



Tongue swab and oral rinse for the diagnosis of symptomatic and asymptomatic pulmonary TB using Xpert MTB/RIF Ultra.

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Millions with TB remain undiagnosed partly due to reliance on sputum

~2.4M

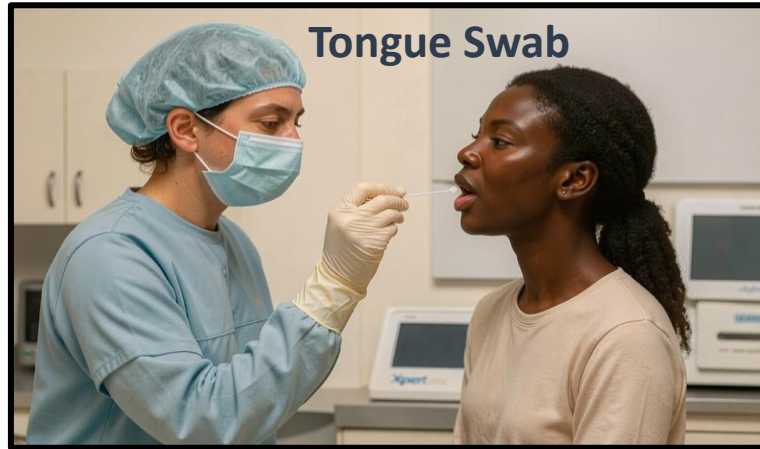
Missed TB Cases
WHO, 2024

Non-sputum samples could enable easier, wider TB testing.



Research questions

1. Can we use non-sputum respiratory samples to diagnose pulmonary TB?
2. How well do these samples perform in asymptomatic and paucibacillary TB?

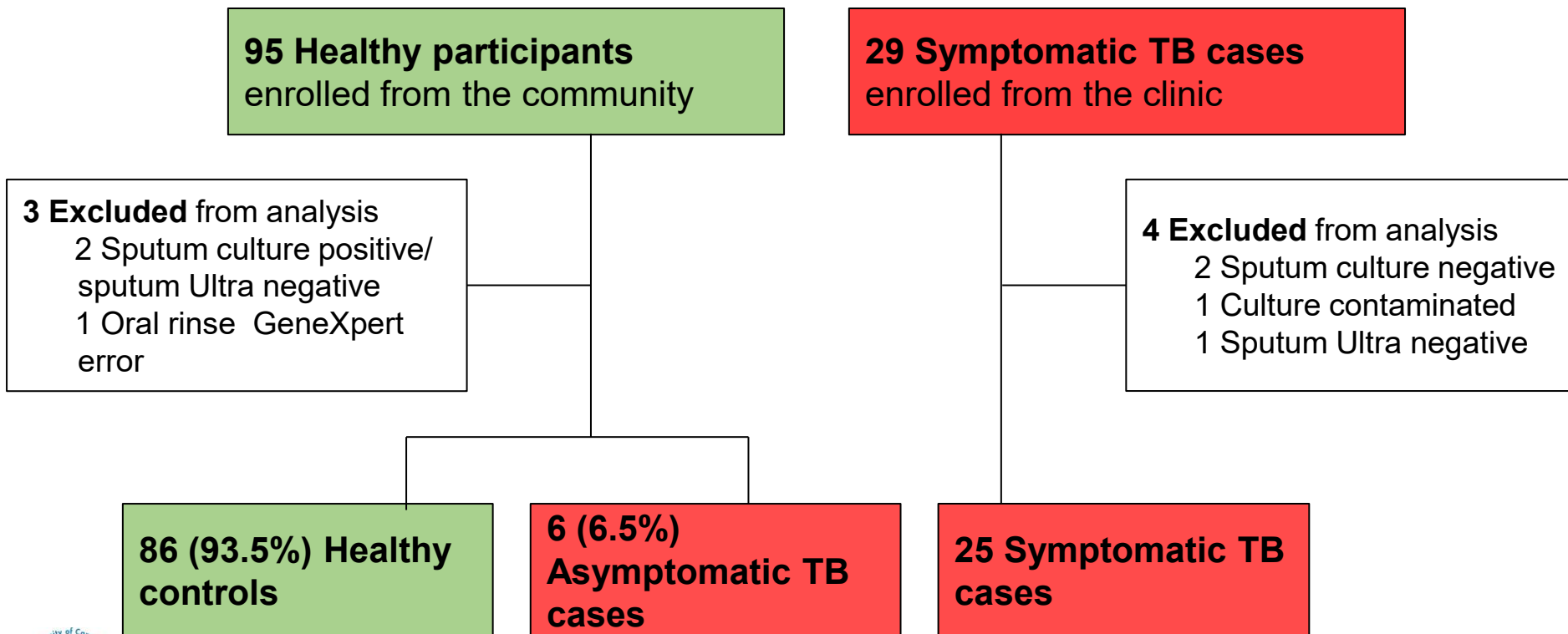


Study design and flow



- Case - Control Study
- Microbiological Reference Standard (MRS):
 - + TB Culture
 - + GeneXpert
- Symptomatic TB:
Coughing, Night sweats, weight loss, chest pain & fever.

Study design and flow



Methodology

Tongue swab



Back of
tongue

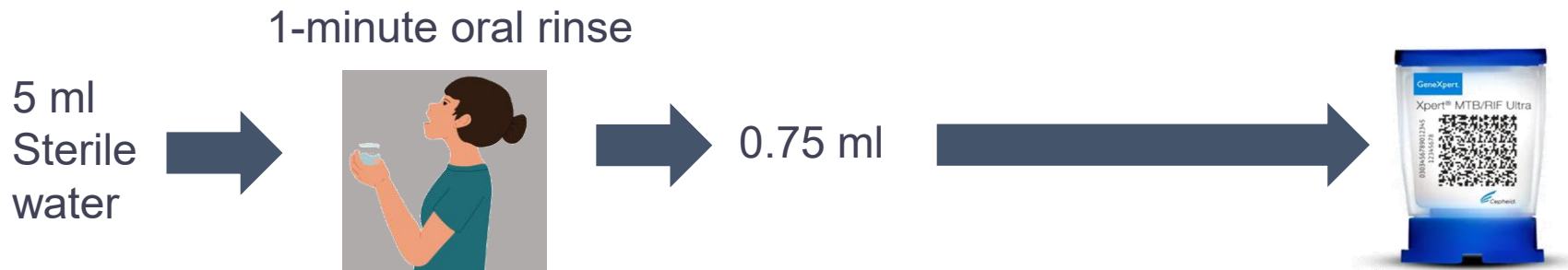
5-10 seconds



Buffer



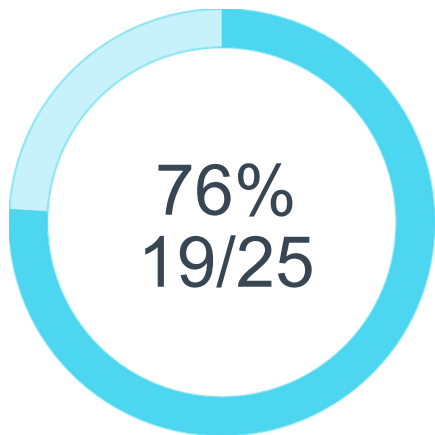
Methodology



Oral rinse

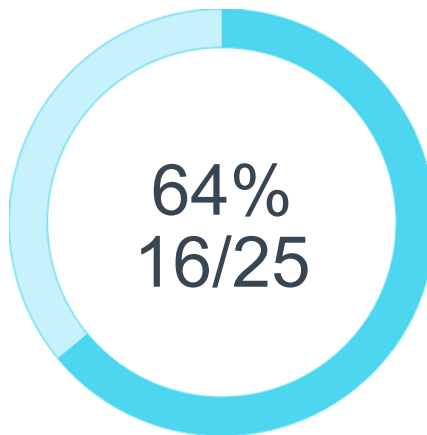
Non-sputum samples have good sensitivity in symptomatic TB

**Tongue swab
sensitivity**



[95% CI: 56.6–89.0]

**Oral rinse
sensitivity**



[95% CI: 44.5–79.8]

**Specificity for both
sample types**



[95% CI: 95.7–100]

Lower sensitivity in asymptomatic and low bacterial burden TB

Asymptomatic TB

Both methods:

33.3% Sensitivity (2/6)

[95% CI 9.7–70.0]

Low sputum bacillary load

Tongue Swab:

36.4% Sensitivity (4/11)

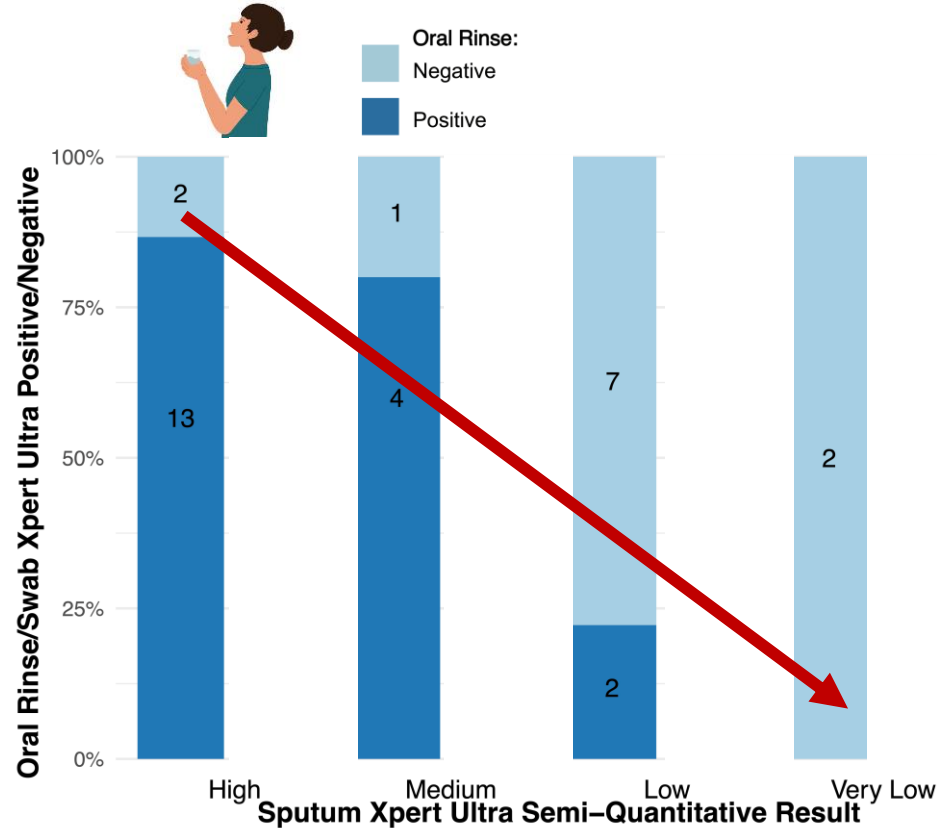
[95% CI: 15.2–64.6]

Oral Rinse:

18.2% Sensitivity (2/11)

[95% CI: 5.1–47.7]

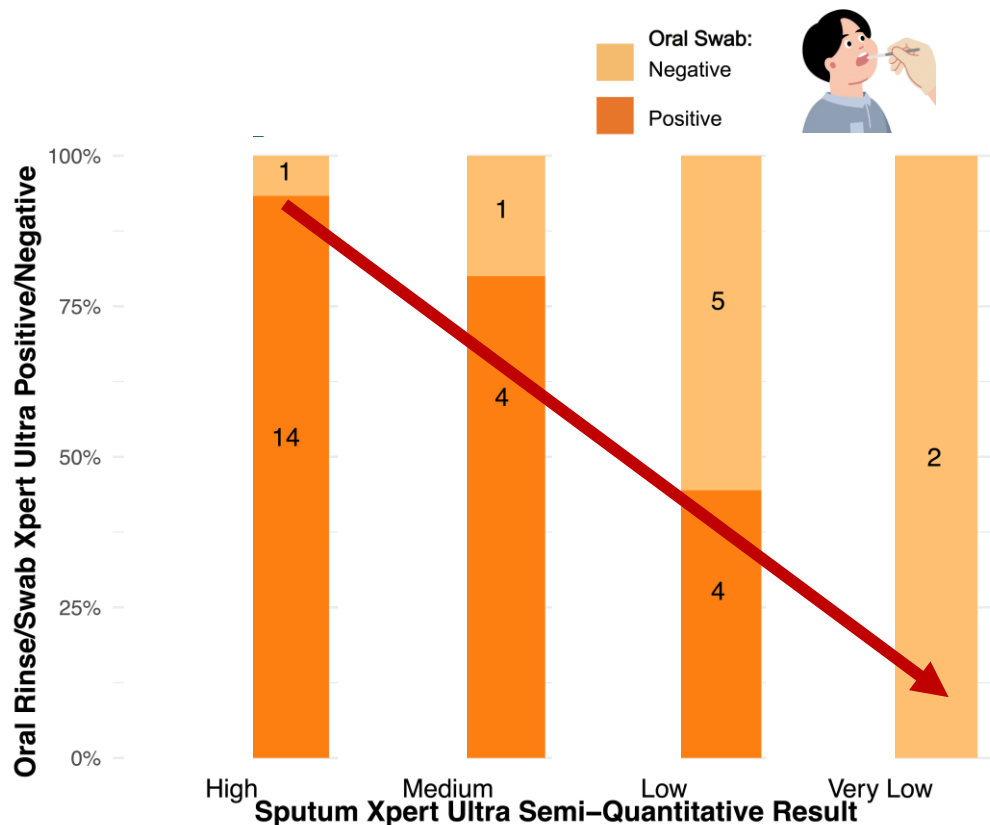
Oral rinse is correlated with sputum bacillary burden



Confidential unpublished data

Tongue swab sensitivity is correlated with sputum bacillary burden

**Difference in sensitivity
(swab – rinse):
9.7%
(95% CI -14.3 to 33.6%;
p=0.083)**



Confidential unpublished data

Take home:

1. Diagnostic sensitivity of oral rinse and tongue swabs in **asymptomatic** TB is about **half** that of **symptomatic** TB
2. Sensitivity of oral rinse and tongue swabs is correlated with sputum bacillary load
3. Triage tests for symptomatic TB among clinic attendees (passive case finding) do not perform optimally as screening tests for asymptomatic TB in community settings (active case finding)

Implications:

- Research Implications
- Public Health Implications
- Clinical Implications

Acknowledgements



Study participants

Simon Mendelsohn

Thomas Scriba

Mark Hatherill

Gabriella Jackson

Elizabeth Beyers

Suzette Visagie

Kate Hadley

Clinical and lab teams:

Hadn Africa, Thakiera Allie, Nicole Bilek, Samentra Braaf, Yolundi Cloete, Alessandro Companie, Karin de Kock, Marwou de Kock, Bongani Diamond, Mzwandile Erasmus, Terence Esterhuizen, Cynthia Gwintsa, Henry Issel, Lungisa Jaxa,

Masooda Kaskar, Nobulumko Khomba, Raphael Lebaea, Thelma Leopeng, Angelique Kany Kany Luabeya, Nondu Lushozi, Lebohang Makhethhe, Sandisiwe Mangali, Rirhandzu Mkhari, Faheemah Meyer, Miriam Moses, Angelique Mouton, Evans Muchiri, Humphrey Mulenga, Hlengiwe Nkambule, Julia Noble, Onke Nombida, Sarah Nyangu, Fajwa Opperman, Christel Petersen, Abe Pretorius, Phuti Rabatseta, Maigan Ratangee, Constance Schreuder, Carmen Segelaar, Cashwin September, Justin Shenje, Edward Sputa, Marquin Swartland, Mavis Tali, Michèle Tameris, Nicolette Tredoux, Petrus Tyambetyu, Habibullah Valley, Johanna E van Rooyen, Bianca van Wyk, and Ashley Veldsman



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Bavesh D Kana

Astika Sewcharan

Jerry Cangelosi

Rachel Wood

Alaina Olson

