



POSTER PRESENTATION

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A model to determine effective HIV/AIDS and Multi-Drug Tuberculosis (MDRTB) treatment policies: a case study from the Russian Federation

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Background

The explosive increase in the number of people infected with tuberculosis, multi drug resistant tuberculosis (MDRTB), and injecting drug users (IDU) HIV/AIDS has become a serious public health challenge in Russia. The World Health Organization (WHO) is recommending policies including simultaneous use of highly active antiretroviral therapy (HAART) to treat HIV/AIDS and second line drugs to treat MDRTB. However, it is not clear what would be the impact of implementing these recommendations on tuberculosis and HIV/AIDS mortality. In this context, the aim of this research is to quantify the consequences of adopting these policies in terms of deaths reduction.

Methods

A System Dynamics (SD) computer simulation model was developed to represent the dynamic transmission of tuberculosis, MDRTB, and HIV/AIDS. The model represented explicitly the complex interactions between these diseases and how these link to their transmission and spread in the population. The model simulated scenarios, over a 20 years period, regarding MDRTB cure rate and the fraction of HIV/AIDS patients covered by HAART.

Results

The results over a 20 year period indicate that reduction in tuberculosis and HIV associated tuberculosis deaths would be negligible for HAART coverage up to 50%. The reduction is only significant for HAART coverage of 70% and above. Similarly, high MDRTB cure rate

reduces significantly deaths from tuberculosis and MDRTB and this reduction is more important as the HAART coverage is increased.

Discussion

This research demonstrates, through a computer simulation model, that policies recommended by the WHO will not be effective unless HAART coverage is ramped up to include a sizeable fraction of HIV/AIDS patients. This will have to be coupled with an extensive use of second line drugs to address MDRTB. It is only through combination of these policies that tuberculosis and HIV/AIDS mortality could be reduced significantly.

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