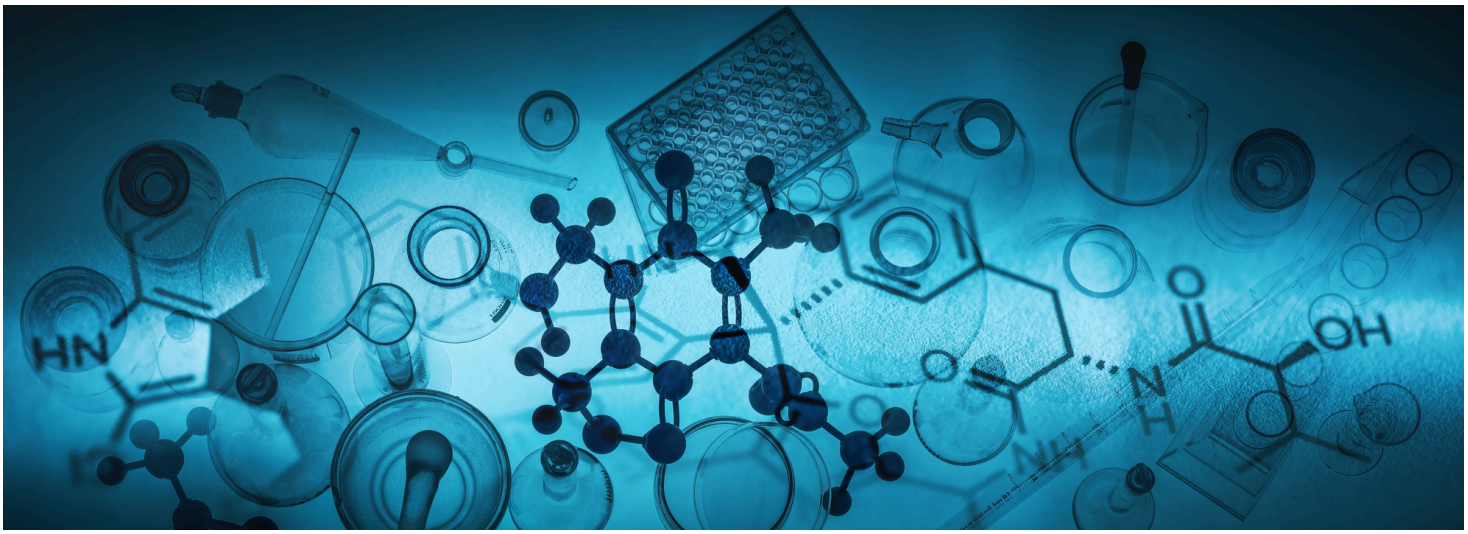
VOLUME 5, ISSUE 6, JUNE 2025

# THE MONTHLY DOSE

## Official Newsletter of The Mueller Health Foundation




### WHAT'S NEW AT THE MUELLER HEALTH FOUNDATION:

The Mueller Health Foundation is proud to continue offering our TBConnect blockchain platform free of charge as a global resource hub for all things related to tuberculosis. From educational materials that help patients better understand and navigate the disease to tools that raise public awareness, TBConnect serves as a vital repository for preserving and sharing essential TB information. In a time of shrinking resources, platforms like TBConnect are more important than ever.

If you're interested in becoming a user, please email us at info@muellerhealthfoundation.org to request a free username and gain access to our growing TB resource library.

## LATEST NEWS: SHOWCASING STORIES OF TB SURVIVORS

We at The Mueller Health Foundation continue to be deeply committed to sharing personal stories and giving a voice to TB patients, TB survivors, TB practitioners, and all the friends and family members of the people who have been affected by the disease. We are also proud to continue our support of our new HeroRat Tamasha, who has been trained by APOPO, a charity focused on training rats to detect TB in sputum samples across Africa. APOPO has put together a wonderful collection of success stories from TB survivors, and this month we would like to highlight Desalegn's story:

Desalegn, a 26-year-old security guard from Addis Ababa, Ethiopia, began experiencing a persistent cough and fatigue that worsened over time. Despite undergoing several medical tests, including a CT scan, no clear diagnosis was made. Unable to work, he returned to his hometown in Gedio to rest with family support. Unbeknownst to him, Desalegn had tuberculosis (TB), a disease still prevalent and often underdiagnosed in Ethiopia. His sputum sample was later screened by APOPO's TB detection program, which uses trained African Giant Pouched Rats to identify TB-positive samples missed by conventional methods. One of the HeroRATs flagged his sample, leading the health center to recall him for urgent treatment. Desalegn immediately began a six-month treatment regimen, walking 30 to 40 minutes each day to the clinic and choosing to self-isolate to protect others. Now fully recovered, he is deeply grateful for APOPO's intervention and hopes to further his education in information technology, aspiring to shift careers and build a healthier future. His story underscores both the human toll of undiagnosed TB and the potential of innovative diagnostic tools to transform public health outcomes in high-burden settings. To read his full story, please follow the link here: https://apopo.org/what-we-do/detecting-tuberculosis/success-stories/desalegn/?mc_cid=f4ee4d4d47&mc_eid=d76947cb04

For more news, please also take a look at our top 3 picks for **June** in this newsletter, where we highlight novel research findings and news about the prevention and treatment of tuberculosis around the world.

The Mueller Health Foundation

# MHF TOP PICKS FOR JUNE

Every month, we at the Mueller Health Foundation like to showcase interesting news and updates in the field of tuberculosis (TB). Below are our top **3** picks for **June:**

### 1. The Kansas City TB Outbreak Shows the Value of U.S. Government Health Funding

An ongoing tuberculosis (TB) outbreak in the Kansas City metropolitan area, specifically in Wyandotte and Johnson counties, has resulted in 67 cases of active TB and 79 latent infections since January 2024, with two deaths linked to the outbreak. Although not the largest in U.S. history, it is one of the most significant TB outbreaks in recent decades and has drawn rare national attention to a disease often overlooked in the U.S. The outbreak underscores the life-saving importance of public investment in TB research and health infrastructure, which has enabled shorter, more tolerable treatment regimens and enhanced outbreak response by local health departments. Thanks to public funding, tools like the 3HP regimen and new drug-resistant TB therapies have dramatically improved care and outcomes. Over half of those affected in Kansas City have already been cured, and the vast majority of those with latent TB have started preventive treatment. However, experts warn that ongoing federal funding cuts threaten to undermine this progress, potentially stalling critical research and leaving communities more vulnerable to future outbreaks. To learn more, you can access the article at: https://www.statnews.com/2025/02/19/tuberculosis-kansas-city-missouri-tb-outbreak-treatment/

### 2. Cracking the Code of Phages to Fight TB

Scientists at Scripps Research and the University of Pittsburgh have captured the first high-resolution structural images of a virus that infects mycobacteria, the bacterial genus responsible for tuberculosis (TB), offering promising insights for phage-based therapies targeting drug-resistant TB. Using cryo-electron microscopy and tomography, they studied the mycobacteriophage Bxb1 and found that, unlike other phages, it does not form a channel to inject its DNA. Instead, it appears to use a unique genome delivery mechanism, possibly involving membrane destabilization or internal pressure. The researchers also observed major structural changes in the phage's tail tip upon binding to the bacterial surface, suggesting a dynamic infection process adapted to overcome the thick, waxy cell walls of mycobacteria. These findings could help guide the development of more effective phage therapies for drug-resistant TB. To learn more, you can read about the research here: https://www.scripps.edu/news-and-events/press-room/2025/20250415-park-phage-therapies.html?variation=B

### 3. Montreal Officials Urge Improved TB Care Amid Surge in Cases

Montreal public health officials are raising concerns after a 53% spike in tuberculosis (TB) cases in 2024, with 203 cases reported compared to an annual average of 123 over the past decade. While TB rates remain relatively low in Canada, the disease disproportionately affects marginalized populations, particularly Indigenous communities and individuals born in TB-endemic countries. Alarmingly, nearly half of last year's cases in Montreal involved people not covered by Quebec's provincial health insurance, up from just 9% in 2015, signaling growing barriers to care. The report urges the province to adopt targeted strategies, as seen in other Canadian regions, to improve access to TB diagnosis and treatment for uninsured individuals. Public health experts emphasize that reducing these barriers is not only a matter of equity, but also essential to protecting the broader population from further spread. You can read the article here: https://www.cbc.ca/news/canada/montreal/tuberculosis-montreal-quebec-1.7533101

## DID YOU KNOW?

While tuberculosis (TB) diagnosis and treatment are offered free of charge in many countries, the true cost of the disease often falls heavily on patients and their families. According to the World Health Organization's 2023 Global TB Report, total costs borne by households affected by TB range from $76 USD per episode in The Gambia to over $3,700 USD in Mongolia. These include direct medical expenses, non-medical costs (such as transportation, food, and accommodation), and significant indirect costs from lost income due to illness or caregiving responsibilities.

For patients with multidrug-resistant TB (MDR-TB), the financial toll is even more severe. A 2024 systematic review found that approximately 80% of MDR-TB patients globally face catastrophic costs, defined as TB-related expenses exceeding 20% of their annual household income. These patients often undergo prolonged and intensive treatment, frequently requiring hospitalization or travel to specialized centers, compounding both out-of-pocket and income losses.

This economic burden leads many patients to delay or interrupt treatment, worsening health outcomes and increasing the risk of transmission. The WHO has consistently emphasized the need to eliminate catastrophic costs as part of its End TB Strategy, yet progress has stalled. In 2022, only 25% of countries with available data had met the target of zero catastrophic costs for TB-affected families.

Addressing these financial barriers is not only a matter of equity but also a public health imperative. Without sustained investment in social protection, transportation subsidies, nutritional support, and income replacement programs, millions of households remain vulnerable to impoverishment as a result of TB care. The Mueller Health Foundation is therefore structuring its programs to provide holistic support by offering free transportation, nutritional assistance, and psychological support to TB patients to help reduce these burdens and improve treatment outcomes.

Information Source:
https://www.who.int/teams/global-programme-on-tuberculosis-and-lung-health/tb-reports/global-tuberculosis-report-2023

https://journals.plos.org/globalpublichealth/article?id=10.1371/journal.pgph.0004283