

NIAID describes research priorities to fight drug-resistant tuberculosis

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Tuberculosis (TB) has long been one of the world's great killers. Now, forms of drug-resistant TB--multidrug (MDR) and extensively drug-resistant (XDR)--are occurring at an ominous and accelerating rate. To help in the fight against drug-resistant TB, the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, has formulated an MDR and XDR TB research agenda.

A summary of the agenda, authored by NIAID Director Anthony S. Fauci, M.D., and members of the NIAID Tuberculosis Working Group, is now available online in *The Journal of Infectious Diseases*.

"The TB diagnostic tools in use today are antiquated, slow and insensitive; TB drug regimens are complex and lengthy; and the only vaccine available does not provide effective protection against adult pulmonary TB," says Dr. Fauci. "The challenge of TB control is further compounded by the rise of drug-resistant TB, and we anticipate that the NIAID Research Agenda for Multidrug-Resistant and Extensively Drug-Resistant Tuberculosis will contribute substantively to the fight against this emerging threat."

The World Health Organization (WHO) estimates that 500,000 people worldwide have MDR TB, while the frequently fatal XDR TB has been detected in 46 countries. Factors contributing to the rising tide of drug-resistant TB include

- Lack of routine testing to determine TB drug-sensitivity
- Incomplete treatment of people infected with TB-causing bacteria
- The epidemic of TB in HIV-infected people
- Limited TB research by pharmaceutical companies, resulting in few new anti-TB drugs or other interventions

The NIAID research agenda complements

domestic and international efforts to prevent and control the spread of MDR and XDR TB. Whereas the WHO's STOP TB Partnership plan emphasizes increased surveillance and control and treatment efforts, the NIAID agenda focuses on biomedical research. The Institute also collaborates with the Centers for Disease Control and Prevention and other NIH Institutes and Centers on TB research efforts in the United States.

To prevent the further emergence and spread of MDR and XDR TB, the NIAID agenda identifies areas of biomedical research that are likely to contribute substantially to a global public health response. Building on existing efforts within the international network of TB research, NIAID's priorities include efforts to

- Develop and test reliable technologies to rapidly diagnose TB and to identify drug resistance
- Define the most effective use of existing TB therapies and other antibiotics available to treat drug-resistant TB and develop new drugs, particularly to treat MDR and XDR TB
- Better understand the basic biology of TB-causing bacteria and their interaction with the human host that underlie the development of drug-resistant TB
- Understand the epidemiology of drug-resistant TB
- Investigate the various manifestations of TB in adults, children and those with co-infections, including HIV/AIDS
- Conduct research to develop new vaccines and other preventive strategies

NIAID is leading and sponsoring research activities to create a foundation of knowledge for the discovery of new diagnostics, drugs and vaccines. The Institute also supports the efforts of organizations, such as drug companies and public-private partnerships, to further develop these products into tools and approaches that enhance the quality of care for people with TB.

“Only a concerted global effort can counteract the rise of drug-resistant TB,” notes Dr. Fauci.

“Development of improved diagnostics and better treatment and control strategies will depend on collaboration with our partners at every research step, from basic science to large clinical trials.”

Source: National Institute of Allergy and Infectious Diseases

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