Lung alert

Simple control measures could substantially reduce predicted spread of XDR TB

Extensively drug resistant tuberculosis (XDR TB) is TB with resistance to isoniazid, rifampicin, any fluoroquinolone, and at least one of the three injectable sideline drugs. Cases have been reported in 57 countries worldwide since March 2006, with South Africa having the largest cluster of patients. Nosocomial transmission of XDR has been suggested as the driver of this epidemic, typically in HIV-infected patients, and this study looks at various control measures and the effect they could have on transmission rates by the end of 2012.

Airborne TB transmission was simulated using a mathematical model based on current spread in a rural region of South Africa (Tugela Ferry) served by a typical hospital. The effectiveness of interventions was also predicted using this model.

The model predicted that XDR cases would increase from 194/year in 2007 to 254/year in 2012 if no new interventions are implemented; 72–96% of these cases would occur in patients with HIV infection. The proportions of TB patients with multidrug resistant (MDR) and XDR TB would increase to 78% and 48%, respectively.

Preventive measures such as shorter hospital admissions, rapid drug susceptibility assays, isolation facilities, respiratory mask use and improvements in ventilation all prevented XDR transmission facilities, respiratory mask use and improvements in ventilation all prevented XDR TB cases individually, and had even greater preventive value when used in combination, preventing 48% of future XDR cases in total.

Although the authors’ conclusions are based on model assumptions, the study provides a compelling incentive to implement simple nosocomial infection control measures in populations which are resource-constrained and already experiencing an HIV epidemic to effectively control a possibly disastrous epidemic of XDR TB.


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