

Assessment of the Interventions that Limits Nosocomial Transmission of Tuberculosis among Healthcare Workers in Kaduna State, North-Western, Nigeria

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Abstract

Setting: Healthcare facilities providing tuberculosis care service through Directly Observed Treatment Short Course (DOTs) in Kaduna State.

Objective: To identify interventions that Limits Nosocomial Transmission of Tuberculosis among Healthcare Workers

Design: A cross-sectional cohort study was used to identify an intervention that limits Nosocomial transmission of tuberculosis in healthcare settings providing tuberculosis care services through DOTs in Kaduna State.

Result: Of the 325 respondents 93.2% agreed that providing education training on tuberculosis infection prevention and control measures is the most effective interventions to limits nosocomial transmission of tuberculosis among healthcare workers.

Conclusion: Providing educational training on tuberculosis infection prevention and control is the sustainable interventions to reducing nosocomial transmission of tuberculosis among healthcare workers.

Recommendation: adequate training and re-training of healthcare workers on tuberculosis infection and prevention control should make a priority upon all the responsible organizations including individuals.

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I. Introduction

Tuberculosis is a chronic infectious disease of public health concern caused by mycobacterium tuberculosis. The disease is one of the infectious diseases with high frequency of transmission more particularly among nations with high TB burden and poor economic status¹. One untreated infectious tuberculosis patient can infect an average of 10-20 people per year². The global burden of TB remains high in low- and middle-income countries, especially these nations with high HIV cases, over 10.4 million TB cases, and 1.7 million deaths, 95% of which occurred among these nations³. The disease is ranked among the 10th leading cause of death globally and first among single infectious diseases. The WHO identified 30 countries as high burden countries (HBC) for all forms of TB cases including, multi-drug resistant TB (MDR-TB), and TB/HIV coinfections⁴; these countries accounted for 87% of all estimated TB cases in 2017⁵. Nonetheless, seven countries accounted for 64% of the global TB burden (India, Indonesia, China, Philippines, Pakistan, Nigeria, and South Africa)³. Tuberculosis has been confirmed as an occupational disease since the 1950s, making healthcare workers 7.5-60 times more vulnerable to developing the disease than the general population⁶. The transmission of active TB among healthcare workers is associated with poor provision and effective implementations of tuberculosis infection prevention and control within healthcare settings providing TB care services⁷. The World Health Organizations (WHO) has developed guidelines on the preventions and control of tuberculosis in healthcare facilities, but the implementations of these guidelines become difficult among developing nations like Nigeria⁸. It's reported that providing effective training on tuberculosis infection and prevention control is the most effective interventions to reducing hospital transmission of active tuberculosis⁹. The number of healthcare workers trained on tuberculosis infectious control is insufficient in Nigeria, this may be a scientific reason that transmission of TB is on the increased among healthcare workers respectively¹⁰. It's also documented that the provision and effective implementations of tuberculosis infection control measures both on the administrative, environmental and personal protective measures is inadequate¹¹. TB is a preventable and curable infectious disease provided all measures are put in place to adhere to the three pillars and ten components of the WHO End-TB strategy⁷.

II. Methodology

Design and sampling procedure

A cross-sectional study was conducted to assess the interventions that limit Nosocomial transmission of tuberculosis among Healthcare workers providing TB care through directly observed treatment short course DOTs in Kaduna State. A Multistage convenient sampling procedure was used to select the study participants. At the first stage, all Local Government Area (LGAs) providing TB care services through directly observed treatment short course (DOTs) were selected. The second stage stratified the local government according to the three geo political zones. The third stage selected 2 LGAs from each of the geological zones considering urban and rural characteristics, and 36 facilities were selected across all the LGAs using a convenient sampling procedure due to insecurity. Healthcare workers providing TB care services in both the public and private health facilities from the selected facilities were recruited.

Data Collection and management

Data was collected using a questionnaire on the implementation level of WHO guidelines on tuberculosis infection control. All data collected was validated through data triangulations method and analyzed using Statistical Package for Social Sciences (SPSS version 23.0) Software. All information was presented in tables.

Ethical Issues

Ethical clearance was obtained from Lead City University research ethical committee, Kaduna State Ministry of Health Research Ethics Committee and Health Research Ethics Committee of the National Tuberculosis and Leprosy Training Center (HREC, NTBLTC). All data collected was managed under high level of confidentiality and strictly used for the purpose of this study.

III. Result:

Demographical Characteristics of the Respondents

A total of 325 respondents were interviewed out of which 171 (52.6%) were males, 175(53.8%) are between the ages of 25-34 with mean age of 31.51±8.24. Among these health workers 220(67.7%) are married, 158(48.6%) had NCE/OND degrees, 136 (41.1%) had higher degree and only 31(9.5%) has secondary school certificate and below. More than 50% of the respondents were either laboratory personnel 93(28.7%) or community healthcare workers 87 (26.8%) The result of this analysis also shows that majority of the respondents 87(26.8%) while only 21(6.5%) were doctors respectively. About 36.6% of the respondents were from the general outpatient's department, while 46 (14.2%) where from the DOTS centre.

Table: Assessment on the Intervention That Can Limit Nosocomial Transmission of TB

	N	%
Agreed Nosocomial Transmission of TB Can Be Prevented Among Healthcare Workers	325	88.6
Agreed That Adequate Nutritional Intake Can Reduced the Burden of TB Among HCWS	325	87.1
Agreed That Avoidance of Smoking and Alcoholism Can Reduce the Burden of TB Among HCWS	325	91.4
Agreed That, Providing Quality Training on Tuberculosis Infectious Control (TBIC) Is the Most Effective Intervention to Limit Nosocomial Transmission of Tb Among HCWS	325	93.2
Selected for Free Training on TBIC Will You Attend?	325	90.5
Practice According to The Techniques Learned on TBIC After Been Trained	325	91.4
Participate in Evaluating the Impact of Training Received on TBIC In Reducing the Burden of Tb Among HCWS	325	90.5

Source: Researcher's Survey (2022).

Of the 325 respondents 88.6% agreed that nosocomial transmission of TB can be prevented among HCWs, 87.1% agreed that TB can be prevented through adequate intake of nutrition, 91.4% agreed that avoidance of smoking can reduces the risk of TB, 93.2% agreed that providing quality training on TBIC is the most effective interventions to limiting nosocomila transmission, 90.5% agreed to attend training on TBIC, 91.4% agreed to practice inaccordance to the techniques learned from the training and 90.5% agreed to take part in evaluating the impact of the training.

IV. Discussion

This finding of this study is in line with a study that reported that effective educational intervention on tuberculosis infectious control is the most effective way to limits nosocomial transmission of TB among HCWs providing tuberculosis care services⁹. Another study state that training of healthcare workers on WHO guidelines on TBIC that includes Administrative, Managerial, Environmental and personnel protective control measures is the key to reducing tuberculosis among health care workers¹².

V. Conclusion:

providing comprehensive and effective training using WHO guideline on tuberculosis infection and prevention measure is the sustainable means to reducing nosocomial transmission of tuberculosis among healthcare workers providing tuberculosis care services through DOTs.

VI. Recommendation:

The government and others stakeholders should ensure thatall healthcare workers proving TB care services should be comprehensively trained on TB infection prevention and control using WHO guidelines. A routine training exercise should be organized to ensure to keep healthcare workers up-to-date on tuberculosis infection control.

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