Initial Lay Summary

TRUST-ER: Triage UltraSound in TB Endemic Regions

Ref. 2022-17

Originaltitel: Point-of-care ultrasound for the diagnosis and risk stratification of lower respiratory tract infections in TB endemic regions: a multicenter prospective cohort study

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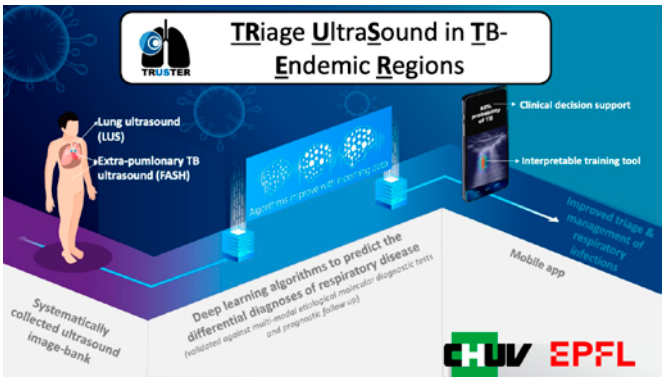
Synopsis

The TRUST-ER study investigates the utility of portable ultrasound for the diagnosis and prognosis of respiratory infections in regions with high rate of tuberculosis. Automated interpretation of ultrasound images by artificial intelligence has the potential to facilitate large-scale implementation.



Triage ultrasound in TB endemic regions: Ultrasound images will be collected in patients with respiratory infections in Benin and South Africa to evaluate the diagnostic and prognostic potential of this portable tool. Artificial intelligence will be used for an automated interpretation of ultrasound images to facilitate large-scale implementation.

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Context

Lower respiratory tract infections (LRTIs) and tuberculosis (TB) together are leading cause of death in Sub-Saharan Africa. The COVID-19 pandemic has amplified the risk of death in adult and older populations, whilst degrading surveillance and management of other respiratory diseases such as TB.

Simple techniques, such as portable ultrasound of the lungs, heart and abdomen, have all the attributes to become pragmatic community-based screening tools for LRTIs and TB: portable, easy-to-use, non-invasive and consumable-free. Automated interpretation of ultrasound images using artificial intelligence might facilitate large scale implementation of these tools.

The TRUST-ER study aims to investigate the diagnostic and prognostic accuracy of portable ultrasound for different LRTIs such as viral or bacterial pneumonia and TB in sub-Saharan Africa. It also aims to develop automated interpretation of ultrasound images to support front-line clinicians in patients' triage and management.

Objectives and methods

To evaluate the accuracy of ultrasound for the diagnosis of LRTIs and TB, the TRUST-ER study will include 1000 patients in West and South-Africa presenting in emergency departments with respiratory symptoms. All patients will have a bedside ultrasound of the lungs, the heart sac and abdomen. All findings will be compared to the standard laboratory-way of diagnosing viral, bacterial pneumonia and TB. All ultrasound images will be processed to develop automated interpretation.

Significance

Timely LRTI and TB diagnoses improve patient's outcome and control of infection spread. For physicians working in areas without access to specific laboratory tests or radiology, portable ultrasound holds an important potential in improving patients' triage and management.

Start and duration

The recruitment of patients in the TRUST-ER study started in October 2021 in Benin, and will start in April 2022 in 2 South-African sites. The project will continue over a period of 4 years.

	Betrag	
Total research budget	CHF	179'950
Grants promised / received by third parties	CHF	0
Grants pending from third parties	CHF	0
Grants being sought from the Swiss Lung Association	CHF	179'950
Amount to be acquired by researchers	CHF	30'000
Contribution from Research Fund of the Lung Association	CHF	44'950
Donations required from third parties	**CHF**	**105'000**