

The Role of Public-Private Mix in Tuberculosis Control in Cross River State, Nigeria.

Emmanuel Mose Nkombe

Department of Public Health, Nexus International University, Uganda.

ABSTRACT

Public Private Mix (PPM) is a strategy for TB control rolled out by WHO in 2004 and is aimed at involving all care providers - public and private, formal and informal in the provision of TB services. All high TB burden countries are implementing the PPM strategy currently which has proven to be effective in increasing TB case finding, case notification and treatment success rate. Evaluation of the project still required in Cross River State. The aim of this study was to assess the role of the private sector in TB control in CRS, the knowledge gap and the challenges encountered while providing TB services. This is a descriptive study using multiple tools to collect both the quantitative and qualitative data. Data was collected and analyzed using both descriptive and inferential statistics with the aid of Statistical Package for Social Sciences (SPSS) version Student t-test was used to draw inferences as P-value of 0.05 was considered significant. The findings of the study indicated that knowledge gap among private providers on role for PPM in TB control in Cross River State. Also, there is lack of understanding of challenges encountered in the implementation of PPM in TB control. However, the study indicated significantly high contributions of PPM in TB control in Cross River State. The study results show that PPM is an important aspect of TB control in Cross River state and as such should be made an integral part of the control of public health disease in the state. There is urgent need to build their capacities as they remain the first point of contact to patients requiring medical attention.

Keywords: Public Private Mix, Tuberculosis and public health

INTRODUCTION

The Public Private Mix is a World Health Organization (WHO) stop Tuberculosis (TB) strategy developed to improve TB service delivery through engagement of all care providers [1] as contained in Pillar 2 of the end TB Strategy. The African PPM regional framework was developed in 2004 providing the guidance on engagement of care providers within the region which eventually led to scale up of PPM in some African countries like Ghana, Kenya, and Central African Republic. The contribution to TB case finding by the private sector in these countries was seen to be significant at 15%, 9% & 29% respectively [2]. The PPM strategy has demonstrated significant contribution to TB case finding globally with a 28% in 2019 from the big seven countries namely *India, Indonesia, Myanmar, Philippines, Bangladesh, Nigeria and Pakistan* attributed to PPM [3].

In Nigeria PPM is currently being scaled up with funding from donor agencies

including The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFTAM), The United States Agency for International Development (USAID) which are the major funders of PPM in Nigeria. This initiative is currently implemented in 21 states for the GF-PPM project and 14 states for the USAID TB-LoN project with some states being shared between the two funding streams. With this scale up of PPM, Nigeria is beginning to record an upsurge in TB case finding in some states that were performing poorly prior to this period. Cross River State is one of such states that has recorded some major improvements in TB case detection and treatment success rates due to PPM scale up, though no publication has been made to this regard [4].

According to [5] about 10 million people were ill of TB in 2019 with about 7.1 million notified and reported officially to WHO. The 2.9 million "missing" TB cases had 56% from seven countries -

India, Indonesia, Myanmar, Philippines, Bangladesh, Nigeria and Pakistan- while Indonesia, India and Nigeria accounted for 38%. In this particular period the private providers provide a significant part of the initial care for more than two-third of individuals seeking care. The private for profit sector contributed about 28% of the TB cases notified in 2019 from above 7 countries accounting for about 20% of the estimated global incidence in 2019 [6]. According to publication these countries are referred to as the "The Big 7" PPM priority countries as there has been a steady increase in the TB cases notified in the private-for-profit sector. While the case notification from the private sector seems to be increasing significantly in India and Pakistan, and decreasing steadily in Myanmar, while Nigeria seems to lag behind these countries indicating that much needs to be done to strengthen PPM in the country. As at 2019, the contribution of private-for-profit to case notification was 18,432 accounting for about 15% of the case notification [7].

As part of the aim of Public Private Mix to contribute to the Stop TB strategy, it has been a key link between health care providers and the national TB program (NTP) in the service provision. However, the impact of public-private sectors mix in tuberculosis control in Nigeria is not well known as there are a few documented evidence and publications on the strategy. This is a driving force to design this study in order to identify if PPM exists and practiced by as per the requirements by the private providers and the state TBL control program and review if there are significant contributions to TB control in Nigeria and Cross River State in particular. This study is conducted in 3 selected high TB burden LGAs of Cross River state where PPM is being implemented, to review the achievements of the state during the pre and post PPM scale up era to determine if there is a significant contribution of this strategy to TB control in the state. This will produce a baseline information to be use for subsequent research.

The WHO Alma Atta declaration of 1978 targeted "Health for All by year 2000" (HFA2000) that aimed at achieving the highest level of health possible for all peoples. The policy did not achieve its

goal due to a number of reasons such as - misinterpretation of its concept as reported from Burkina Faso, major economic crisis in most parts of the world which resulted in increased debt burden on poor countries and structural adjustment programs. Also, political and economic instability was also experienced for instance, the fall of Soviet Union gave the most of the donor agencies of the USA a soft ground but were mostly interested in quick results which was impossible in the case of HFA 2000. The World Bank in 1993 introduced the "Investing in Health" which was in contrast to HFA 2000 and soon gave rise to vertical programs with service duplication and high costs [8].

Then the issue of selective primary health care which emerged as a substitute to the originally endorsed "comprehensive" PHC of Alma Ata 1978 to cover food supply, nutrition, basic sanitation, control of prevailing ailments, maternal and child health, education etc. [9]. He explained that with the adoption of the selective PHC, which appeared to be advantageous due to its prioritization to conditions of high prevalence, mortality and morbidity as well as it's the cost effectiveness and easy to implement. The conditions were control of diarrheal disease using ORT, growth monitoring, Breastfeeding and immunization against childhood killer diseases and recorded successes in most countries. This in part could explain why TB control was not prioritized in the selective PHC system.

During this era, there were two major objectives of TB control that WHO in 1991 during the resolution by its World Health Assembly, urged the National TB control programs to work towards achieving the WHO 2000 targets. These Objectives were - 1. To treat 85% of smear positive TB cases and 2. To achieve case detection rate of 70%. There was steady progress made until the Millennium Development Goals (MDG - 2005-2015) were developed which had the goal 6 specifically to addressing HIV/AIDS, Malaria, TB and other diseases. The Sustainable Development Goals (SDGs - 2015 - 2030) with goal 3 aimed at ending the epidemic of TB, HIV, Malaria and other neglected tropical diseases.

Despite the commitment by countries to end TB epidemic by 2030 in line with the SDG targets and the End TB Strategy, there have not been enough investments to achieve this goal. The major challenge faced by the End TB Strategy being universal access to quality tuberculosis services. This resulted in missing of about 10 million people with TB in 2017 by the national TB programmes worldwide [10]. A high proportion of these people missed—about two-third were thought to have had access to substandard TB treatment from public and private health facilities not engaged by the NTP. Other consequences of failure to engage all care providers will lead to increased TB transmission, Increased morbidity and mortality, Increased drug resistance as well as catastrophic cost to patients and their families.

Engaging the private sector will also relieve the burden on the NTP to better focus on other priorities. The Global fund to Fight TB, AIDS and Malaria, is a major funding source to the NTP and it is a public - private partnership and provides a high percentage (about 63%) of all international financing for TB control globally. This funding has helped national and local TB control programs to scale up and strengthened PPM activities.

In Africa, a regional framework for PPM DOTS was developed in 2004 which provides the guide on engagement of all care providers in TB control within the region. It provides guideline for PPM in the African context with the approaches to implementation, monitoring and evaluation well spelt out. Since the development of the framework, there have been broad involvements of the public and private sector in TB control in the African region as well as NGOs and faith-based organizations. The PPM is being scaled up in Ghana, Kenya and Central African Republic where case detection attributed to PPM was seen to 15-20%, 9% and 29% respectively [11]. Malawi, Nigeria, Uganda and Zambia had PPM at various stages of development as at 2007.

In Nigeria, the [12] reported that Nigeria ranks sixth amongst countries with the highest TB prevalence, accounting for 4% of the global TB burden. The country has an estimated 429 new infections

(219 per 100,000 population) [13]. The report further noted that the TB treatment coverage (notified/estimated incidence) in Nigeria as at 2018 was 24% (17-37), which is still very low compared to the TB burden in the country. This low performance could be attributed to non-engagement of all care providers as it was identified by [14] in the south east Nigeria where German Leprosy & Relief Association supported PPM states resulted in a 15% increase in case detection. Currently, there are many funding support for PPM in Nigeria - The Global fund support in 21 states of Nigeria and the USAID funding in 14 states. With a full scale up of the PPM strategy in the country, there is likelihood of improvement in TB case finding and treatment success rates.

Earlier studies have focused on public-private mix for TB and TB-HIV care in Nigeria, assessment of implementation levels, TB care and treatment as well as evaluation of TB management in other states/regions in Nigeria (Lagos, Plateau, South-East etc, like those of [15]. For Cross River State, there had been remarkable improvement in TB control with the private sector contributing a high percentage (above 50%) to case detection and treatment success, but no systematic review has been done on this yet. This study therefore seeks to address the gap by adopting a participatory research approach to explore the role of the public-private mix in TB control in Cross River State. Cross River State has maintained the national organogram in the TB control, headed by the State TB control officer who reports directly to the Director of public health in the state ministry of health. Due to the high prevalence of TB in the state, Cross River has continued to receive support through funding and capacity building at the state and local government levels to strengthen efforts towards achieving TB control. It is interesting to note that Tuberculosis control in Cross River state has been more of a public health facility-driven over the years, with few private-for-profit and faith-based facilities involved with donor support. Funding is majorly from international Non-Governmental Organizations (NGOs) with implementation by both local and foreign partners. Even with enormous

resources committed to TB response programs and the robust action plans that have been developed by intervention partners, there still exist a gap in funding TB activities from the State government, with almost zero annual budget for the TB program in the state's annual financial budget for health. This makes implementation of TB programs, and by extension efforts to achieve TB control, totally donor driven. In addition, there is poor support for supervision and monitoring of TB services from responsible government agencies. Hence, poor coordination and absence of synergy for effective program implementation. Further, even though efforts by the private sector have amounted to appreciable gains in the drive for TB eradication in the state, contribution from this sector is still very minimal. Since contributions from one sector alone might not guarantee the required outcome to achieve TB control in the state, a well-coordinated public-private sector mix will ensure optimized resource allocation, strategic program design and sustainable efforts in TB intervention activities. To ensure effective implementation of the public-private mix for the control of TB in Nigeria, government's involvement is critical. This can be done through the establishment of institutions to drive the collaborative partnership to achieve desired goals. In Nigeria, the government plays a coordinating role in TB control with existing frameworks and policies but low public spending on TB control. There has been an increase in the involvement of stakeholders in TB control with limited institutional capacity, particularly in the private sector, which are the major stakeholders in the PPM for TB control. In addition, there has been weak TB service delivery integration into the regular health services even with supportive policies in place. Other challenged areas of TB control include human resource inadequacy, poor infrastructure, stigma on patients as well as weak monitoring and evaluation systems [16]. The PPM strategy operates on the hub-spokes arrangement to form a cluster, which maintains referrals and feedback system. There are also mega clusters made up of more than one cluster and

it's coordinated by a Linkage coordinator who ensures completed referrals. Each cluster is made up of a private health facility as the hub and at least ten patent medicine vendors as the spokes, who eventually referred presumptive cases to the hubs. Since its roll-out in 2004 by WHO, public-private sectors mix in Nigeria has been an important element of TB control and has been recording steady achievements. Currently there is no TB specific legislation on public-private sectors mix in Nigeria. But there exist guidelines and standard operating procedures for TB control for PPM which has been revised currently (2021) to guide the implementation of TB by the PPM facilities. The [17] guidance on the implementation of the Public-Private Mix approaches suggested a review of the regulation on Anti-TB drugs and TB notification and added that there have been few successful regulations while suggesting exploration of ways to enforce such regulations [18]. According to [19], there are quite a number of local legal and policy frameworks guiding the provision of TB services - prevention, diagnostic and treatment and there is an established legal right for those affected with TB as well as those vulnerable to it. However, these legal frameworks specific for TB is weak in Nigeria with absence of specific laws regulating the sale of TB drugs, no existing policy on isolation of those with TB as well as protecting TB from exclusion in the NHIS. These affect both public and private sector TB control and as such, TB control in Nigeria is poorly regulated. Efforts by interveners to reduce the TB burden in the state through case finding and treatment have contributed significantly towards achieving the goal of TB control in the state. Although the public-private-mix (PPM) strategy has been implemented in the state since 2012 when it was scaled up from a pilot of 2004 (NTLCP - Action plan 2018-2020), the private sector has not been sufficiently involved in TB control activities until the last 2 years (from 2019) when it was scaled up. In the south East Nigeria however, there was a 15% contribution from the private sector to TB control when the GLRA supported PPM scale-up [20] which is quite a promising result in the PPM strategy.

There are currently about two major donor funded projects supporting TB control in Cross River State in both public and private sectors like the USAID-TBLON project, which also has the PPM component with about 30% state coverage and the Global Fund PPM project focusing solely on PPM with a 70% stake. The current TB data in the State shows a contribution from the private sector of about 60% TB case identification with a progressive cumulative improvement in TB data from Q4 2019 to Q4 2020 by about

106.7% (787/1627 new cases) (Unpublished Report from CRSTBLCP).

The study was carried out in Cross River State, which is located in the southern part of Nigeria, precisely in the South-South geopolitical region of the country. The State has three Senatorial Zones, as well as 18 Local Government Areas (LGAs) which serve as administrative centres. This includes Abi, Akamkpa, Akpabuyo, Bakassi, Bekwara, Biase, Boki, Calabar Municipal, Calabar South, Etung, Ikom, Obanliku, Obubra, Obudu, Odukpani, Ogoja, Yakurr and Yala, (Fig 1).

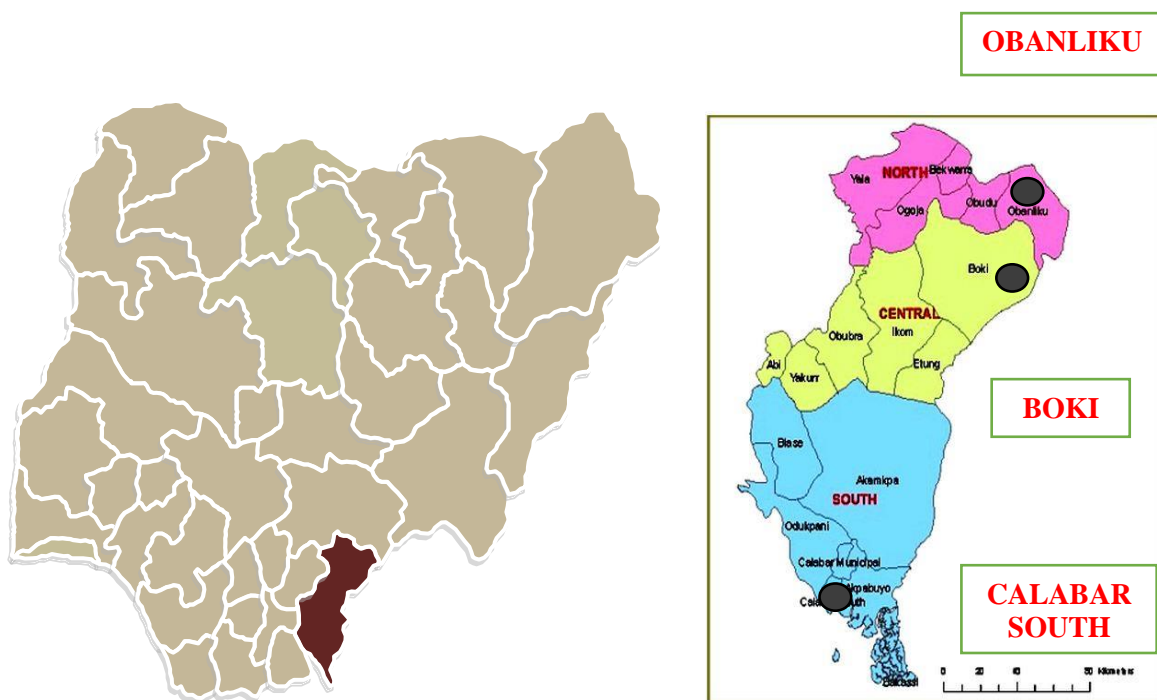


Figure 1: Map of Nigeria and Cross River State showing the locations of the study
Source-<https://crossriverwatch.com/wp-content/uploads/2014/05/cross-river-state-map.jpg>.

Geographically, Cross River State lies between Latitude 5°45' North of the Equator and between Longitude 8°30' East of the Greenwich Meridian. The total land area of the State is 20,156km² [21], starting from Bakassi to Obanliku. The State is bound to the North by Benue State; in the West by Ebonyi and Abia States, in the East by Cameroon and in the South by Akwa Ibom State, Cameroon and the Atlantic Ocean. Considering the magnitude of the landmass and areal coverage, the study covers selected locations with high TB burden where the PPM implementation is ongoing. In these locations, the

population are basically farmers cultivating mostly roots & tubers (Cassava and Yams) as well as cereals and legumes (Rice, Beans, Millet, Maize and peanuts). They also cultivate vegetable crops (Leafy vegetables, tomatoes, Okra, Cabbage, lettuce and others) which is mostly seasonal. Fishing is also an occupation especially in the Calabar South LGA that borders the Atlantic Ocean. These are the major sources of livelihood, providing food and shelter for the inhabitants. Their farming activities are mainly for food and economic purposes where part of the farm produce is sold out to earn

money. The population in these areas live in rural settlements and semi urban areas with poor housing in congregate settings due to lack of basic amenities from the government. This is among the factors that contribute to persistence of TB in these locations.

They use water from streams, rain fall and bore hole and basically uses pit latrines as well as water closet for those in the urban settlement. The populace does not really pay particular attention to sanitation as refuse dumping is done indiscriminately and this can result in poor sanitation and contamination of water bodies. Their living conditions exposes the population to other health hazards with sometimes cholera epidemic and Malaria due to poor sanitation.

Generally, the health indices of the population are not different from that in the rural areas of the Sub-Saharan Africa with poor access to primary health care services, high maternal and infant mortality rate (MMR & IFMR) as well as the under 5. The population depends mostly on carbohydrate diets which is their staple foods and supplemented with vegetables and uses palm oil as the primary oil available. Most of the population engage in the farming practices primarily to feed their families while some crops are sold to earn money, others engage in buying and selling of Agricultural produce to earn a living. There are also business men and women who deals with other commodities within these communities. No industries are located in these communities except for rice mills and cassava processing plants run by community members just to take care of their immediate needs. Most of the community members are not in any formal employment but engages in their farming business and others are employed as school teachers, staff of LGA councils etc. Those in the urban settlements are employed in the formal sector in varying degrees.

The communities promote male dominance, with the belief that the man is solely expected to provide for his family. This is however not true in urban areas with increased awareness on gender equality. The community leaders are involved in the management of community owned health centres as

well as involvement in the public owned health care services. The supervisor for health at the LGA level is in charge of all the primary health care centres in the local government and undertakes projects to support PHCs in their LGAs. The various cultural practices in some communities includes - use of traditional remedies for treatment of some conditions - TB, Diabetes, Hypertension, celebration of new yam festivals etc. There exist certain taboos in some of the communities like Adultery, Female carrying out duties that are supposed to be that of the man etc. The health seeking behaviour of the rural populace is generally poor due to the perceived cost, rather they prefer to consult the traditional herbalists first and only end up in the health facility when they could not achieve result traditionally. However, that of the urban populace is improving due to growing awareness. Though there are still persons who do not believe in orthodox medical care and will only seek healthcare if the traditionalist could not cure their ailments.

The Context

The selected Local Government Areas (LGAs) of Cross River State, comprising of Boki, Obanliku and Calabar South LGAs where there is an increased TB burden, with more cases notified in these areas. Also, these LGAs strategically located being that they share borders with other states which make them more vulnerable to the spread of TB in the state. For instance, Boki shares borders with the republic of Cameroon, Obanliku is bordered by both Cameroon and Benue State while Calabar South shares borders with Akwa Ibom State separated by the river. Their geographical disposition, occasioned by cross-border movement, puts them at increased risks of attracting carriers of the disease or spreading the disease to other states and or countries. These areas have more private health facilities (both formal and informal) closer to them than the public facilities and areas of Obanliku are volatile due to frequent communal clashes resulting to restrictions of regular activities during the periods. They are headed by the community chiefs and other sub heads who presides over the affairs of the community. In Calabar south LGA, the

domineering tribe is the Efik, who are regarded as the “Landlords” of Calabar who basically inherited their names and some cultures from the colonial masters who first arrived the Calabar port. The LGA was created out of the former Calabar municipal council which was the metropolitan LGA of the state. Boki LGA is located in the northern part of the state which was created out of the former Ogoja LGA and has majority of the forest reserves of Cross River State. The LGA possesses extensive arable lands and well as timber and other endangered species of animals found in their forests.

Problem Statement

Tuberculosis still remains of great public health concern and is responsible for a significant number of deaths globally. In Nigeria and Cross River State for instance, the loss of men and women of economically productive age group through TB is causing poverty and suffering in many homes. In a retrospective study by Kooffreh, Offor, Ekerette, and Udom (2016) on the prevalence of tuberculosis in Calabar - Nigeria, the results show a prevalence of 24.8% from total cases of 5004 diagnosed within the period of the study (2005 to 2015). This was slightly lower than the figure given by Ogbo, Ogeleka, Okoro, OLusanya, Olusanya, Ifegwu, Awosemu, Eastwood & Page, (2018) to be 27% in same year for Nigeria, using data from global burden

Study Design

This was an exploratory study which seeks to identify how well informed the private providers are on PPM for TB control as well as exploring the challenges encountered and assess the contribution of the private providers to TB control in Cross River State. To achieve this, a mix study method of study was used which comprise of a qualitative and quantitative approaches in data collection and analysis. According to [12], the mixed method is one which incorporates both the qualitative and quantitative data collection and analysis in a single study, which helps the researcher to understand complex phenomena in a qualitative way while also explaining it through charts, numbers and other basic statistical analyses. The qualitative

of disease (GBD) study 2016 and other methods to calculate other variables - Mortality, incidence and DALY.

The findings by Kufreh et al 2016 also identified a higher prevalence rate among males (44.6%) compared to females (29.6%) in same study. The TB/HIV coinfection rate was also examined and found to be 1.4% in the old Cross River State comprising of Cross River and AkwaIbom (Okonko, Ejike, Innocent-Adiele, Cookey 2020). The study also identified a higher prevalence of HIV-TB coinfection among females (1.8%) than males (0.7%). However, the prevalence of HIV-TB in the state was found to be low as seen by Okonko et al, but the presence of HIV-1 increases the severity, which requires urgent intervention.

This research describes a qualitative/quantitative study of Tuberculosis control by the private sector in Cross River State, examining the level of knowledge of the PPM providers, the challenges and the overall contribution of the private sector to TB control. The study focus on selected private providers with demonstrated evidence of producing results from TB control across the state (Cross River North, Central and South).

Aim of the study

This study aims at studying the role of public-private mix in tuberculosis control in Cross River State, Nigeria.

METHODOLOGY

method was adopted using in-depth interviews and FGDs to obtain information relevant to the role from key informants from the private sector in TB control and other community members who serve as treatment supporters to patients and service facilitators. In-depth interviews were conducted with key informants working in the TB control at the community, LGA and state level. All FGD and In-depth interview respondents were considered under this study to information rich case [8].

Using Focused Group Discussions (FGDs) provided an in depth understanding of a topic under discourse and helped in providing data from a purposely selected group rather than a statistical representative sample [14]. On the other hand, the in-depth interviews (IDI)

qualitative data collection method which allows large amount of information to be obtained from those interviewed about their perception, behaviour and attitude [9]. It provides the interviewer an opportunity to explore different perspectives of a given topic from the participants. Combining these two qualitative methods provided adequate information from the PPM providers, stakeholders and community members which addressed the objective of the study.

Study Method

The study adopted a qualitative phenomenology method to be able to identify in descriptive form the level of knowledge and understanding of the respondents (PPM providers) on PPM, the challenges encountered providing TB services as well as the private sector contribution to TB control. It was further a descriptive cross-sectional study provided an opportunity to know the understanding, the challenges and the impact of PPM following a State-wide scale up of the strategy in Cross River State.

Study Population

As described in details in chapter one above, this refers to an entire group or the total number of all the individuals who are of interest to a researcher and about which some information is required to be ascertained [2]. The study population for this research is selectively restricted to include TB PPM stakeholders currently engaged in the provision of TB services in the three selected LGAs of Cross River State.

Types and Sources of Data

The study relied on both discrete data type to achieve the objectives of the study. Discrete data gave qualitative insight into the study, and the data were generated through the open-ended part of the structured questionnaire. These data were also sourced from interactions, through Focused Group Discussions and Interviews with healthcare providers in the selected health facilities providing TB care and treatment. Primary sources included questionnaire administration to respondents as well as the interviews.

Study Sample

This refers to an entire group or the total of all the individuals/entities who are of interest to a researcher and about

which some information is required to be ascertained [18]. The study sample for this research is selectively restricted to include PPM providers (Private and public Health Facilities, Patent Medicine vendors'/community pharmacists, TBAs, FBO facilities) who provide care and treatment for TB patients from both public and private health facilities in the study Local Government Areas (LGAs). The FGDs were applied to PMV groups with 6-8 respondents in each LGA where the study was conducted. The In-depth interviews were used for some TB stakeholders at both the LGA and the State level and community members who take active part and are knowledgeable in TB services. The Standardized questionnaires were used for private health facilities who provide treatment for the patients. Here, information on capacity building, implementation according to guidelines, incentive from donors and the various challenges to TB intervention in the State, and how a collaborative effort between the public and private sectors can contribute to enhance TB response, were collected from this population. From the State TBL control program, information on the mode of engagement, capacity building, mentoring and supervision, as well as supply of commodities and overall contribution of the private sector to TB control were obtained from the focal person at the state level.

Sample Size and sample selection

The study was conducted in 3 LGAs selected from the 18 LGAs of Cross River State. Each LGA has 3 FGDs and 3 IDIs with patent medicine vendors, community pharmacists, community volunteers'/referral coordinators, Facility DOTS focal person s'/treatment supporters. The non-probability sampling technique known as Judgmental purposeful sampling, was used in the selection of respondents. This is because the selection has to be done in such a way that only those who are knowledgeable in PPM are selected to participate. A total of 150 persons were selected from the 3 LGAs, 50 each to complete the questionnaire and ten individuals for IDIs while the FGDs had 10 per FGDs in each LGS, considered to be information rich case, participated in the study. The in-depth interviews were

conducted with at 2 DOTS providers from 2 selected health facilities in the sampled LGAs, 2 PMVs/ community pharmacists, 2 community influencers (LGATBLS, Treatment supporter and Referral Coordinator Identification of the respondents was based on those entities who reported presumptive TB cases and positives per quarter using the State TB program reports.

The sample size for this research was gotten from the total number of PPM providers in the study area which include 3 privates for profit facilities in Obanliku LGA with an average of 10 staff each as well as 10 patent medicine vendors linked to each private health facility to make a total study population of 60 private providers. That in Boki LGA is made up of 5 private health facilities with an average of 10 staff as well as 10 patent medicine vendors linked to each private facility as spokes making a total of about 100 private providers while those of Calabar South from 15 private facilities with an average of 10 staff each and 10 patent medicine vendors linked to each facility to become a total of about 300 private providers. The total study population from the 3 LGAs used was about 460 persons with an additional 5 persons from the state TB control program. The target population to participate in the study was 180 while the actual participant was 151. By this, the sample size was about 32% which is adequate to conduct the research.

The study relied on qualitative data to achieve the research objectives and address the research problems. Qualitative data were generated from interactions with critical stakeholders involved in TB control activities in the state and the PPM facilities. This included TB and Leprosy (TBL) Supervisors from the Local Government Areas of study, TB focal persons from private for profit facilities, the State TBL control program staff and community pharmacists as they constitute the community component of the PPM.

Instruments for Data collection

Here a semi-structured open-ended questionnaire for In-Depth Interview (IDI) was used for data collection. To guarantee accurate and unbiased inferences and deductions in the final analysis, a purposive sampling technique was used in the collection of data for this study. The respondents include TB and Leprosy (TBL) Supervisors from the Local Government Areas of study, TB focal persons from private for-profit facilities, the State TBL control program staff and community pharmacists. The reason for using this method is to ensure that persons who have good knowledge of TB interventions, experienced in TB response program in the State and are knowledgeable in the area of Public-Private Mix are selected to participate in the study. The numbers of participants depend on the total number of TB patients receiving treatment in the study LGAs, as well as the facilities that were selected for the study.

To achieve the data collection exercise, some data collection instruments were designed and deployed. Specifically, to collect data from the healthcare workers at different TB intervention facilities, a set of structured questionnaires were used. This enabled collection of respondent's socio-demographic information, process for TB case identification, treatment of TB patients, including response to completion of TB treatment and availability of TB medications, and challenges associated with the overall TB response in the State. To be qualified for selection to participate in the proposed Focused Group Discussion and Interview sessions, a checklist was developed. This checklist contained items that were ticked, and participants satisfied all requirements before selected. The requirements include items listed in Table 1. In addition to the above, an interview guide and a FGD guide was designed and deployed. These ensured effective coordination and facilitation of Interviews and Focused Group Discussion sessions with the different stakeholders participating in the study.

Table 1: Proposed screening tool for purposive selection of respondents for FGD and Interviews

S/No	Selection/Inclusion Criteria	Rating Scale	Condition for inclusion
1	Mapped & Selected to provide TB services	Agree/Don't Agree/Neutral	Agree
2	Trained to provide TB services	Agree / Don't Agree / Neutral	Agree
3	2 years or more providing TB services	Agree / Don't Agree / Neutral	Agree
4	Availability to participate in interviews	Agree / Don't Agree / Neutral	Agree
5	Willingness to provide needed information	Agree / Don't Agree / Neutral	Agree

Data Management

Data collection for the study was done using both paper and mobile devices to record FGDs and will only be accessible to the researcher. Descriptive analysis will be employed to examine qualitative data from IDI and to validate results from statistical analysis. The data collected will be examined for completeness and transferred to the relevant MS word/Excel prior to exporting to a QDA software for final analysis. The quantitative data from filled questionnaire were analysed using SPSS software. The Nexus International University and the student shall be the custodian of the data from this study and as such, publication of the findings of this study can only be authorized by NIU.

Research Assistant (RA)

The recruitment of the services of a research assistant was done prior to data collection. The RA was provided with training on all the necessary research protocol and concepts as well as the administration of questionnaires. The data collection tools (Questionnaire, FGD & IDIs) were tested to ensure accuracy and consistency in another location (Calabar Municipal LGA) different from that of the study area. This is a pilot testing which provide an opportunity to learn more on the research that may require some corrections or modifications prior to deployment for use in the field.

Methods of Data analysis

The study employed appropriate statistical techniques to analyze questionnaire (QDA or Atlas ti software) for qualitative data analysis and Statistical Package for Social Sciences (SPSS) for the quantitative data analysis. The data was analysed using descriptive statistics with the support of SPSS as a software. Other descriptive statistics such as Mean, Standard deviation were used where necessary to describe and display data generated for the study. This gave both contextual and visual insight to the study to enable better understanding of the PPM in Cross River State. Results from the analysis guided deductions that addressed each of the objectives of the study, as well as answer the research questions and testing of the null hypotheses.

Ethical procedures

This study required ethical approval from the research ethics committee from the state ministry of Health through Nexus International University. Permissions to carry out this research was also obtained from the Cross River State TB control program prior to commencing data collection and analysis. All participants were provided with a consent form to sign as this was to ensure an informed consent from the research participant. Participants' confidentiality and privacy were maintained throughout the research ensuring that no data is shared without express approval by the participants. The participants were made to

understand that participation in the study is strictly voluntary and they can

Data Collection Procedure

An organized forum was established where the respondent of the study were made visible at different Local Government Area (LGA), the aforementioned tool for data collection were used to collect data on intervals of one week per LGA. Three group were generated from each LGÀ which comprises of DOTs provider, PMV/CP who were purposefully selected base of the inclusive criteria (those that have been participating in PPM activities and have gained much knowledge and have given consent to be included in the study). The different group were asked to meet in different dates within one week allotted for each L.G.A. Fifty (50) questionnaire were distributed to each LGA within the study area, and was further distributed among the respondents of the three groups in each LGA, after filling the consent form and appropriate completion, the questionnaires were filled and collected on the same day.

As on group discussion, participants were welcome and made to be comfortable, while the researcher explained the purpose of the discussion and the respondents were assured of confidentiality of any information provided, the researcher also sought their consent to allow the interaction to be recorded in written and tape and back view of the respondent's picture were taken. A minimum of 12 and maximum of 15 made up a group and 60% responses of participants in a group towards a specific topic of discussion were scored as positive while 40% were scored as negative towards the same topic. Thereafter the recorded tape was transcribed into written for proper description and this was carried out after the questionnaire administration. A minimum of 45mins and maximum of 50 minutes was the duration of each section of the focused Group discussion.

On the other hand, In-depth interview were targeted and carried out on the stakeholder of the Tuberculosis programme in the study area, basically the Tuberculosis and Leprosy supervisor who is in-charge of the LGA, as well as

withdraw their involvement at any time during the study without prior notice.

RESULTS

the state TB program Manager, which was done on one-on-one basis where their responses were captured for adequate description. English language was sorely used for the collection of data within a period of one month.

Presentation and analysis of empirical data

General description of the research variables

This study was to ascertain the role played by the public-private sectors mix in Tuberculosis Control in Cross River State. The study also accessed the understanding of PPM implementation in TB control among key private sector stakeholders in Cross River State. The study also determined the key challenges and gaps in the implementation of PPM in TB control in Cross River State, as well as the contribution of PPM in TB case finding in Cross River State. The results of frequencies and percentages of the personal details of the subjects are presented in Table 2 while the descriptive data analyses of the research variables are presented in Table 3.

The results in Table 2 revealed that out of the 151 subjects sampled, 49 of them representing 32.5 percent are in Boki LGA while 55 of them representing 36.4 percent are in Calabar South LGA and 47 of them representing 31.1 percent are in Obanliku LGA. Further examination of the results indicated that 65 of the respondents representing 43.0 percent are male, while 86 of them representing 57.0 percent are female. On the other hand, 73 respondents representing 48.3 percent are below 31 years of age, while 57, 19 and 2 respondents representing 37.7 percent, 12.6 percent and 1.3 percent are between 31 - 49 years, 41 - 50 years and above 50 years respectively.

It was also observed that 7 respondents representing 4.6 percent had primary school education, while 48, 78 and 18 respondents representing 31.8 percent, 51.7 percent and 11.9 percent had secondary, tertiary and post graduate education respectively. On the other hand, 6 respondents representing 4.0 percent are medical Doctors, while 15,

23, 15, 8 and 84 respondents representing 9.9 percent, 15.2 percent, 9.9 percent, 5.3 percent and 55.6

percent are Nurses, community health workers, Social workers, treatment supporters and others respectively.

Table 2: Frequency distribution of personal-social characteristics among the subjects sampled for the study

SN	Sub variables	Groups	Frequency	Percentage
1.	LGA	Boki	49	32.5
		Calabar South	55	36.4
		Obanliku	47	31.1
2.	Sex	Male	65	43.0
		Female	86	57.0
3.	Age	<31	73	48.3
		31-40	57	37.7
		41-50	19	12.6
		>50	2	1.3
4.	Education level	Primary	7	4.6
		Secondary	48	31.8
		Tertiary	78	51.7
		Post Graduate	18	11.9
5.	Job	Doctor	6	4.0
		Nurse	15	9.9
		CHW	23	15.2
		Social worker	15	9.9
		Treatment supporter	8	5.3
		Others	84	55.6
6.	Years working in Pub. Health	<1 year	15	9.9
		1-4 years	96	63.6
		5-9 years	19	12.6
		10-14 years	10	6.6
		15 years & above	11	7.3

7.	Years working with TB patient	<1 year	34	22.5
		1-4 years	90	59.6
		5-9 years	21	13.9
		10-14 years	5	3.3
		15 years & above	1	0.7

Table 3: Descriptive statistics of the research variables: Understanding of PPM implementation in TB control among key private sector stakeholders

SN	Variable	\bar{X}	SD
1.	Knowledge of PPM among PPM stakeholders/provider	7.30	2.33
2.	Challenges and gaps in PPM implementation	5.23	1.61
3.	Contribution of PPM in TB control	6.02	2.07

Further examination of the results indicated that 15 respondents representing 9.9 percent have worked less than a year in public health, while 96, 19, 10 and 11 respondents representing 63.6 percent, 12.6 percent, 6.6 percent and 7.3 percent have worked between 1 - 4 years, 5 - 9 years, 10 - 14 years and 15 years & above in public health. Out of the 151 respondents sampled, 34 respondents representing 22.5 percent have worked less than a year with TB patients, while 90, 21, 5 and 1 respondents representing 59.6 percent, 13.9 percent, 3.3 percent and 0.7 percent have worked between 1 - 4 years, 5 - 9 years, 10 - 14 years and 15 years & above with TB patients.

The results presented in Table 3 revealed that the mean score obtained by the subjects as regards knowledge of PPM among PPM stakeholders/provider was 7.30 with a standard deviation of 2.33, while the mean score obtained by the subjects as regards challenges and gaps in PPM implementation was 5.23 with a standard deviation of 1.61, and the mean score obtained by the subjects as regards contribution of PPM in TB control was 6.02 with a standard deviation of 2.07.

Research Question One

Does any knowledge gap exist among private providers in TB control in Cross River State? This was determined based on the responses to the questionnaire as presented in Table 4.

The results in Table 4 indicated that 111 respondents representing 73.5 percent said "Yes" that they know what PPM for TB control is, while 40 of them representing 26.5 percent said "No". On the other hand, 125 respondents representing 82.7 percent said "Yes" that their facility/entity formally engaged to provide PPM, while 24 of them representing 15.9 percent said "No", and 2 respondents representing 1.4 percent said that they don't know. Also, 109 respondents representing 72.2 percent said "Yes" that they had training prior to commencement of service provision, while 37 of them representing 24.5 percent said "No", and 5 respondents representing 3.3 percent said that they don't know.

Furthermore, 100 respondents representing 66.3 percent stated that they know the spoke & Hub model in PPM, while 51 of them representing 33.7 percent said that they don't know the spoke & Hub model in PPM. It was also observed that 127 respondents representing 84.1 percent stated that they know the Linkage/referral coordinator for your cluster, while 24 of them representing 15.9 percent said that they don't know the Linkage/referral coordinator for their cluster. On the other hand, 133 respondents representing 88.1 percent stated that the linkage/referral coordinator for the cluster is supportive in case referral and feedback, while 13 of them representing 8.6 percent said

that the linkage/referral coordinator for the cluster is not supportive in case referral and feedback, and 5 of them representing 3.3 percent said that they don't know if the linkage/referral coordinator for the cluster is supportive in case referral and feedback or not. Further examination of the results in Table 4. revealed that, 111 respondents representing 73.4 percent stated that they have an idea of all the necessary recoding and reporting tools to use in

documentation, while 40 of them representing 26.6 percent said that they do not have an idea of all the necessary recoding and reporting tools to use in documentation. Also, 69 respondents representing 45.6 percent stated that they know electronic device in use for data reporting in TB and that they are using it in reporting, while 82 of them representing 54.4 percent said that they actually do not know electronic device in use for data reporting in TB.

Table 4: Knowledge of Public Private Mix (PPM) among PPM Stakeholders/Provider

SN	Questions	Yes F (%)	No F (%)	Don't Know
1.	Do you Know what PPM for TB control is?	111 (73.5)	40 (26.5)	0 (0)
2.	Was your facility/entity formally engaged to provide PPM?	125 (82.7)	24 (15.9)	2 (1.4)
3.	Was there any training prior to commencement of service provision?	109 (72.2)	37 (24.5)	5 (3.3)
4.	Do you know the spoke & Hub model in PPM?	100 (66.3)	51 (33.7)	0 (0)
5.	Do you know the Linkage/referral coordinator for your cluster?	127 (84.1)	24 (15.9)	0 (0)
6.	Is s/he supportive in case referral and feedback?	133 (88.1)	13 (8.6)	5 (3.3)
7.	Do you have an idea of all the necessary recoding and reporting tools to use in documentation?	111 (73.4)	40 (26.6)	0 (0)
8.	Do you know any electronic device in use for data reporting in TB? Are you using it in reporting?	69 (45.6)	82 (54.4)	0 (0)
9.	Is there a focal person trained to provide TB services?	105 (69.5)	45 (29.8)	1 (0.7)
10.	Is there any guidelines provided to the facility for TB service delivery?	112 (74.2)	36 (23.8)	3 (2.0)

On the other hand, 105 respondents representing 69.5 percent stated that they there is a focal person trained to provide TB services, while 45 of them representing 29.8 percent stated that there is no focal person trained to provide TB services, and one respondent representing 0.7 percent stated that he does not know if there is a focal person trained to provide TB services. The results finally revealed that 112 respondents representing 74.2 percent stated that there are guidelines provided to the facility for TB service

delivery, while 36 of them representing 23.8 percent stated that there are no guidelines provided to the facility for TB service delivery, and three respondents representing 2.0 percent stated that they do not know if there are guidelines provided to the facility for TB service delivery.

Hypothesis One

The knowledge gap that exists among private providers in TB control in Cross River State is not significant. The knowledge gap among private providers in TB control in Cross River State was

further analyzed using student (population) t-test to determine if the extent is significantly low, which was tested at 0.05 level of significance. For the knowledge gap among private providers in TB control in Cross River State to be significantly high, the mean

score should be significantly lower than the reference mean (μ) of 5 (the midpoint between, which is 0.5 multiply by 10 which is the number of items that measured knowledge of PPM among PPM stakeholders/provider). The result is presented in Table 5 below.

Table 5: Population t-test analysis for knowledge of PPM among PPM stakeholders/provider in TB control in Cross River State (N=151)

Variable	\bar{X}	SD	μ	Mean difference	t-value	p-level
Knowledge of PPM among PPM stakeholders/provider	7.30	2.33	5	2.30	12.110*	0.000

***Significant at .05 level, $p < .05$; $df = 150$.**

The result in Table 5 revealed that the mean score of 7.30 with a standard deviation of 2.33 obtained by the respondents about knowledge of PPM among PPM stakeholders/provider is greater than the reference mean of 5. The result also showed that the calculated t-value of 12.110 with a p-value of 0.000 is said to be statistically significant, since the p-value is less than 0.05. This then indicated that knowledge gap among private providers in TB control in Cross River State is significantly low.

Research Question Two

Are there any challenges encountered in the implementation of PPM for TB control in Cross River State? This was determined based on the responses to the questionnaire as presented in Table 4.

The results in Table 5 indicated that, 35 respondents representing 23.2 percent stated that they have received further training on TB in the last one year after their initial training, while 116 of them representing 76.8 percent stated that they have not received further training on TB in the last one year after their initial training. On the other hand, 93 respondents representing 61.6 percent stated that the staff trained for PPM prior to service activation is still in the facility, while 58 of them representing 38.4 percent stated that the staff trained for PPM prior to service activation is no more in the facility. Also, 92 respondents representing 60.9 percent stated that they have adequate supply of recording and reporting tools, while 59 of them representing 39.1 percent stated that they do not have adequate supply of recording and reporting tools.

Table 6: Challenges and Gaps in PPM Implementation

SN	Questions	Yes F (%)	No F (%)	Don't Know
1.	Have you received any further training on TB in the last one year after initial training?	35 (23.2)	116 (76.8)	0 (0)
2.	Is the staff trained for PPM prior to service activation still in the facility?	93 (61.6)	58 (38.4)	0 (0)
3.	Do you have adequate supply of recording and reporting tools?	92 (60.9)	59 (39.1)	0 (0)
4.	Do you receive timely drug supply for diagnosed TB patients?	110 (72.8)	41 (27.2)	0 (0)
5.	Do you use treatment supporters to ensure adherence to TB drugs?	97 (64.2)	54 (35.8)	0 (0)
6.	Have you had patients that default to treatment or die during TB treatment?	78 (51.7)	69 (45.7)	4 (2.6)
7.	Do you take descriptive address to track your clients in case of treatment default?	122 (80.7)	29 (19.3)	0 (0)
8.	Do you have drug stock out for TB for more than 1 month?	48 (31.8)	104 (68.2)	0 (0)
9.	Does the TBLS visit your facility regularly for supervision?	99 (65.6)	52 (34.4)	0 (0)
10.	Do you charge your clients a fee for providing TB services?	15 (9.9)	136 (90.1)	0 (0)

The results further revealed that, 110 respondents representing 72.8 percent stated that they receive timely drug supply for diagnosed TB patients, while 41 of them representing 27.2 percent stated that they have not receive timely drug supply for diagnosed TB patients. Also, 97 respondents representing 64.2 percent stated that they use treatment supporters to ensure adherence to TB drugs, while 54 of them representing 35.8 percent stated that they do not use treatment supporters to ensure adherence to TB drugs. On the other hand, 78 respondents representing 51.7 percent stated that they have had patients that default to treatment or die during TB treatment, while 69 of them representing 45.7 percent stated that they have not had patients that default to treatment or die during TB treatment. Further examination of the results revealed that, 122 respondents representing 80.7 percent stated that they take descriptive address to track their clients in case of treatment default, while 29 of them representing 19.3 percent stated that they do not take descriptive address to track their

clients in case of treatment default. On the other hand, 48 respondents representing 31.8 percent stated that they have drug stock out for TB for more than 1 month, while 104 of them representing 68.2 percent stated that they do not have drug stock out for TB for more than 1 month. Also, 99 respondents representing 65.6 percent stated that the TBLS visit their facilities regularly for supervision, while 52 of them representing 34.4 percent stated that the TBLS do not visit their facilities regularly for supervision. The results finally revealed that, 15 respondents representing 9.9 percent stated that they charge their clients a fee for providing TB services, while 136 of them representing 90.1 percent stated that they do not charge their clients a fee for providing TB services.

Hypothesis Two

The challenge encountered in the implementation of PPM for TB control in Cross River State is not significantly high. Challenges encountered in the implementation of PPM for TB control in Cross River State was further analyzed using student (population) t-test to

determine if the extent is significantly high, which was tested at 0.05 level of significance. For the challenges encountered in the implementation of PPM for TB control in Cross River State to be significantly high, the mean score should be significantly less than the reference mean (μ) of 5 (the midpoint between, which is 0.5 multiply by 10 which is the number of items that measured challenges encountered in the implementation of PPM for TB control in Cross River State). The result is presented in Table 6.

The result in Table 6 revealed that the mean score of 5.23 with a standard deviation of 1.61 obtained by the respondents about challenges encountered in the implementation of PPM for TB control is greater than the reference mean of 5. The result also showed that the calculated t-value of 1.724 with a p-value of 0.087 is not statistically significant, since the p-value is greater than .05. This then indicated that challenges encountered in the implementation of PPM for TB control is not significantly high.

Table 7: Challenges encountered in the implementation of PPM for TB control in Cross River State (N=151)

Variable	\bar{X}	SD	μ	Mean difference	t-value	p-level
Challenges encountered in the implementation of PPM for TB control	5.23	1.61	5	0.23	1.724	0.087

*Significant at .05 level, $p < .05$; $df = 150$.

Research Question Three

Does PPM contribute to TB control in Cross River State? This was determined based on the responses to the questionnaire as presented in Table 7. The results in Table 7 indicated that, 112 respondents representing 74.1 percent stated that they utilize gene xpert in TB diagnosis, while 39 of them representing 25.9 percent stated that they do not utilize gene xpert in TB diagnosis. On the other hand, 67 respondents representing 44.4 percent stated that they utilize AFB microscopy for TB diagnosis, while 84 of them representing 55.6 percent stated that they do not utilize AFB microscopy for TB diagnosis. It was also observed that, 136 respondents representing 90.0 percent stated that they generate at least 1 presumptive TB case in a month, while 15 of them representing 10.0 percent stated that they do not generate at least 1 presumptive TB case in a month. Also, 129 respondents representing 85.4 percent stated that they report at least one TB case in a month, while 22 of them representing 14.6 percent stated that they do not report at least one TB case in a month.

Further examination of the results revealed that, 118 respondents representing 78.1 percent stated that they ensure all presumptive generated are documented in the presumptive register, while 32 of them representing 21.9 percent stated that they do not ensure all presumptive generated are documented in the presumptive register. Also, 113 respondents representing 74.8 percent stated that they ensure all registered TB patients come for their treatment regularly according to their appointment, while 38 of them representing 25.2 percent stated that they do not ensure all registered TB patients come for their treatment regularly according to their appointment. On the other hand, 107 respondents representing 70.8 percent stated that they carry out follow up investigations for patients on treatment promptly at Month 2, 5 and at the end of month 6, while 46 of them representing 29.2 percent stated that they do not carry out follow up investigations for patients on treatment promptly at Month 2, 5 and at the end of month 6.

Table 8:Contribution of PPM in TB control in Cross River State

SN	Questions	Yes F (%)	No F (%)	Don't Know
1.	Do you utilize gene xpert in TB diagnosis?	112 (74.1)	39 (25.9)	0 (0)
2.	Do you utilize AFB microscopy for TB diagnosis?	67 (44.4)	84 (55.6)	0 (0)
3.	Do you generate at least 1 presumptive TB case in a month?	136 (90.0)	15 (10.0)	0 (0)
4.	Do you report at least one TB case in a month?	129 (85.4)	22 (14.6)	0 (0)
5.	Do you ensure all presumptive generated are documented in the presumptive register?	118 (78.1)	32 (21.9)	0 (0)
6.	Do you ensure all registered TB patients come for their treatment regularly according to their appointment?	113 (74.8)	38 (25.2)	0 (0)
7.	Do you carry out follow up investigations for patients on treatment promptly at Month 2, 5 and at the end of month 6?	107 (70.8)	46 (29.2)	0 (0)
8.	Do you conduct contact investigation for index cases registered in your facility?	99 (65.5)	52 (34.5)	0 (0)
9.	Do you provide INH prophylaxis for under 6 contacts without TB symptoms?	23 (15.2)	128 (84.8)	0 (0)
10.	Do you provide DR-TB OPD services in your facility?	5 (3.3)	146 (96.7)	0 (0)

Furthermore, the results revealed that, 99 respondents representing 65.5 percent stated that they conduct contact investigation for index cases registered in their facility, while 52 of them representing 34.5 percent stated that they do not conduct contact investigation for index cases registered in their facility. Also, 23 respondents representing 15.2 percent stated that they provide INH prophylaxis for under 6 contacts without TB symptoms, while 128 of them representing 84.8 percent stated that they do not provide INH prophylaxis for under 6 contacts without TB symptoms. Finally, it was observed that, 5 respondents representing 3.3 percent stated that they provide DR-TB OPD services in their facilities, while 146 of them representing 96.7 percent stated that they do not provide DR-TB OPD services in their facilities.

Hypothesis Three

PPM contributions to TB control in Cross River State is not significantly high. The contribute of PPM to TB control in Cross

River State was further analyzed using student (population) t-test to determine if the extent is significantly low, which was tested at 0.05 level of significance. For the contribute of PPM to TB control in Cross River State to be significantly high, the mean score should be significantly higher than the reference mean (μ) of 5 (the midpoint between, which is 0.5 multiply by 10 which is the number of items that measured contribute of PPM to TB control). The result is presented in Table 8.

The result in Table 9 revealed that the mean score of 6.02 with a standard deviation of 2.07 obtained by the respondents about contribution of PPM in TB control in Cross River State is greater than the reference mean of 5. The result also showed that the calculated t-value of 6.053 with a p-value of 0.000 is said to be statistically significant, since the p-value is less than 0.05. This then indicated that contribution of PPM in TB control in Cross River State is significantly high.

Table 9: Population t-test analysis for Contribution of PPM in TB control in Cross River State (N=151)

Variable	\bar{X}	SD	μ	Mean difference	t-value	p-level
Contribution of PPM in TB control	6.02	2.07	5	1.02	6.053*	0.000

*Significant at .05 level, $p < .05$; $df = 150$.

Finding from Focused Group

Discussion and In-depth Interviews

As stated under methodology and attainment of rigor it me triangulation, was necessary to include qualitative data from Focused Group Discussions (FDGs) and In-depth Interviews from critical stakeholders. This will enable effective data triangulation to ensure balanced and unbiased inferences.

Knowledge of respondents about TB

Through FGDs, when respondents were asked to discuss general understanding of the TB treatment, the concept and importance of early case detection and treatment. It was revealed from Discussion that there is general understanding of TB treatment, the concept and importance of early case detection and treatment: It was viewed by majority of the respondents that Tuberculosis is a disease that is highly contagious and transmitted from man to man through the inhalation of infected respiratory droplets. TB is a chronic airborne communicable disease that causes severe cough, weight loss and night sweating. It is transmitted from man to man through the inhalation of infected droplets with air. Tuberculosis is cause by bacteria and it is transmittable from man to man and animal to man, that early diagnosis and treatment of Tuberculosis helps to reduce community transmission. TB is traditionally known as AkpaKpalkong. Since the air is the medium of transmission, early detection of infected person to prevent further spread of the disease is important as well as helping the patient get well. It damages to other organs whereas few respondents responded that Tuberculosis cannot be transfer from animal to man, though believed that early identification and treatment could go a long way in TB transmission and complication reduction. Prompt detection of infected

person and diagnosis of cough of a long duration to prevent further spread of the disease is necessary.

Awareness and understanding of TB challenges

Though FGD discuss the general and specific challenges limiting uptake for various TB services: It was noted that stigmatization is the major challenge and false beliefs such as those with TB are usually HIV positive, thereby limiting the uptake of TB service, others say that low awareness on the free nature of TB services by the population. Inadequate knowledge and misinterpretation of information among people, whereby most people feel all cough especially at this Covid-19 pandemic are indicative of corona virus disease as well as samples collected are to diagnose the presence of the disease. Most people feel reluctant as a result of stigmatization, even after commencement of TB services, also the perception that they will charge money for the treatment. Myths such as witches being the cause of cough, lack of food to take drugs mitigate the uptake of TB services. Also, inadequate health education on the causes and mode of transmission act as a challenge. Inadequate knowledge and misinterpretation of information among people, whereby most people feel all cough especially at this Covid-19 pandemic are indicative of corona virus disease as well as samples collected are to diagnose the presence of the disease. Most people feel reluctant as a result of stigmatization, even after commencement of TB services, also the perception that they will charge money for the treatment.

Compliance with TB Services

Talk generally about why people refuse to undergo TB tests and why those who test positive often deny their status and reject results: Some of the people stated

that denial of status is mostly tied unto superstitious beliefs, and others said the Burden of COVID-19, making people to run away from diagnosis of TB with assumptions that they will be declared COVID-19 Positive. It was also noted that people were ignorant about TB treatment being free. The prime factor is not having enough confidence in private hospital for TB treatment and their services. The fear of being stigmatized, ostracised and stereotyping of the family is of great contribution to their refusal. Also, lack of sensitization to see TB as any other bacterial infection of diseases. Most respondents said that far location of Gen-xpert centres and the transportation expenses to the area, they believe the results are not true because no sign of TB has been felt by them and some respondents said they feel the samples collected might be used for rituals as the world is not worth trusting again.

Social support offered to TB clients

Discuss generally about social support services for TB positive patients if any: Majority of the respondents says there is no social support services, while stating that most of the visitation to patients is done personally without formal incorporation into the program, while others say TB symptoms are being considered as whopping cough, others consider it as witchcraft and ignorance.

Understanding on what motivate people to take TB services

The researcher went further to probe from respondents about their understanding about other motivations for people to take TB tests and health outcomes of patients already on treatment: The respondents were of the opinion that proper counselling will be the major response followed by creating awareness among the population through social media, worship centres and traditional rulers, other respondents also said involvement of the population on TB occasions such as World TB days, good interpersonal relationships was also a response that will aid uptake of TB service. Also, creating awareness in the community about TB, health educating patient on the benefits of testing, treatment and financial inclusion to patient to encourage adherence. Adequate

provision of food to take drugs, creation of adherence counselling unit as well as elimination. Most respondents were also of the opinion that transportation fare should be given to the patient.

Distance from homes to health facilities

The research wanted to learn from respondents if Distance, in terms of location, influences their chances of utilising TB services. Majority of the respondents acknowledged that most of the roads in the area are so bad and some not motorable, and some patients need to trek by foot for a long distance to access TB services. It was also responded that the distance to access TB service in most locations are far, as such the possibility of adequate awareness is defeated. The people lack of awareness in some remote areas or places in the State. They are also a strong myth that TB is spiritual thereby patronizing traditional medicine. The perception that TB is not in existence decrease the level of utilization of TB services. Most respondents stated that far distance to DOTs centres limits access to the centres and some stated that people in the locality lack awareness of the DOTs centres.

Availability of TB services at the nearest health facilities

On the issue if people generally have health facilities within their areas that provide TB services or do they have to travel to another community to access the services: Most of the respondents stated that since most of the patients stays in a hard to reach area, but there are still few communities that have TB service and need not to travel to others. Venerable people in most of the areas are far from DOTs centres and lack of financial support for transportation to DOTs centres is usually a challenge in such areas.

Transport and affordability

About the cost of transportation from communities to the nearest healthcare facility where people can access TB services: Sampled of opinions on transportation ranges from N400 to N2,200 within some Local Government Areas, while it ranges from N200 to N1,500 in some Local Government Areas, and N100 to N200 in other communities to access TB services. In some other LGAs, the transportation

fare ranges from N700 N9000 maximum. Majority of the people are peasant farmers, petty traders, Artisan, Fishermen, the rural communities are majorly poor farmers.

On the issue of if they think the cost of transportation fare to a health facility for TB service is preventing people from using the services: They were of the opinion that majority of the respondents affirmed that cost of transportation usually affect people since majority of the population are low-income earners. Some were of the opinion that cost of transportation fare prevents people from visiting a health facility for TB, since it will waste their time and money inclusive.

Seasonality Effects

On the issue if they can explain a bit how seasonal variation is affecting people from utilizing TB services within your community: Most of the respondent stated that raining season is a bad period for case identification since the roads are bad and it is also the farming season, whereas case identification is always higher during dry season as indicated by majority of the respondents. Some of the roads will be flooded and the roads to the DOTs centres are not motorable and as such transport fare increases limiting accesses to the area.

Waiting Time at health Facility

On the issue if waiting time affect how people respond to TB treatment; in terms of coming for their monthly drug refill: It was generally affirmed that waiting time affect the patients coming for refill, hence the will be delayed and the frequency of coming is much on the patients. Hence, there will be delayed and the frequency of coming is much on the patients couple with their low-income nature, which will lead to failing treatment and some stated that it doesn't affect them since it aids monitoring of patient and identifying issues that need prompt care.

Acceptance of TB services in the community

On the issue if people are likely to accept TB services when they are offered outside the health facility like drug stores and why: Most of the

respondent said it won't be accepted since it will be use by drugs vendors for profit purposes, Others responded that it will be accepted and welcoming since the drug store are closer to the people, and will also reduce Transportation and congestion at the DOTs centre. On the other hand, some of the respondents were of the view that it does, because most people rely on them and TB patients should not be separated from general OPD client to give them sense of belonging and that should be done with proper facemask adherence.

On the issue whether stigma is an issue in TB service delivery: Most of the respondents agreed that it does, stating that this can be reduce through adequate awareness on discrimination and stigmatization as it affects TB, other respondents also stated that teachers should be involve to aid information dissemination. Also, contact tracing for enrolment and re-enrolment, can be overcome by ensuring adequate community awareness and education of the populace on TB treatment and curability.

About the opinion whether they think that would be the most suitable community-based strategy to improve TB service delivery and utilisation for both testing and treatment: Some respondents stated that physical validation of data by the TB supervisor should be encourage, it was also stated by few respondents that PPM should have good agreement with the MD of private sectors on the free nature of TB service. Majority of the respondents says continues sensitization to community leaders, community outreaches by PMVs and health facilities within their communities, provision of consumables and well as regular review meetings should be encouraged. Provision of means of identification to TB staffs such as T-shirt, caps, ID card. Most of the responses was to promote community participation, advocacy, community diagnoses, creation of awareness and sensitization of the population, adequate financial funding of the TB workers as well as regular provision of personal protective equipment.

DISCUSSION

The results of the study show that, the majority of the PPM providers in the

state were appropriately trained (72.2% of respondents) prior to engagement to

provide TB services and about 61.6% of those initially trained prior to service activation are still providing TB services in their original facilities. This finding is because those who provide referrals as spokes (PMVs/CPs) are business owners who are always at the shop to sell drugs to the public. However, the health facility service providers are frequently faced with the challenges of attrition, increased workload and other challenges [6]. The major challenge identified in the study is that of retraining and knowledge update which is necessary for continuous service provision.

The results on the general knowledge on the PPM program, shows that majority of the providers are well informed of the PPM as shown by respondents which translates to majority of the PPM providers being adequately informed about all the activities of the PPM. The findings demonstrated that 66.3% of the PPM providers are well informed of the Hub/Spoke arrangement which is the major feature of PPM for TB control and is the result of the pre-activation training provided prior to the project commencement. There were also the findings on the awareness of the referral structure for PPM which is coordinated by engaged personnel who are responsible for moving sputum samples from the spokes to the hub and the lab while returning the results back to the hubs. Here majority of the respondents (84.1%) confirmed their awareness in the affirmative with 88.1% of the respondents further confirming that the Linkage coordinators are supportive in ensuring completion of referrals and facilitating treatment in the facility.

Some of the challenges encountered in the provision of PPM services are similar to those identified by [2] which are basically centered on staff capacity, increased workload and logistics challenges for drugs and client tracking. These challenges were not identified to be so significant to have a direct adverse effect on the PPM program in the State. The current study agrees with the previous study by [9] on the area of re-training which was only done at the beginning of the project with 76.8% of respondent confirming non retraining in a period of 1 year. On logistics

challenge, the current study showed that it is not a major issue.

On the contribution of PPM to TB control in the state, the study identified significant contribution to TB control with most of the respondent admitting some major contributions of the private sector to TB control similar to the finding of [16] in a study conducted in Lagos state showing above 10% contribution of overall case finding in Lagos state to be from PPM. This can be attributed to the fact that they generate at least 1 presumptive TB case in a month (90%) and they usually ensure that all presumptive generated are documented in the presumptive register (78.1%). These findings confirm the commitment by the private providers towards ensuring quality TB service delivery which needs to be maintained. Most of the PPM providers admitted using gene expert for TB diagnosis (74.1%) which is the approved first line TB diagnosis in Nigeria following WHO recommendation for resource constraint countries [21]. This does not mean that AFB microscopy is no longer used in TB diagnosis, but in areas with poor accessibility to genexpert, AFB microscopy is still used for diagnosis as well as for Follow-up investigation. In the current study, more providers (55.6%) admitted not using AFB microscopy as their first line of TB diagnosis which is in line with the national guideline on TB management. Contact investigation is another quality indicator in TB management which has an added advantage of identifying additional TB cases in the households. The study revealed that the PPM providers conduct contact investigation for TB index cases with (65.5%) of respondents carrying out contact investigation for all index cases identified. The challenges involved in carrying out contact screening and investigation is that of poor logistic support, incorrect contact addresses and fear of stigma on the part of the patients. This intervention is accompanied with the provision of Isoniazid prophylaxis (INH prophylaxis) for children under 5 years of age that are contacts of the patient who test positive for TB. This is in a bit to prevent active TB disease in this group of contacts. However, most of the PPM

providers according to the study are not implementing this intervention (84.8%). The effectiveness of INH in preventing active TB infection in under 5 has been demonstrated by a number of studies one of which is [13]. This is a weakness from the PPM in the state which will require increased support to ensure the implementation of this strategy by all PPM providers.

The research also shows from the FGDs held with selected PPM providers that many of them know the cause of TB and how it is transmitted from one person to another through inhalation of infected droplet into the lungs. The participants also identified that TB is caused by a bacterium. There were also some discussions on early detection of persons presumed to have TB and treatment will reduce spread to other individuals who have contact with the infected persons.

Stigma was also identified as major challenges during FGD due to the false believe that most people who are TB Positive also has HIV. This was identified as the major barrier to TB treatment while other participants identified lack of awareness of the cost free nature of TB services thereby believing they need to send huge amount of Money to access TB services. The other factors identified by discussants were poor understanding of the nature of cough between TB and COVID-19 thereby preventing people from seeking help early enough due to the associated stigma [12]. The other challenge Identified was the fear of being charged for services at the health facility (Fee-for-service) which prevent some people from seeking care for fear of affordability. This is however a genuine concern which is true in most cases, as there is a fee attached to some

Based on the results of the data analyses, it is concluded that private providers in TB control in Cross River State have fair knowledge about prevention and control of tuberculosis which was shown in the data analyzed and they do not face significant challenges in the implementation of PPM for TB control in the State, which can be attributed to the contribution of from the state TB control programme. The results also demonstrated significant

services that are supposed to be free, especially in the private-for-profit facilities. This finding is similar to that of [10] in a review and meta-analysis of the factors associated with delays in TB diagnosis in Chinese patients.

The other challenges identified by respondents affecting uptake of TB services was that some people feel their samples are taken to do something else with (Rituals) as they do not trust people anymore, so are not willing to provide their sputum samples for TB test. This is a result of lack of awareness. Others respondents also said, most people who are not so sick tend to deny their results when it comes out positive for TB, believing that there is nothing wrong with them. Lack of social support services, enablers and means of identification in the part of the providers, was also identified as a challenge by some of the respondents. [7] identified enablers in a PPM project in Ghana to have provided many benefits to the PPM actors as well as the patients accessing care for TB in the form of transport support, food supplement as well as support salaries to staff in the health facilities.

Other factors discussed were on access to TB services which some persons require to go long distances to access and the rainy season being one of the difficult times to access services due to heavy and prolonged rainfall.

Some respondents were of the opinion that if TB services are taken to the communities, it will be used for profit purposes which of course is true to some extent as confirmed in a study in India by Sullivan, and Amor, (2016) where about 95% of the pharmacies assessed stocked and sold anti-TB drugs.

CONCLUSION

contribution of PPM in TB control in the State as there has been an improved access to TB services at the community level as well as improving the knowledge of TB among members of the private sector engaged to provide TB services at the community level.

The study identified administration of INH to under 6 contacts of TB patient as not happening in the facilities as expected and this has been a national issue in both public and private health

facilities alike. Poor adherence to medication and long administration time of 6-9 months has been identified as among the factors militating against INH prophylaxis [19].

It can hereby be concluded that the study meet all its set objective of ascertaining the role played by the PPM in TB control in Cross River State

through review of the knowledge of PPM among providers, the challenges encountered while providing TB services and contribution of the PPM in TB case finding in the State. All the research questions were adequately answered through the results from data analysis, at the end of the study.

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