

**MODIFIABLE FACTORS ASSOCIATED WITH ACTIVE PULMONARY  
TUBERCULOSIS: (A CASE STUDY OF NAKURU G.K PRISON IN KENYA)**

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## ABSTRACT

Prisoners constitute a high risk group for acquisition of *Mycobacterium tuberculosis* (MTB) infection compared to the general population. The living settings of prisons are very conducive for tuberculosis (TB) transmission. This poses serious danger as the spread may involve drug resistant strains. No studies investigating the factors associated with MTB in prisons have been carried out in Kenya. This study aimed at establishing the modifiable factors associated with active pulmonary tuberculosis (PTB) disease among prisoners at the Nakuru prison, in Kenya.

An age-sex matched case-control study was carried out between August and December, 2007. A PTB case was defined as “any adult prisoner who had at least two initial sputum positive acid-fast bacilli (AFB+) smear. Prisoners possessing no history of chronic cough and not treated for PTB in the previous six (6) months were enrolled as controls. Data was collected using structured questionnaire. Study subjects were checked for a typical BCG scar and their weight (in kg) and height (in meters) measurements taken. Data entry and analyses were done using Epi-Info software. Ethical approval was obtained from the relevant prison authorities and research bodies. A total of 144 subjects (Case = 48, Controls = 96) were recruited. Statistically significant factors independently associated with active PTB disease were: HIV positive {P = 0.0018}, evidence of BCG vaccination (P = 0.0059), contact with PTB case while in incarceration {P = 0.0329}, unemployment status prior to incarceration {P = 0.0067}. A strong dose-response relationship between active PTB disease and the number of cigarettes smoked daily, frequency of sexually transmitted infection (STI) episodes, frequency of prison transfer (p<0.0001) was found. Factors associated with active PTB disease amongst adult prisoners are multifaceted and modifiable. A comprehensive multidisciplinary control and preventive approach involving

prisoners, health officials and prison authorities should be adopted. The team will implement screening for TB upon prison entry, isolation of suspected cases, routine cross-matching of incoming inmates with local TB registry, HIV counseling and testing of all patients diagnosed of PTB, educating jail staff on sign and symptoms of PTB and encouraging prisoners to quit smoking. Further studies on the role of BCG vaccination in adults, STI agent associated with PTB and molecular epidemiological studies to determine any epidemiological-linkage of tuberculosis spread amongst prisoners are warranted.