ASSESSING THE LEVEL OF INTEGRATION OF TB/HIV CONTROL PROGRAM INTO PRIMARY HEALTH CARE: A CASE STUDY OF NIGER STATE

BY

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BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF COMMUNITY MEDICINE, AHMADU BELLO UNIVERSITY ZARIA IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH (MPH)

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DECLARATION

This is to declare that this research work "Integrating TB/HIV control program into Primary Health Care: A case study of Niger State" was carried out by me, Dr. Sani Useni under the supervision of Dr. A.A. Aliyu of the department of Community Medicine, Ahmadu Bello University Zaria. All the original ideas by me are reflected in the work alongside other people's previous efforts in the related area, with adequate recognition and declaration of such references.

_____ _____

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CERTIFICATION

This thesis entitled **"ASSESSMENT OF THE LEVEL OF INTEGRATION OF TB/HIV CONTROL PROGRAMME INTO PRIMARY HEALTH CARE: A CASE STUDY OF NIGER STATE" by SANI, Useni** meets the regulations governing the award of the degree of Master in Public Health of Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This project is dedicated to people infected and affected by TB and TB/HIV who as citizens of Nigeria face the daily challenges of accessing health care services in addition to stigma and discrimination from health care providers, family and the community.

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To God be the glory for guidance and inspiration to start and complete this project.

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LIST OF ACRONYMS

AFB	-	Acid Fast Bacilli
AIDS	-	Acquired Immune-Deficiency Syndrome
ARVs	-	Anti-Retroviral drugs
CHO	-	Community Health Officer
CNO	-	Chief Nursing Officer
CPT	-	Co-trimoxazole Preventive Therapy
CTBC	-	Community Tuberculosis Care
DOTS	-	Directly Observed Treatment Short course
GHCWs	-	General Health Care Workers
GFATM	-	Global fund to fight AIDS, Malaria and Tuberculosis
LGA	-	Local Government Area
LGA TBLS	-	Local Government Area Tuberculosis and Leprosy Supervisor
HIV	-	Human Immune Deficiency Virus
ILEP	-	International Federation of Anti-Leprosy Associations
MDGs	-	Millennium Development Goals
NACA	-	National Agency for the Control of AIDS
NPO-TUB	-	National Professional Officer for Tuberculosis
PHC	-	Primary Health Care
SOPs	-	Standard Operating Procedures
STBLCO	-	State Tuberculosis and Leprosy Control Officer
STBLS	-	State Tuberculosis and Leprosy Supervisor
TB	-	Tuberculosis
WHO	-	World Health Organization
USAID	-	United States Agency for International Development

SUMMARY

The many interactions between tuberculosis (TB) and human immunodeficiency virus (HIV) infection influence the design and implementation of programs to address the needs of patients living with or at risk for both diseases. This study aims at assessing the level of Integration of TB/HIV control Program into PHC in Niger State.

The study was a cross-sectional descriptive type recruiting adult men and women between the ages 18 and 65 years. A multi-stage sampling technique was used to sample 384 respondents. Semi-structured close ended questionnaire was used to collect information on separate thematic areas of knowledge, attitude and practices on TB/HIV, mechanism of collaboration and challenges to TB/HIV control in the PHCs.

Geographic coverage of PHC clinics that offered TB/HIV services for its current population in Niger State was 58.7% AFB microscopy centres and 66.4% DOTS centres. State TBLCP with funds from GFATM and USAID provide 59% of the support for human capacity and material resources for TB/HIV services at PHCs. NGOs and state government provided additional financial support. Availability of drugs made 54% of patients go to health facilities while 39% attributed long distances not to seek health care. Despite high awareness of the National TBLCP guidelines, low knowledge on management of TB/HIV patients accounted for 32% of GHCWs referring patients to general hospitals. Social and cultural barriers, low awareness and knowledge on TB/HIV among respondents with stigma and discrimination contributed to the delay in seeking health care at health facilities.

STBLCP should intensify efforts to achieve W.H.O's minimum AFB microscopy and DOTS population coverage and promote co-location of TB/HIV services with update trainings and re-trainings of GHCWs on management of TB/HIV co-infected patients. Niger state government should increase and sustain financial support for human and material resources for AFB microscopy and intensify advocacy to community leaders; social mobilization and publicity awareness campaigns on discrimination and stigmatization of TB/HIV.

CHAPTER ONE

INTRODUCTION

Every year almost nine million people contract tuberculosis (TB), and almost two million die from the disease. In many parts of the world it is reappearing in almost epidemic proportions, mainly because of co-infection with HIV/AIDS and increasing multidrug resistance.

More than a quarter of the 42 million people infected with the human immunodeficiency virus (HIV) worldwide are also infected with *Mycobacterium tuberculosis*; 70% of this co-infected population live in sub-Saharan Africa.[1] In the absence of intervention, at least 40% of co-infected persons will develop tuberculosis (TB) disease in their lifetime.[2] HIV-associated TB has a markedly increased mortality rate: up to 25% of patients with acid-fast bacilli (AFB) sputum smear positive results and 40–50% of those with AFB smear negative results currently die of TB.[3] TB is thus a leading cause of morbidity and mortality in persons with HIV infection.

The many interactions between tuberculosis (TB) and human immunodeficiency virus (HIV) infection influence the design and implementation of programs to address the needs of patients living with or at risk for both diseases. Collaboration between national TB and HIV programs and some degree of integration of services at a local level have been advocated by the World Health Organization and other international bodies and are recognized as essential in areas where the two diseases are prevalent. However, in most settings, strategies to accomplish this are only beginning to reach the field where their impact will be made and the expectation of improving the outcome of both diseases realized.

Nigeria adopted the DOTS strategy for TB control in 1993 with assistance from the WHO, and members of the International Federation of anti-leprosy Associations (ILEP). Other organizations which have contributed to the national effort include the Canadian International Development Agency (CIDA), the United States Agency for International Development (USAID) and the International Union against Tuberculosis and Lung Diseases (IUATLD).

The National Tuberculosis and Leprosy Control Programme (NTBLCP) is a department in the Federal Ministry of Health (FMOH) in charge of policy formulation, human resource development, tertiary care, resource mobilization and technical support to the state programmes. The state TBL control programmes coordinate TB control activities, secondary care and technical assistance to LGAs. The LGA is the operational level of the programme based on the primary health care (PHC) principle (the main thrust of health care in Nigeria).

The NTBLCP has a 5-year strategic plan 2006-2010 for TB control. The overall goal, which aligns with the WHO STOP TB strategy, is to reduce significantly the burden, socio-economic impact, and transmission of TB in Nigeria. It is also planned to reduce the incidence of TB amongst persons living with HIV/AIDS (PLWHAs) by 25%. Addressing TB offers a great opportunity for early HIV intervention which in turn will contribute to the achievement of the TB/HIV-related Millennium Development Goal (MDG) number 6, target 8.

A National strategic framework (NSF) 2005 - 2009 for Expanded and Comprehensive Response to HIV/AIDS control was developed, to seek among other things, address prevention of new HIV infections among all groups, effective coordination and management of resources, and universal access to care, treatment and support.

In realization that the set Global targets for TB control will not be achieved in view of the challenges mitigating against its control, the WHO in 2005 revised and expanded the DOTS strategy to include new elements. This new Stop TB strategy was launched with the second Global plan to Stop TB, which was expected to lead to the achievement of the Millennium Development Goals target to halt and begin to reverse the incidence of TB by 2015.

The Stop TB strategy was adopted by the country in June 2006 and it has the following elements:

1. Pursuing high quality DOTS expansion and enhancement.
    i. Political commitment with increased and sustained financing.
    ii. Case detection through high quality assured bacteriology.
    iii. Standardized treatment, with supervision and patient support.
    iv. Effective drug supply and management system.
    v. Monitoring and evaluation system, and impact assessment.
2. Addressing TB/HIV, MDR-TB and other challenges.
3. Contributing to health system strengthening.
4. Involving all heath care providers.
5. Engaging people with TB and affected communities.
6. Enabling and promoting research.

Targets for TB control in Nigeria as outlined in the strategic plan are in line with the Stop TB targets and the Millennium development Goals (MDG) include

- To detect at least 70% of the estimated infectious (smear positive) cases.
- To achieve a cure rate of at least 85% of the detected smear positive cases.
- By 2015 reduce TB prevalence and death rates by 50% relative to 1990 levels.
- By 2050 eliminate TB as a public health problem (< =1/1,000,000 population).

Prior to 2002, functional collaboration between the TB Control Program and the HIV Control Program did not exist. The National Tuberculosis and Leprosy Control Program (NTBLCP) and the National HIV/AIDS and Sexually Transmitted disease Control Program (NASCP) held the first joint meeting in September 2002 during which the strengths and weaknesses of both programs were analyzed and possible areas of collaboration identified. A subcommittee comprising two members each from both programs was set up to facilitate implementation of collaborating activities.

An implementation plan was developed by the subcommittee and National Action Committee on AIDS (NACA), with technical support from the World Health Organization (WHO) to implement TB/HIV activities in Nigeria. This was followed by a consensus-building meeting involving all the TB/HIV stakeholders from various organizations in the country with the participation of other technical partners on the joint international DOTS (Directly Observed Treatment Short Course) Monitoring Mission to Nigeria.

One of the outcomes of the meeting was the setting up of a TB/HIV working group which was officially inaugurated in July 2006 by the Honorable Minister of Health and whose terms of reference include:

- Facilitate collaboration between TB and HIV/AIDS programs at all levels.
- Support Government to coordinate activities of partners.
- Review periodically the National TB/HIV Strategic Framework Guidelines and any other document to guide all stakeholders for better TB control among HIV infected people and effective HIV prevention and care among TB patients.
- Support in the dissemination of the technical guidelines.
- Mobilize financial and technical resources for implementing collaborative TB/HIV activities.
- Promote national research in TB/ HIV control.

The TB/HIV working groups was set up and inaugurated in 2006 in seven states of the federation (Adamawa, Benue, Ebonyi, Gombe, Ogun, Rivers and Sokoto). The Federal Ministry of Health (FMOH), with support from United States Agency for International Development (USAID) and WHO, is presently implementing collaborative TB/HIV activities in 36 DOTS and ten ART sites from the Six States. A new TB recording and reporting format with TB/HIV information has also been adopted and currently used in some states in the country.

In 2007, the release of pledged annual grants from CIDA and USAID to Government facilitated the expansion of DOTS Tuberculosis control activities into more LGAs. An additional 2.7 million USD from these organizations as extra-budgetary funds supported the National TB and Leprosy Control Program in the implementing activities targeted towards expansion of DOTS services as well as promoting TB/HIV collaborative actitities.[4] Specific activities implemented with these funds as outlined in the strategic work plan in 2007 included the following

- Increasing the human resource capacity to deliver DOTS services at the peripheral levels in 17 States (about 510 doctors, nurses and general health workers from 17 States were trained on DOTS).
- Expansion of the laboratory diagnostic network by establishing and strengthening LGA laboratory services to deliver diagnostic services (51 new microscopic centers were established in 17 States).
- Empower 102 PHC centers and general hospitals to deliver DOTS services in 17 States.[4]

Problem Statement

Niger State is currently implementing TB DOTS in 105 out of 1,063 Primary Health Care Centers. 29 of these centers also carry out sputum AFB microscopy. Laboratory reagents and consumables for AFB sputum microscopy, Anti-TB drugs, reporting and reporting materials are delivered to PHCs by the LGA TBLS after collection from the National TBL Zonal Store in Minna, Niger State. Trainings on TB/HIV control conducted at Facility levels for Doctors, Nurses, Laboratory staff and General Health Care workers ensure that all TB patients are offered HCT and HIV positive patients are tested for TB. TB/HIV services at PHC level are characterized by firmly established algorithms to standardize treatment for large numbers of patients by the same staff of the PHC as part of general health care service. In 2008, Niger State with a Case notification rate of 33.3%, detected 1,348 out of the 15,899 total TB case notifications in the North Central geopolitical zone. North Central zone accounting for 18% of the total registered cases in Nigeria.[5]

Effective integration of TB/HIV control into PHC in Niger State is weak due to poor geographic coverage of Sputum AFB microscopic centers and TB DOTS treatment

Clinics in the LGAs of Niger State. Utilization of health services at PHC by TB/HIV patients is low due to conflicting perceptions of causes, symptoms, signs consequences and treatment of TB /HIV infection. Collaborative mechanisms for TB and HIV Control at PHC is weak due to poor knowledge, attitudes and practices of Health care Managers and care providers thus adopting a vertical approach to TB/HIV care. Health Systems strengthening is weak at PHCs due to non availability of functional microscopes, frequent out of stock of laboratory reagents, HIV kits and anti-TB drugs resulting in poor TB/HIV patients' uptake at diagnosis and follow up.

Rationale

The need to assess the level of integration and implementation of TB/HIV control and facilitate the collaboration between TB and HIV/AIDS program at PHC facilities in Niger State has become imperative in view of huge financial and human resources put in place by the Federal and State Governments, LGAs and Non-governmental organizations. This is in addition to the technical assistance provided by WHO in ensuring that the TB MDG targets for the year 2015 are achieved.

Aim:

To assess the level of Integration of TB/HIV control Program into PHC in Niger State.

Specific Objectives:

1. To assess the geographic coverage of Primary Health Care Centers that offer integrated TB/HIV services in Niger State.
2. To determine the challenges of TB/HIV control at PHC Centers in Niger State.
3. To assess the mechanisms of collaboration for TB and HIV- positive patients at PHCs in Niger State.

4. To assess the knowledge, attitude and practices of health care managers, care providers and TB/HIV patients on TB/HIV in Niger State.

CHAPTER TWO

LITERATURE REVIEW

Coverage of Primary Health Care Centers that offer integrated TB/HIV services

The introduction of DOTS Strategy in the early '90s brought about considerable progress globally in the control of TB. Much still needs to be done to expand services to the whole population even within countries adopting DOTS strategy. In 1998, WHO in London presented the report of the ad-hoc committee on Tuberculosis epidemic where concerns were expressed on the slow progress of DOTS implementation in most countries with high burden TB.[6] The recommendation of the committee included a comprehensive and multi-sectorial approach to TB Control. The ''Stop TB initiative'' was subsequently launched as a global partnership linking health, social and economic sectors in the fight against TB. The expanded DOTS strategy lays equal emphasis on the technical, managerial, social and political dimensions of DOTS. In order to ensure DOTS control strategy is comprehensive, the scope of DOTS control can be widened through support to all providers, patients, and people to tackle the problem of TB.

Access to diagnosis, treatment and cure for TB patients, protection of vulnerable population from TB and the drug resistant forms would ensure the reduction of mortality, morbidity and transmission of TB as well as preventing drug resistance.

A demonstrable impact on the burden of TB has been seen in both India and Indonesia showing a decrease in the prevalence of TB due to quality expansion of TB control services. The progress was attributed to wider coverage, intensified efforts to improve the quality of services and growing partnerships with other providers, particularly non-governmental organizations (NGOs), the private sector, medical teaching institutions and large public employment sectors.[7]

Community awareness and utilization of available services and civil society involvement in TB control are needed to ensure equitable access to services for all TB patients particularly the poor and the marginalized in urban slums, shanty towns and remote boarder areas to reduce transmission and prevalence of the disease. In addition, high profile, campaigns are required to have a substantial impact.

The implementation of the internationally recommended TB policies as demonstrated by the Republic of Moldova resulted in rapid increase in Case detection.[8] TB services became widely accessible through support for TB-PHC integration protocols, training of practitioners and insurance financing. There was also extensive information on TB transmission, symptoms and treatment for practitioners and the public and less mobile population. The knowledge of symptoms and treatment of TB became available to a larger proportion of the population as awareness campaigns reached rural districts.[9] The geographic dispersal of PHC clinics eased access for the rural population. Similarly, integration increased effective demand by increasing the number and skills of practitioners in order to ensure increased accessibility and supply. In the same light, implementation of DOTS expansion nationwide resulted in steady increase in case notifications. [10]

A study from Sudan, found that PHC facilities provided TB care for higher number of women and older patients than referral hospitals. [11]

A study from Cambodia reported that decentralizing DOTS to PHC centres reduced delays in TB treatment. [12]

WHO estimates coverage at national level as ‘’Number and % of districts with DOTS strategy and Population living in areas covered by DOTS strategy’’. At district level

coverage is assessed as ‘’Number of health facilities with DOTS services / total health facilities’’.[13]

Human capacity and material resources for TB/HIV control at PHCs

A critically important issue to both TB and HIV programs is the availability of adequately trained healthcare workers who will be able to provide the breadth of care necessary for TB/HIV co-infected patients. Knowledge and experience in the separate diagnosis and management of TB and HIV is extensive in resource-rich settings and in some resource limited settings. However, knowledge and experience in the diagnosis and management of TB/HIV co-infection is available in resource-rich settings but severely limited in resource-poor settings.[14] As identified by WHO, lack of qualified human resources, lack of health infrastructure, poor decentralization of the health system and little coordination with the private sector are the major constraints to reaching the global TB targets (WHO 2004).[15]

Given the limited number of clinical providers currently available in resource-poor settings, it is necessary to evaluate the feasibility of using nonprofessional healthcare workers to serve in auxiliary roles, such as treatment supporters or directly observed therapy workers, which provide support to patients' adherence efforts and monitoring for adverse reactions for TB/HIV co-infected patient.

Discussions are going on about whether anti-TB drugs and ART can be administered from the same clinic. However, TB officers are health assistants with little clinical training, and the management of adverse effects will require the presence of a clinician. Moreover, a separate ART recording and monitoring system will have to be placed in the TB clinic, and mechanisms will be required for referral to the ART clinic once TB

treatment is completed. If TB treatment is to be administered from the ART clinic, ART clinicians and nurses may be too busy to be able to take on the extra burden.

Decentralization on a national level will require working out operational issues such as training and supervision of medical assistants who staff the health centres, ART drug procurement and security, and clinical supervision. There have been benefits for staff and clinicians as well. Cross-training of TB and HIV staff has been accomplished, and both are now able to rotate between services. The increased diversity of roles, pooling of staff, and broadening of training have also increased competence in the management of co-infected patients, led to an increase in staff morale and retention, renewed doctors' interest in TB, and provided a structure for those who wish to pursue a career in TB/HIV medicine. This expanded role of staff training to enable the management of both diseases is one way of decreasing the drain on TB program staff resources.

These geographically and programmatically distinct experiences in TB/HIV program collaboration and integration indicate that the strategy can be successful, but programmatic, medical, staffing, resource, and scale-up challenges remain.[16]

Mechanisms for collaboration for TB and HIV-positive patients at PHC

Tuberculosis (TB) and human immunodeficiency virus (HIV) infection make each other's control significantly more difficult. Global and National levels' effort at Coordination in addressing this "cursed duet" is insufficient. However, consensus has been set around the global policy for TB/HIV coordination from both the TB and HIV control communities. The World Health Organization (WHO) has formulated recommendations regarding collaboration and integration and has emphasized the importance of addressing TB/HIV co- infection in its new "Stop TB" strategy.[17,18] The policy aimed to provide all necessary care for the prevention and management of HIV-associated TB. Collaboration between

TB and HIV programmes and integration of services has been advocated, but has been hindered by a history of independent structures and functions of established national TB programmes and newly established HIV programmes, and by the inadequacies of primary care and general health care services in many countries. Current national TB and HIV programs remain largely separate with varying levels of interaction and communication even-though increasing numbers of patients have both conditions.

This programmatic separation often extends through the entire health care system. While this characteristic is true of developed countries as well, the far greater resources available in developed settings can often compensate for this division and provide adequate care for co-infected patients. In resource-limited countries, however, this separation of programs results in care of co-infected patients that are often fragmented, uncoordinated, and unsuccessful. It is essential, in areas of high HIV prevalence and TB burden, that national TB and HIV programs collaborate and that care for TB/HIV co-infected individuals is integrated at the healthcare delivery level.[14]

Encouragingly, because the leadership of these often separate TB and HIV programs is usually situated within the structure of National Ministries of Health, there is the opportunity for these latter institutions to play a critical role in establishing and strengthening a coordinated approach to both diseases thereby ensuring communication and collaboration between the two programs. Rwanda is an excellent example of such collaboration at the central, Ministry of Health level.[19] For effective service integration to take hold in a widespread manner at the healthcare delivery level, collaboration has to first exist at the national level. In some primary care settings, where resources are extremely limited and personnel even more so, TB/HIV collaboration and service

integration does occur, but often in an unsupervised, unstructured, and therefore, suboptimal manner.

Several individual projects assessing the feasibility of various collaborative and integrative efforts at the healthcare delivery level in urban and rural areas have been carried out or are ongoing. In Rwanda, integration of TB and HIV services at a district hospital increased HIV counselling and testing of TB patients and improved TB screening and case detection in HIV-infected individuals enrolled into care.[20]

In rural KwaZulu-Natal, once-daily antiretroviral therapy for patients with HIV and TB is successfully being combined with the existing TB directly observed therapy program and is using community-based treatment supporters.[21] In Haiti, combined treatment of both TB and HIV has been shown to be effective both in rural settings using a community-based treatment model [22] and in urban settings using a clinic-based approach.[23]

These different experiences in integration of TB and HIV care and treatment are highly encouraging while at the same time their examples highlight the technical, programmatic, staffing and scale-up challenges that remain and demonstrate that although broad program principles of TB/HIV collaboration and integration are essential, specific program components and designs will vary between and even within countries.[16] but its implementation is hindered by real technical difficulties and shortages of resources.

Knowledge, attitude and practices of health care managers and care providers on TB/HIV care

The attitude of health care managers and care givers on TB/HIV care is influenced by the competence in the management of co-infected patients. Studies in Kyayelitsha sub-district in South Africa, by capacitating Ubuntu clinical staff to manage both TB and HIV care had a positive spin off. A qualitative increase in the interactions between TB and HIV

staff in the clinics was observed. These interactions happened both informally and through formal weekly clinics to discuss outcomes, resulting in clear benefits for patients and overall programme management.

Training of clinical staff at the TB clinic on HIV management has increased the interaction between the TB and the HIV team. Better communications had immediate benefits in patient management. In particular, a dramatic improvement was observed in promoting counselling and testing for HIV amongst all new TB cases – nearly 100% of acceptance of counselling and testing.

The TB adherence support model moved towards a patient-centred approach inspired in the model developed for ARV treatment. TB treatment literacy was provided by TB counsellors, educators and treatment assistants as part of the package offered to TB clients.[22]

A study to describe the knowledge and attitudes of Health Care Providers and identify modifiable barriers to appropriate anti-tuberculosis treatment showed knowledge gaps that included identification of patients at high risk for TB, assessment of treatment outcomes, and consequences of treatment failure. The most commonly cited modifiable barriers were structural, including laboratory facilities and staffing of TB clinics.[25]
A study conducted on nurses supported the need for an ongoing educational program with continual monitoring of infection control practices for HIV/AIDS patients diagnosed with TB to positively affect client and caregiver outcomes.[26]

It was observed that there may be resistance from policy makers who do not recognise the benefits. There may also be resistance from staff who see any integration as extra work. Because of duplication this should not be so. By integrating TB and HIV care, the

available human and financial resources can be optimally used. Efficiency gains can also be anticipated by the use of a common information system and a single set of records. A single venue and a comprehensive consultation should result in less waiting time for patients. In addition there is usually more donor support for HIV programmes and this should benefit the TB programme.[21]

Knowledge, attitude and practices of TB/HIV patients on TB

Correct knowledge and positive perception of the community towards TB and its management is a prerequisite to early treatment seeking. A study carried out in Mpwapwa district, central Tanzania, to assess the knowledge, attitudes and practice as regards to TB and its treatment showed that TB was an important public health problem. However, community knowledge on its cause was poor. Symptoms of TB as mentioned by the community included persistent cough and weight loss. TB was reported to be transmitted mainly through air. Self medication was the first most preferred option, whereas health care facility consultation was the last one. Focus group discussants knew that TB cure required an 8-month period of treatment. Friends and relatives were the main source of TB information in the community. A low knowledge on the causes and the transmission of tuberculosis was a likely cause of the delay in seeking treatment.[16]

In Nigeria, a study demonstrated a correlation between the level of knowledge and awareness of TB with time of presentation at the chest clinic. [23]

In India (Rajeswari et al. 2002), 'lack of awareness about TB' was cited by 40% of patients with long patient delays as a reason for delayed care seeking, but this 'lack of awareness about TB' was not investigated among patients reporting short patient delays.

In Nigeria (Enwuru et al. 2002), 'lack of knowledge about TB' was associated with longer patient delays, but no other possible reason for patient delay was investigated and the association was not adjusted for level of education or other confounding factors. [24]

CHAPTER THREE

METHODOLOGY

Study Area

Niger State is in the north central geopolitical part of Nigeria and the largest state in the country. The state capital is Minna, other major cities are Bida, Kontagora and Suleja, it was created in 3 February 1976 from the north western state and shares boundaries with Kebbi, Kaduna states in the north and Kwara and Kogi states in the south, respectively. The state has a land mass of 76,363 km² and a projected Population of 4,326,403 by 2010 from 2006 National population census (using population annual growth rate of 2.3%).[27] Niger state is sub-divided into 3 senatorial districts with a total of 25 local government areas. It has a total of 2,725 health facilities comprising of 1 Tertiary, 22 secondary, 1063 primary and 1,639 Private.

At the end of 2009, Niger state had medical staff strength of 96 Medical Doctors, 6 Dentists, 1,124 Nurses (including midwives), 2,087 CHEWs and 137 Laboratory staff (40 Scientists, 46 technicians and 51 attendants)[28]. There were a total of 29 microscopic centres and 105 DOTS treatment centres. In 2009, the total number of new smear positive TB patients was 1259; out of this 1,171 were offered HCT, 463 accepted to be tested for HIV of which 230 were found to be HIV positive.[29]

Study Population

These were TB/HIV patient who access care at PHC facilities and who consented to participate in the study. Health managers and medical staff at these centers were also part of the study population.

Study Design

The study was a cross-sectional descriptive type recruiting men and women between the ages 18 and 65 years who were medical staff, health care managers and TB/HIV patients at PHC centres in Niger state.

Sample Size determination

Sample size[30] (n) = $\frac{z^2 \text{ x } pq}{d^2}$

Where:

n = sample size

z = standard deviation at 95% confidence interval = 1.96

p = proportion of success (50%) expressed as decimal = 0.5

q = proportion of failures (1 – p) = 0.5

d = degree of accuracy (5%) expressed as a decimal = 0.05

= $\frac{1.96^2 \text{ x } 0.5 \text{ x } 0.5}{0.05^2}$ = **384** (minimum sample size)

Sampling Technique

A multi-stage sampling technique was used for the study. From each of the 3 Senatorial zones, 3 LGAs were selected randomly. 2 PHC facilities were also randomly selected from the selected LGAs. The first unit is the LGA; the final (observation) sampling unit is the PHC facilities. Thus from 9 LGAs selected, a total of 18 PHC facilities were selected for the study. In considering non response, an attrition rate of 10% was use to a sample 422 respondents. Depending on the staff strength and patients on care at each of the 18 PHC facilities, random selection of 12 TB/HIV Patients and 11 health care providers and medical staff was done to achieve the minimum sample size.

Table 1: Random sampling of PHCs from senatorial zones of Niger State

S/No.	Zone	No. of LGAs	LGA selected	No. of PHCs	PHC Selected
1	A	8	Bida	24	2
			Lapai	75	2
			Gbako	86	2
2	B	9	Chanchaga	45	2
			Suleja	43	2
			Bosso	27	2
3	C	8	Wushishi	28	2
			Kontagora	22	2
			Mariga	20	2

Data Collection

Close ended questionnaire was used as primary data collection tool. A self-administered questionnaire was used for GHCWs and health care managers in the selected PHCs, while an interviewer administered questionnaire was used for TB/HIV patients that access care at same facilities.

Questionnaire Design

The different questionnaires for Health care workers, mangers and TB/HIV patients assessed separate thematic areas on knowledge, attitude and practices on TB/HIV, mechanism of collaboration and challenges to TB/HIV control in the PHCs (attached appendix).

Training of Interviewers

9 research assistants (1 from each selected LGA) who are LGA TBL Supervisors (CHOs) were trained for 2 days by the researcher on the research topic, aims and objectives, technique of administering the questionnaires. The questionnaires were pre-tested in 2 PHC facilities in Minna which were not part of the selected PHC facilities, and necessary corrections effected.

Data Analysis

Data analysis was done using a Microsoft office excel 2007 and the result presented in the form frequency tables and charts.

Sources of Bias

Though study population were PHC facilities in Niger state, only TB DOTS treatment centres were randomly selected amongst PHCs in the LGAs. As interview administered questionnaire was used for TB/HIV patients, this might prompt interviewers for particular answers to questions.

Ethical considerations

This study was approved by the Research Ethics committee of the Department of Community Medicine of the Ahmadu Bello University Zaria and Ethical clearance was obtained from the ethics committee of the hospital management board and primary health care of Niger State.

From each respondent, a written informed consent was obtained, and they were assured of confidentiality of data collected.

CHAPTER FOUR
RESULTS

Table 2: Socio-demographic distribution of TB/HIV patients (n=200)

Age group (Yrs)	Male (No.)	Female (No.)	%
15-24	27	34	27
25-34	40	31	37
35-44	23	18	24
45-54	15	3	10
55-64	5	4	3
65-74	1	0	1
TOTAL	110	90	100
Sex			
TB	106	79	92.5
TB/HIV	4	11	7.5
TOTAL	110	90	100
Marital Status			
Single	4	2	3
Married	92	58	75
Divorced	13	22	17.5
Widowed	1	8	4.5
TOTAL	110	90	100
Occupation			
Farming	21	0	10.5
Trader	85	36	60.5
House Wife	0	46	23
Student	4	8	6
TOTAL	110	90	100

Majority of patients (37%) were in the age range of 25 – 34 years, mean age was 34.8 ± 0.1 years, 55% were males, 75% were married while 60.5% were traders.

Table 3: Socio-demographic distribution of GHCWs* (n=184)

Age group (Yrs)	Male (No.)	Female (No.)	%
15-24	7	6	7
25-34	42	56	53
35-44	21	32	29
45-54	9	2	6
55-64	6	2	4
65-74	0	1	1
TOTAL	85	99	100.0
Marital Status			
Single	22	43	35.3
Married	54	42	52.2
Divorced	8	11	10.3
Widowed	1	3	2.2
TOTAL	85	99	100.0
Designation			
M/0	3	0	1.6
NURSE	4	10	7.6
CHO	5	5	5.4
SCHEW	52	57	59.2
JCHEW	21	27	26.1
TOTAL	85	99	100.0

*GHCWs (staff and health care managers) who have worked at TB DOTS facilities not less than 2 years.

Majority of GHCWs (53%) were in the age range of 25 – 34 years, mean age of 35.2 ± 0.1 years while 52.2% were married and 59.2% are in the category of SCHEW.

Table 4: Percent distribution of correct responses on general knowledge on TB by GHCWS (n=184)

Questions	All GHCWs
What is the cause of TB?	181(98.3)
How does TB spread?	164 (89.1)
What is the most common symptom of pulmonary TB?	181(98.3)
How many sputum samples are needed for diagnosis?	102 (55.4)
How long is the treatment for a new patient with TB	101 (54.8)
Is TB/HIV services offered in this facility?	109 (59.2)
Aware of National TB/Leprosy control program.	184 (100)
Aware of National guidelines for TB treatment.	177 (96.1)

The GHCWs had correct responses to the causes, spread and common symptoms of TB and were aware of the National TB/Leprosy control program as well as the National guidelines for TB treatment. Only 55.4% knew the number of sputum samples needed to make a diagnosis while 54.8% knew the duration of treatment for a new TB patient.

Table 5: Percent distribution of GHCWs on conditions that worsens TB/HIV (n=184)

Conditions	No.	%
Low awareness and knowledge	89	48.2
Discrimination and stigma	101	55.0
Social and cultural barriers	129	70.3

Social and cultural barriers; discrimination and stigma are conditions that worsened TB/HIV according to 70.3% and 55% of GHCWs respectively while 48.2% attributed this to low awareness and knowledge of the disease.

Table 6: Frequency distribution of GHCWs on challenges of integrating TB/HIV services in facility (n=184)

Challenges	No.	%
Inadequate laboratory facilities	118	64.4
Inadequate medical supplies	106	57.6
Inadequate number/trained staff	103	56.0
Lack of guidelines and communication by staff	100	54.5
Weak supportive supervision and monitoring	101	55.0
Preference for traditional and alternative medication	121	65.8
No knowledge of facilities available for treatment	89	48.4

Preference for traditional and alternative medication and inadequate laboratory facilities by 65.7% and 64.4% of GHCWs respectively, were among the challenges of integrating TB/HIV services in facility. Other challenges included inadequate medical supplies (57.6%) and inadequate number and trained staff (56%).

Figure 1 showed 23% of GHCWs in the past 2 years had been trained on combined TB/HIV management. GHCWs who had been trained on HIV counselling or HCT accounted for 10% each, while 8% were trained on TB diagnosis and management. However, 49% of GHCWs did not receive any training relating to TB or HIV management during the same period.

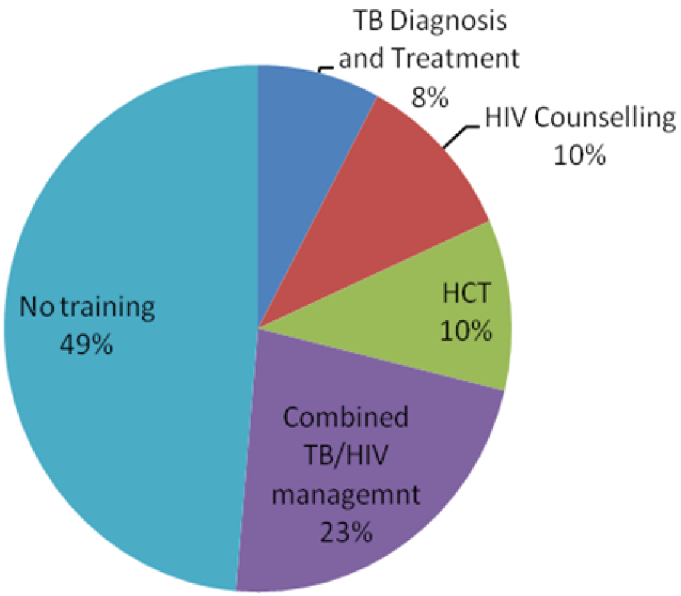


Figure 1: **Trainings attended by GHCWs of PHCs in Niger State in 2008 and 2009**

Care offered TB/HIV patients in PHCs that offer these services as revealed in Figure 2, showed that 41% of GHCWs administer anti-TB drugs. Patients were referred to general hospitals for treatment by 32% of GHCWs. Furthermore, 10% of GHCWs offered health education and HIV counselling and testing while only 6% of GHCWs in the PHCS offered sputum AFB testing.

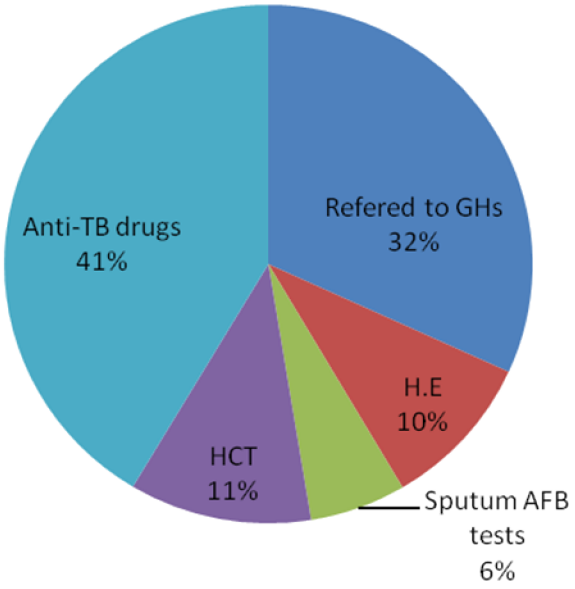


Figure 2: Showing different types of services offered TB/HIV patients at PHCs by GHCWs in Niger State in 2010

As shown in Figure 3, 59% of drugs and materials for TB/HIV care were provided by the state TBL control program while NGOs accounted for 15% with an additional 6% by the state government.

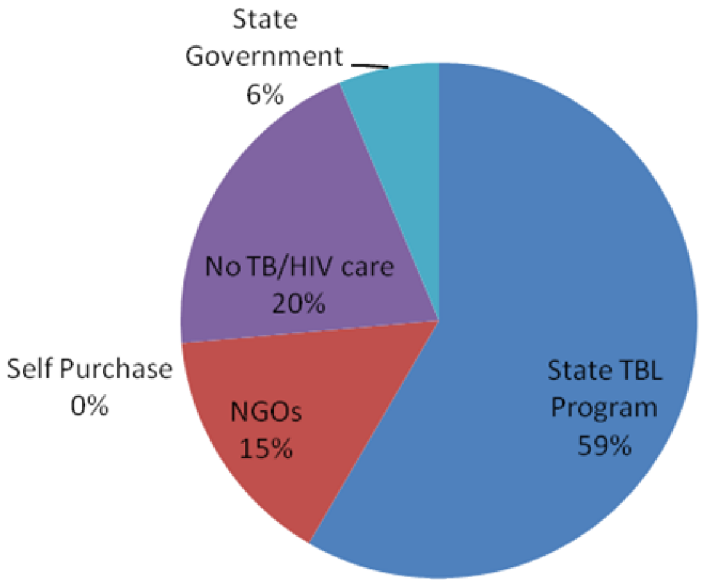


Figure 3: Source of supply of TB/HIV Drugs and materials to PHCs in Niger in 2010

Table 7: Percent distribution of respondents on knowledge about TB in PLHIV (n=200)

Knowledge	Correct response No. (%)	Incorrect response No. (%)
what is the cause of TB	105 (52.5)	95 (45.5)
What is the duration of treatment for TB	145 (72.5)	55 (22.5)
when is sputum follow up tests done	127 (63.5)	73 (36.5)
Attitude	**Agree No. (%)**	**Disagree No. (%)**
Covering the mouth reduces spread of TB	104 (52.0)	96 (48.0)
Prefer to seek care for TB at General Hospital	101 (50.5)	99 (49.5)
Seek care at health facility because of availability of anti-TB drugs	108 (54.0)	92 (46.0)
Long distance to health facility prevents seeking care.	78 (39.0)	122 (61.0)
PLHIV should be concerned about TB	148 (74.0)	52 (26.0)
PLHIV are more likely to acquire TB	116 (58.0)	84 (42.0)

Table 7 showed 52.2% of respondents knew the correct cause of TB, 72.5% knew the duration of treatment, 52.0% agreed to the need to cover the mouth to reduce TB spread, 74.0% agree that PLHIV should be concerned about TB and 58.0% agree that PLHIV are more likely to acquire TB.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

Discussions

The findings showed that the geographic coverage of PHC clinics that offer TB/HIV services for its current population in Niger State as 58.7% AFB microscopy centres and 66.4% DOTS centres. Niger state TBL control program is yet to achieve the target set by the National TB and leprosy control program of 1 AFB microscopy centre to 80,000 people and 1 DOTS centre to 25,000 people. Interestingly, the respondents in this study have attributed long distances to health facilities as a reason for not seeking health care. These findings are similar to that conducted in Lusaka by Godfrey et.al[31]. This calls for more efforts at increasing access to TB/HIV services through DOTS expansion activities by the state TBL control program.

The high proportion of SCHEWs in PHCs indicates that efforts at improving the TB/HIV services should include building the capacity of these groups of staff. Similar efforts can be extended to other categories of workers such as community health officers, nurses and Doctors. The need for strengthening the human resource capacity was identified in a similar study conducted by Harris et al[32] .Material resources for TB/HIV services at PHCs are provided mainly by the state TBL control program that receives support from GFATM and USAID with additional funds from NGOs. However, state government financial support through the state ministry of health is small.

The availability of drugs accounted for 54% of respondents' choice to seek health care at health facilities which was in agreement with the study conducted by Wang et al[33], In spite of the availability of free anti-TB drugs, only a small fraction gained access to TB/HIV services due to contextual issues and the other hidden costs for patients seeking

care. This calls for advocacy to state authorities to increase and sustain financial support for TB/HIV services in addition to increasing the number and quality of health staff at these PHCs, supply and maintenance of optical and fluorescence microscopes; ensuring availability of TB diagnostic laboratory reagents and supplies, HIV test kits, printing of recording and reporting tools, support to provision of interrupted anti-TB drugs; supervision and monitoring of TB/HIV activities at all levels of care.

In the last two years, the respondents indicated lack of structured training on TB/HIV for almost half of GHCWs. Despite 23% of GHCWs that received training on combined TB/HIV management, a few had some training on HCT, HIV counselling, TB diagnosis and treatment. The high level of knowledge of the cause, mode of spread and symptoms of TB among GHCWs was attributed to the level of awareness created by the National TB and leprosy control program.

In general, knowledge of the cause of TB, contagious nature of the disease, symptoms, and initial diagnosis was quite high among all GHCWs and a considerably higher level of awareness of the guidelines according to the National TB/Leprosy control Program which was similar to findings in the study by Hoa et al[34] .However only 54.8% of the GHCWs knew the duration of treatment for a new sputum smear positive TB patient. This indicated that even though GHCWs may be aware of the National guidelines to TB treatment, there was need for continuous training and retraining on TB/HIV management for health care providers at PHCs. Such informative approaches will to a great extent facilitate early diagnosis, prompt treatment and ensure good treatment outcomes for TB/HIV patients. This can be further enhanced by making available laminated copies of standard operating procedures and national guidelines on TB/HIV care within the health facilities.

There is interplay of many factors for the worsening TB/HIV situation. A strong perception by GHCWs sees social and cultural barriers as the commonest reason followed by patients seeking traditional and alternative medications. Findings in a similar study by Kiefer et al[35] indicated low level of awareness and knowledge about TB/HIV coupled with lack of knowledge of facilities that offer treatment. In addition, the influence of stigma and discrimination of TB/HIV patients on delay in seeking treatment has also been documented in the findings of Odusanya & Babafemi [36] and Mangesho et. al [37] respectively.

The proportion of TB/HIV patients seen at PHCs that are referred to general Hospitals for care is attributed to the low proportion of GHCWs trained on combined TB/HIV management. The major care offered these patients is administration of anti-TB drugs. Even though PHCs carry out some HIV services as observed, effective collaboration of TB/HIV entails that all TB suspects and patients are offered HCT. Similarly, all HIV positive patients should also benefit from TB screening. A single venue and a comprehensive consultation should result in less waiting time for patients. In addition, HIV programs usually have more donor support which should also be an advantage to the TB programs to also benefit. A study conducted in Zambia[37], indicated that a provider-initiated approach would maximize the number of TB patients accepting HIV testing thereby overcoming the barriers of enrolment into HIV care even though this was contrary to a report observed in Uganda[38].

It is paramount for TB and HIV programs to support LGAs and their PHCs to plan, coordinate, monitor and manage logistics in addition to investing resources in TB/HIV collaborative services especially in policy dissemination and training of health care providers.

Conclusion

Niger State had population coverage of 58.7% AFB microscopy centres and 66.4% DOTS centres. GHCWs trained on combined TB/HIV management were 23%, while HCT is offered by 11% of GHCWs as TB/HIV collaborative activities at PHCs. Inadequate medical supplies (57.6%), inadequate number and trained staff (56%) challenges of integrating TB/HIV services into PHC. Niger state TBL control program with support from development partners provided 59% for drugs and materials for TB/HIV care, while NGOs and state government accounted for 15% and 6% respectively.

Recommendations

In other to achieve effective integration of TB/HIV control into PHCs, it is important that:

1. The Niger State Ministry of Health, through the state TBLCP should intensify efforts to achieve W.H.O's minimum AFB microscopy and DOTS population coverage through expansion of TB services into more PHCs.
2. The STBLCP should promote co-location of TB/HIV services in the same facility in order to ease access to its services and thus enhance utilization.
3. The Niger state ministry of health in collaboration with development partners should update, train and re-train GHCWs on management of TB/HIV co-infected patients.
4. Niger state government should increase and sustain financial support for provision of material resources (equipment and laboratory reagents) for AFB microscopy.
5. STBLCP should intensify advocacy to community leaders, stakeholders through social mobilization and publicity awareness campaigns on discrimination and stigmatization of TB/HIV.

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APPENDICES

APPENDIX I

DEPARTMENT OF COMMUNITY MEDICINE

FACULTY OF MEDICINE, AHMADU BELLO UNIVERSITY, ZARIA

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B.Sc (Hons) Pharm, A.B.U. Ph.D, (London) FPSN

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MPH/MED/00309/2008-09

10th October. 2010.

The Director of Public Health,
State Ministry of Health,
Niger State.

Dear Sir/Madam,

INTRODUCTION OF MASTER IN PUBLIC HEALTH (MPH) STUDENT AND RESEARCH PROJECT: DR. SANI USENI(MPH/MED/00309/ 2008-09)

This is to certify that the above named MPH Student is conducting his Research Project on the topic: **Integrating TB/HIV Control Program into Primary Health Care. A Case Study of Niger State.**

I shall be grateful for your assistance in giving him all the necessary assistance, information/data relevant to the project title to enable him handle the assignment with confidence and success.

Thank you.

Yours faithfully,

Dr. S.H. Idris
Head of Department.

APPENDIX II

Interviewer administered Questionnaire for Patients

Code No: _____

Date …….....

Name of Respondent …….....
Age.....Sex.....

Occupation of Respondent Farming……Trader……House-wife…..Student

Status of Respondent
Single……Married……Divorced…..Widow.....

Name of Facility
…….....

Dear Respondent

We are conducting a study on Integrating TB/HIV control program into PHC in Niger State in managing people diagnosed of having Tuberculosis (TB) and Human Immunodeficiency Virus (HIV) at Primary Health Care Facilities.

The information you shall give shall be treated with absolute confidentiality and will be used for the purpose of this work only. It will be used in proposing appropriate interventions for the strengthening of implementation of TB/HIV services in the Primary Health Care Facilities.

Your anonymity will be maintained and your willingness to answer these questions is highly appreciated please.

Thank you.

INSTRUCTION: Circle/Tick the most appropriate answer.

Q1. What is the cause of TB?

a. don't know
b. smoking
c. hard work /weakness
d. infection
e. malnutrition / bad diet

Q2. What is the duration of treatment for TB?

a. Don't know
b. 2 months
c. 5 months
d. 8 months
e. 10 months

Q3. When are sputum follow-up tests done?

a. don't know
b. 4 months, 6 months, 8 months
c. 2 months, 5 months, 7 months
d. 3 months, 4 months, 5 months
e. 3 months, 4 months, 6 months

Q4. Covering the mouth reduces the spread of TB

a. Agree
b. Disagree

Q5. Prefer to seek care for TB at General Hospital because of availability of drugs.

a. Agree
b. Disagree

Q6. Do not seek care at health facilities because of distance.

a. Agree
b. Disagree

Q7. What conditions that worsen TB/HIV include:

a. Low awareness and knowledge about the diseases

b. Discrimination and stigma on TB/HIV infections
c. Social and cultural barriers.

Q8. When you were diagnosed with TB, what were you offered?

a. Health Education on TB; causes, diagnosis and treatment
b. Health education and counseling on HIV transmission
c. Periodic sputum samples for test
d. Blood samples taken for HIV test
e. Post test counseling of HIV test result

Q9. People living with HIV should be concerned about TB.

a. Agree
b. Disagree

Q10. People living with HIV are likely to acquire TB.

a. Agree
b. Disagree

APPENDIX III

Self administered Questionnaire for General Health worker

Code No: _____

Date ……

Name of Respondent .....……Sex…Age…

Marital status Singl.…Married….Divorced…..Widowed.....

Designation M/O….Nurse….CHO….SCHEW…...JCHEW…..

Duration of work at Facility …… years

Name of Facility ……

Dear Respondent

We are conducting a study on Integrating TB/HIV control program into PHC in Niger State in managing people suspected of having Tuberculosis (TB) and Human Immunodeficiency Virus (HIV) at Primary Health Care Facilities.

The information you shall give shall be treated with absolute confidentiality and will be used for the purpose of this work only. It will be used in proposing appropriate interventions for the strengthening of implementation of TB/HIV services in the Primary Health Care Facilities.

Your anonymity will be maintained and your willingness to answer these questions is highly appreciated please.

Thank you.

INSTRUCTION: Circle/Tick the most appropriate answer.

Q1. Number of GHCWs in this Facility ……

Q2. Are you aware of National TB/Leprosy Control Program Yes
No

Q3. Are you aware of National Guidelines for TB treatment Yes
No

Q4. Is TB/HIV services offered in this facility? Yes
No

Q5. What is the cause of Tuberculosis (TB)?

a. don't know
b. evil spirits
c. mycobacterium tuberculosis
d. HIV virus
e. worms

Q6. How does TB spread?

a. don't know
b. not sleeping under mosquito nets
c. shaking hands with people infected with TB
d. Caring for HIV infected people
e. inhaling air-droplets containing TB

Q7. What is the commonest symptom of TB?

a. diarrheal stools for more than 3 weeks
b. loss of appetite for more than 3 weeks
c. lack of sleep for more than 3 weeks

d. cough for more than 3 weeks

e. excessive urination for more than 3 weeks

Q8. Diagnosis of a TB patient is by?

a. don't know

b. testing 3 samples (urine, sputum, stool)

c. testing 3 parameters (weight, height, Age)

d. testing 3 sputum samples (spot, early morning, spot)

e. testing 3 sputum samples (early morning, spot, early morning)

Q9. How long is the treatment of A New TB Patient?

a) don't know
b) 2 months
c) 5 months
d) 8 months
e) 10 months

Q10. In the past Two (2) years, which training have you attended?

a. TB diagnosis and treatment only

b. HIV counseling only

c. HIV counseling and testing only

d. combined TB and HIV management

e. not attended any training on TB or HIV management

Q11. What care do you offer TB/HIV patients in this facility?

a. Refer to General Hospital
b. Health Education on TB and HIV infections
c. Do sputum AFB microscopy only
d. Offer HIV counseling and Testing only
e. Give anti-TB drugs only

Q12. Who supplies this facility with Drugs/Laboratory materials for TB/HIV Care?

a. State Government

b. Self Purchase

c. State TB/Leprosy control program

d. Non Governmental Organizations (NGOs)

e. No TB/HIV care in the facility

Q13. What conditions worsen TB/HIV situation?

a. Low awareness and knowledge about TB/HIV co-infection

b. discrimination and stigmatization by HCPs

c. Social and cultural barriers

Q14. What challenges do you encounter in integrating TB/HIV services into Primary Health Care facility?

1. Inadequate laboratory facilities
2. Inadequate medical supplies
3. Inadequate number/trained staff
4. lack of guidelines and communication between staff
5. weak supportive supervision/monitoring
6. Preference for traditional and alternative medication
7. No knowledge and facilities available for treatment.