

Evaluation of the acceptability of new and repurposed tuberculosis vaccines in southern Mozambique: the ACEITar study

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Background

- Neonatal BCG vaccination does not prevent tuberculosis (TB) in adolescents and adults ¹
- An effective TB vaccine for adolescents and adults would cumulatively avert 37.2–76.0 million cases and 4.6–8.5 million deaths before 2050 ²
- Efficacy among adolescents and adults has been demonstrated for novel TB vaccine products (e.g., M72-AS01E) ³ and BCG revaccination ^{4,5}
- Vaccine hesitancy is a barrier to achieving high coverage for other adult and adolescent vaccines, most recently COVID-19 and HPV ⁶
- Hesitancy may be driven by concerns about safety, adverse events, low perceived benefit and vary by age, gender, or previous experience with TB
- Mozambique is a high TB burden country, with an estimated incidence of 361 per 100,000 (25% PLHIV) ⁷
- Identifying potential reasons for hesitancy can guide planning for vaccine introduction in Mozambique and support modeling efforts which currently rely on limited data about the possible coverage of a new TB vaccine

Objectives

Document intention to receive a new TB vaccine or BCG booster dose among adults, adolescents (aged 9-17) and their caretakers, in Manhiça, southern Mozambique.

Methods

- Recruited adults and adolescent-caregiver pairs from community and TB outpatient clinic in southern Mozambique
- Administered cross-sectional surveys, which collected demographic information, prior vaccination experiences, sources of information and beliefs about vaccination, and willingness to receive a novel TB vaccine or BCG booster
- Conducted in-depth interviews among a subset of survey* participants to learn about attitudes and concerns that may lead to hesitancy

*Data presented from surveys only

Conclusions

- Overall, **intention to receive a new TB vaccine or a BCG booster among adults and adolescents is high in southern Mozambique.**
- Differences in intention to vaccinate by age and gender can be incorporated into modeling efforts aiming to estimate vaccine impact in this setting and may be important for planning vaccine outreach strategies.
- Additional analysis will incorporate qualitative data to further explore reasons behind vaccination intentions captured in surveys.

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References

- 1 Martinez *et al.* Infant BCG vaccination and risk of pulmonary and extrapulmonary tuberculosis throughout the life course: a systematic review and individual participant data meta-analysis. *Lancet GH*, 2022.
- 2 An investment case for new tuberculosis vaccines. WHO, 2022.
- 3 Tait *et al.* Final Analysis of a Trial of M72/AS01_E Vaccine to Prevent Tuberculosis. *NEJM*, 2019.
- 4 Nemes *et al.* Prevention of *M. tuberculosis* Infection with H4:IC31 Vaccine or BCG Revaccination. *NEJM*, 2018.
- 5 Barreto *et al.* Evidence of an effect of BCG revaccination on incidence of tuberculosis in school-aged children in Brazil. *Vaccine*, 2011
- 6 Larson *et al.* Defining and measuring vaccine hesitancy. *Nature Human Behavior*, 2022.
- 7 WHO Global TB Report, 2023.

Results

We enrolled:

151 adults [61% female, median age of 34 (IQR: 24, 54)]

41 adolescents [66% female, median age of 15 (IQR: 13, 16)]

49 caretakers [90% female, median age of 26 (IQR: 20, 42)]

Table. Intention to vaccinate by group and gender for new TB vaccine or a BCG booster dose

Characteristic	Adult			Adolescent			Caretaker		
	Male N = 59 [†]	Female N = 92 [†]	Overall N = 151 [†]	Male N = 14 [†]	Female N = 27 [†]	Overall N = 41 [†]	Male N = 5 [†]	Female N = 44 [†]	Overall N = 49 [†]
Would Receive New TB Vaccine									
Yes	44 (75%)	68 (74%)	112 (74%)	11 (79%)	25 (93%)	36 (88%)	5 (100%)	31 (70%)	36 (73%)
No	11 (19%)	4 (4.3%)	15 (9.9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (9.1%)	4 (8.2%)
Maybe	4 (6.8%)	20 (22%)	24 (16%)	3 (21%)	2 (7.4%)	5 (12%)	0 (0%)	9 (20%)	9 (18%)
Would Receive BCG Booster									
Yes	54 (92%)	71 (77%)	125 (83%)	11 (79%)	26 (96%)	37 (90%)	5 (100%)	39 (89%)	44 (90%)
No	2 (3.4%)	8 (8.7%)	10 (6.6%)	0 (0%)	1 (3.7%)	1 (2.4%)	0 (0%)	2 (4.5%)	2 (4.1%)
Maybe	3 (5.1%)	13 (14%)	16 (11%)	3 (21%)	0 (0%)	3 (7.3%)	0 (0%)	3 (6.8%)	3 (6.1%)

[†] n (%)

- Intention to receive a new TB vaccine or a BCG booster among adults and adolescents ranged from 74-90% (in **blue**)
- Intention to vaccinate with a new TB vaccine trended higher among adolescents (88%) than adults (74%) (in **blue**, p = 0.06)
- Among adolescents, intention to vaccinate with a new TB vaccine trended higher among females (p = 0.2); among adults, intention to vaccinate was similar by gender (p = 0.09) (in **yellow**)
- Caregivers of adolescents were less likely to allow their child to receive a new TB vaccine (73%) than a BCG booster (90%) (in **red**, p = 0.04)
- Adult women expressed considerable uncertainty about vaccination (in **green**)