

# No Time to Lose: G20 Leadership in TB Research Needed to End TB

By Mike Frick, March 2017

Victory over antimicrobial resistance (AMR) requires an end to the world's deadliest infectious disease: tuberculosis (TB). Each year, TB kills more people than any other single infectious agent, and drug-resistant forms of TB account for one in three AMR deaths.<sup>1</sup> However, inadequate, outdated tools—the result of the paucity of resources spent on TB research and development (R&D)—compromise the fight against TB. Creating a world free of TB by 2035, as envisioned by the World Health Organization (WHO) End TB Strategy and echoed by the United Nations Sustainable Development Goals, requires a substantial increase in funding for TB R&D. **We challenge member states of the G20 to lead the way in catalyzing the development of breakthrough TB diagnostic, treatment, and prevention options by collectively spending \$5.8 billion on TB R&D between 2016 and 2020.**

**Table 1: G20 TB R&D Funding Targets, 2016–2020**

Rank	Country	TB R&D Funding 2010–2015	Target 2016–2020	Annual Target
1	United States	\$1,532,875,824	\$1,679,900,000	\$335,980,000
2	China	NA	\$1,103,832,278	\$220,766,456
3	European Union	\$220,666,174	\$850,401,170	\$170,080,234
4	Japan	\$13,938,683	\$497,009,424	\$99,401,885
5	Germany	\$53,355,403	\$318,231,916	\$63,646,383
6	United Kingdom	\$227,092,324	\$249,801,556	\$49,960,311
7	South Korea	\$12,496,779	\$222,620,098	\$44,524,020
8	France	\$51,237,356	\$173,743,405	\$34,748,681
9	India	\$48,603,724	\$143,918,350	\$28,783,670
10	Russia	NA	\$133,104,250	\$26,620,850
11	Brazil	\$5,101,531	\$118,889,874	\$23,777,975
12	Italy	NA	\$82,036,996	\$16,407,399
13	Canada	\$35,878,732	\$75,558,815	\$15,111,763
14	Australia	\$41,655,790	\$65,847,228	\$13,169,446
15	South Africa	\$17,607,328	\$52,821,984	\$10,564,397
16	Turkey	NA	\$43,964,831	\$8,792,966
17	Mexico	NA	\$34,564,427	\$6,912,885
18	Argentina	NA	\$13,940,186	\$2,788,037
19	Indonesia	NA	\$6,383,639	\$1,276,728
20	Saudi Arabia	NA	\$2,523,305	\$504,661
	<b>G20 Total</b>	<b>\$2,260,509,648</b>	<b>\$5,869,093,733</b>	<b>\$1,173,818,747</b>

NA = not available

Note on methodology: the overall target of \$5.8 billion reflects data on past TB R&D funding collected and analyzed by the think tank Treatment Action Group (TAG), which found that public funding comprised over 60% of the \$3.29 billion spent on TB R&D from 2011–2015.<sup>2</sup> The Stop TB Partnership has estimated that the world needs to spend \$9 billion on TB R&D from 2016 to 2020, meaning that, if past trends hold, governments must be prepared to raise \$5.8 billion (65%) of this larger goal.<sup>3</sup> Civil societies in three countries, the United States, the United Kingdom, and South Africa, had already set funding targets based on existing spending levels and research capacity in these nations. Together, these three countries comprised 80% of the public funding given to TB R&D between 2011 and 2015. For countries without specific targets, TAG set targets in proportion to how much each spends on R&D relative to the total R&D expenditure by G20 states combined. Based on data collected by UNESCO, this method acknowledges the varying levels of resources and infrastructure different countries currently invest in R&D.

Each member state of the G20 has an important role to play in meeting this \$5.8 billion goal, and Table 1 proposes country-specific funding targets. Meeting these targets will require substantial increases over past investment levels. Increases of this magnitude, although ambitious, are realistic given that the G20 comprises 66% of the world's population, 85% of the world's economic output, 92% of global R&D expenditure, and 54% of the 10.4 million people who newly fall sick with TB each year.

The urgency of expanding and accelerating TB R&D with new resources stems from several factors that make the current moment a turning point in the global TB response:

- **Drug-resistant TB (DR-TB) is the deadliest edge of the advancing AMR threat.** The Government of the United Kingdom's Review on Antimicrobial Resistance estimates that DR-TB will account for one-quarter of the 10 million AMR-related deaths that will occur annually by 2050, in the absence of action today.<sup>4</sup>
- **Reducing future deaths due to DR-TB is possible.** Epidemiological modeling indicates that the combined introduction of a new diagnostic test and a treatment regimen for DR-TB could save nearly a million lives over a decade.<sup>5</sup>
- **New diagnostics and treatments are on the horizon.** TB researchers are poised to make major advances, but inadequate funding is slowing progress. Even with limited funding, TB scientists have made major advancements over the past five years, including the development of several faster tests to diagnose TB and detect DR-TB; new treatments to more quickly and effectively cure DR-TB; and shorter preventive therapy that can stop TB infection from progressing to active, transmissible disease. These successes demonstrate that TB R&D is a smart investment that can foster great returns for public health.

More work is needed—TB diagnosis is still complicated, treatment takes months, and an effective vaccine remains elusive. There is no time to lose; the WHO has warned that new tools must be introduced by 2025 to eliminate TB by 2035.<sup>6</sup> **To unlock the full promise of TB R&D, G20 member states must take three priority actions starting today:**

- 1. Increase public funding for TB R&D.** G20 members should increase funding for TB R&D in line with the proposed targets. In addition, countries should form national strategic plans for TB research to set priorities and guide investments, considering opportunities along the full spectrum of TB R&D from basic science to clinical trials of new diagnostics, drugs, and vaccines to operational and epidemiological research.
- 2. Report publicly on TB R&D funding.** An accurate picture of global funding is essential for measuring progress. Greater transparency on public TB R&D funding is needed from countries that have not reported their investments to date, including China, Russia, Indonesia, Saudi Arabia, and Turkey. Countries can share TB R&D investment information by contacting TAG at [tbrdtracking@treatmentactiongroup.org](mailto:tbrdtracking@treatmentactiongroup.org).
- 3. Collaborate with other governments and stakeholders.** In meeting the funding targets, governments need not act alone—partnerships with the private sector and multilateral collaborations may represent both the most efficient and the most equitable way to finance TB R&D at the required level. G20 nations should establish a mechanism for jointly financing TB R&D and fast-tracking the development of new drug regimens, diagnostic tests, and vaccines. The Union's 3P Project to incentivize DR-TB drug development offers one example of a mechanism by which governments can combine resources to accelerate the most promising discoveries.

“There has been a tendency over the years to take R&D for granted, as though the medicines and diagnostics somehow miraculously appear when necessary. But in truth, ignoring the importance of R&D is disastrous when combating an infectious disease like TB. We learned in HIV that R&D, once unleashed, has saved millions of lives. The same can and must be true of TB.”—*Stephen Lewis, Co-director, AIDS-Free World*

<sup>1</sup> World Health Organization. Global tuberculosis report 2016. Geneva: World Health Organization; 2016. Available from: [http://www.who.int/tb/publications/global\\_report/en/](http://www.who.int/tb/publications/global_report/en/).

<sup>2</sup> Frick M. 2016 report on tuberculosis research funding trends, 2005–2015: no time to lose. New York: Treatment Action Group; 2016. Available from: <http://treatmentactiongroup.org/tbrd2016>.

<sup>3</sup> Stop TB Partnership. The global plan to end TB, 2016–2020: the paradigm shift. Geneva: UNOPS; 2015. Available from: <http://www.stoptb.org/global/plan/plan2>.

<sup>4</sup> The Review on Antimicrobial Resistance. Tackling drug-resistant infections globally: final report and recommendations. London: The Review on Antimicrobial Resistance; 2016. Available from: <https://amr-review.org/>.

<sup>5</sup> Ibid.

<sup>6</sup> World Health Organization. Global strategy and targets for tuberculosis prevention, care and control after 2015: report by the Secretariat. Geneva: World Health Organization Executive Board 134th Session. EB134/12. 2013 November 29. Available from: [http://apps.who.int/gb/ebwha/pdf\\_files/EB134/B134\\_12-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/EB134/B134_12-en.pdf).