

Vuka! Let's unite towards a TB-free world!

9th SA
TB
Conference
8 – 11 June 2026

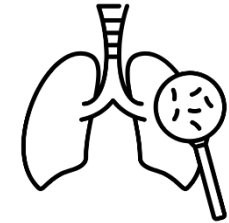
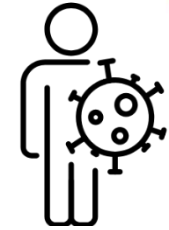
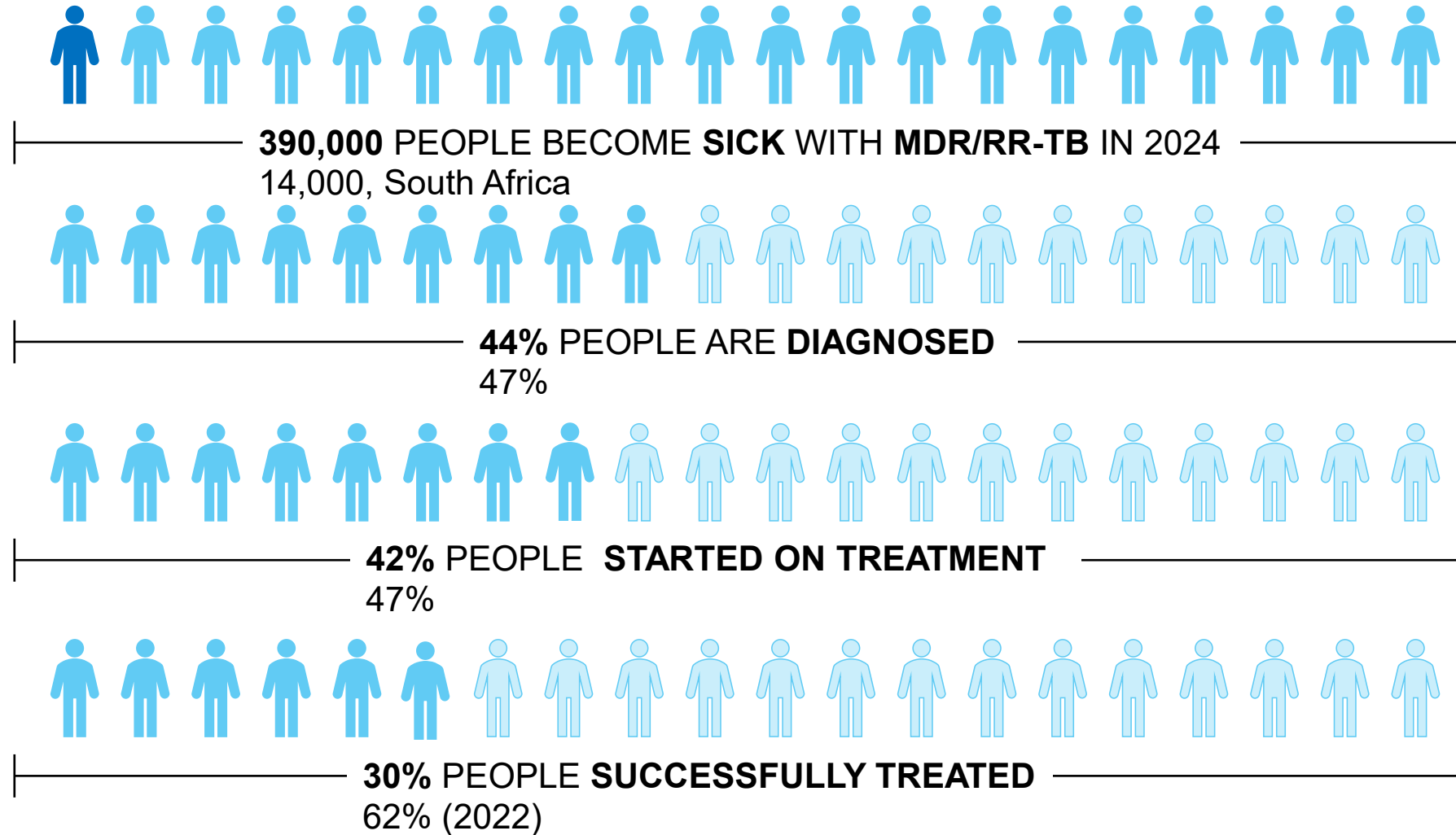


Bedaquiline and linezolid resistance in people with rifampicin-resistant tuberculosis in the Western Cape Province of South Africa

<https://doi.org/10.21203/rs.3.rs-9144949/v1>

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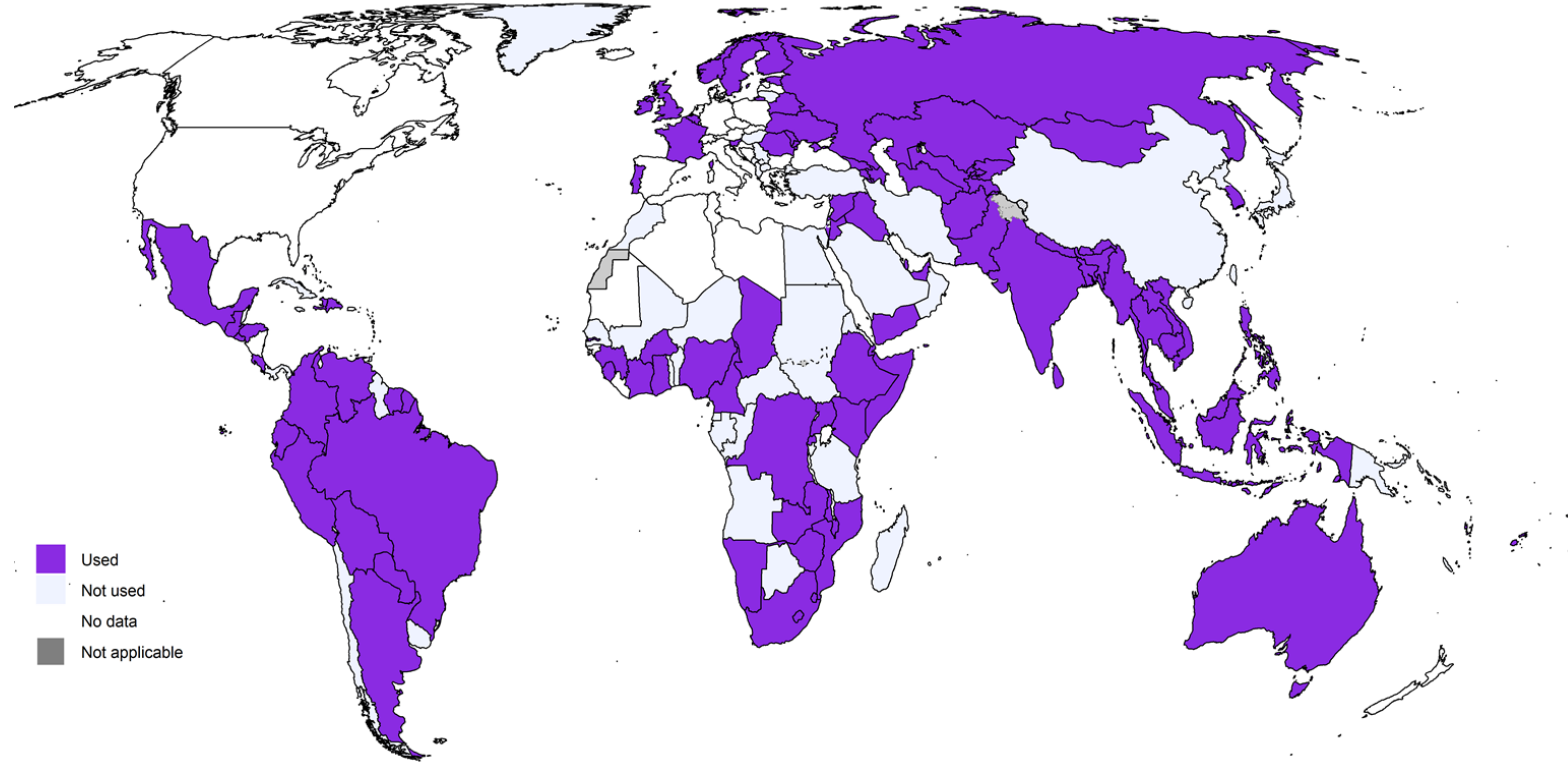
Background: Drug-Resistant Tuberculosis



MDR/RR-TB Treatment: BPaL-M/L regimen

Possible regimens by fluoroquinolone susceptibility

Fluoroquinolone-susceptible	BDQ-LZD-MXF/LVF- pretomanid- clofazimine
Fluoroquinolone-resistant	BDQ-LZD- pretomanid- clofazimine
Fluoroquinolone-resistant and bedaquiline ($\pm$ clofazimine)-resistant	LZD -pretomanid- clofazimine



Objective and methods

To determine the frequency, patterns, hotspots and distribution of bedaquiline resistant-TB in the Western Cape Province, South Africa.

Cohort

- People with RR-TB (n=3138) diagnosed programmatically in Western Cape, South Africa, between 01/01/2023- 31/12/2024

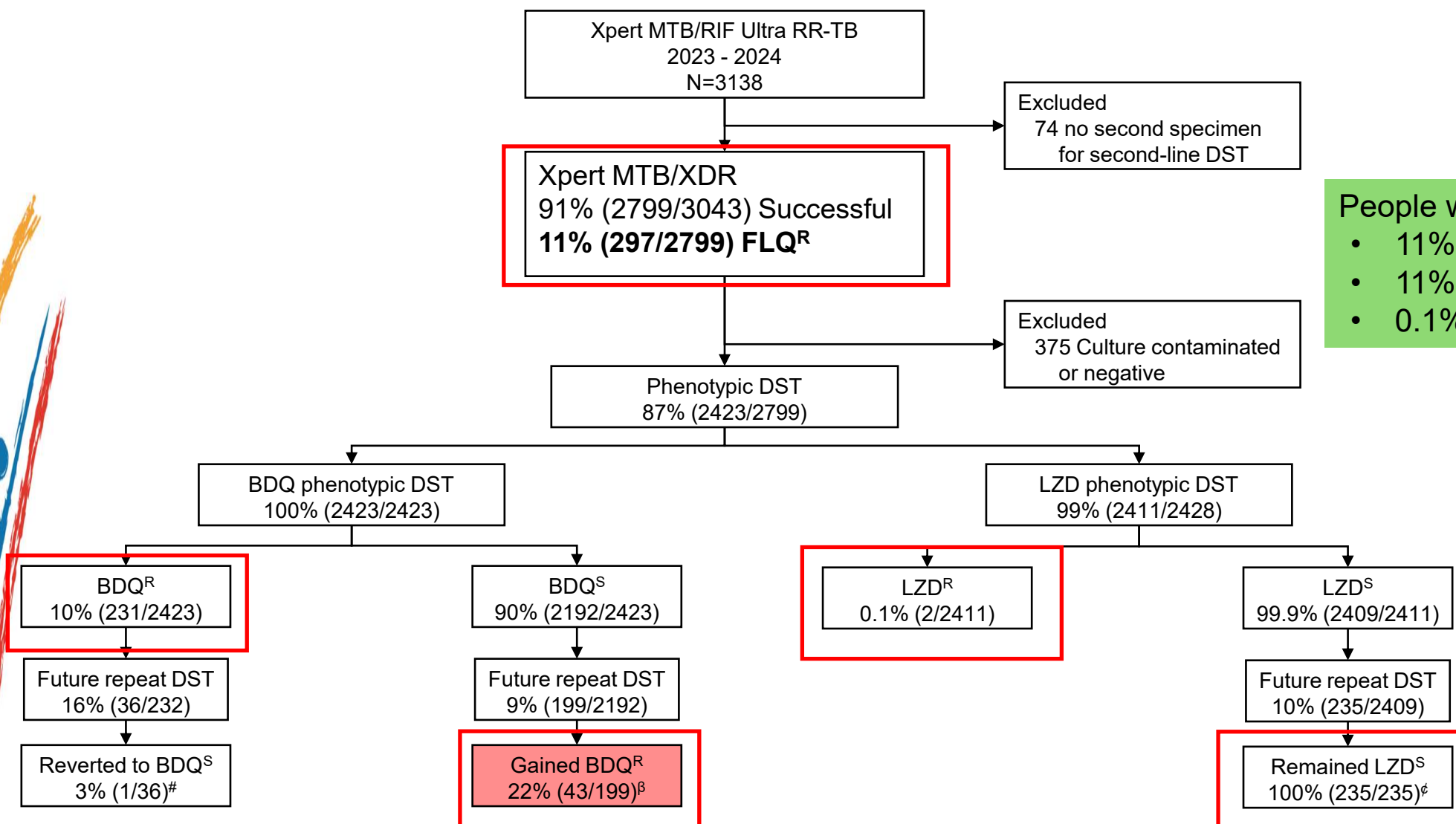
Routine diagnostics data

- Xpert MTB/RIF Ultra on sputum for rifampicin
- Xpert MTB/XDR on sputum sediment and/or isolates for fluoroquinolone
- Phenotypic drug susceptibility testing for bedaquiline and linezolid

Spatial distribution

- 32 sub-districts

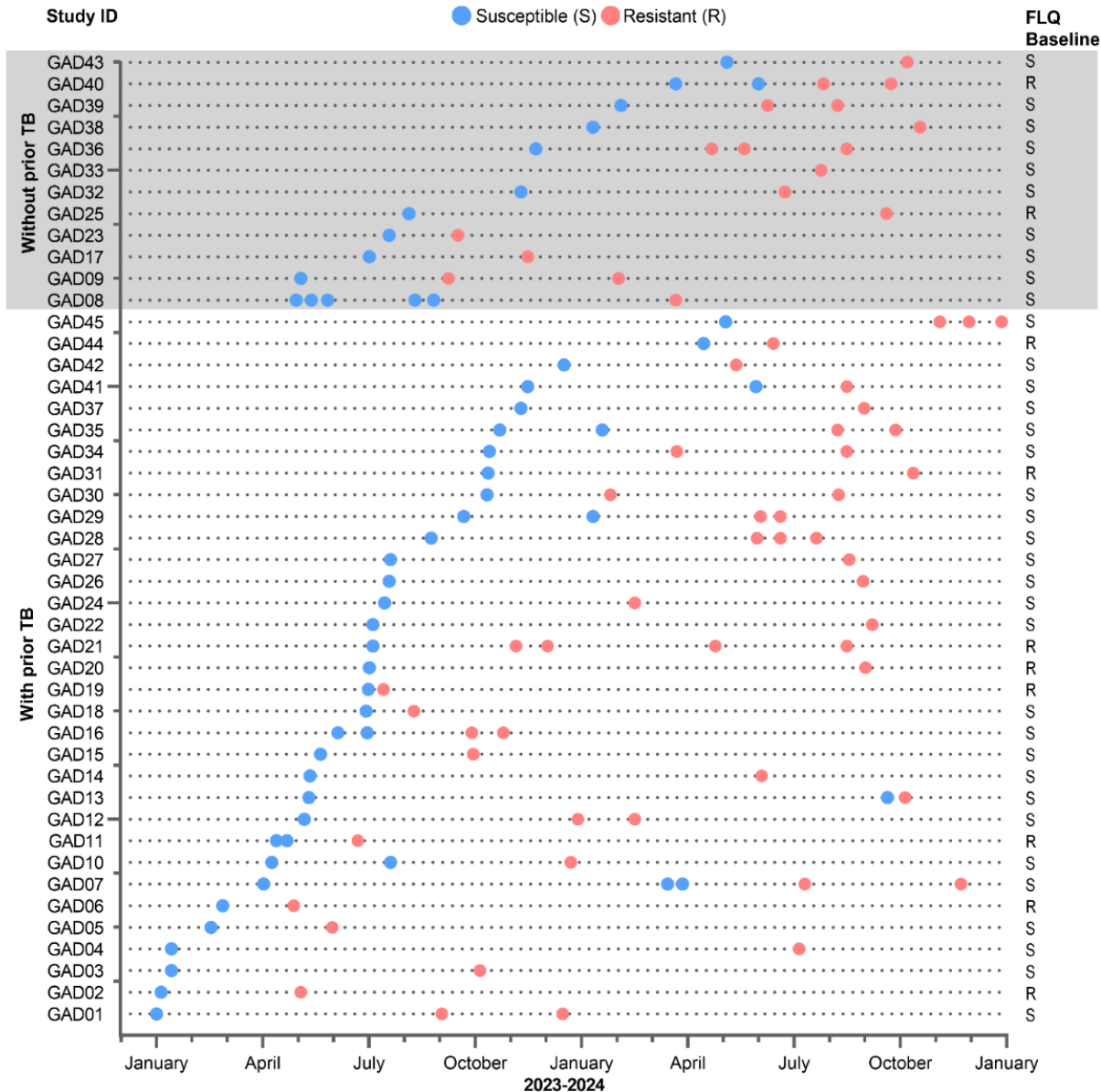
Results: Study Profile



People with RR-TB tested:

- 11% fluoroquinolone-resistant
- 11% bedaquiline-resistant
- 0.1% linezolid-resistant

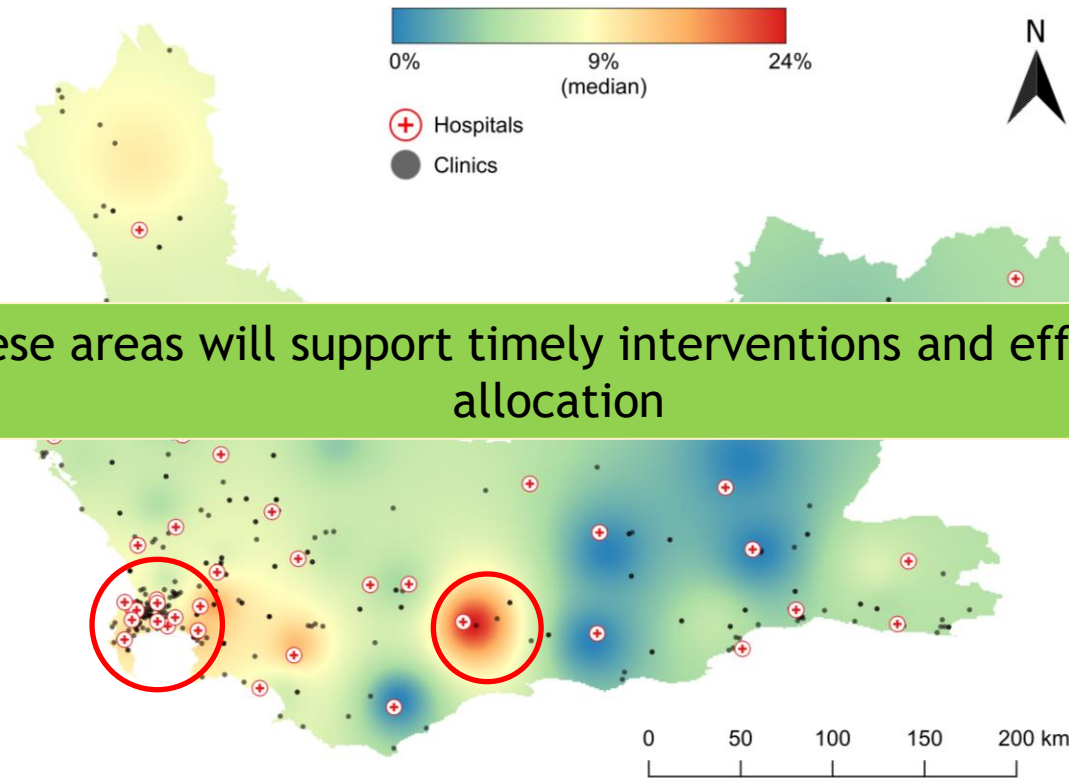
Timeline of BDQ-resistance (n=43/199)



1. One in five gained BDQ resistance
2. Three in ten had no evidence of a prior TB episode
3. One in five with baseline FLQ-resistant, and
4. All were LZD-susceptible

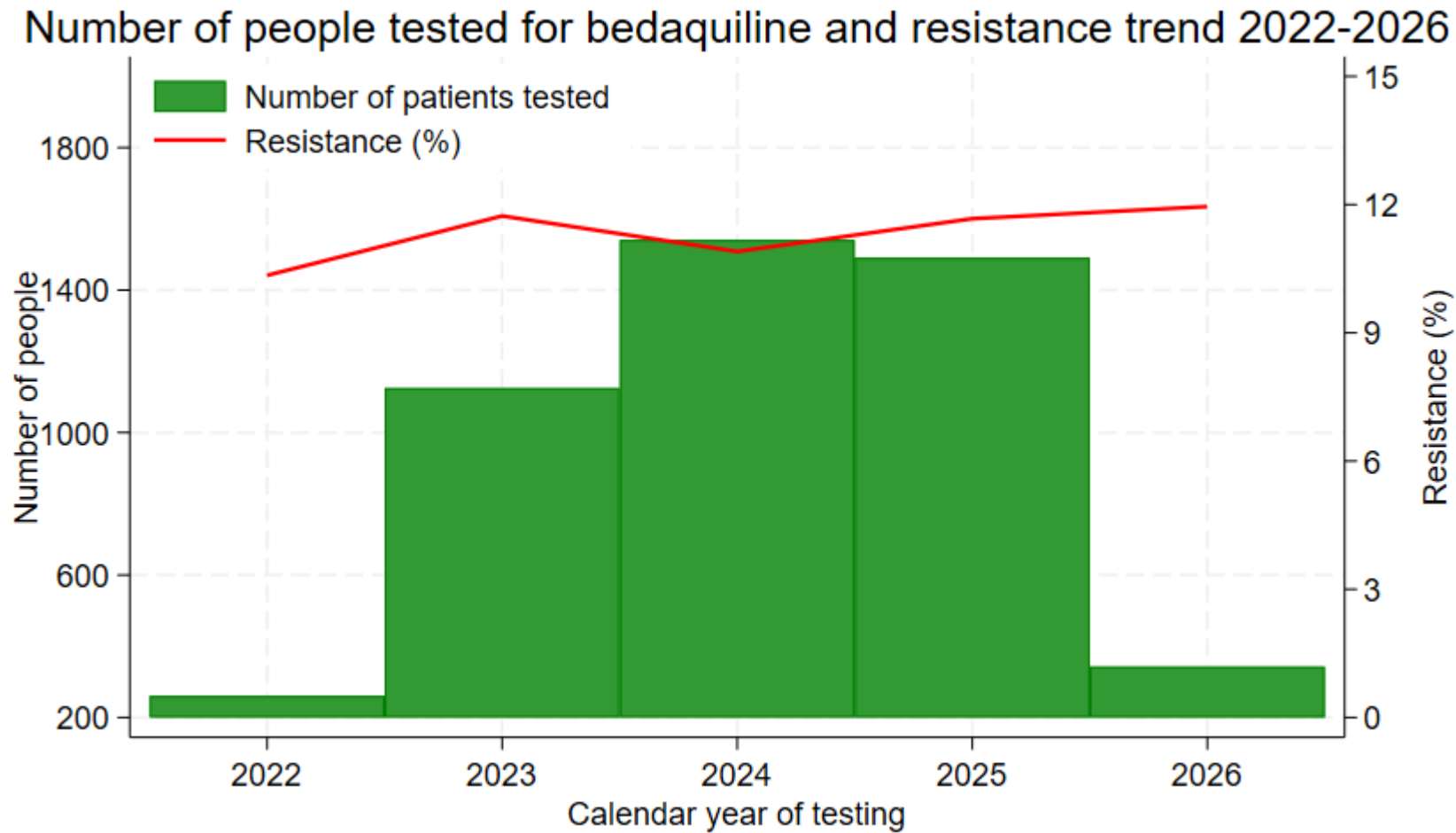
BDQ need to be protected.

Spatial distribution of BDQ-resistance per 100 RR-TB cases



Targeting these areas will support timely interventions and efficient resource allocation

BDQ-resistance trend 2022- 2026



Discussion



1) Among people with RR-TB - bedaquiline resistance

- 10% (initial/baseline)
- 11% (overall) were bedaquiline-resistant

2) Linezolid-resistance was rare, with only two cases accounting to 0.1%

3) FLQ-resistance was 11%

4) Bedaquiline per 100 RR-TB case counts were concentrated in Cape Town metropolitan area

5) Limitations

- ✓ Routine laboratory data

Conclusions and future directions

- Routine diagnostic data revealed emerging threats: possible primary bedaquiline resistance transmission
- 11% of RR-TB cases are bedaquiline-resistant
- Our data identifies hotspots
- Targeted interventions and resource allocation to curb resistant strain transmission by public health authorities
- There is an urgent need for rapid molecular DST (bedaquiline and linezolid)

Thank you

