Advancing the Future of Tuberculosis (TB) Treatment:
Innovating to develop the next generation of tools for the fight against TB

THE CHALLENGE
Tuberculosis (TB) is one of the world’s deadliest infectious diseases, killing more people each year than malaria and HIV combined. The challenge is compounded by TB’s growing resistance to the most commonly used medicines. In fact, drug-resistant TB (DR-TB) is responsible for one-third of all antimicrobial resistance (AMR)-related deaths and is the world’s only airborne drug-resistant infection.

OUR RESPONSE
New tools are urgently needed to outsmart and stop DR-TB – and Johnson & Johnson is tackling this issue head-on. In 2012, our novel multidrug-resistant TB (MDR-TB) treatment, bedaquiline, became the first targeted TB medicine with a novel mechanism of action to be approved by the U.S. Food and Drug Administration (FDA) in nearly half a century and is currently recommended by the World Health Organization (WHO) as part of all conventional MDR-TB treatment regimens. Additionally, an age-appropriate 20 mg tablet of bedaquiline as part of combination therapy is now approved by the FDA for use in children aged five and older and weighing at least 15 kg. Ongoing clinical trials are defining the dose for this formulation to be used in younger children.

OUR 10-YEAR INITIATIVE
In September 2018, Johnson & Johnson reaffirmed its continued commitment to the fight against TB by announcing a new 10-year initiative with three pillars.

Access
Expanding access to treatment by offering a not-for-profit price to 130+ low- and middle-income countries, as well as nongovernmental organizations, procuring our medicine through the Stop TB Partnership’s Global Drug Facility

Case Finding
Improving case finding and strengthening health systems to reach the thousands of people with undiagnosed TB and MDR-TB and connect them to care, including by improving diagnostic capacity, training health workers and raising community awareness

R&D
Accelerating TB R&D to discover innovative next-generation treatments that will be needed to reach the global goal of ending TB

Bedaquiline: a cornerstone in MDR-TB Treatment
The first targeted TB drug with a novel mechanism of action approved in nearly half a century.
**R&D IS ESSENTIAL TO TRANSFORM THE FIGHT AGAINST TB**

We are continuing to advance research and development (R&D) for TB treatment through discovering and developing new drugs for the next generation regimen. J&J is continuing to drive progress on trials for bedaquiline to expand its use for more patients, including children, and to monitor its safety, effectiveness, and emergence of resistance.

It is essential to modernize TB treatment options and, even with recent progress, we must strive for better, shorter, and simpler treatment options for patients with all forms of TB. As a pharmaceutical leader in the space, J&J advances the R&D for TB by convening prominent partners and contributing critical resources to research collaborations at every stage of clinical research.

**OVERVIEW OF ONGOING RESEARCH COLLABORATIONS**

<table>
<thead>
<tr>
<th>Discovery Stage</th>
<th>Early Stage</th>
<th>Late Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery</td>
<td>Pre-Clinical</td>
<td>Phase I/IIa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phase IIb</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phase III</td>
</tr>
</tbody>
</table>

**Innovative Medicines Initiative**

In a series of collaborations with the EU’s Innovative Medicines Initiative (IMI), we both lead and support various consortia on the development of novel compounds to treat TB. Together, we partner to unlock innovation from early discovery to late stage clinical trials with academic institutions, non-profits, public research organizations, and other pharmaceutical companies.

**Bill & Melinda Gates Foundation**

As part of a consortium of non-profit, philanthropic and private sector organizations, led by the Bill & Melinda Gates Foundation, we are accelerating the research and development of novel, universal, short-duration TB drug regimens that are ready for phase 3 development.

**The AMR Action Fund**

We have invested $100 million to create the $1 billion AMR Action Fund alongside more than 20 of our peers. This groundbreaking industry initiative will accelerate innovative antibiotic candidates with the aim of bringing 2 to 4 new antibiotics to patients by the end of the decade.