Original Article Sudan Medical Laboratory Journal

Analysis of environmental Infection Control practices among TB laboratories in Khartoum state-Sudan

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Abstract

The tuberculosis laboratory, patient care settings require specific strategies directed at the prevention of transmission of diseases among health care workers and their patients.

Aim: The aim of the present study was to assess the knowledge, attitude and practice of infection control among TB laboratories in Khartoum state- Sudan

Materials and Methods: A cross-sectional study using a structured distributed questionnaire was carried out included the key areas of infection control including Quality Control, personal protection, and environmental infection control.

Result: A total of sampling laboratory in Khartoum State in the study. Ten tuberculosis laboratories were visited. There was a collection area separate for TB samples collection and we found 50% only had a separated area for sputum sample collection.

Conclusion: Assessment of environmental Infection Control practices Among TB laboratories the indicated that the standards infection control was very low

Keywords: Barbers; Tuberculosis laboratory, TB-IC Infection Control, Khartoum-Sudan; analysis environment

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Introduction

Tuberculosis (TB), is a chronic highly infectious disease and from ancient times till today, it remains the captain of death worldwide. According to estimates, 10 million cases of TB will be reported in 2020, and approximately 1.5 million people will die from TB globally, including 214000 HIV-infected patients (1). The emergence of numerous drug-resistant strains of Mycobacterium tuberculosis, including mono, multi, pre-extensive, and extensive drug-resistant strains, is posing a threat to global efforts to control and eradicate the disease (2). It has been reported that a third of the estimated burden in 2020 was enrolled in MDR treatment regimens, which highlight the lack of early and accurate diagnosis of cases (2).

Sudan is the African country that suffered from mismanagement of resources for several decades and is still excruciating from poverty (3) and limited healthcare infra-structure and disease prevalence data which is a vital necessity to inform better introduce interceptive measures (4). In Sudan, it has been estimated 28,000 new TB cases in 2020, and that includes 160 confirmed cases of mono and multi-drug-resistant (5). All healthcare facilities, both public and private, and all other settings where TB patients or persons

suspected of having TB congregate, should implement TB Infection Control (TB-IC) measures. The measures selected will depend on the infection control (IC) risk assessment, which in turn is based on the local epidemiological, climatic and socioeconomic conditions, as well as the burden of TB (6).

Methods

A cross-sectional study was conducted at the Khartoum State TB laboratories diagnosis Centre between April 2019 and January 2020. 10 tuberculosis diagnosis labs were visited. The purpose and research procedure were first explained to each subject. After a verbal consent to participate in the study, data were collected from each individual under study by interviewed questionnaire. Information was obtained on whether there is a allocated area separate for TB lab?, The facility design, patient flow and triage system comply with what is outlined in the infection control plan and/or national infection control policy. ? Waiting area is well ventilated (i.e. windows and doors open when feasible) and there is clear display of messages on cough hygiene in all areas frequented by patients?

The data of the current study were statistically analyzed by SPSS version 26.0

Result

Total of 10 tuberculosis diagnosis labs were visited. Five of the visited laboratories had a separate collected area for TB (50%) and five of them had no separate collected area for TB (50%) (Figure 1), and there was no budget allocated for TB infection control activities for all labs (table 1).

Regarding the patient triage and patients flow for TB laboratories we found only one laboratory (10%) performing the patient triage and patients flow and comply with what is outlined in the infection control plan and or national infection control policy (Figure 2).

The waiting area is well ventilated in all the TB laboratories (100%) (ie. windows and doors open when feasible) and there is clear display of messages on cough hygiene in all areas frequented by patients. (Table 2).

For waste management in the TB labs, all of them (100%) perform waste management (table 3).

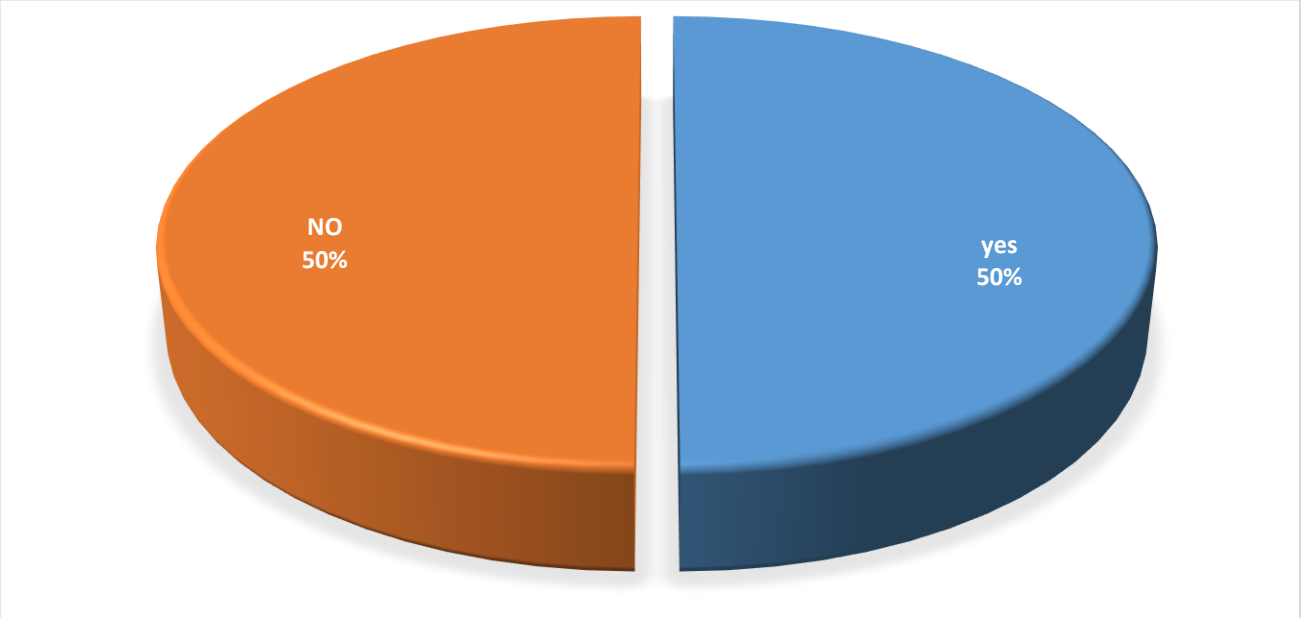

Figure 1: allocated area separate for TB lab

Table 1: The budget allocated for TB infection control activities*:*

budget allocated	Frequency	Percent
Yes	0	0.0%
No	10	100%
Total	10	100%

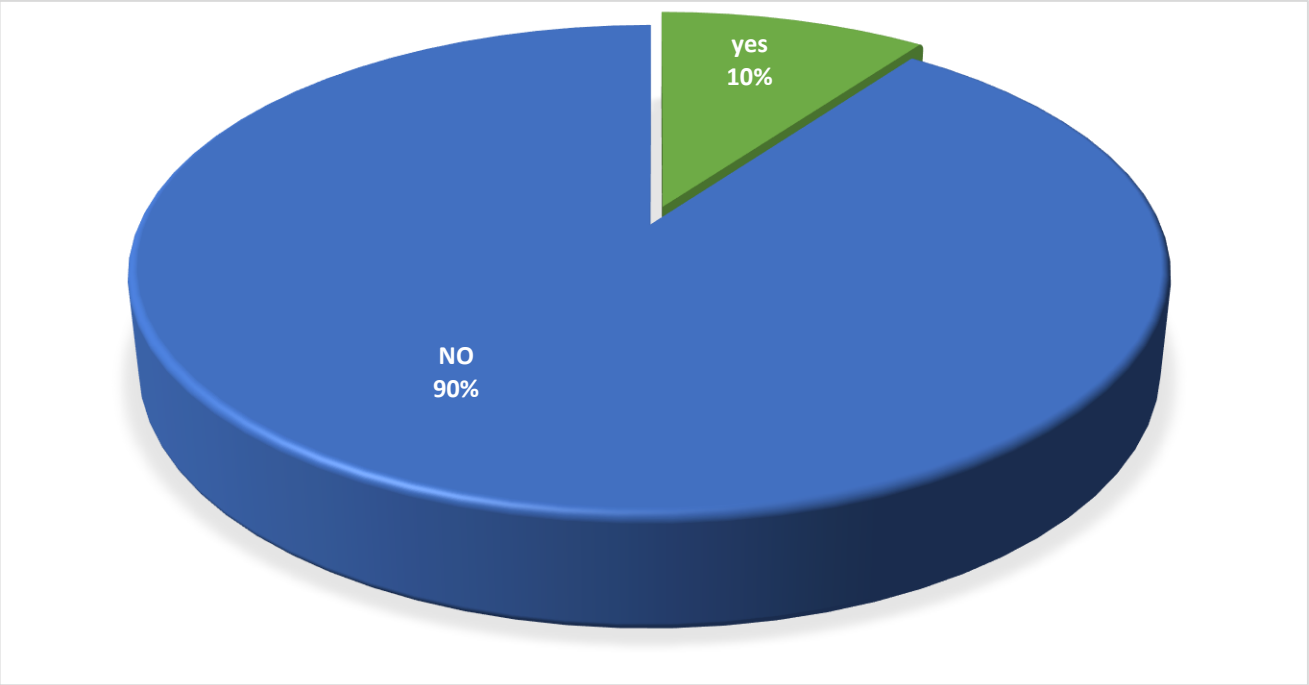

Figure 2: The facility design, patient flow and triage system

Table 2 : Waiting area is well ventilated

Waiting area ventilation	Frequency	Percent
Yes	10	100%
No	0	0%
Total	10	100%

Table 3: waste management for the TB labs

waste management	Frequency	Percent
Yes	10	100%
No	0	0%
Total	10	100%

Discussion

TB remains the leading cause of morbidity and mortality in adulthood globally, with approximately 10 million of TB cases reported annually [7]. High rate incidence of TB occurring in low income and below poverty line countries as TB considered a disease of poverty [8]. There was no written facility-specific infection control plan and also there was no Designated TBIC focal person has received documented TBIC training or refresher training. Similar were observed in the study, as Only 38 % of the study participants had proper overall TBIC practice in West Gojjam Zone. Measures of TBIC practices were variable from good in practicing natural ventilation (89.2 %) to low (23.5 %) use of N95 respirators by staff at the health centers Even though TBIC focal persons were assigned in each health centers the presence of TBIC policy/plan and national guideline for the management of TB was known by 72.9 and 75.8 % of participants respectively. This finding is in line with the study in South Africa[9.10].In which despite a TBIC officer appointed, there was no announced to all health workers. This may be due to the gap that health centers and woreda health offices didn't give emphasis to the program and it was left to those health workers working in TB rooms. In this study only 34.5 % of participants were ever trained on TBIC which is lower than the study done in Uganda (48.6 %) [11]

Conclusion

This study indicated that the standards infection control precautions adopted by the diagnostics laboratories in Khartoum state was very low. In addition to that, awareness of laboratory personnel towards infection control and biosafety principles implementation was very low too.

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