Synopsis

Tuberculosis Interdisciplinary Approach to Research Alliance (TIARA) preARC

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Tuberculosis is one of the leading causes of death from an infectious disease pathogen globally. In 2020, 1.3 million people died from TB and an estimated 10 million people, including 1.1 million children, fell ill. In 2020, case notifications plummeted because of COVID-19 pandemic related disruptions in services, with subsequently the first rise in TB mortality in more than a decade. We are falling gravely short of the WHO's End TB Strategy to reduce TB incidence by 80%, TB deaths by 90% and to eliminate catastrophic costs for TB-affected households by 2030. The challenges encountered in decreasing the global TB burden have highlighted the modifying effect of co-morbidities on TB transmission, acquisition, disease progression, and response to therapy. It is now clear that progress towards TB elimination will require focused attention on addressing comorbidities, from understanding biology through potential intervention impacts.

The goal of the TB Interdisciplinary Approach to Research Alliance pre-ARC is to foster collaboration, infrastructure and education to promote multidisciplinary research in key NIH TB priority areas, with a focus on co-morbidities and cutting edge basic/translational and quantitative techniques enhancing our research capabilities. We hope to leverage innovative and creative approaches to special populations with TB. We envision the preARC interacting with a full spectrum of basic, translational and clinical scientists by sharing best practices and training on areas critical to successful research.

Initial areas for collaboration and best practice sharing include, but are not limited to:

- Laboratory services, particularly expertise working with biosafety level 3 (BSL-3) facilities and provision of reagents;
- Cohort development including study implementation and participant engagement;
- Expertise related to regulatory compliance and ethical conduct of research;
- Experience with large TB and human specimen biobanks;
- Training to support study design and evaluation; and
- Rigorous biostatics and bioinformatics methods for collecting and analyzing data, modeling policy decisions, understanding transmission dynamics, and improving the ability to understand the clinical and molecular determinants of resistance and progression.

We envision a broad group of participants spanning the full spectrum of faculty among Boston University's School of Medicine, School of Public Health and Charles River Campus. Specific, collaborative projects that we envision could be part of this preARC include: Fibrosis in the post-TB lung, TB and bioinformatics, Transmission Modeling, Care Delivery/Implementation Science for Special Populations, and Antibiotic Resistance in TB.

This proposed preARC would assemble a multi-disciplinary team to identify common areas of interest, train the next generation of TB researchers and ensure that they become successfully funded investigators. We also aim to recruit mid to later career researchers with skills and expertise to apply to TB. We envision twice monthly seminars on research in progress topics of shared interest, with the goal of these seminars spawning new interdisciplinary grants. Ultimately researchers will aim to develop strategies to improve the lives of those affected by TB and their families and move toward TB elimination.

Members, Fall 2022

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