
The Union
WORLD CONFERENCE ON LUNG HEALTH 2022
COMBATING PANDEMICS: TODAY & TOMORROW
Virtual Event November 8-11

DETECTION OF HIGH BURDEN VICINITIES IN URBAN AREAS IN KIGALI (RWANDA).

Mauro Faccin

CONFLICT OF INTEREST DISCLOSURE FORM

I have no Conflict of Interest to report

TUBERCULOSIS UNDER-DETECTION

- 3.6 million TB cases are missed yearly [WHO]
- Tuberculosis in urban areas often correlates with poverty.
- Detection of neighborhoods at high risk of tuberculosis outbreaks

SATELLITE IMAGERY

Use of satellite imagery and computer vision algorithms to detect highly populated neighborhoods

Assumptions

High incidence causes include:

- high pop. density
- poverty

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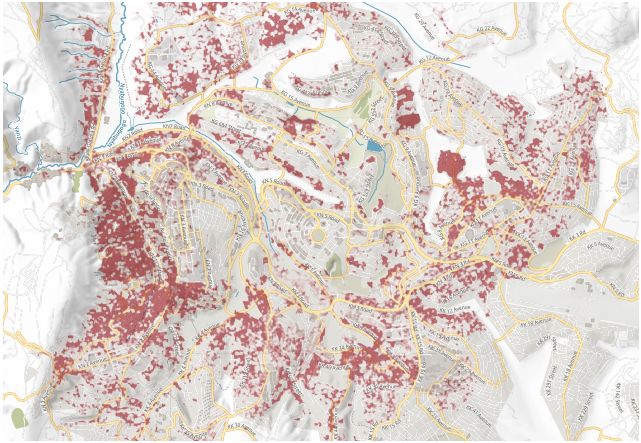

THE MODEL

Algorithms

- detection of high density of object contours;
- detection of green areas 🌲.

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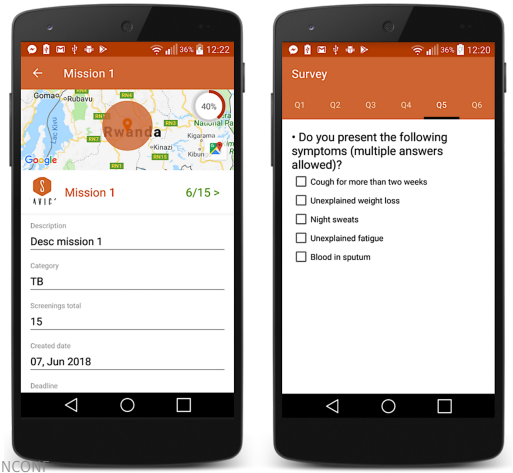
DIGITAL SUPPORTED QUESTIONNAIRE

Triage survey based on symptom, exposure and environment weighted questions.

Use of **MediScout©** (Savics, Belgium) for screenings activities:

- Mobile apps to plan and carry on the survey

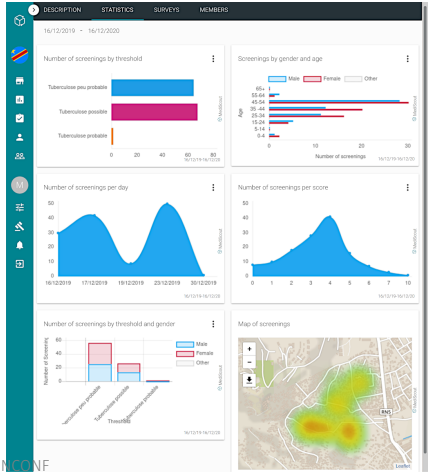


DIGITAL SUPPORTED QUESTIONNAIRE

Triage survey based on symptom, exposure and environment weighted questions.

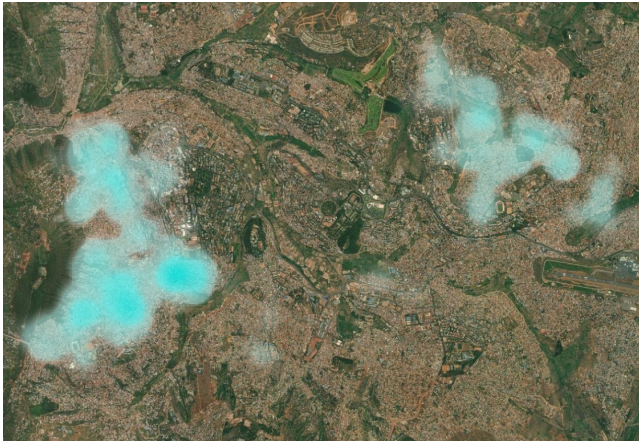
Use of **MediScout©** (Savics, Belgium) for screenings activities:

- Mobile apps to plan and carry on the survey
- Web app to collect data and perform analysis



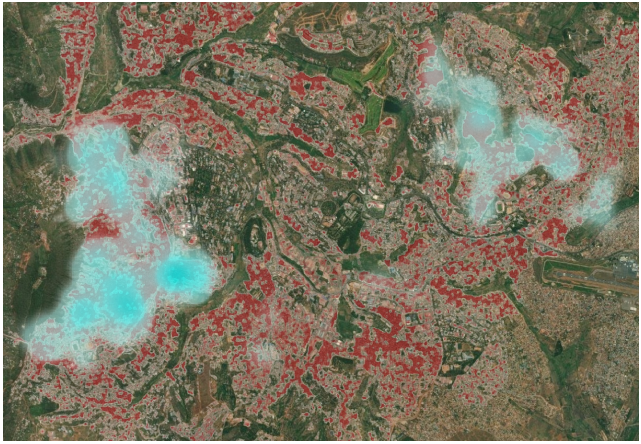
ACTIVE CASE FINDING

We perform a digitally assisted multi-centric prospective study in Kigali (DRC).



ACTIVE CASE FINDING

Screenings	10422
Tests (Xpert MTB)	202
positive cases	9



QUESTIONNAIRE AS TRIAGE SYSTEM

Deeper survey

Questions on symptoms, exposure and environment outperform simple *cough* triage.

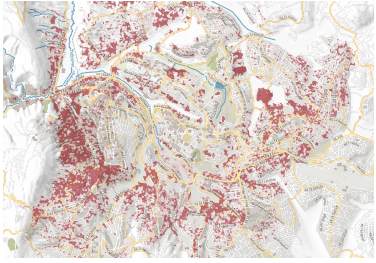
The mobile support allows for:

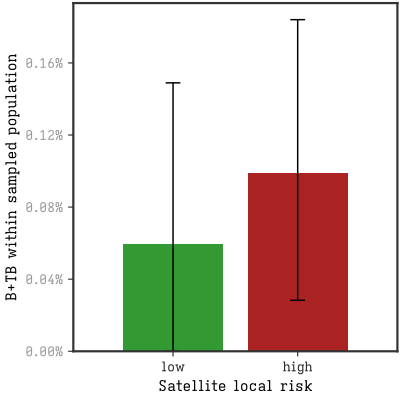
- collection of data
- easy triage through weighted questions
- easy analysis

No cough		Cough		
low risk	high risk	low risk	high risk	
26	35	26	115	tested
0	**3**	0	6	positive

MAP EFFICIENCY

Estimated incidence correlates to measured incidence in the communities.

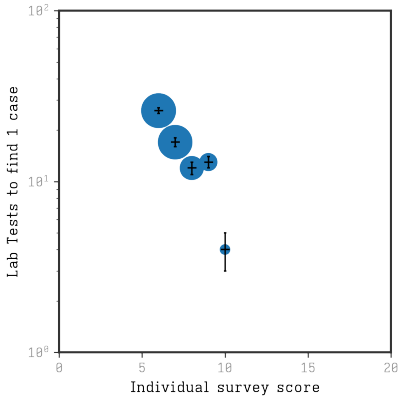




EFFICIENT TB DETECTION

Focused ACF initiatives can display higher efficiency.

Areas	NNS	NNT
Low risk	1678	33.5
High risk	1009	19.3



THANKS AND COMMENTS

Thanks to all collaborators:

- Emmanuel Andrè (UZLeuven, UKLeuven)
- Fairouz Boutachkourt (UCLouvain)
- Savics (Belgium)
- Rwanda Biomedical Center

I will happily answer to any question or comment.

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