



TB Infection Control in TB/HIV Settings in Cross River State, Nigeria: Policy Vs Practice

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Authors' contributions

This work was carried out in collaboration among all authors. Author MO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors KCO and EIO managed the analyses of the study. Authors AB, UEE, MI, JOB and AOP managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

TB and HIV remain a dangerous duo of significant public health concern across the globe. Both diseases require significant community and health system activities to be successfully managed. TB infection control is an important disease prevention strategy among the general population and among people living with HIV, in cost and management. We undertook to assess the situation of TB infection control at three levels of health care in Cross River State of Nigeria. A qualitative method was used to assess TB infection control (TBIC) knowledge, attitudes, and practices of the health care workers at each of the purposefully selected facilities using a semi-structured questionnaire - University of Calabar Teaching hospital, Calabar; Infectious disease Hospital,

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Calabar and primary Health Centre, Calabar Municipal, between 15th to 31st November, 2019 in the first phase, and an extension to February, 2020 due to delayed ethical clearance from the University of Calabar Teaching hospital. Data was collected and entered on an excel template and cleaned by trained data entry clerks. Charts and color diagrams were developed to compare specific descriptive data. There is wide variation between the written policies of TB infection control and the practices among health workers. Even though there are strong administrative protocols to support TB infection control in the higher levels of care, it is better practiced in the lower level PHC where the protocols were not spelt out.

Keywords: Tb infection control; TB/HIV settings; cross river state; policy vs practice.

1. INTRODUCTION

HIV and TB remain major public health concern to the world, with only malaria joining the league. Global Fund to Fight AIDS, TB and Malaria was established in 2002 to raise and manage the world's money to respond to these three diseases - the deadliest infectious diseases known to man. The huge burden of poverty and comparatively low literacy levels on the African continent, especially sub-Saharan Africa, creates a perfect storm for the propagation of these diseases, making the continent to disproportionately bear the burden of these epidemics. Even though global institutional and national responses have increased over the years, with periodic boardroom discussions and debates, implementation is highly variable at site and community levels [1-3]. TB is an infectious disease spread by aerosols, commonly associated with poverty, slum accommodation with poor ventilation and among persons with compromised immunity, especially people living with HIV (PLHIV), hence infection control approaches are keys among interventions targeting to reducing its burden. TB case finding among PLHIV is a major infection control strategy and is also crucial to reducing the morbidity and mortality of the disease among co-infected patients: diagnosed TB cases can be treated and persons without signs of TB can be placed on isoniazid preventive therapy [4-6]. Variability of implementation of the WHO recommended 3 'i's, that is, intensified TB case finding among PLHIV, isoniazid preventive therapy for uninfected PLHIVs and TB infection control in health care and congregate settings is due to multiple cross-cutting factors that are poorly understood [7].

Nigeria is a high HIV and TB burdened country with an average TB prevalence of 27% among HIV positive persons and TB incidence of 219

per 100,000 population [8,9]. Nigeria has an HIV prevalence of 1.4% among the general population, with 18 deaths per 100,000 among populations co-infected with the disease (Nigeria AIDS Indicator Survey, 2018). TB case notification has remained suboptimal in the country despite several efforts by national governments and donor partners. In 2017, Nigeria reported only 104,904 cases among her population of almost 200 million people [9].

Issues of poor TB infection control are well known in Nigeria [10]. It is unclear why the implementation of such an important intervention is poor, and what the implication could be in facilities providing TB and HIV services. Nosocomial TB transmission among patients visiting the clinic and among staff providing the services is not measured in many clinical settings and is not tracked by any means. Even though protocols, guidelines, job aids and monitoring tools may be in place, the fidelity in implementation is uncertain in most parts of the country. No doubt, there are community and health system related factors that influence the transmission and reduction of infectious diseases like TB- we sought to understand and address the issues that are within the health system. This assessment sought to identify these gaps, with focus on the three (3) levels of the health system in 3-selected facilities in Cross River State, Nigeria. It will describe available policies and protocols in the health system; outline the perspectives, attitudes and practices among health workers on TB infection control, to provide understanding on the status quo at three levels of health services in the State, and proffer approaches to closing the gaps to reduce spread of TB infections. It will also share good policy recommendations and valuable information to improve practice in the care of PLHIVs as it relates to infection control.

2. METHODOLOGY

We used qualitative method for across sectional survey of the administrative, environmental and the use of personal protective equipment (PPE) intended to reduce TB transmission in healthcare settings, and also assessed TB infection control (TBIC) knowledge, attitudes, and practices of the health care workers at each of the purposefully selected facilities using a semi-structured questionnaire. Data collection lasted from 15th to 31st November, 2019 in the first phase, and had extension to February, 2020 due to delayed ethical clearance from the University of Calabar Teaching hospital.

2.1 Study Setting

The study was conducted at the University of Calabar Teaching hospital, Calabar (UCTH); Infectious disease Hospital (IDH), Calabar and

primary Health Centre, Calabar Municipal. UCTH is the only tertiary health facility in the state, IDH is the main TB referral hospital in the area while PHC is one of the primary health facilities in municipal area. These facilities were selected to ensure representation of the three levels of health care in Cross River State, Nigeria.

2.2 Data Management

Data was collected and entered by trained data clerks, cleaned and checked for missing or invalid values by the study coordinator. The data collection tool was restricted not to contain patient identifying information. Quantitative data was analyzed using Stata 13.0 to produce descriptive statistics including frequencies and percentages for categorical variables. Relevant charts and Color diagram were developed to compare specific descriptive data.

3. RESULTS

Table 1. Description of HCWs who participated in the KAP survey and TBIC profiles related to their facilities

Variable	Percentage
Age Group	
<30years	25.0
30years and above	75.0
Gender	
Female	87.5
Male	12.5
Total	100.0
Profession	
Nursing Assistant	37.5
RN/Enrolled nurse	37.5
Social Worker	25.0
Years of Experience	
<11years	33
11years and above	67
Facility	
UCTH	50.0
DLHMH	37.5
PHC	12.5
Attended TB infection control training in the past 12 months	
Yes	50
No	50
Attended general infection control training in the past 12 months	
Yes	50
No	50
There is an infection control officer or nurse at this facility	
Yes	62.5
No	25
Missing	12.5

Table 2. TB Infection Control Dashboard showing results by facilities

Indicator	Tertiary facility	Secondary facility	Primary facility
Managerial			
The National Infection Control Policy is available on-site.	Green	Green	Red
An infection control practitioner or nurse has been assigned to carry out infection control in the facility	Green	Green	Red
An Infection Control Committee/Team has been designated at this site	Green	Green	Red
A written site-specific infection control (IC) plan has been written and is available to staff.	Green	Green	Red
The infection control plan contains a statement of endorsement by the facility manager.	Green	Green	Red
A TB IC risk assessment is completed at least annually.	Green	Green	Red
Facility design and patient flow has been assessed for the best use of space and ventilation.	Green	Green	Red
All patients with TB disease are managed on directly observed therapy (DOTS) per the national guidelines.	Green	Green	Green
TB IC practices are monitored daily.	Green	Green	Red
There is a facility reporting system for all patients diagnosed with TB and referred for treatment in accordance with national policies.	Green	Green	Green
TB IC training for all staff has been done and documented at least annually.	Green	Green	Red
Information on TB IC is available for all patients and visitors and is offered by staff.	Green	Green	Red
Operational research to improve TB IC measures is conducted at this site.	Green	Green	Red
An Occupational Health program is in this facility.	Green	Green	Red
Administrative			
Patients are routinely asked about cough when entering the facility.	Green	Green	Green
Patients that are coughing are separated from others and "fast tracked" to a clinician.	Green	Green	Green
A "Cough Monitor" or other designated person gives cough etiquette guidance and assists with separation and triage.	Green	Green	Red
Signage for cough etiquette is present in the clinic.	Green	Green	Red
Supplies are available to coughing patients (tissues cloths, masks, trash bins, etc).	Green	Green	Red
Sputum samples are collected in a designated area and away from others.	Green	Green	Green
Processing of sputum samples is expedited in the lab. There is a tracking mechanism to	Green	Green	Green

monitor turn-around time of lab results.			
There is a tracking mechanism to monitor turn-around time of patients within the healthcare facility.			
Staff receive an evaluation for TB at least annually			
A confidential log is kept of all staff that are diagnosed with TB disease.			
Staff are offered an HIV test annually and offered ART if they are positive.			
HIV-infected staff are reassigned if they request.			
INH preventive treatment is offered to HIV-infected staff.			
ENVIRONMENTAL			
Staff monitors natural and/or mechanical airflow daily (especially in waiting rooms, sputum collection rooms if available, and at least one exam room).			
Health care workers that assist during sputum collection take precautions.			
Regular cleaning and maintenance of directional and extractor fans is conducted.			
Servicing documentation is maintained and is available for review			
Signage is in place to keep doors and windows open when feasible			
If UV lighting is used, routine cleaning and maintenance is conducted and documentation logs kept.			
Patient waiting areas are out-of-doors or have good cross-ventilation.			
PERSONAL PROTECTIVE EQUIPMENT			
Surgical masks are available and worn by coughing patients.			
N-95 or FFP2 respirators are readily available and used by staff.			
Staff has been trained on proper fit of respirators and documentation of training is available.			
	Done, available or desired outcome	Not done or available, or not right	Not Applicable

Reflection: Assessment of managerial scope of infection control revealed significant presence of managerial competence in terms of knowledge and presence of institutional structure and materials for infection control, in the secondary and tertiary facilities, but almost totally absent in the primary health centre.

The administrative acts of infection controls are reasonably performed across the three levels of health facilities, albeit reasonably poorly in the PHC. In the contrary, even though there are no written policies and administrative design, the staff at the PHC are offered PITC annually to determine their HIV status. In addition, the staff at the PHCs were not trained and do not adhere to use of personal protective equipment.

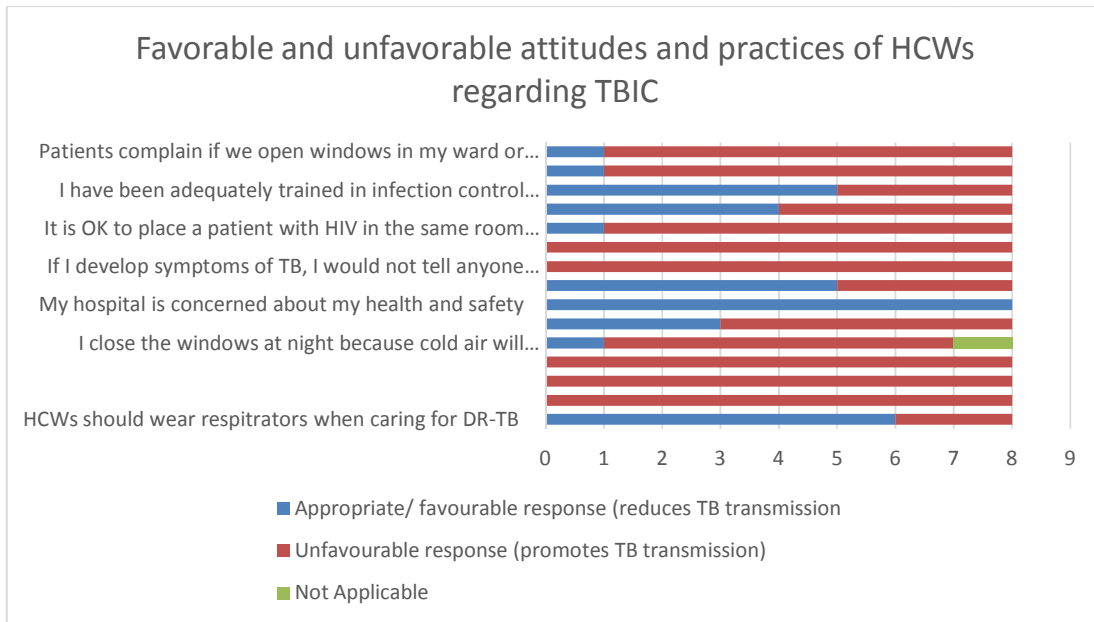


Fig. 1. Dashboard showing favorable/unfavorable attitudes and practice of Health Care Workers on TB Infection Control

Reflection: Despite the reasonably better rating of infection control policies along the administrative, managerial and personal protective domain of infection control policies in this facilities in Table (1), especially in the secondary and tertiary health facilities, the responses and practice of most staff deviate significantly from the dictates of the policies and protocols.

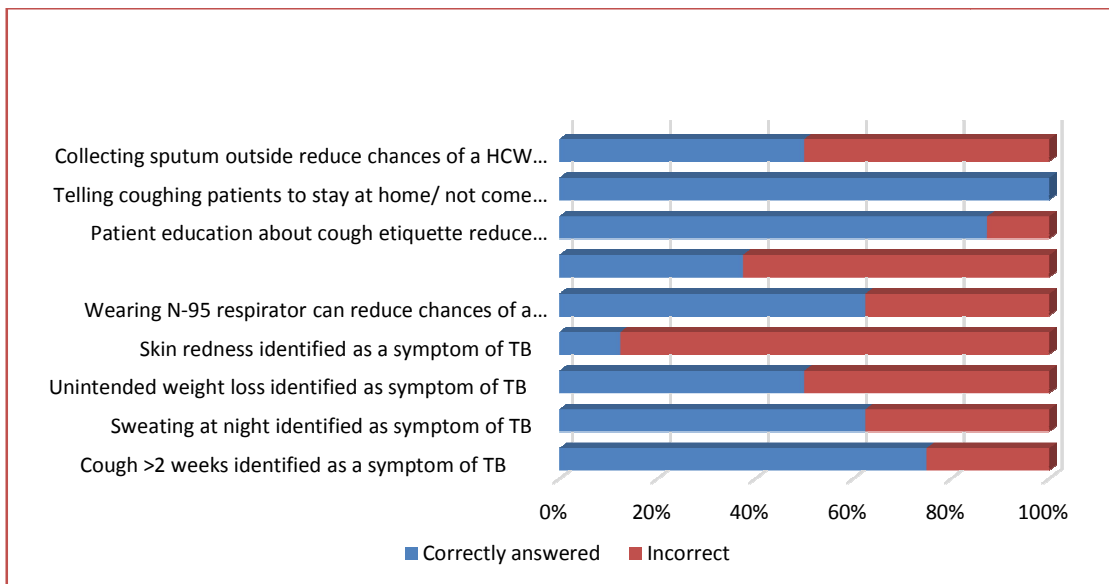


Fig. 2. Dashboard representing cumulative proportion of participants giving correct and incorrect answers respectively

Reflection: There is significant variabilities in the responses of the health care workers on the TB prevention strengths of notable aspects of the TB infection control activities.

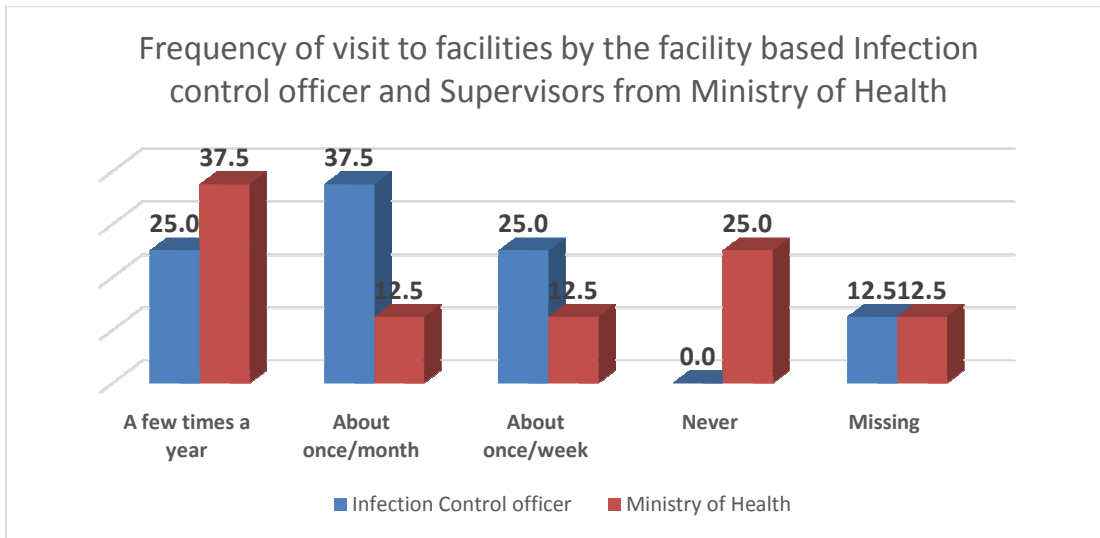


Fig. 3. Frequency of Visit to facilities by the facility-based infection control officer and supervisors from the MOH

Reflection: Supervision of implementation of infection control practices from the infection control office and the MOH fluctuates across time series. It is more frequent by the local IC Officer, and less frequent by the officers from the MOH.

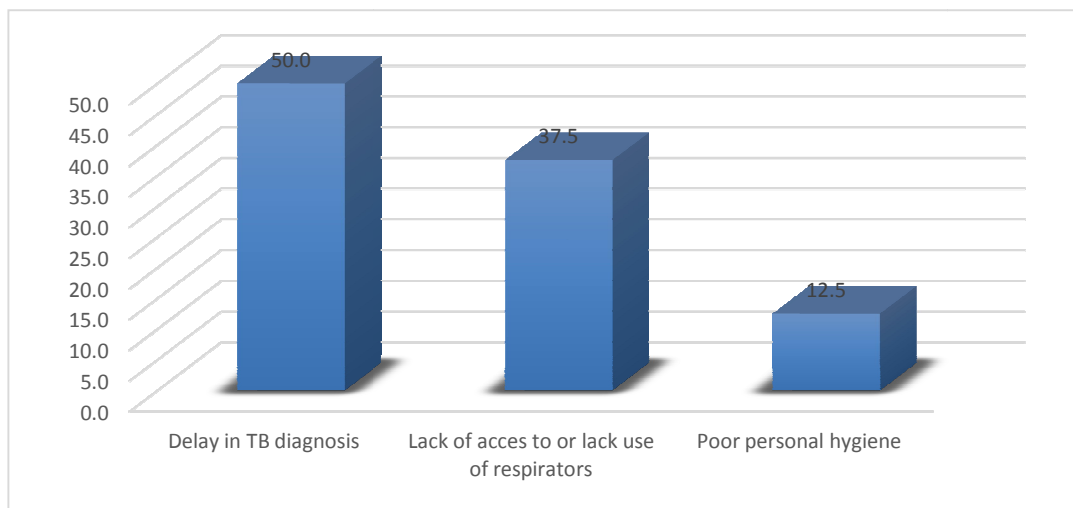


Fig. 4. Staff impression on why HCWs developed TB

4. DISCUSSION

This study assessed components of the health system and programmes that supports TB and HIV integration at three levels of care in Cross State, Nigeria, with the view to finding the gaps that exist in the control of both diseases within the object of the WHO recommended integration, so as to inform recommendations to the national

TB and leprosy control program (NTBLCP) and the Nigeria National Aids Control Program (NACA) for improvement planning. Assessment of the managerial domain of the infection control dashboard revealed significant presence of managerial competence in terms of knowledge, as well as presence of institutional structure and related documentation for infection control, in the secondary and tertiary facilities, but almost totally

absent in the primary health centre (PHC). The administrative acts of infection controls are reasonably performed across the three levels of health facilities, albeit also reasonably poorly in the PHC. This observation in the high level facilities collaborate a similar work in Ibadan,

Western Nigeria [10] In addition, the staff at the PHCs were not trained and do not adhere to use of personal protective equipment. The PHCs are the lowest level of health care at the grass root across all geo-political regions of Nigeria; it is closest to the people and is the nearest to the largest number of vulnerable populations in both rural places and peri-urban [11] In the contrary, even though there are no written policies and administrative protocol, the staff at the PHC are offered PITC annually to determine their HIV status. Knowledge of HIV status is helpful for early detection of HIV for prevention benefits, and to access early treatment, thereby minimizing loss of work time due to ill health and deaths [12]. In addition, health workers who know their status can appropriately protect themselves from undue exposure to infections that they may be vulnerable, such as TB. Nurses are expected to offer counseling in close proximity to TB patients and PLHIV to enable them elicit trust that promote the appropriate behavior change [13]. The availability of HIV self-testing has enhanced health workers disposition to seek knowledge of their HIV status [14]. Although most of the HCWs were trained on TBIC, most scored poorly in attitudes that reduce TB transmission in the health settings. TB infection control is one of the WHO's 3 'i's for preventing TB infection among PLHIV. The observation in this study suggests that the infection control practice is still less than adequate among health workers in the three facilities studied despite the presence of appropriate policies and managerial supervision for this purpose from the MOH. A similar observation was found in a similar study in mid-west Nigeria (Adebimpe, 2019). Nosocomial transmission through the usual high-volume ART and TB clinics is a serious concern where policies are not translated into practice in health care settings. The goal of a one-stop shop through integrated TB and HIV clinics was intended to minimize patient losses to incomplete referrals, stress of distance and associated patient cost. However, in an ambience of poor infection control, especially on the administrative arm, reported to be the most important of the three arms of infection control, ignorant patients

coming to the clinic are only exposed to undue risk. Since the timing of diagnosis are not well kept due to the nuances of patient and staff behavior, it is not possible to estimate how many PLHIV acquire TB infection from the clinic high risk clinic exposure.

Missing data due to poor documentation of clinical and laboratory events was a critical observation in the assessment study, and a major limitation in proposing valuable evidence to buttress or refute the hypothesis. The observation is however a true reflection of the situation of TB/HIV integration across the levels of care, and perhaps a measure of the quality of health care being offered to the affected population. The observations were therefore not seen as a factor of missing data alone, but also the manifestation of patient care and the picture of integration. Most of the quantitative data from the secondary facility for ICF and HIV situation among TB patients were missing altogether and was therefore not included in the evaluation. This assessment data was deliberate to capture the data as it is, and to draw conclusion and proffer recommendations based on the actual observation and raw data.

5. CONCLUSION

This assessment finding shows serious gaps between policy and practice. The presence of an enabling policy environment without a matching practice is a dangerous trend as it blinds the management oversight on TB infection control, as to what exactly could be happening at the background. Supervisory visits to implementing facilities often rely on documentations that are intended to be the bed rock of a practice. There is need for the relevant agencies of the MOH to design and circulate checklist that monitor administration of infection control practices across the three levels of care to promote adherence. The standard operating procedures and policies in use at the secondary and tertiary health facilities should be extended to the PHCs.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The study proposal was submitted to the University of Calabar Teaching hospital and the

Cross-River State Ministry of Health Review Board (IRB) for review and thereafter received ethical clearance from both review boards.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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