An algorithm that predicts the chances of a person with a latent infection developing tuberculosis

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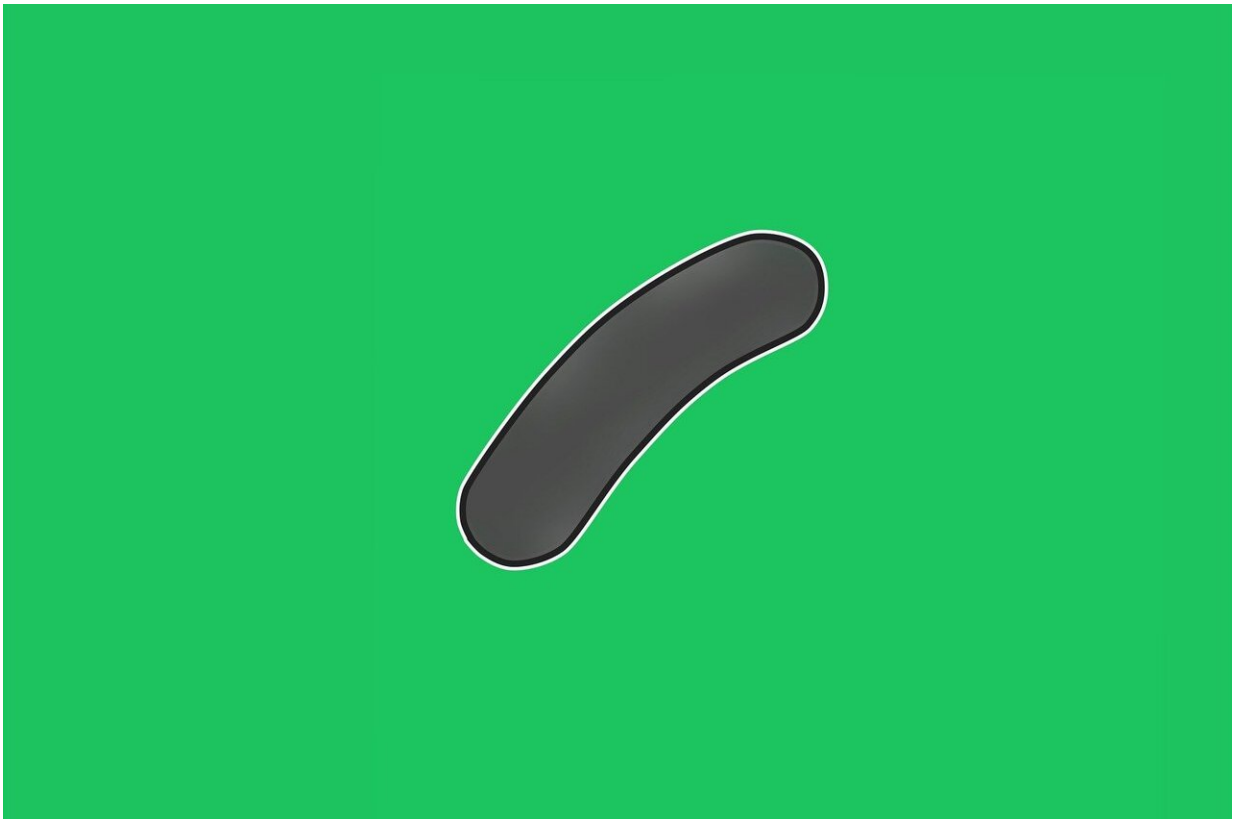

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An international team of researchers has developed an algorithm that can be used to predict the chances of a person with a latent Mycobacterium

tuberculosis infection developing tuberculosis (TB). In their paper published in the journal *Nature Medicine*, the group describes surveying thousands of people from multiple countries to amass data on TB patients and using what they learned to create their algorithm.

TB is caused by a bacterial infection. It infects the lungs primarily, but can also infect other parts of the body. The TB bacteria also tend to remain dormant in most people after infection, sometimes for many years. Some of those people never experience symptoms; others, however, develop TB. And unlike stories from the past, people today can be cured with antibiotics. Ridding the world of TB has proven to be difficult because many people with asymptomatic infections are still able to spread the disease. The WHO estimates that up to 25% of people worldwide are infected at any given time.

One of the challenges of combating the disease is figuring out which people with latent infections will develop TB. Giving antibiotics to people who will never get TB costs too much, and the drugs can lead to unpleasant side effects. In this new effort, the researchers have focused their efforts on solving this problem.

The work involved sending out surveys asking people questions about TB exposure and other health related issues. They also asked about respondent immigration status. The researchers received back approximately 80,000 responses and used the data to create a prediction algorithm.

The researchers found that children with latent infections who also reported recent contact with an infected person were at higher risk of developing the disease. They also found a slightly heightened risk for adults with latent infections who came into contact with others who were infected, as were migrants in general. They also found that for those with latent infections, the odds of developing TB decreased with time—most

who developed the disease tended to do so within the first two years of infection.

More information: Rishi K. Gupta et al. Discovery and validation of a personalized risk predictor for incident tuberculosis in low transmission settings, *Nature Medicine* (2020). DOI: 10.1038/s41591-020-1076-0