

# Incidence of childhood tuberculosis could be 25 percent higher than previous estimates

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New estimates indicate that over 650 000 children develop tuberculosis (TB) every year in the 22 countries with a high burden of the disease (HBCs)\*—almost 25% higher than the total number of new cases worldwide estimated by WHO in 2012 (530 000)\*\*. The research, published in *The Lancet Global Health*, also suggests that about 15 million children are exposed to TB every year, and roughly 53 million are living with latent TB infection, which can progress to infectious active TB at any time.

"Our findings highlight an enormous opportunity for preventive antibiotic treatment among the 15 million [children](#) younger than 15 years of age who are living in the same household as an adult with infectious TB", explains lead author Dr Peter Dodd from the University of Sheffield in the UK. "Wider use of isoniazid therapy for these children as a preventative measure would probably substantially reduce the numbers of children who go on to develop the disease."

In contrast with standard estimates that are reliant on paediatric case reporting, which varies widely between [countries](#), the researchers took a complementary approach, using mathematical modelling to estimate rates of infection and disease in children based on country-specific data on household and population structure, and the prevalence of TB in adults. The model incorporated both social and epidemiological variables including the effects of age, BCG vaccination efficacy, and the effect of HIV infection.

The findings show that about 7.6 million children younger than 15 years in the 22 HBCs became infected with *Mycobacterium tuberculosis* in 2010 and of those, roughly 650 000 developed TB. India had by far the highest burden of childhood TB, accounting for 27% of the total burden in these

countries.

The overall estimated case detection rate was 35%—meaning that 65% of active TB cases in children are missed every year by national TB programmes. This case detection rate is substantially lower than the WHO estimate of 66% in adults.

According to Dr Dodd, "Children are an often ignored but important part of TB control efforts. In high-burden settings, childhood TB makes up a substantial fraction of the total TB burden. The estimated incidence is higher than the number of notifications, with under-reporting more common in younger children. Quantifying the burden of TB in children is important because without good numbers, there can be no targets for improvement, no monitoring of trends and there is a lack of evidence to encourage industry to invest in developing medicines or diagnostics that are more appropriate for children than those available today."

Commenting on the study, Andrea T Cruz and Jeffrey R Starke from the Baylor College of Medicine, Houston, USA write, "These findings show that what often has been taken as truth—that control of [tuberculosis](#) in adults will inevitably result in improved tuberculosis control for children—is fallacious as a stand-alone control strategy. Until the gap in case-detection and reporting is closed, children will continue to suffer from insufficient access to appropriate resources. The crucial role of childhood infection as a reservoir for future disease cases is ignored in many high-burden countries. Without improved case-detection and prevention strategies for children, it is difficult to envisage the high-burden countries following the same downward trajectory of incidence rates seen by industrialised countries during the past several

decades."

**More information:** \* Afghanistan, Bangladesh, Brazil, Cambodia, China, DR Congo, Ethiopia, India, Indonesia, Kenya, Mozambique, Myanmar, Nigeria, Pakistan, Philippines, Russia, South Africa, Thailand, Uganda, Tanzania, Vietnam, and Zimbabwe.

\*\*WHO Global Tuberculosis Report 2013

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