

A scoping review of studies on new and repurposed TB vaccine implementation in high burden settings

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Background: There is an urgent need for a safe and effective TB vaccine for adults and adolescents and several candidates have advanced to late-stage trials. We conducted a systematic review to understand the factors that could facilitate or hinder successful implementation of new and repurposed TB vaccines in LMICs.

Methods: Our search included English studies on the implementation of new and repurposed TB vaccines published between 2013-2023 from PubMed, Medrxiv, PLOS journals, and expert suggestions. From the articles meeting the inclusion criteria, we systematically extracted and synthesized data on projected epidemiological impact, costing/cost-effectiveness/economic impact, and perceived acceptability and feasibility of implementation.

Results: We reviewed 1,807 articles, and 23 were included. Results show that studies primarily focused on epidemiological and costing/cost-effectiveness/economic studies in India, China, and South Africa, mainly modelling with M72/AS01, and hypothetical vaccines (see table 1). Globally, new and repurposed TB vaccines are estimated to save millions of lives. These vaccines are expected to be cost-effective in most countries. Projected outcomes depend on vaccine characteristics, target population, timing and strategy of rollout, country context, and vaccination coverage. One article showed that projected acceptability could be influenced by TB stigma, the need for a second dose, costs, and level of community engagement and public TB awareness. Possible implementation strategies to reach adults and adolescents range from mass campaigns to integration within existing vaccine programs.

Conclusion: Evidence is scarce on acceptability of new and repurposed TB vaccines, the most promising implementation strategies, and the health system capabilities necessary. Future TB vaccine research must address current gaps in implementation readiness and have broader geographical and population group representation to ensure impact.

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Conflicts of Interest

None



Table 1. Number of included studies per country, vaccine readiness focus, vaccine candidate and profile, and vaccine endpoint.

	LMIC's/high burden countries	China	India	South Africa	Cambodia	Indonesia
Nr. studies	7	6	9	7	1	1
Vaccine readiness focus						
Epidemiological	4	4	6	4	1	1
Costing, cost-effectiveness, economic	4	2	5	3	-	1
Acceptability	-	1	1	1	-	-
Implementation feasibility	-	1	2	4	-	-
Vaccine candidate or profile						
Hypothetical	6	3	4	2	1	-
M72/AS01e	1	3	6	4	-	1
BCG revaccination	-	2	3	4	-	-
Endpoint generic vaccines						
PoD	6	2	3	2	1	-
Pol	-	2	3	1	1	-
PoR	-	-	-	-	-	-

