

Revealing the global burden of drug-resistant tuberculosis in children

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Credit: University of Sheffield

A new study examining the burden of drug-resistant tuberculosis (TB) across the globe has highlighted the importance of the disease among children.

The innovative modelling and statistical analysis carried out by researchers from the University of Sheffield, Imperial College London, and the World Health Organisation estimated that at least 67 million [children](#) were infected by Mycobacterium tuberculosis with 850,000 developing active disease.

Of these children, two million were estimated to be infected with

multidrug-resistant (MDR)-tuberculosis strains, leading to 25,000 cases of MDR-TB disease requiring expensive and toxic treatment.

TB in children is increasingly being recognised as a significant public [health](#) problem, and an important element of the total global burden of the disease.

Improved estimates of the rates of drug resistance in children are important because paediatric tuberculosis can be more difficult to diagnose, more challenging to test for drug sensitivity, and more likely to cause extra-pulmonary infection.

Africa and Southeast Asia were found to have the highest numbers of children with TB, but the World Health Organisation Eastern Mediterranean region, European region, and Western Pacific region also contribute substantially to the burden of drug-resistant TB because of their much higher proportions of resistance.

Peter Dodd, an infectious disease epidemiologist from the University's School of Health and Related Research (ScHARR), said: "Our report shows far more drug-resistant TB occurs in children than is diagnosed, and there is a large pool of drug-resistant infection. If they are not identified as having drug-resistant TB, children are unlikely to receive appropriate and effective treatment.

"After infection with *Mycobacterium tuberculosis*, young children are at particularly high risk of progressing to [tuberculosis](#) disease.

"They are also more likely to develop more severe forms of [disease](#) such as TB meningitis and disseminated TB."

The report, published in *The Lancet Infectious Diseases*, concludes that the identified cases of drug-resistant TB in children are the tip of the

iceberg, and there is a large unmet need for diagnosis, drug-susceptibility testing, and appropriate treatment.

The findings could have implications for approaches to treatment and preventive therapy in some parts of the world.

Provided by University of Sheffield

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