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IS TB ERADICATION POSSIBLE IN INDIA?

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Tuberculosis (TB) has returned as a worldwide global public health threat. In 2014, 9.6 estimated million cases occurred, but only two-thirds were notified to public health authorities. The remaining unreported cases constitute a severe challenge for the authorities trying to control TB transmission.

In India TB is a severe disease. There are 2 million new cases per year, 3 millions of people are affected with 300000 deaths per year. An estimated 40% of the population harbors the bacilli in their bodies. The worldwide WHO estimates indicate that one third of the entire world population is infected. Two programs have been set along the years in India, to control TB. The countrywide National Tuberculosis Program (NTP) was originally undertaken in 1962, but it did not achieve the goal of disease burden reduction. The 1997 Revised National Tuberculosis Control Program (RNTCP) replaced the former program adopting DOTS (Directly observed treatment short course) (DOTS-WHO), but this has profoundly altered TB epidemiology. Nowadays, incidence estimation relies increasingly more on notifications of new cases from routine surveillance. There is an urgent need for better estimates of the burden of tuberculosis (TB).

The proposed model of TB transmission, [1], uses a dynamical system with six classes of individuals. It contains the current medical epidemiologists' understanding of the spread of the *Mycobacterium tuberculosis* in humans, substantiated by field observations at the district level in India. It also models the treatment options provided by the public and private sectors in India, with the aim to establish whether the different rates at which cases are assessed in the two sectors are fundamental for the disease endemicity. Possible ways that may lead to disease burden lessening are indicated.

References

[1] Surabhi Pandey, Ezio Venturino, (2018) *A TB model: is disease eradication possible in India?*, Mathematical Biosciences and Engineering, 15 (1); 233-254. doi:10.3934/mbe.2018010

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