

Treatments for recurring TB infection failing the developing world, study finds

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The standard approach to re-treating tuberculosis (TB) in low and middle income settings is failing, according to research funded by the Wellcome Trust. In a study published today in the open access journal *PLoS Medicine*, researchers call for improved access to rapid diagnostics for drug resistant TB, second-line TB treatment and antiretroviral HIV therapy.

Each year, between one in ten and one in five patients treated for TB see their disease return after failing, interrupting or relapsing from treatment. This results in an estimated one million people in ninety countries being treated with an eight month long regimen of five drugs. The therapy has been in use for over three decades and is recommended by the World Health Organisation.

A study in Kampala, Uganda, of 140 HIV-infected patients and 148 HIV-uninfected patients found that the re-treatment TB regimen failed to work effectively in a significant proportion of patients – 26% of HIV-infected patients and 20% of HIV-uninfected patients. Nearly a quarter (23%) of patients died, whilst 6% saw their TB disease return. Fatalities were particularly high amongst HIV-infected patients.

"Our study suggests that the recommended therapy for re-treating TB is failing as many as one in four people with recurrent TB in the developing world," says Dr Edward Jones-López, first author of the study, Assistant Professor of Medicine at Boston University School of Medicine. "This rate is unacceptably high. It is essential that we

understand why this is the case and how we might tackle this important health inequality."

The researchers believe that a number of reasons may be to blame. These include poor adherence to the drug regimen and the presence of drug-resistant forms of TB – including multi-drug resistant TB – some cases of which may have gone undiagnosed. In HIV-infected individuals, a low CD4 count (an indicator that the individual's immune system has been severely compromised) and poor access to antiretroviral therapy were significant risk factors.

The findings imply that the treatments may need to be tailored depending on whether an individual has [HIV](#). For those that are infected, access to rapid diagnosis as well as improved second-line medication and antiretroviral therapies may provide the best outcome. The study also reinforces the need for Directly Observed Therapy (DOT) in patients with TB. DOT combines diagnosing TB and registering each patient detected, followed by standardised multi-drug treatment, individual patient outcome evaluation and cohort evaluation to monitor overall programme performance.

"It's time for us to improve our management of TB disease and in particular consider how co-infection with HIV should change the way in which we treat the disease," says Dr Alphonse Okwera from Makerere University, Kampala, Uganda, one of the study authors "The lives of hundreds of thousands of people in resource-poor settings are being put at risk, so this change is long overdue."

TB is one of the world's most deadly diseases. One-third of the world's population are believed to be infected with *Mycobacterium* [tuberculosis](#), the agent which causes the disease. In many cases the disease remains latent, but each year, at least nine million people are in need of treatment for TB disease, and more than two million people die from the disease.

There are an estimated 500,000 cases of multi-drug resistant TB, the vast majority of which are undiagnosed and have limited access to effective treatment.

Provided by Wellcome Trust

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