Modeling Tuberculosis And Hiv Co-dynamics In Kenya

A time series approach using autoregressive integrated moving average (ARIMA) modeling has been used in this study to model the co-dynamic relationship between HIV and Tuberculosis. The study has showed that ARIMA(0,1,2) model provides the best fit for HIV prevalence rate and that the ARIMA(1,2,0) model provides the best fit for the TB case notification rate.

TB case notification rate and HIV prevalence rate time series demonstrated that there is a long run equilibrium relationship between HIV prevalence and TB notification rates. The current declining trends of TB cases may indicate that the efforts in HIV control could be driving down the TB epidemic. The Kenyan twin epidemic has time lag of 6 years between the trends of HIV prevalence and TB case notification rate.

The study also showed that there is Granger causal relationship between HIV and TB trends and that HIV Granger causes TB.