

Simple strategy could prevent half of deadly tuberculosis infections

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By using a combination of inexpensive infection control measures, hospitals around the world could prevent half the new cases of extensively drug resistant tuberculosis (XDR TB), according to a new study in *The Lancet* by researchers at Yale School of Medicine.

Dubbed “Ebola With Wings” for its ability to spread and kill rapidly, XDR TB has been reported in 37 countries and has been identified in all regions of the world, including the United States. The disease has become an epidemic among hospitalized patients in South Africa, according to researchers on the Yale study. Cases of XDR TB have been diagnosed in every province of South Africa, and are particularly concentrated in the area surrounding Tugela Ferry.

To assess the spread of XDR TB, Yale School of Medicine M.D., Ph.D. student Sanjay Basu and the research team developed a computer model of a virtual world that incorporated over two years of data from Tugela Ferry. The model was 95 percent accurate at predicting the trends in XDR and other forms of TB in the region. The Yale study provides the first estimates of the XDR TB burden in South Africa. According to the model over 1,300 cases of XDR TB could arise in the Tugela Ferry region by the end of 2012.

“It is critically important to take steps now to prevent further spread of XDR TB,” said Basu. “If we wait to act, this form of TB will spread further in the community and beyond borders. When a drug resistant strain hit New York in the 1990s, it cost over

\$1 billion to bring under control.”

Tuberculosis is caused by bacteria that target the lungs and is spread through the air when an infected person coughs or sneezes. HIV-positive people constitute a vast majority of the XDR TB cases, given their greater risk of infection.

The authors write that the best way to address this type of TB effectively is to change the healthcare environment. Use of masks alone would prevent fewer than 10 percent of cases in the general epidemic, though they would help many healthcare workers, say the researchers. Reducing time spent in the hospital and shifting to outpatient therapy could prevent nearly one-third of cases, they note. About half of XDR TB cases could be prevented by addressing hospital overcrowding, improving ventilation, enhancing access to HIV treatment, and providing faster diagnostic tests, say the study authors.

Basu said that the problem is compounded in South Africa where there are long waiting lists of up to 70 patients hoping to gain admission to hospitals, and crowded wards with as many as 40 people packed into one room. Some of these patients have to sleep on the floor, and many travel for days to reach the hospital.

“We can do a lot to change what is going on,” said senior author Gerald Friedland, M.D., a professor of medicine at Yale. “This is a train crash between the two epidemics of HIV and TB, and we have to address both problems together to fix this situation.”

Source: Yale University

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