
2. 100 million childhood pneumonia episodes estimated worldwide.
3. A child dies of pneumonia every 39 seconds. 750K child deaths per year in sub-Saharan Africa



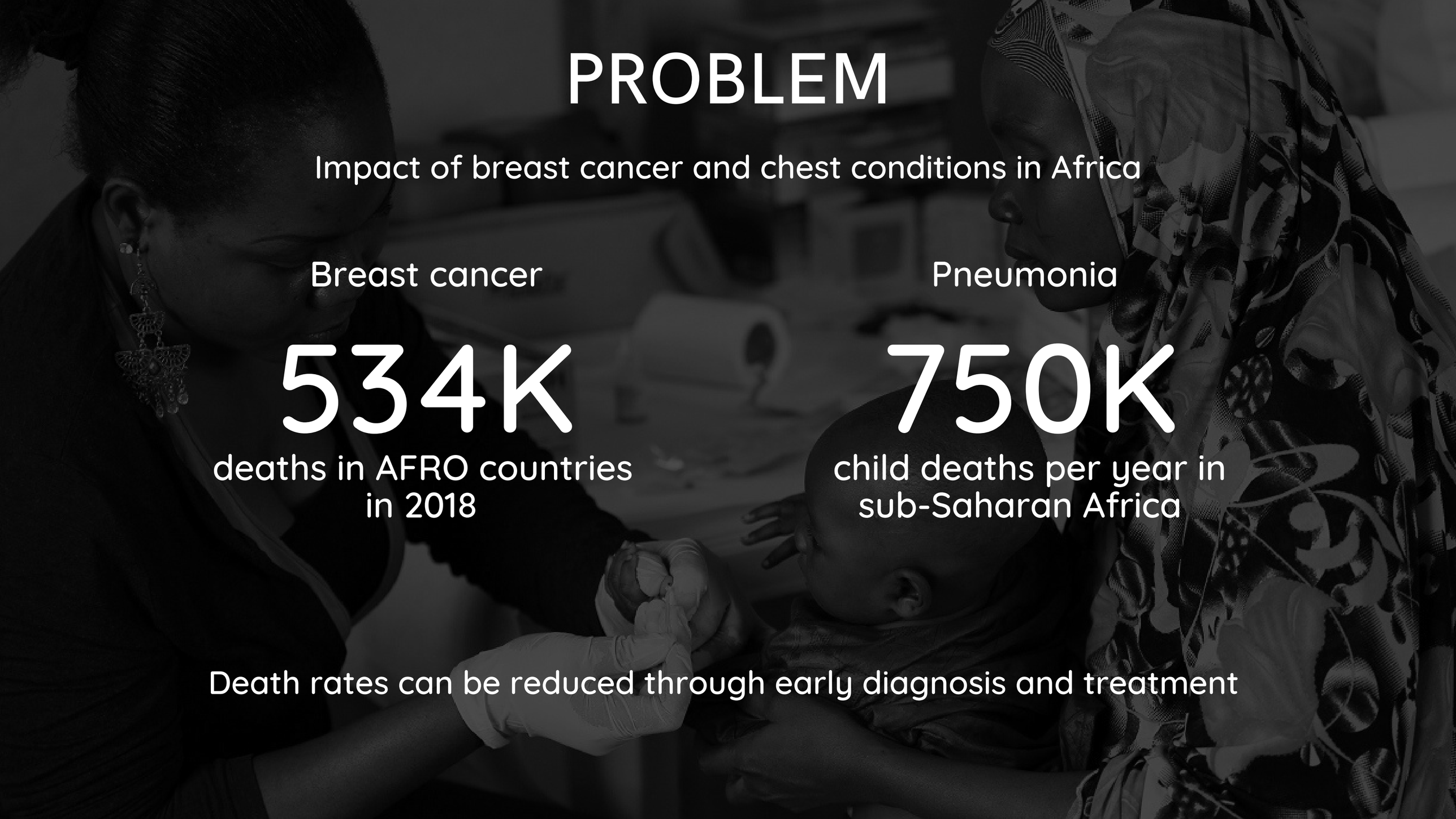
Tuberculosis

1. Now the leading cause of death from infectious diseases for children of all ages globally (UNICEF)

2. In 2016, an estimated 1 million children became ill with TB and 250 000 children died of TB

Malaria

1. 229 million estimated reported cases in 2019 (WHO)
2. 405,000 attributable deaths, of which two-thirds occurred in children under 5 years of age
3. The African Region accounted for 94% of all malaria deaths in 2018



PROBLEM

Impact of breast cancer and chest conditions in Africa

Breast cancer

534K

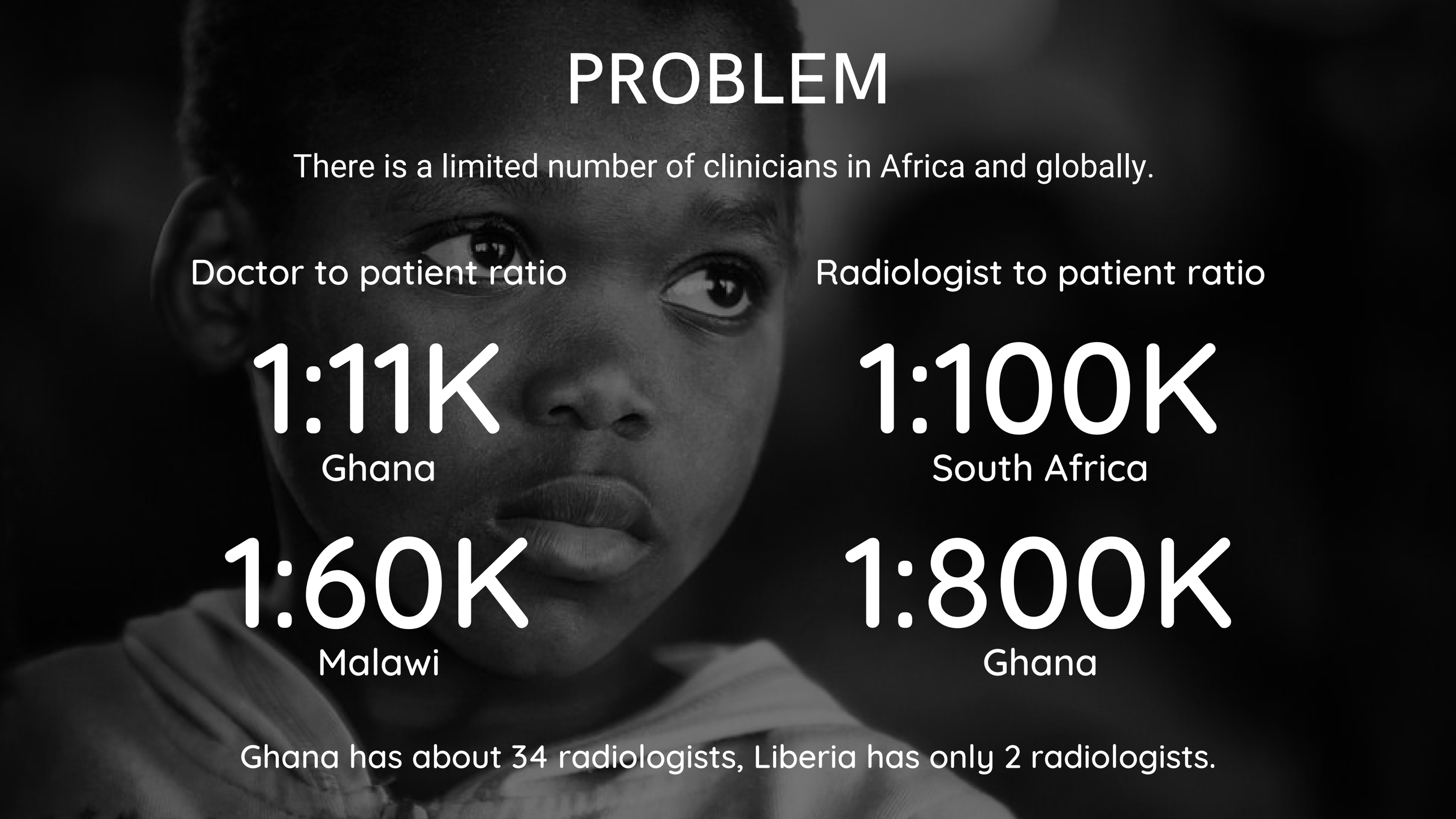
deaths in AFRO countries in 2018

Pneumonia

750K

child deaths per year in sub-Saharan Africa

Death rates can be reduced through early diagnosis and treatment



PROBLEM

There is a limited number of clinicians in Africa and globally.

Doctor to patient ratio

1:11K
Ghana

1:60K
Malawi

Radiologist to patient ratio

1:100K
South Africa

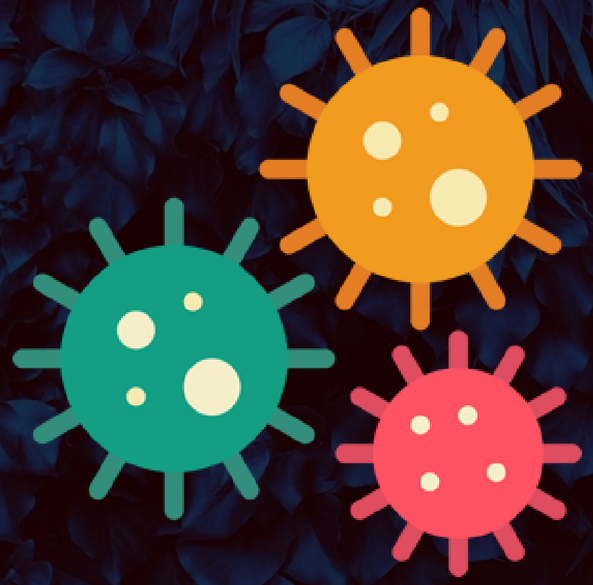
1:800K
Ghana

Ghana has about 34 radiologists, Liberia has only 2 radiologists.

Solution

We are automating medical diagnosis, prognosis, and forecasts.

We are an internationally recognized startup pioneering AI in health. We are helping health facilities provide quality healthcare and reducing the workload on the existing clinicians.

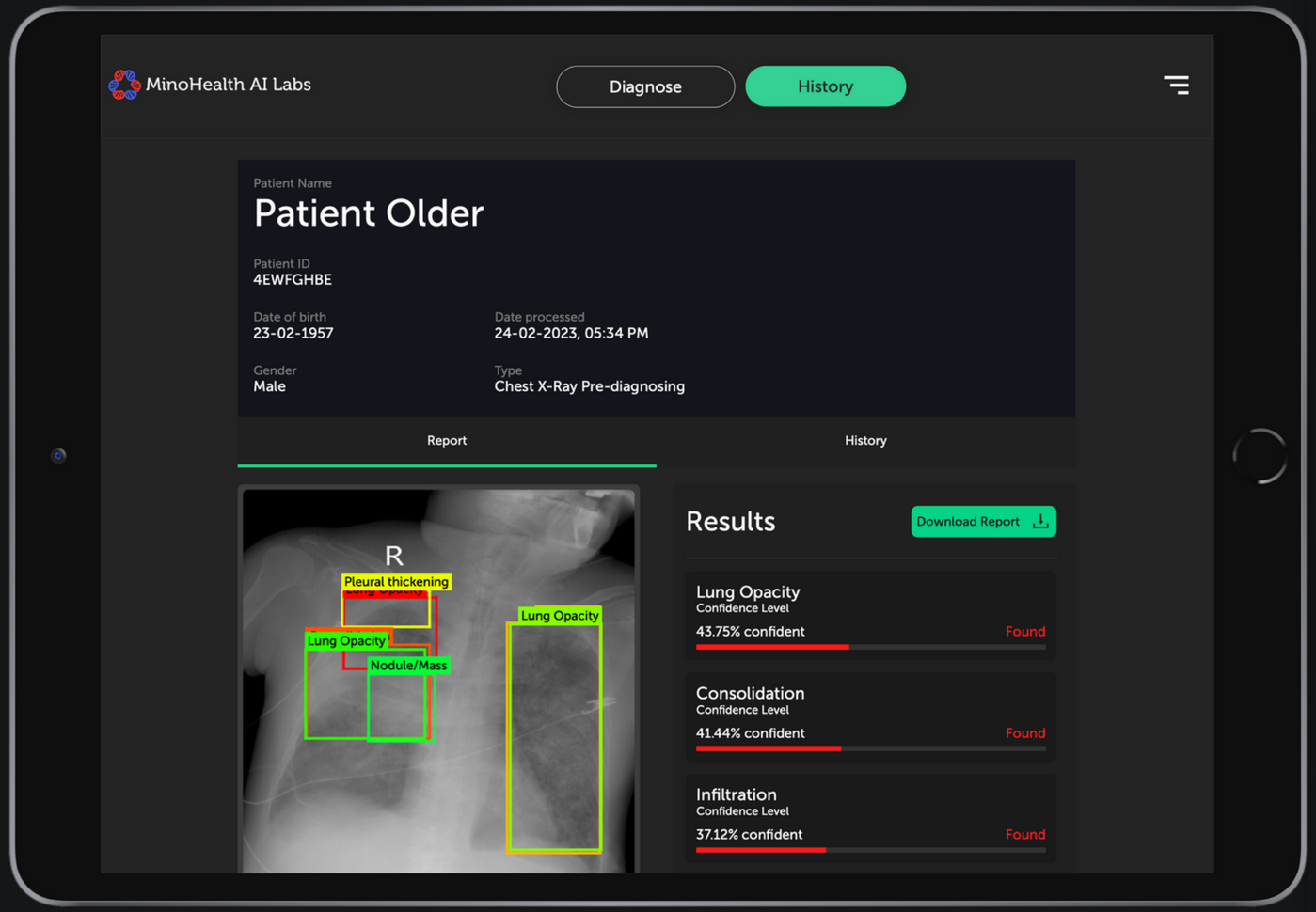


AI for Infectious Diseases

AI for Radiology

AI for Biomedical Research

Product



Automated AI Chest Pre-Diagnosing (chest x-ray) for:

- Cardiomegaly
- Pleural effusion
- Aortic enlargement
- Atelectasis
- Calcification
- Consolidation
- Interstitial Lung Disease
- Infiltration
- Lung Opacity
- Nodule/Mass
- Other lesion
- Pleural thickening
- Pneumothorax
- Pulmonary fibrosis

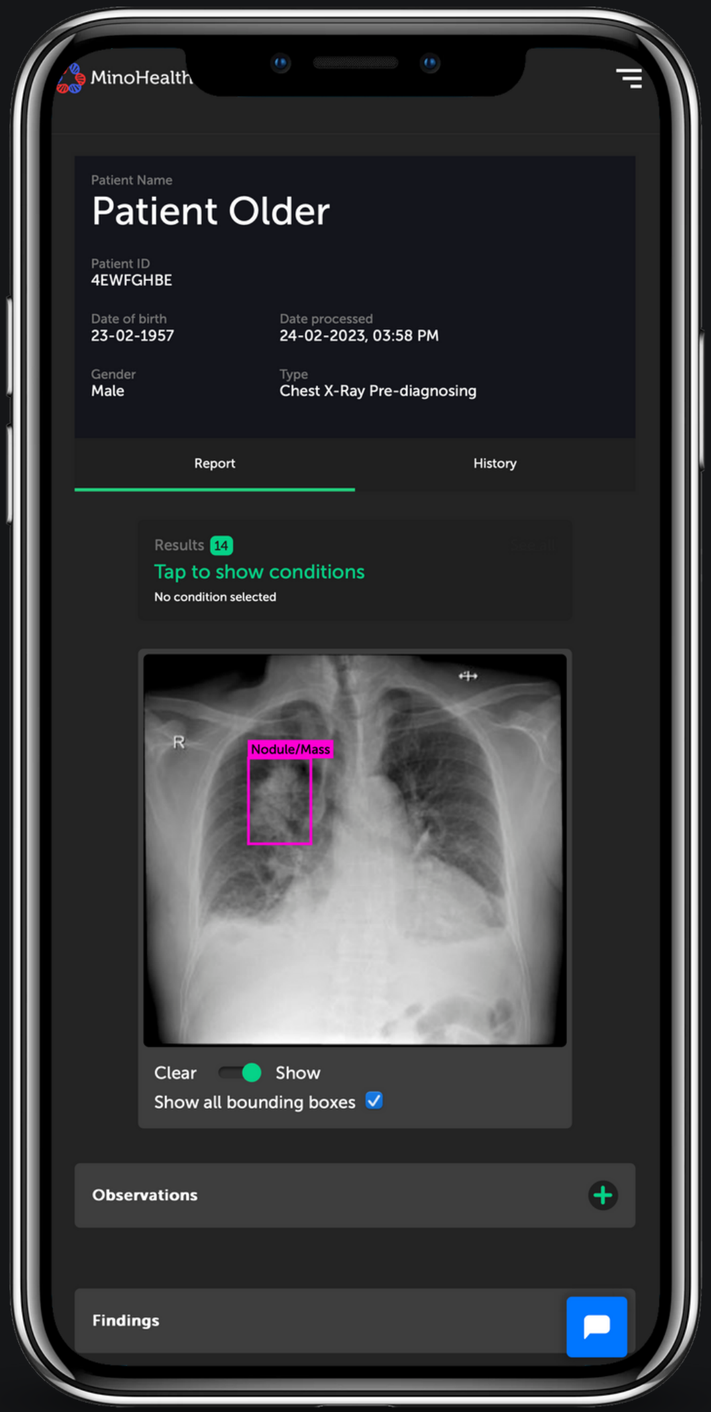
Visit: platform.minohealth.ai

Product

minoHealth AI

minoHealth AI supports the automated diagnostics of 14 chest conditions with chest X-rays, and breast cancer with mammograms.

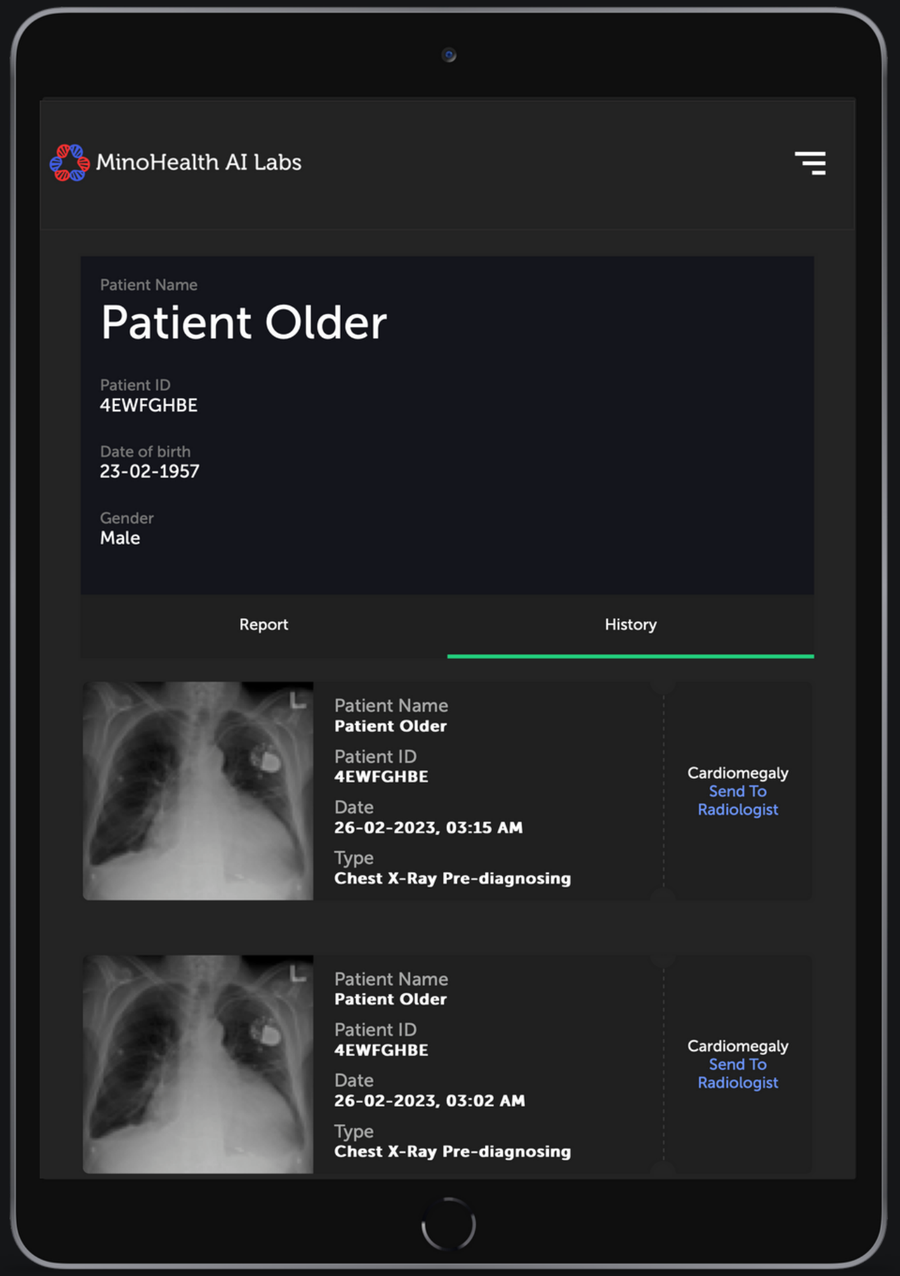
The system is given a chest X-ray or mammogram as input, the AI system analyses it and then generates diagnostics results.



How It Works

1. Fill AI form with patient's medical image and information

2. minoHealth.ai analyses the medical image and then provides AI diagnostics results



Benefits

1. Fast: Diagnostic Radiology in under 1 minute
2. Accurate: high performance of AI systems
3. Affordable: AI diagnostics at a price accessible to all

minoHealth.ai: A Clinical Evaluation Of Deep Learning Systems For the Diagnosis of Pleural Effusion and Cardiomegaly In Ghana, Vietnam and the United States of America

Darlington, Akogo[1]; Benjamin Dabo Sarkodie[2], Issah Abubakari Samori[1]; Bashiru Babatunde Jimah[3]; Dorothea Akosua Anim[4]; Yaw Boateng Mensah [2];

[1] minoHealth AI Labs, Accra, Ghana.

[2] University of Ghana Medical School, Department of Radiology, Accra, Ghana.

[3] University of Cape Coast, Department of Medical Imaging, Cape Coast, Ghana.

[4] Korle-Bu Teaching Hospital, Radiology Department, Accra, Ghana.

Clinical Evaluation

The first AI for Radiology clinical study in Africa.

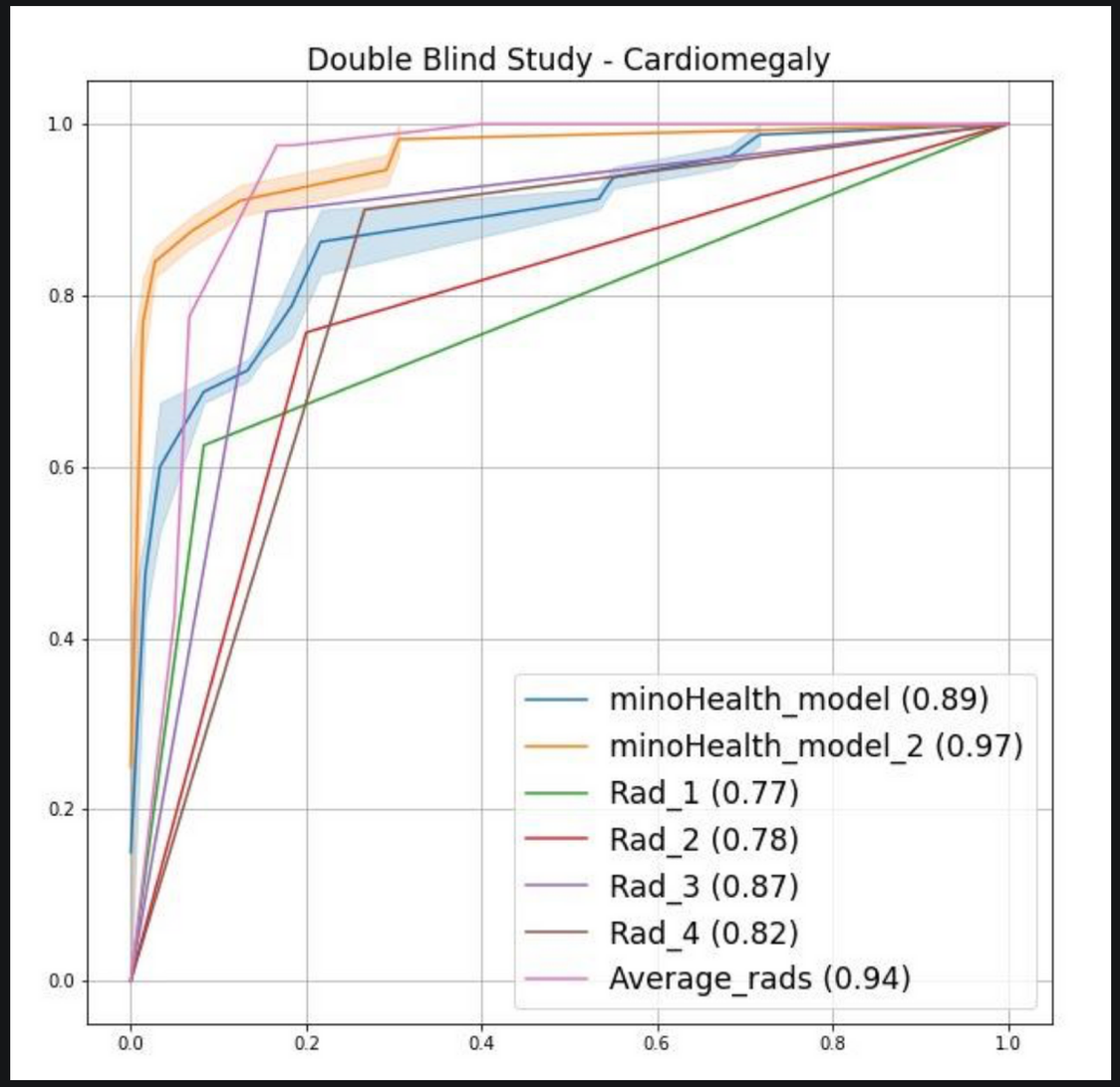
Evaluation Data
The evaluation dataset used in this study contained 100 images selected from Ghana, Vietnam and the USA.

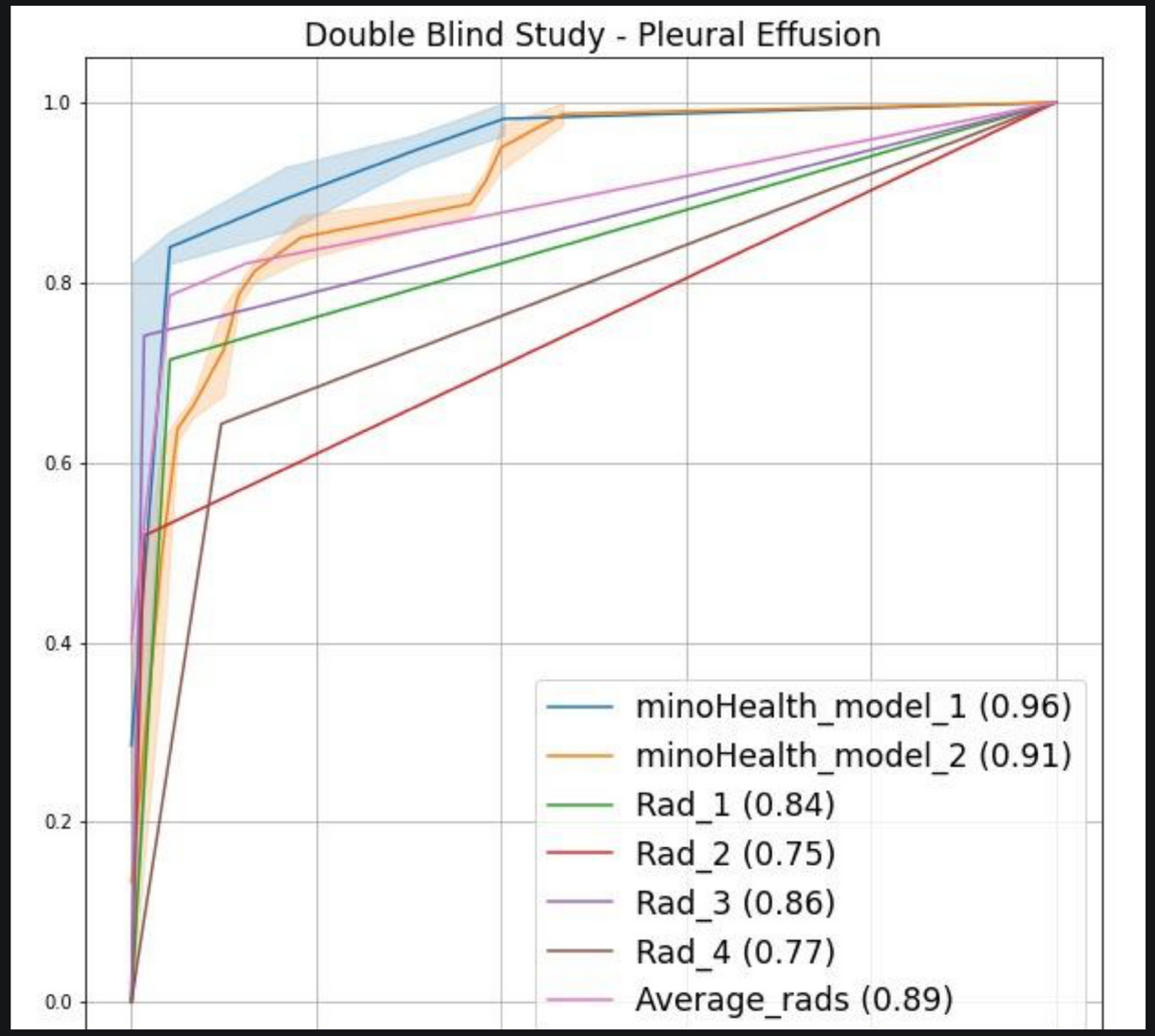
AI system was further tested on a larger Ghanaian dataset containing 561 samples.

Evaluation Against Gold Standard
2 minoHealth.ai systems
4 radiologists: with 5 - 20 years experience, to diagnose independently.

Clinical Evaluation: Results

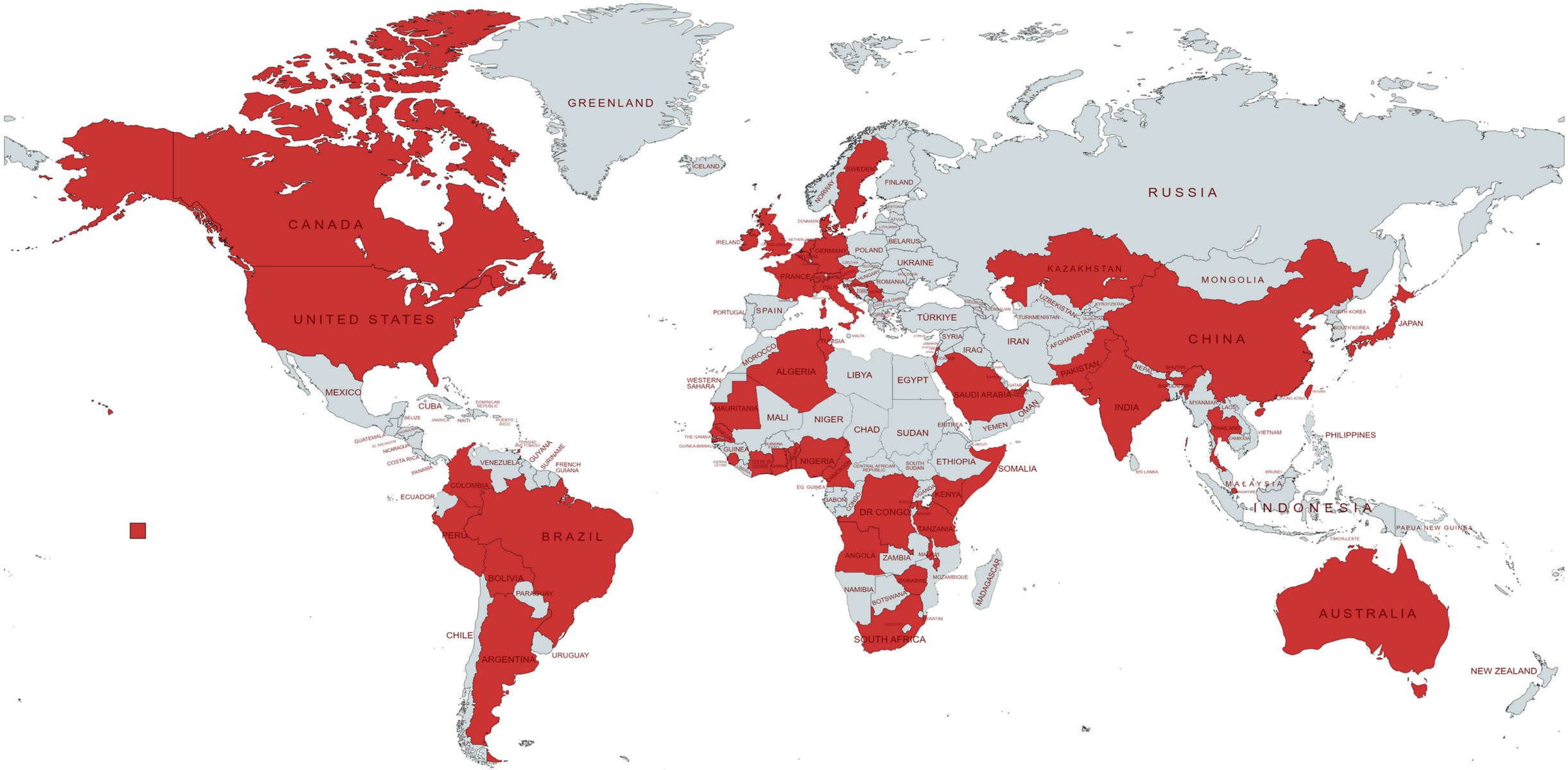
NEXT





AI for Radiology System Certified By:

minoHealth.ai has users in 54 countries around the world



MinoHealth AI Labs
Diagnosis
History
Results
CHEST,FRN P->A
Palette1
Palette2
Delivery
List
GA
0.7
GS
-0.44
S
1102
L
2.18
Canon
DELL
MinoHealth
AI Labs

Impact

1. Democratised early disease detection for all citizens
2. Allowing for early intervention
3. Leading to higher survival rates & life expectancy, and better quality of life

OUR COLLABORATORS

NEXT

World Health Organization

ITU

Imperial College London

Lacuna Fund
Our voice on data

AI for Health
An ITU Focus Group
In collaboration with WHO

UNIVERSITY OF OXFORD

UKRI UK Research and Innovation

EURACARE
MULTI-SPECIALIST HOSPITAL

NIHR | National Institute for Health Research

Traction: Progress to Date

United Nations ITU & WHO TG-AI4Radiology

Our Founder and CEO is the Lead for the Topic Group on Artificial Intelligence for Radiology under the United Nations ITU and World Health Organization Focus Group on AI for Health (FG-AI4H).

minoHealth AI Labs is a member organization that works on developing global standards and regulations for the development, benchmarking and use of AI solutions in Radiology.

AI for Health
An ITU Focus Group
In collaboration with WHO

ITU

World Health Organization

Traction: Progress to Date

The Digital Health & AI Global Health Strategy Group

Created by the University of Oxford and 13 partners from around the world including MinoHealth AI Labs. We are identifying limitations, gaps, and challenges in global health, digital health and AI, and utilizing collaborations and expertise within the strategy group towards addressing them.

Darlington serves as the Co-Chair of the DHAI global health strategy group.

FT FINANCIAL TIMES

UNIVERSITY OF OXFORD

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ROBERT KOCH INSTITUT

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

THE AGA KHAN UNIVERSITY

Traction: Progress to Date

UKRI Funded Digital Diagnostics for Infectious Diseases

minoHealth AI Labs is the AI partner to Imperial College London in the project to develop a global network and roadmap for Digital Diagnostics for Infectious Diseases including Malaria, funded by UKRI (2020-21) and NIHR (2022-)

This involves the research and development of handheld lab-on-a-chip molecular diagnostics systems for the detection of infectious diseases.

UK Research and Innovation

NIHR | National Institute for Health Research

Imperial College London

Traction: Progress to Date

AI4COVID-19 INITIATIVE

This is a research and development effort by minoHealth AI Labs, Runmila AI Institute and partners, to use Artificial Intelligence and Data Science in combating COVID-19 in Ghana and Africa.

We developed a series of interactive graphs to help in mapping out the pandemic. It was the first Africa-focussed live COVID-19 tracker. We updated these graphs daily according to recorded changes.

Traction: Progress to Date

AI FOR TUBERCULOSIS CHALLENGE

In partnership with our sister organization, Runmila AI Institute organized a Tuberculosis challenge with Zindi Africa. Participants were asked to build an AI model that can classify Tuberculosis and Normal X-Ray results.

1,148 submissions, from 327 data scientists across 42 countries, with the winner's AI solution scoring 99.4%!

AI for Malaria Detection

With funding from Lacuna Fund, we are working with Makerere University to create datasets and machine learning models for the automated detection of malaria via thick and thin smear slides.

Lacuna Fund
Our voice on data

MAKERERE UNIVERSITY
WE BUILD FOR THE FUTURE

Foundation Model For Health

With funding from the Gates Foundation, we are building a generative AI for health.

This will serve as a medical assistant to doctors and radiologists. It'd be able to interpret medical images and generate reports.

BILL & MELINDA GATES foundation

Featured In

Our AI solution was named among the 'Top 5 Technologies Disrupting Africa' by AppsAfrica.

Our innovations and research papers have been featured internationally by various orgs, platforms, summits including Harvard Global Health Institute, MIT Critical Data & Novartis DASH, MIT Biotech Community, EU: Africa The Post-Crisis Journey, African Union Africa Industrialisation Week, Advances In Information & Computing, NeuRIPS, Future of Information and Communications.

African Union

HARVARD GLOBAL HEALTH INSTITUTE

MIT Critical Data

DASH

We are looking forward to working with you!

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www.minohealth.org