

# 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## **PROBLEM: Outdated Tools for a Deadly Global Threat**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 1.6 million lives in 2017.<sup>1</sup>
- 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.<sup>2</sup>

**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.

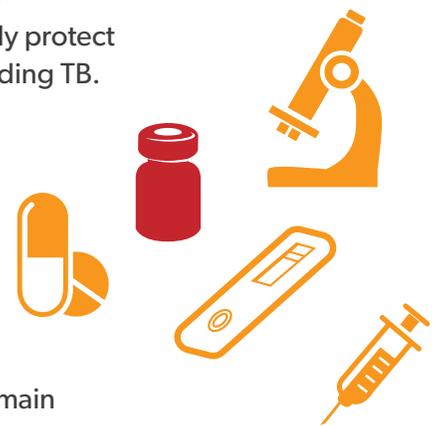
## **SOLUTION: New Vaccines**

**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.<sup>3</sup>
- A vaccine with just 60% efficacy could prevent approximately 17 million cases of TB in its first 25 years of use.<sup>4</sup>

**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:<sup>5</sup>

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.**

- **\$1.25 billion is needed** between 2016–2020 to meet TB vaccine R&D objectives outlined in the Global Plan to End TB. In 2016, only US\$95 million was invested.<sup>6</sup>
- 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 \$10.4 billion in 2018, **rising to \$12.3 billion in 2020.**<sup>5</sup>
  - › TB costs the world an estimated **additional \$12 billion per year** in economic costs and lost productivity.<sup>7</sup>

### REFERENCES

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