

THE URGENT NEED FOR TB VACCINES

PROBLEM: Outdated Tools for a Deadly Global Threat

Tuberculosis (TB) now kills more people than any other single infectious disease in the world, and transmission is taking place at a rapid clip.

- TB caused 10 million illnesses and took 1.5 million lives in 2018.¹
- Since TB is an airborne disease—spread through the air by coughing, sneezing, and even singing—TB anywhere is TB everywhere.

TB is becoming a bacterial superbug evolving against our defenses.

- If not addressed—including through developing more effective vaccines—the human and economic costs of drug-resistant TB (DR-TB) could be catastrophic.
- By 2050 MDR-TB could cause 2.5 million deaths per year and cost the global economy as much as \$16.7 trillion.²

Our current diagnostics, drugs, and vaccines will not stop the TB epidemic.

- Tuberculosis treatments can have exceptionally harsh side effects and need to be taken from six months to two years or more.
- Access to accurate and rapid diagnosis is often limited in countries that bear the highest burden of TB, leading to delayed treatment and further spread of the disease.
- The existing TB vaccine (BCG), given to newborns, does not adequately protect adolescents and adults, who are most at risk for developing and spreading TB.

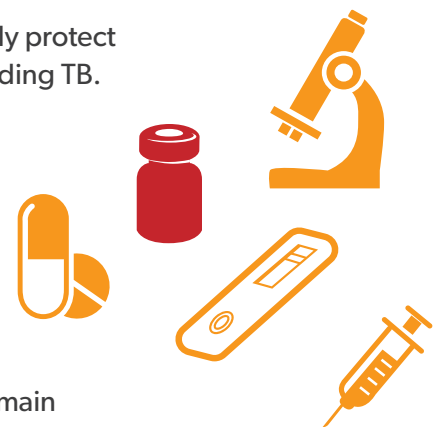
SOLUTION: New Vaccines

Vaccines are game-changing innovations, helping to stop other deadly diseases, such as smallpox and polio. TB can be next.

- An effective vaccine that protects adolescents and adults will stop the momentum of the disease in its tracks, since these age groups are the main drivers of TB transmission.
- New TB vaccines are expected to protect equally against DR-TB and regular, drug-sensitive TB.
- A widely used, more effective vaccine would reduce the need for and use of antibiotics would decrease antibiotic (drug) resistance, including DR-TB.³
- A vaccine with just 60% efficacy could prevent approximately 17 million cases of TB in its first 25 years of use.⁴

New TB vaccines are achievable—with support and adequate funding.

- New results from multiple exciting vaccine clinical trials are coming out soon, and early-stage research is generating a vibrant collection of new ideas and approaches.
- Twelve vaccine candidates are currently being tested in clinical trials.



ROADMAP FOR NEW TB VACCINES

Global Plan to End TB 2016–2020:⁵

- 01 Increase focus on early-stage research to diversify immunological approaches in the TB vaccine pipeline
- 02 Target adolescents and adults, with the ultimate goal of developing vaccines for all populations
- 03 Develop vaccines for multiple indications (pre-exposure, post-exposure and immunotherapeutic vaccines)
- 04 Explore new vaccine delivery platforms to address barriers to delivery



HOW TO GET THERE: Provide Critical Funding Now

TB vaccine research is dramatically underfunded with a narrow donor base. To defeat TB, this has to change.

- **\$250 million per year is needed** between 2016-2020 to meet TB vaccine R&D objectives outlined in the Global Plan to End TB. In 2017, only US\$100 million was invested.⁶
- To increase investment in TB vaccine R&D, we need to increase the donor base, expand investments from BRICS countries, and use a combination of “push” funding (such as grants and pooled funding) to lower costs and derisk development and “pull” mechanisms (such as advance market commitments) to incentivize private sector investment in R&D.
- We simply can’t afford to NOT invest in TB vaccine research
 - › TB diagnosis and treatment is estimated to cost \$10.1 billion in 2019, **rising to \$14.9 billion in 2022.**⁵
 - › TB costs the world an estimated **additional \$12 billion per year** in economic costs and lost productivity.⁷

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