

**SCHOOL OF PUBLIC HEALTH
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**AN EVALUATION OF THE INTENSIFIED TB CASE FINDING IN TEN SELECTED
HEALTH FACILITIES WITHIN THE GREATER ACCRA REGION**

**BY
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**A DISSERTATION SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH,
UNIVERSITY OF GHANA IN PARTIAL FULFILLMENT FOR THE AWARD OF
MASTER OF SCIENCE IN MONITORING AND EVALUATION DEGREE.**

JULY, 2019

DECLARATION

I declare that this dissertation is a result of my own work done under the supervision of Dr. Seth Kwaku Afagbedzi. Acknowledgement has been made to the work of others duly.

I also declare that this work has not been accepted for the award of another degree nor being submitted for the award of any other degree.

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DEDICATION

This study is dedicated to my husband and my lovely children Seyram, Eyram and Selorm for their love, patience and encouragement through this study period.

ACKNOWLEDGEMENT

I praise the almighty God for the strength and wisdom he gave me to complete this dissertation.

I will also like to express my profound gratitude to the following people for their great and continuous support:

Dr Seth Kwaku Afagbedzi for his constant guidance and support. I am much grateful sir.

All staff of the school of public health for their enormous help.

Mr. Kenneth Hayibor for his encouragement anytime I call on him.

The medical directors and health staffs of the facilities visited for their cooperation.

My family for their love and support throughout this period.

My colleagues and friends for their priceless contributions.

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ABSTRACT

Background

TB is one of the dominant and devastating infection that affects over a quarter of human population especially the poor and vulnerable. The disease is endemic in developing countries including Ghana. A lot more cases are being missed annually and passive case detection has not improved TB case detection. However, implementation of intensive TB case finding among others has been documented to detect more cases. Low case detection has been a precedence in Ghana's NTP's Health Sector Strategic Plan, 2009–2013. The devastating issue of little or no TB case detection has persisted over the years till the introduction of ICF in 2015 which became more functional in 2016. As a rejoinder to the problem, the ministry of health (MOH) and the Ghana Health Service (GHS), approved intensified TB case finding as a response to low TB case detection. Two years back before the commencement of ICF, WHO reported that Ghana detects only 33% of its TB cases (WHO, 2015) which was fine underneath the 47% of the African regional normal rate and the WHO projection of 70%. The aim of this study is to evaluate the Implementation of the intensive TB case finding intervention to promote TB case detection in public health facilities in Greater Accra region.

Methods

A cross sectional study was conducted among health workers within ten selected health facilities in Greater Accra Region. Questionnaire were administered to health workers to evaluate their knowledge and compliance level to the implementation process and in-depth interviews conducted amongst them to determine the challenges experienced in carrying out ICF. Records were reviewed from 2016 to 2018 three years after program intervention to determine TB cases detected within that period when the intervention was in progress.

Results

Results from the study showed that, 76% of care givers had moderate knowledge in ICF whiles 24% had high knowledge in ICF and none had low knowledge. The Greater Accra Regional Hospital had the highest number of suspected cases screened for TB whilst the Ga East Municipal Hospital had the least. Most of the facilities had high number of TB cases detected between the periods 2016 to 2018. Apart from Ga South Municipal Hospital and Achimota Government Hospital that had a normal increasing trend of TB cases detected, the rest of the facilities, experienced a decrease and an unsteady trend in the number of TB cases from 2016 to 2018. With regards to compliance, 28(56%) of the health staffs were complying with ICF whilst 22(44%) of the health staff were noncompliant to ICF. The level of compliance of the health workers were significantly associated with age ($p=0.026$), the cadre of the health personnel ($p<0.001$), and their level of knowledge ($p=0.013$).

Conclusion

More than half of health workers are compliant to ICF protocol. Majority of health facilities compliant to ICF, are hospitals. Some of the facilities experienced increasing trends of TB cases detected whiles others experienced an unsteady trend.

LIST OF ABBREVIATIONS

ACF	Active Case-Finding
AFBs	Acid Fast Bacilli
CDC	Center for Disease Control
CHPs	Community based Health Planning and Services
CIDA	Canadian International Development Agency
DOT	Direct Observed Treatment short course
HIV	Human Immune Papilloma Virus
ICF	Intensive Case-Finding
MDR	Multiple Drug Resistance
MTB	Mycobacteria Tuberculosis
NTP	National tuberculosis Program
OPD	Out Patient Department
PLHIV	People Living with HIV
PTB	Pulmonary Tuberculosis
RIF	Rifampicin
TB	Tuberculosis
WHO	World Health Organization
PPM	Public Private Mix
HSS	Health System Strengthening
PHC	Primary Health Care

DEFINITION OF TERMS

- **Intensified TB Case-Finding:** Intensified TB case-finding is an activity recommended by the World Health Organization (WHO) intended to detect possible TB cases as early as possible among people living with HIV usually by using a simple questionnaire for the signs and symptoms of TB.
- **TB case notification:** This is referred to as the number of new and relapse TB cases notified in a given year per 100,000 population.
- **Notification:** The term refers to TB diagnosed in a patient and reported within the national Surveillance system, then to WHO.
- **TB case detection rate:** Ratio of newly notified TB cases (including relapses to estimated incident cases and case detection of all forms).

CHAPTER ONE

INTRODUCTION

1.1 Background

To guarantee prompt finding of tuberculosis (TB) cases, Intensive TB Case Finding (ICF) is one of the main key elements among other strategies used in the End TB Strategy (WHO, 2013). The World Health Organization projected that, in 2015, 10.4 million new cases of tuberculosis will occur worldwide and 1.8 million deaths related to tuberculosis would occur (WHO, 2016). Unnoticed dynamic Tuberculosis cases, and also a group of people having latent TB contamination constitute one third of the entire population, and further pose as a transmittable medium capable of increasing TB infection, modelling a great challenge to TB eradication by 2020 (WHO, 2016). Detection of TB cases mostly depends mainly on one's ability to identify suspected patients with TB symptoms to willingly report to the hospital for proper diagnosis. The criterion for identifying suspected TB cases that will be examined for TB is usually, a history of two or extra weeks of cough, TB indicative signs inclusive or non-inclusive. Moreover, complying with this process may be hindered by reasons including health personnel's factors and health system factors. The health worker factors may include; knowledge and compliance to the identification of suggestive symptoms and following the procedure for screening using the screening tool and to further test for TB. The health system factor may also include; the availability of screening tools, a functional laboratory and adequate number of staffs. Quite a number of people do not exhibit symptoms that will draw attention to lead to one being tested for TB. These cases are often undiagnosed and we tend to miss them creating the risk of having low treatment outcomes, fitness sequelae and progressive spread of tuberculosis in our clinics, hospital and the overall populace (Den, Verver, Lombard, Bateman, Irusen, Enarson, Bergdorf, 2008 & Beyers, 2010).

Delay in diagnosis and low TB case notification is a problem which shows the need to examine more interventions that will cause a rise in tuberculosis case finding. While carrying out the interventions, it is vital we have a target of the risk group and a cost-effective process. More importantly, the possible outcome of TB cases must be deliberated upon. The advantages and the disadvantages and also the viability and charges (WHO, 2013).

HIV clinics are rated high among the locations for enlarged output of tuberculosis conditions considering the increased potential of TB among people with HIV (Golub, Mohan, Comstock, Chaisson, Kranzer, Houben, Glynn, Bekker, Wood, 2013 & Lawn SD, 2010). Likewise, revisions amid diabetics have revealed the danger of contracting TB is on the increase amid people with diabetes as liken to non-diabetics (Jeon, Murray, Dooley, 2009 & Chaisson, 2011). Information from quite a lot of studies done in low and middle income countries has revealed that contacts of people having tuberculosis are also a risk group presented collective incidence of 3.1% active TB in their entire associates (Fox, Barry, Britton & Marks, 2013).

Patients waiting and sitting area, example, the Outpatient Departments (OPD) of Clinics, Hospitals and Health Centers were very favorable environments for conducting TB symptoms assessment (Golub et al, 2013). All Patients presenting themselves at the clinics, hospitals and health centers OPD constitute a “captive audience”, and they must all undergo TB symptom-based screening to avoid missing suspected TB cases.

In 2013, a tuberculosis prevalence survey conducted by the Ghana National Tuberculosis Programme showed 176 incident cases per a 100,000 people. This was quite higher than what the World Health Organization (WHO) had estimated as 92 per 100,000 people (Ghana health news, 2015). The results reveals that, there were many more TB cases that were than estimated previously.

1.2. Problem Statement

Tuberculosis (TB) is a prevalent and devastating pulmonary (PTB) infection globally. Tuberculosis (TB) still stands as a key public health issue in Ghana. In 2011, 20, 000 people were projected to have been infected with TB, of which, 22% of this populace were undetected and not notified. Death rates from TB is persistently on the increase, about 7.5 per 100 000 people. There is generally low case detection and this was a precedence in Ghana's NTP's Health Sector Strategic Plan, 2009–2013. The devastating issue of little or no TB case detection continued over so many years till the introduction of ICF in 2015. As a rejoinder to the problem, the ministry of health (MOH) and the Ghana Health Service (GHS), approved intensified TB case finding as a response to low TB case detection. Two years back before the commencement of ICF, WHO reported that Ghana detects only 33% of its TB cases (WHO, 2015) which was fine underneath the 47% of the African regional normal rate and the WHO projection of 70%. Three years after the implementation of the intervention, there has been no considerable increase in TB case detection. Health workers noncompliance to the new policy directive on the use of ICF guidelines has been cited; as the main reason for low TB case detection in Ghana. Hence, this study seeks to evaluate the compliance level of ICF among health practitioners.

1.3 Conceptual Framework

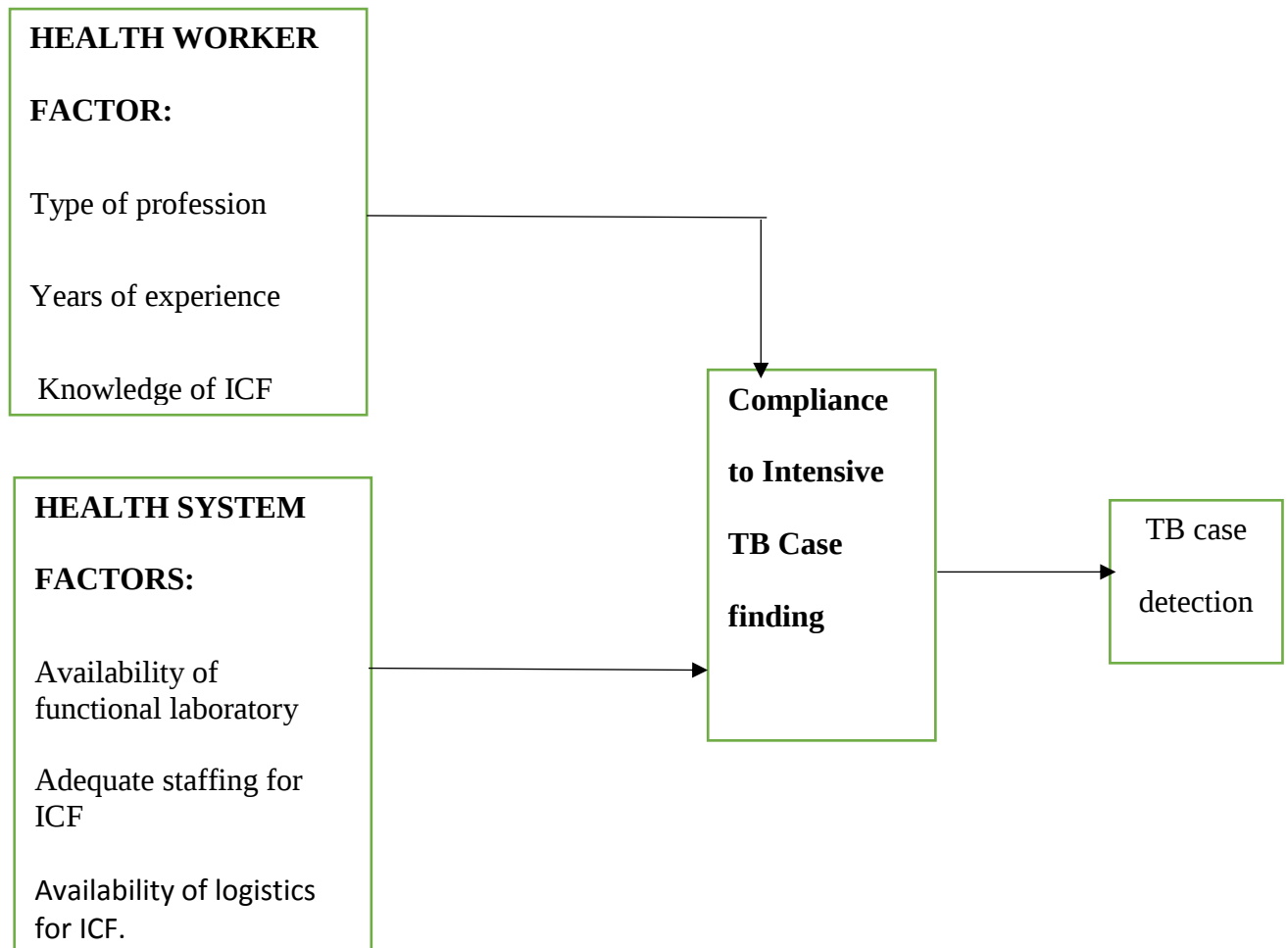


Figure 1.1: Conceptual Framework on Health worker/ health facility compliance to Intensive TB Case Finding.

Narrative on Conceptual Framework

Figure 1; present an illustration of factors that influence compliance to intensive TB case finding in the health facilities. Health system factors and health worker factors are the major factors that influence compliance to ICF implementation. Trained health care givers on the ICF, will enhance the ability of the care giver to identify patients with symptoms such as cough and probe further to screen patient for TB. Availability of logistics such as the screening tool and functional laboratory will help screen and determine TB status of patients. Availability of enough trained personnel will facilitate the effective use of the tool and follow patient through the procedure so that patient can end up in the lab where his or her TB status will be determined.

All these factors will either increase or decrease the percentage of patients assessed for TB and also further determination of TB case detection rate among facilities.

1.4. Research Objectives

The main objective of this study seeks to evaluate the implementation of intensive TB case-finding among selected health facilities in Greater Accra. However, this study was guided by four specific objectives. These are as follows:

1. To examine the knowledge level amongst health workers on ICF.
2. To determine the proportion of TB cases detected by each of facility.
3. To determine the proportion of health workers compliance to ICF protocol.
4. To determine challenges associated with implementation of ICF.
5. To ascertain the association between health worker demographics and level of compliance.

1.5 Justification of the Study

The National TB Control Program, the Ghana Health Service and the Ministry of Health have taken a lot of steps including the WHO-CIDA initiative to increase case detection rates especially in Greater Accra region with a specific aim of addressing little TB case finding in the country. Although there has been some marginal increase in TB case finding amongst some health facilities in the Greater Accra Region, however, our case detection rate has generally not met the Africa region target and the WHO target respectively.

This study will therefore offer data on number of facilities still practicing the intervention at the OPDs and implementing it well. This information can also serve as a checklist for the TB control program to target monitoring and supervision activities towards health facilities not implementing TB case detection interventions. Information from this study, on the yields of the TB case detection implementation will help the national TB and the Ghana health service

to access the progress of this intervention and provide the necessary measures to strengthen the operation of intensive TB case finding that in turn increase TB case detection rate.

CHAPTER TWO

LITERATURE REVIEW

2.0 Global Overview of TB

Globally, tuberculosis (TB) has been a significant health problem and is currently classified together with human immunodeficiency virus (HIV) as a top source of mortality with 4,400 victims every single day (WHO, 2016). Asia and Sub-Saharan Africa documented high incidence of TB and deaths relating to TB by an estimation of 9.6 million new cases of tuberculosis and 1.5 million mortalities in 2014, (WHO, 2016). In comparison to the 2014 estimates, the worldwide total deaths related to TB is considerably high. The sub-Saharan Africa was mentioned to have 28% of the whole world's cases and has about 281 new cases per 100,000 populace on the average (WHO, 2016). In 2014, a total proportion of 1.2 million new HIV positive TB cases (12% of all TB cases) was estimated. One third of these cases was found in the African Region (WHO, 2013). Evaluations of waning in incidence of tuberculosis in the year 2000 range from a lower than 1% p yearly to around 1·5% per year with disparities in both nation and region (Murray et al., 2014).

TB still remains a huge problem as multidrug-resistant (MDR) TB is still a severe danger (Wright et al., 2013) and HIV epidemic keeps on increasing, mainly in the Africa Region (WHO, 2013). Among PLHIV, TB is a severely common deadly opportunistic infection, more so amongst people taking antiretroviral therapy, and the leading cause of death. There has been intense increase in TB case rates since 1990 in parts of the world where HIV and TB epidemics overlap. Almost a third of PLHIV globally may be co-infected with Mycobacterium TB and are mostly found within the sub-Saharan Africa (WHO, 2013).

Ethiopia, an African nation has noticed and managed about 1·5 million cases of tuberculosis over 20 years now. TB death and occurrence has been quiet low by half since 1990 (deaths worldwide, reduced by 45% and occurrence by 41% at the same) (WHO, 2016). Ethiopia's

firm pledge to switch efforts has signaled authorities to advocate that Ethiopia could serve as a classical country (WHO, 2016). National tuberculosis programs across the world, have become peaceful into the post-2015 agenda. The End TB Strategy, which intends to run till 2030, forecasts a general health reporting and social defense, with aspiring objectives for reducing mortality by a 90% and incident cases by 80% (Uplekar et al., 2015). Ghana had a projected TB occurrence of 282 (111-530) per a 100 000 populace in 2014 and a TB incidence rate of 165 (80-281) per 100,000 population (WHO, 2016). In most parts of the continent, treatment success rates are still lower than target due to increase in mortality and lost to follow rates (Lönnroth et al., 2010). The TB death rate in Ghana is considerably high at about 7.5 per 100 000 (WHO, 2016).

Early case detection is a substantial support of global tuberculosis (TB) control (Raviglione, 2007). Low case detection has been reported in the African region (WHO, 2010). In 2012, A third of all TB instances globally were estimated to have been missed by national tuberculosis programs (NTPs) (WHO, 2013a). Studies indicate that most of them are not identified or the cases were not notified from South East Asia and Africa (Lönnroth, Jaramillo, Williams, Dye, 2010).

Arresting TB transmission within our communities is the primary goal of most TB control programs. Achieving this daunting aim takes substantial Time, because most people are already infected in endemic regions, creating a medium which constantly contributes to the collection of instances of infection. An efficient and successful TB control program needs early and instant diagnosis and start of therapy for TB patients.

Lateness in diagnosis is important with respect to TB Community transmission and the rate of transmission spread of the Tuberculosis epidemic (Bjune, 2011). Delayed diagnosis can lead to more complications thus more, Wide-ranging disease and increased mortality (Ward,

Marciniuk, Pahwa, & Hoepfner, 2010). This delay in diagnosis also this may result to a longer span of increased period of infectivity In the local community (Lawn, Afful, & Acheampong, 2010). The severity of the illness, Health services access, individual's perception of the disease, and Health personnel's knowledge are among various factors identified as influencing delay in diagnosis (Lienhardt et al., 2001). It was found in Ethiopia that early presentation to health facilities for health services causes delay rather than suspicion of TB because TB symptoms are so common in most societies (Yimer, Bjune, & Alene, 2005).

2.1 TB Case Detection

Tuberculosis prevalence surveys (WHO, 2013c) have revealed that more than half of those with bacteriologically confirmed tuberculosis do not report the symptoms that often prompt disease investigation (i.e. cough lasting 2–3 weeks). WHO (2013a) reported that more than 3 million tuberculosis cases worldwide were undiagnosed or were not notified and continue to transmit the disease in their families and communities.

In low income and middle-income countries with high burden of TB, most TB programs have adopted policies that rely on passive case-finding, that is, waiting for the sick to seek care if they are able (Keshavjee, Dowdy, & Swaminathan, 2015). Also, high risk populations who present to the hospitals for other ailments are not actively screened for tuberculosis and same for household contacts of patients with TB leading to low TB case detection. Most known contacts receive no post-exposure therapy, a standard intervention in most high-income settings. Delays in diagnosis through passive case detection has been associated with both patient and provider-related factors (Sreeramareddy, Panduru, Menten, & Van den Ende, 2009; Storla, Yimer, & Bjune, 2008). However, this approach does not seem to produce much results as the yearly rate of reduction of TB occurrence worldwide has been more or less only 1.5% since year 2000 (WHO, 2015).

Over-reliance on standardized TB therapy and sputum smear microscopy which is a low-sensitivity visual diagnostic test that aren't able to confirm drug resistance, has isolated persons whose illnesses are characterized by a reduced TB bacillary load, such as children and persons that suffer HIV and diabetes, and also those with extra pulmonary or drug-resistant tuberculosis (Keshavjee & Farmer, 2012). Other better choices are however, becoming available, with the ability to give considerable enhancements in test attributes (Pai & Schito, 2015).

The inception of the Xpert MTB/RIF test, which is of a higher sensitivity than sputum smear microscopy, leading to 45% surge in case detection in patients who are infected with HIV, is a significant advance in TB diagnosis (Lawn et al., 2012). The implementation of Xpert proved the advantages of good case detection with new tests and points out the difficulties in bringing up new technologies in a very weak health systems that have poor service coverage and access (Creswell et al., 2014).

Prompt detection and treatment of all active disease and dormant latent infection, along with efforts to cut down the spread in health-care and mass settings, have been lately recommended for some groups in limited settings, but is yet to be widely scaled up (McMillan, 2015). The goals put out in both the Stop TB Partnership's Global Plan to Stop TB 2016–2020 (Stop TB Partnership, 2015) and WHO's End TB Strategy (Uplekar et al., 2015) will require a comprehensive approach in identifying and treating all cases of TB, whether latent or active. Increase in complications, mortality and worsening disease have been found to be the end result of delayed diagnosis of tuberculosis (Ward et al., 2004). It as well ends up in an increased period of contamination in the community (Lawn et al., 1998). The intensity of the disease, access to health services, individual's view of the disease, and the know-how of the health personnel are part of the various aspects recognized as causing delay in diagnosis (Lienhardt et al., 2001).

Currently, in Ghana, Gene Xpert for mycobacterium tuberculosis have been introduced to enhance TB case detection.

Due to limitations of the current approach of passive case finding, there was a need to redefine this approach and active case finding was suggested as a new approach to accelerate tuberculosis control (Golub et al., 2005; Lönnroth et al., 2010). Active case-finding (ACF) is an exceptional kind of approach where the health system makes efforts to identify TB patients amidst persons who do not find care owing to TB symptoms (Golub et al., 2005). Various intensified tuberculosis case-finding activities are being promoted globally in order to carry out this new approach of active case finding sometimes involving mass radiological screening (Golub et al., 2005). Advantages of ACF over routine passive case-finding has been realized and as such been documented in many studies looking at both approaches. ACF has also been documented to detect a considerable number of undiagnosed TB patients much earlier than passive case finding (den Boon et al., 2008; Eang et al., 2012).

Subsequently, active case finding also helps to reduce TB spread by reducing the length of infectivity as patients are identified early (Golub et al., 2005). ACF aims to decrease barriers for prompt TB case detection, involving delay in coming to a health facility, delay detection of individuals as presumptive TB case, and prompt detection and later treatment.

Although ACF serves as an apparatus that will advance and hasten TB diagnosis, following treatment and cure must also be guaranteed at the various treatment points or centers as the active case detection activities are carried out so that ACF will be effective and have an effect on TB spread in the community (Corbett et al., 2010). Although there is a budding interest in using this ACF method for prompt and early case detection in developing countries (Golub et al., 2005), it is not well understood how best to relate and assimilate ACF in the existing health systems in different epidemiologic, socioeconomic, and cultural contexts (Golub et al., 2005; Lönnroth et al., 2013).

2.2 TB Case Detection in Ghana

It has been reported by the WHO that Ghana detects only 33% of its TB cases (WHO, 2015). Our case detection rate which is well below the African regional average rate of 47% and the WHO target of 70%. This reduced TB case detection rate is one out of the key problems troubling TB control in Ghana. The National TB Programme and Ghana Health Service identified reasons for this low TB detection rate and broadly categorize the reasons into three factors. These are:

1. Factors associated to health system unable to identify TB suspects and patients notifying the health care facilities.
2. factors related to compliance to ICF policy and
3. Factors associated to knowledge, attitude and practice of the health workers..

Since 2009, many steps have been taken by the national TB Programme and the Ghana Health service to address these challenges identified. Some of the steps include the development of standard operating procedures in March, 2010 to ensure optimization and standardization of activities involving TB case detection in all categories of health facilities including communities. Another step was the collaboration between the Ghana national TB Programme and the WHO-CIDA (Canadian International Development Agency) Initiative, where Ghana was part of five selected high TB incidence countries in implementing detailed methods that added to not only growing TB case detection in locations that were useful, and the whole country. Accra was the focus for the WHO-CIDA initiative.

TB is both curable and preventable and therefore the need to increase case detection and initiate prompt treatment to save lives. The Ghana Health Service and the National TB control Programme have taken several steps including the implementation of the WHO-CIDA TB case detection involvements initiative to increase case detection rates especially in Greater Accra

Region. However, no research has been conducted to assess if these TB case detection intervention measures are really being implemented in various public health facilities in the country in order to increase TB case detections.

2.3 Description of TB Case Interventions

Aside the Ministry of health coming up with some interventions, a comprehensive integrated package of interventions was implemented in health facilities in the Accra Metropolis by the NTP in collaboration with WHO-CIDA to increase TB Case detection. Kumasi Metropolis was used to serve as a comparator. Both Metropolis shared similar profile in populations, human resource for health ability, health infrastructure and, economic actions. TB Control in both metropolitan areas was similar as well. A number of targeted interventions were implemented in a package manner to address the gap of low TB case detection.

First, improving contact tracing and investigations in households of index pulmonary TB cases. Household contact tracing and investigations are considered an important method to Augment TB case detection. These help to increase TB case-detection rates and to attempt to interrupt the transmission of TB disease (Morrison, Pai, Hopewell, 2008; Thind, Charalambous, Tongman, Churchyard, & Grant, 2012). Contact tracing remains an effective approach which plays a significant role in reducing number of new cases, provided it is implemented in combination with other case detection strategies (Kasaie, Andrews, Kelton & Dowdy, 2014). Household contact tracing especially TB active case finding among first degree relatives of TB patients in low-income settings have been found to be feasible and yielded results (Cheng et al., 2015).

Furthermore, engagement of contact tracing activities enables health professionals to detect cases of TB without unnecessary delay and facilitates prompt initiation of treatment so that the subsequent chain of transmission can be interrupted (Jurcev-Savicević, 2011). There are

evidence to reflect the benefits of implementing contact tracing in enhancing diagnosis of both pulmonary and non-pulmonary TB and early detection of drug resistant form of TB (Begun, Newall, Marks, & Wood, 2013; Jurcev-Savicević, 2011).

Secondly, involving community pharmacy shops and chemical sellers to improve TB case detection. Pharmacies and small neighborhood shops that sell medicines informally are often thought of as hindrances to TB control. This is because they often dispense some form of treatment to possible TB patients and sometimes provide mono-therapies, or insufficient dosages that contribute to the rise of multi-drug resistance (van den Boogaard et al., 2010). However, several achievements have been made in some other states where referrals from pharmacies had enhanced TB control.

2.4 Intensified TB Case Finding

Case-finding of intensive TB may be passive or active. Passive case-finding needs that people impacted are conscious of their symptoms, have access to health equipment, and are assessed by health employees or volunteers who acknowledge TB symptoms and have access to a reliable laboratory. In health centers, patients with TB-compatible symptoms are generally recognized, and all health employees and volunteers should be conscious of TB symptoms and how to continue if TB is suspected. The conditions in which a patient must be evaluated for possibly drug-resistant TB should also be known to health employees. The conditions in which a patient must be evaluated for possibly drug-resistant TB should also be known to health employees.

Active case-finding needs systematic screening and clinical assessment of individuals at high danger of developing TB, such as those who are contacts with someone who has been diagnosed with TB or individuals residing with HIV. This is assumed by using active case-finding groups at high risk for TB are clearly defined,

- i. Procedures are well created for screening and evaluating people belonging to these category and
- ii. It has been obviously recognized health experts and community employees who should be engaged in the implementation of these processes.

2.4.1 Knowledge on the Comprehensive Implementation of Existing Diagnostic Algorithm

It is important for every employees in every area of the health scheme be prompt and understand how to enquire from patients about symptoms of TB and refer to the rules in diagnosing TB. This involves training (pre- and in-service) from every government and private health givers suppliers. Adequate training on ICF and its constitutes leave the health worker with the requisite knowledge to practice ICF effectively. All health facilities and all level of health staffs including private health facilities must be involved in the training. Restricting trainings solely to NTP-affiliated centers, or particular employees designated solely misses for tuberculosis, misses a chance identify all of these instances seeking Treatment elsewhere in the system. Vigorously enquiring for cough from All main health outpatients centers And hospitals (including clinics and those not spontaneously mentioning cough) may produce significant extra numbers of instances (Baily, Savic, Gothi, Naidu, Nair 2010 & Alouch, Swai, Edwards, et all 2014 & Sanchez, Herman, Hernandez-Diaz, Jansa, Halperin, Ascherio, 2012).Expanding screening methods can also imply Includes non-health care workers As surveyors of symptoms, like clerks in the outpatient department who can ask all participants a straightforward question about cough And send diagnostic tests to qualified patients immediately.

2.4.2 TB case-finding in high-risk groups

And send skilled patient's diagnostic tests of individuals with a considerably new or old TB cases is higher than in the general population. A risk group may be a group of individuals I who share A particular risk outline at the individual level, For example, living with diabetes or

a smoker; (ii) residing at a particular region of TB prevalence, e.g. Bad neighborhoods or large city shantytowns;

The increasing danger of TB incidence compared to the general population varies considerably through risk groups; for example, the danger of TB may be 10 times greater among inmates as for the general population, while it is generally two to three times greater in diabetes and individuals using tobacco. Risk group outlines for each nation is obviously described. Clear policies need to be defined and enforced in order to recognize and handle TB in these risk groups.

2.4.3 Compliance to ICF Policy

TB is both curable and preventable and therefore the need to increase case detection and initiate prompt treatment to save lives. Over-reliance on standardized TB therapy and sputum smear microscopy which is a reduced-sensitivity plain diagnostic test that aren't able to confirm drug resistance, has isolated persons whose illnesses are characterized by a reduced TB bacillary load, more with children and persons that suffer HIV and diabetes, as those with extra pulmonary or drug-resistant TB (Keshavjee & Farmer, 2012). Health workers must be involved by complying with the identifying Patients with signs well-matched with TB are frequently known in health institutions, and every health care giver and agrees must be mindful of the signs with TB, and when to progress if TB is supposed. Health care givers must be sensitized of the conditions in which a patient is examined for possibly drug-resistant TB.

Before the inception of intensive TB case finding in about 118 districts and their implementing facilities, finding of suspected cases was being done passively without any guiding methods. The inception of ICF saw the coming of implementing guidelines for Effectiveness. Guidelines on how to enhance access for these communities were created for NTPs (WHO, 2008). NTP

alone can pursue most activities, such as extra regionalization of health care provision, outdoor events, oversimplification of diagnostic procedures, and improved patient interaction.

The compliance of all category of health staffs in the implementation of ICF is much needful since it will improve the intervention and improve case detection as well. Most operations, however, must be carried out of compliance of health workers involved with enhancing overall well-being schemes (WHO, 2008), as with public people and communal protestors involved with improving wellbeing facilities for the deprived and defenseless (WHO, 2010 & Stop TB Partnership, 2007). The guidelines provide a step-by-step strategy including: assessment of particular obstacles to access and particular defenseless groups ; expansion of evaluation -based measures ; nurturing funds for intervention in and out of National Tuberculosis and the Health industry ; tracking the assessment of these methods (WHO, 2008). Right now, small number of NTPs acquire enough data in evaluating the categories are missed. Such evaluation pointers besides tools are under growth (Simwaka, Benson, Salaniponi, Theobald, Squire & Kemp, 2007).

2.4.4 Engaging All Health Care Providers

A broad variety of government and private care givers are used by people with TB symptoms. In many elevated TB burden nations, a private care givers (private physicians and hospitals, private pharmacies or casual private suppliers) is the first point of contact for most individuals with TB, including the poor. For instance, the percentage of patients who first switched to a personal care givers in Vietnam was 50% (Lönnroth, Thuong, Linh & Diwan, 2016), 75% in India 4156, and 96% in Myanmar (Lönnroth, Tin-Aung, Win-Maung, Kluge, Uplekar, 2007). And only small differences existed amongst the deprived and the affluent. These care givers generally participate to a very restricted extent in official domestic TB control attempts, they rarely comply with global norms, and generally do not notify NTP of TB instances. In many nations, particularly in the hospital industry, a comparable issue occurs in areas of the public

healthcare industry. Although NTP can totally incorporate into primary health care, government clinics, health schools, different well-being facilities associated with health insurance, and health institutions be appropriate to armed forces different wellbeing services, prison system, police, etc.

All private and public suppliers consulting individuals having TB signs, diagnosing before treating domestic engagement must be employed to ensure prompt TB detection, adequate therapy, and complete report of cases with TB instances. Rules involving care givers have been created through different approaches (WHO). These strategies are founded on literatures from more than 40 projects in over 20 nations. Wide range of operative study on creativities pointing different care givers. (Lönnroth, Uplekar, Blanc, 2016) This study demonstrates that all kinds of care givers can be involved productively to raise case detection (DOTS / ISTC therapy registration) before intensity of case detection and after ICF.

TB knowledge, TB symptoms, and TB care facilities is high in the society, according to Baily et al 2010, this will assist guarantee that individuals overlook no TB manifestation and suitable action taken early and shift to correctly among care institution (WHO, 2012). Understanding isn't adequate in itself. individuals must understand the services offered give to some degree precious to ensure that the availability of TB facilities are in expensive because of the dishonor connected with such illness. (Dye, Garnett, Sleeman & Williams, 2012; WHO, 2008). A good understanding of present information and attitudes should be based on any interactive approach. The active involvement of members of the community and elite society is therefore crucial in implementing efficient policy. In Indonesia, communal instruction (a wider community-based tuberculosis program) and connected showing triple increase in case detection, in control fields there was only a very small rise (13 percent) in the same era (Beck-Bleumink, Wibowo, Apriani, Vrakking, 2010). Providing high-quality, accessible and affordable services is a strong way to boost usage. The health seeking of peoples is largely

affected by their family, local community and peers' experiences and attitudes. Tostmann, Kik, Kalisvaart, Sebek, Verver, Boeree, van Soolingen (2012) claimed that adding to the overall Health System Strengthening (HSS) Most TB control programs are entirely incorporated into basic health care with regard to diagnosis and management of TB. Efficiency depends on overall health system presentation. Guidelines for how NTPs can contribute effectively to HSS have been created (Weiss, Sommerfield, Uplekar, 2008). TB. There is no single key intervention that all NTPs need to pursue. NTPs must evaluate their interventions to identify their weaknesses and strengths in the health structure, and help with scaling up of programs. Shareholders in health scheme in order to enhance case detection and overall program efficiency. The reinforcement strategy of the WHO health systems (WHO, 2015) recognition of health organizations construction blocks of leadership / governance, funding, health facilities, health workforce, health information, and medical products that is helpful in assessment. Particular legislative action assist in enhancement of the finding of instances of laws mandatory for reporting instances of tuberculosis. Adequate funds are available to implementing guidelines, amount formally accounted for TB instances can be significantly improved, which has been experienced lately in China (Wang, Liu, Chin, 2010)

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design

This descriptive cross-sectional study employed a semi-structured questionnaire and data abstraction form. There was retrospective review of records of cases from intensive case finding processes from the various OPDs record, laboratories and institutional registers from 2016 to 2018 to ascertain the TB case detection rate of the facilities. The semi-structured questionnaire was used to collect data on health personnel background characteristics, level of knowledge on ICF, compliance to ICF and challenges with implementation of ICF in their facilities.

3.2 Study Area

The study was carried out in ten selected health facilities that practice intensive TB case-finding in the Greater Accra region. The Greater Accra region possess the smallest area of Ghana's 16 administrative regions, occupying a total land surface of 3,245 square kilometers or 1.4% of the total land surface area of Ghana. The second most populated region with a projected population of over 4 million estimated in 2019 in Ghana.

In terms of health facilities, there are both private and public health facilities in the region. For the public health facilities, the region has 1 teaching hospital, 72 hospitals, 270 clinics, 11 polyclinics, 125 community-based health planning and services (CHPs), 21 health centers and 81 midwifery/ maternity homes. The clinics, polyclinics and hospitals have been equipped with more resources in order to provide services for people referred to their end as well as walk in cases. These facilities are located within each district in the region and each facility is usually headed by a medical superintendent who reports to the district directors who also then report to the Regional Director. They provide medical, surgical, pediatric, obstetrical and genealogical

services to the people in the districts. These facilities also refer patients requiring complex and intensive health services to the tertiary facility in the region when necessary.

3.3 Study Variables

The dependent variable is compliance to the implementation of intensive TB case-finding and improvement of TB cases detected in the various facilities. Compliance is defined as the ability of the health worker to follow every procedure in ICF. It is measured by a five-level Likert scale. The independent variables are as follows;

Table 3. 1: Operationalization of the variables

Variables	definition	How it is measured
Health worker:		
Type of profession	Category of health staff	categorical
Years of practice	Participants should have practice ICF for about a year.	continuous
Knowledge of ICF	Ability to identify suspects of TB Ability to screen client using the screening tool. Assist client to do further sputum test.	categorical
Dependent variable		
Compliance to ICF \\	Health worker compliance: A 75 % (45) composite score is compliance. Below 75% is noncompliance. Facility compliance: 75% of an aggregate score of health workers.	categorical

3.4 Indicators

INDICATORS	CALCULATION	SOURCE OF INFORMATION
Proportion of health care givers with high knowledge in ICF.	Numerator: number of health care participants with high knowledge in ICF. Denominator: total number of health care givers participating in the study.	Questionnaire.
Proportion of health care givers complying with ICF algorithm.	Numerator: number of health care givers following the algorithm in ICF amongst participants. Denominator: total number of health care givers participating in the study	Questionnaire
Proportion of patients screened using the screening tool.	Numerator: number of patients with cough screened with the screening tool. Denominator: Total number of OPD attendance	OPD registers.

3.5 Study Population

The study population involved ten selected health facilities in the Greater Accra Region, LA General Hospital, Ridge Hospital, Tema Polyclinic, Madina Polyclinic, Achimota government Hospital, Amasaman Government hospital, Taifa polyclinic, Ga South Municipal Hospital, Prampram Polyclinic and Lekma Hospital. Health workers in the mentioned facilities who practice ICF were involved in the study.

3.5.1 Data source

The study reviewed all records that were available on ICF in the facility records from the period 2016 to 2018.

Currently, there are twelve (12) facilities practicing intensive TB case finding in greater Accra Region. Ten of these 12 Health facilities implementing ICF were selected. Due to financial restraints, up to 5 health workers comprising of doctors, nurses, laboratory technicians, health assistants and task shifting officers who have been practicing ICF for about a year were selected as study participants. A total of 50 staffs, 5 from each facility were served with questionnaires and also interviewed.

3.5.2 Qualitative Interviews to Determine Challenges Associated With the Implementation

This study used a face –to – face in- depth interview to gather data from 50 health workers from 10 selected health facilities on experiences associated with ICF implementation. In order to allow participants to freely share their experiences and challenges, the interviews were conducted in a natural setting at the convenience of participants, to give them ease in sharing their personal experiences and challenges. On the average interviews under the study lasted for 15 minutes; however each interview was scheduled to last between 10-20 minutes. The interview guide was used to ask health workers about their experiences and challenges with the implementation process. All Interviews were recorded with permission to ensure participants perceptions are accurately captured and transcribed. Themes were created and analyzed manually.

3.5.3 Semi Structured Questionnaire to Determine the Proportion of Health Workers

Compliance

The semi structured questionnaire was used to gather information on how health workers follow the algorithm during ICF. The responses were scored and a composite score use to determine the proportion of health workers who are complying. In determining facility compliance level an aggregated score of all health workers within each facility was done. A composite score was also determined and used to ascertain facility compliance to ICF.

3.5.4 Semi Structured Questionnaire for Determining Health Worker Level Of

Knowledge.

Responses from the questions were scored and a composite score determined. A percentage of the total scores of each respondent was calculated. All health workers who scored 70% to 100% had high level of knowledge, 40% to 69% is moderate knowledge level and below 40% is low level of knowledge.

3.6 Data Collection Techniques/ Methods and Tools

Three methods were used in collecting data. These include:

1. A semi-structured questionnaire was used to collect data from health personnel background characteristics, level of knowledge and compliance to ICF.
2. A data abstraction form used to abstract data from facility records on the number of people seen at the OPD, total number of clients' screened, total number of clients presumed to have TB, total number of confirmed TB cases.
3. An interview guide was used to collect data on the experiences and challenges of the health workers practicing ICF.

3.7 Quality Control

The following measures were put in place to ensure that, the data collected is of quality: Research assistants were recruited and trained to assist in data collection for the study. Data collected was supervised by the researcher. Also, the Researcher took part in the record review and interviewed some of the health providers in order to cross check the work of the research assistants.

Each day, data was checked to ensure that all information was properly filled and errors and omissions identified were discussed with the research assistants. Research assistants made follow-ups and necessary corrections. Data was entered twice by two separate people and compared in order to ensure data was entered correctly.

The interview questions were pre-tested to ensure data collection tool is validated and research assistants are conversant with the tool before the actual data collection. Interviews were recorded and played to transcribe all information

3.8. Data Processing and Management

Data gathered from all questionnaires and checklists were stored in a personal computer. A password was used to secure the data to prevent access by unauthorized persons. Printed version of questionnaire that was used was stored in a secure locked cabinet and accessible to only the investigator and supervisors for the purposes of ensuring confidentiality. Data held on computers and flash drives was encrypted with a password which was made available only when needed. All data collected will be kept for a period of five years after the study, after which they will be destroyed.

3.9 Data Analysis

Data obtained from the study was entered into excel on a daily basis and imported onto STATA version 15 for statistical analysis. Descriptive statistic were done for all participants and were used to present the background characteristics of the respondents at the univariate level.

The level of knowledge of all participants on intensified TB case finding was determined by 12 questions. Participants with over 9 correctly answered questions were classified as having high knowledge, 8-5 as moderate knowledge and below 5 as low knowledge.

Total number of cases presented with cough screened with the screening tool, total number of presumed cases requested to do gene Xpert and total number of cases confirmed as TB in the facilities yearly were presented in graphs to determine the proportion of cases screened, proportion of presumed cases and proportion of confirmed TB cases. The annual proportion of TB cases detected by each facility were presented graphically to show the trend of tuberculosis cases detected over the years among facilities selected from 2016 to 2018.

There were twelve questions that were used to determine ICF compliance level of a health worker. Each question were measured on a Likert scale from 1-5 where 1 indicate a low score and 5 indicate a highest score. With a maximum score of 60 and a minimum score of 12. A score of 45-60 means the health worker has complied. In other words below 45-12 means the health worker has not complied

Health workers composite score on compliance to ICF were entered into stata version 15. First, a bivariate analysis, a chi square was used to determine factors significantly associated with the level of compliance. Logistic regression was used to determine the strength of the association. Statistical significance was set at a p-value <0.05 at a confidence interval of 95%.

3.9.1. Qualitative Data Analysis

The researcher used a tape recorder to record all the interviews. The audio recorded voices were transcribed using a Microsoft office word text. The data analysis involved reading through each of the interview transcripts line by line, coding and categorizing the data into thematic domains. This enabled the summary data to be manually sorted and gathered based on the two main themes. According to Creswell (2014), the impact of the qualitative research process is to aggregate data into small number of themes. The two main themes explored were; health

worker experiences with Intensive TB Case Finding (ICF) and health worker challenges with ICF. Codes were used to identify the interviewees.

3.10 Ethical Considerations

3.10.1 Ethics Review and Approval

The research protocol was submitted to the Ghana Health Service Ethical Review Committee for ethical clearance. And was ethically approved with a GHS-ERC number, 031/05/19 before data was collected. Permission was also obtained from the Greater Accra Regional Health Directorate and the hospital authorities.

3.10.2 Informed Consent Process

A study information sheet which explained the purpose of the study, the potential risks and benefits, how privacy and confidentiality will be maintained, and an emphasis that participation in the research is voluntary, was presented to potential participants. (See appendix A). Trained research assistants took participants through the consent process and only those who agreed to participate were asked to sign the consent form.

3.10.3 Risk and Benefit to Participants

The research posed minimal risks to participants and although there were no direct benefits to the participants, they contributed to generating knowledge that improve health policies and practices.

3.10.4 Privacy and Confidential

All the interviews were conducted in a secured room at the selected health facilities. Confidentiality was also maintained by keeping the data that were collected and kept all interview transcripts in pass worded computer. No names and personal identifiers of the participants were recorded or reported in the thesis. The data were accessible only to the researcher and supervisor.

3.10.5 Compensation

Participants did not receive any payments or compensation for participating in this research.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results of the study as analysed from the semi-structured questionnaire. It includes the background characteristics of the respondents, their level of knowledge, the number of patients screened and the number of TB cases detected. Also presented is the participants' compliance to the policy and the challenges that were observed and also reported by the respondents.

4.2 Background Characteristics of the Health Personnel

Table 4.1 shows the background characteristics of health personnel from the ten health facilities. In total, 50 health personnel, five from each facility responded to the questionnaires. Majority of the health personnel were in the age group 36 – 45, 27 (54%). Females were more than males (34 vs. 16). Majority of the personnel have completed their first degree, 29 (58%). Most of the personnel were nurses, 22 (44%). With regards to years of experience most of the personnel have more than five years of experience.

Table 4. 1: Background characteristics of health personnel

Variable	Frequency	Percentage %
Age group		
20 -35	18	36
36 – 45	27	54
46 -55	5	10
Sex		
Male	16	32
Female	34	68
Education status		
Diploma	12	24
Degree	29	58
Post graduate	9	18
Cadre		
Nurse	22	44
Doctor	5	10
Laboratory technician	12	24
Years of experience		
< 2years	10	20
2-5 years	15	30
>5 years	25	50

4.3 Level of Knowledge on ICF

Figure 4.1 below show the level of knowledge of the health personnel on ICF. None of the health personnel had a low level of knowledge. Thirty-eight (76%) of the personnel had a moderate knowledge on ICF while 12 (24%) had a high knowledge on ICF.

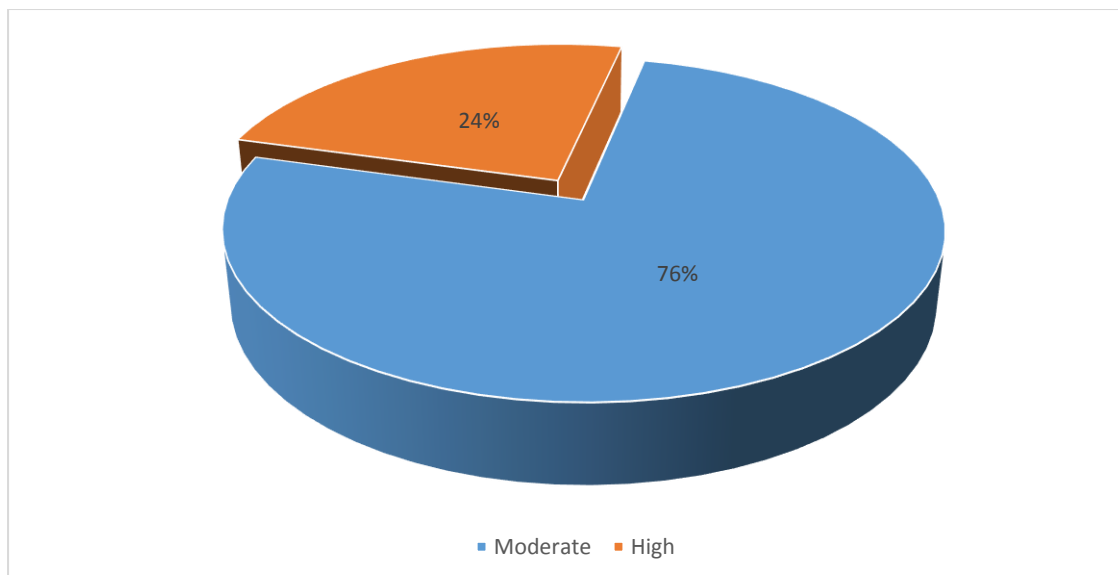


Figure 4.1: Level of knowledge on ICF

4.3.1 Number of Patients' Screened

Figure 4.2 shows the number of cases screened for TB at the various health facilities from the period 2016 to 2018. The records reviewed showed that the Greater Accra Regional Hospital recorded the highest number of patients screened for TB, 392302. The Ga East Municipal Hospital was the facility with the least number of OPD cases screened for TB, 1574.

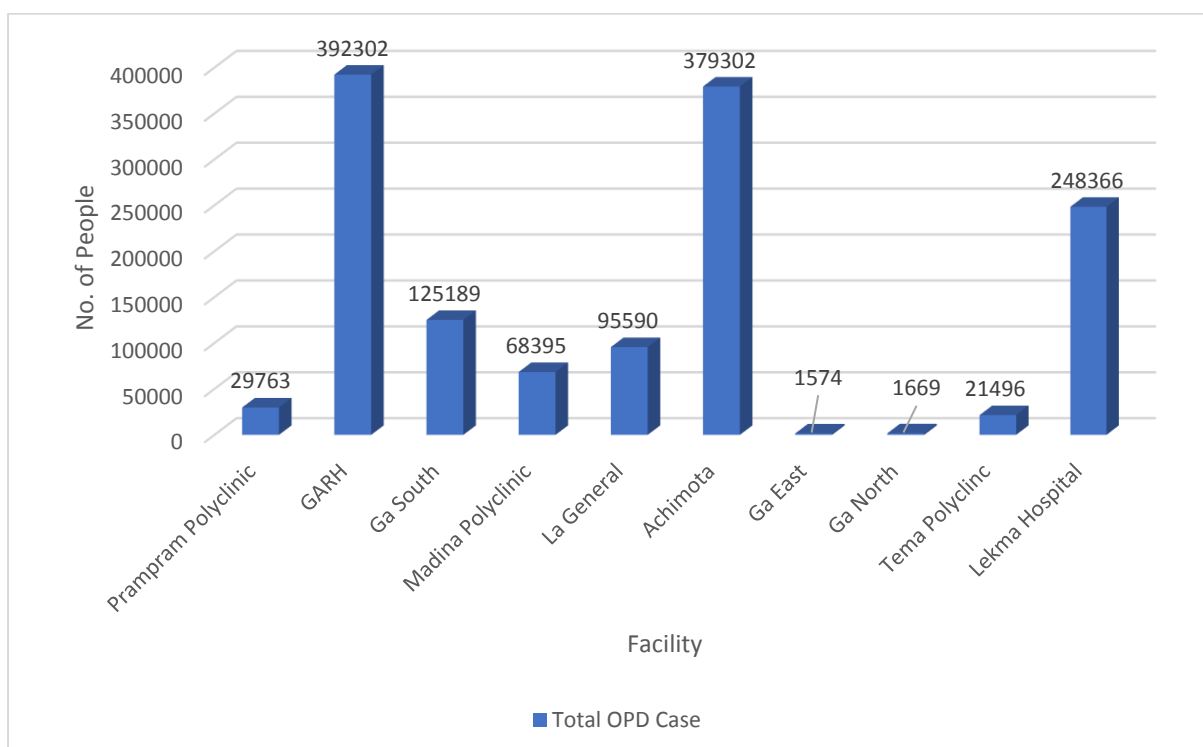


Figure 4. 2: Number of Patients' screened for TB in the health facilities, 2016 - 2018.

4.3.2 Presumptive Cases Tested for TB by Health Facility

Figure 4 3 shows the number of presumptive cases tested for TB in each of the study facilities by year. The year with the most number of presumptive TB cases was 2018 while 2016 was the year with the least number of presumptive TB cases for each of the facilities.

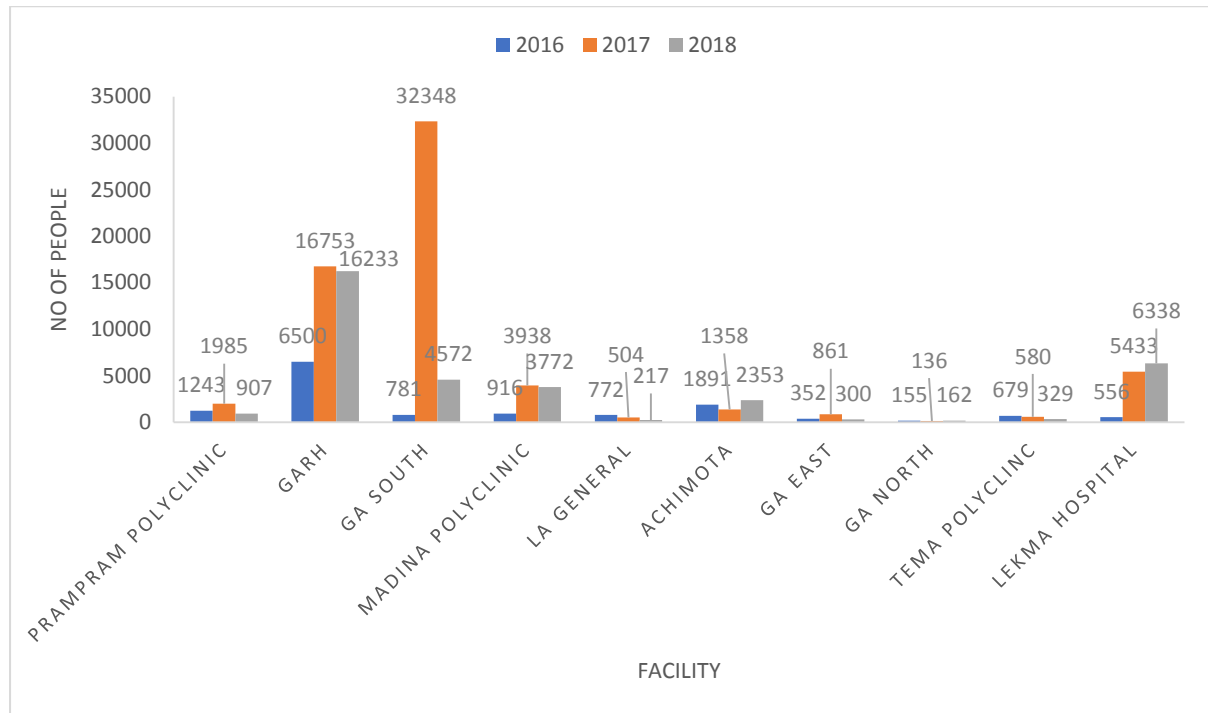


Figure 4. 3: Number of Presumptive cases tested for TB by health facilities

4.4 Trend of TB Cases Detected by ICF.

The number of TB cases detected at each facility within the study period is presented in Figure 4.4 below. In 2016 and 2017, the highest number of TB cases were in the Greater Accra Regional Hospital (GARH), 196 vs. 107 respectively. Facilities with increasing trend of case notification include Ga South and Ga East while Madina polyclinic and the GARH experience a decreasing trend. The rest of the facilities experienced unstable trends.

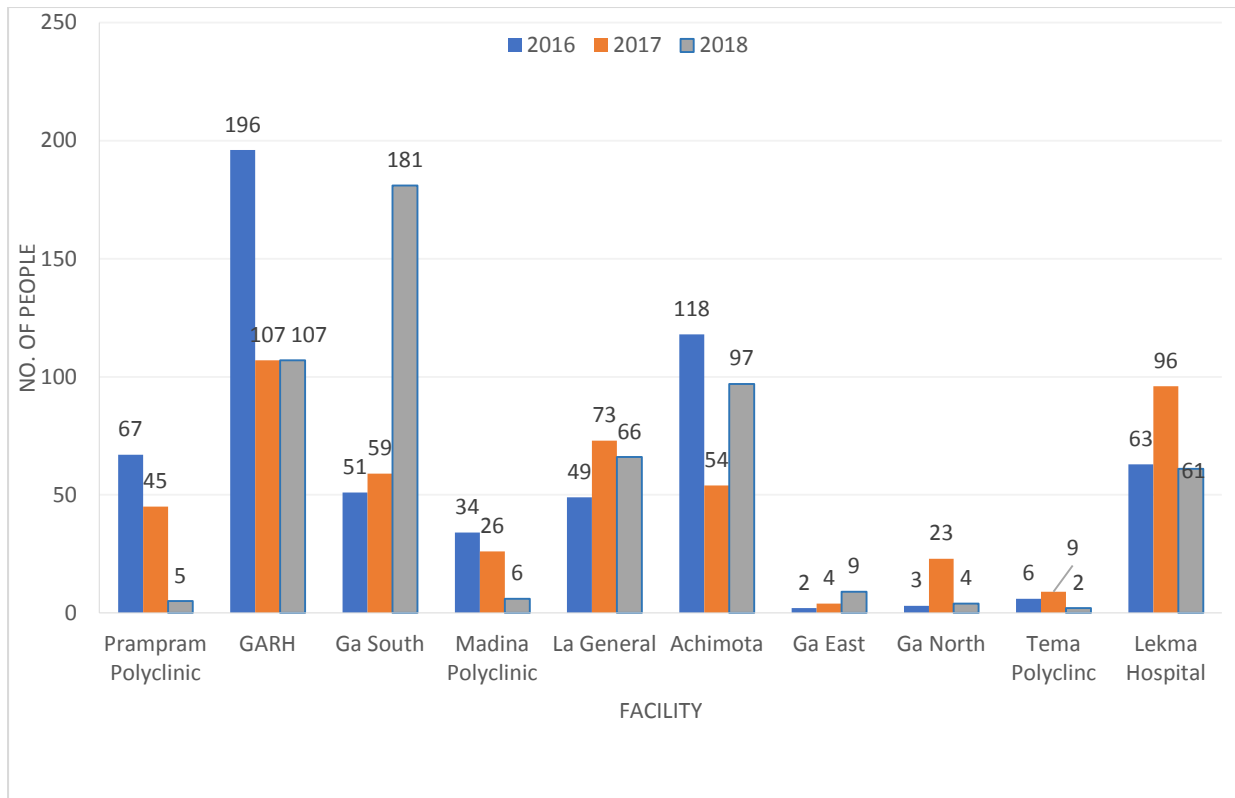


Figure 4. 4: Trend of TB cases detected by ICF in each health facility

4.5 Compliance to ICF

Compliance to ICF was done in two parts. Health worker compliance level and health facility compliance level.

4.5.1 Health Worker Compliance Level to ICF.

Health personnel compliance to the policy is shown in the figure 4.5 below. Results from the study showed 28(56%) of the health staffs complying with ICF whilst 22(44%) of the health staff were noncompliant to ICF.

The level of compliance of the health workers were significantly associated with age ($p=0.026$), the cadre of the health personnel ($p<0.001$), and their level of knowledge ($p=0.013$) (Table 4.3)

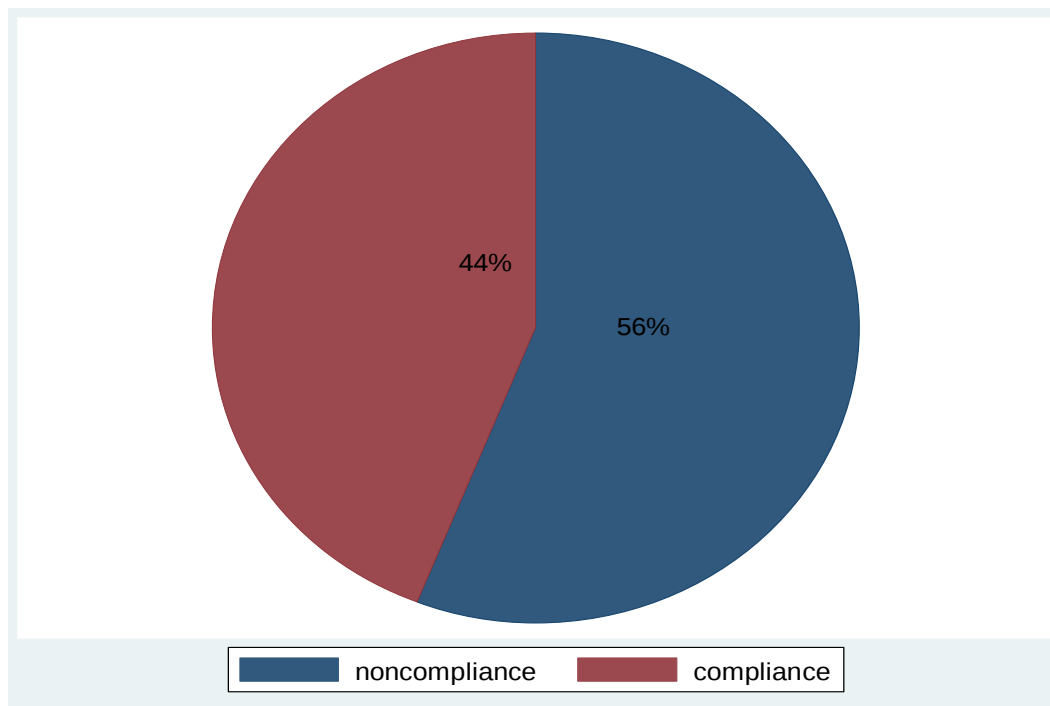


Figure 4. 5: Proportion Of Health Workers Compliance to ICF.

4.5.2 Health Facility Compliance Level to ICF

Table 4.2 below shows the compliance level of health facilities under study. A total score of each health worker were aggregated and the aggregated score for the health workers in each facility represented the compliance level of the health facility. A total score of 225 -300(75%-100%) shows facility's compliance to ICF and a total score of 224(74%) and below shows facility's noncompliance to ICF. Only five health facilities namely; La general hospital, Lekma hospital, Greater Accra Regional Hospital, Prampram polyclinic and Ga east hospital was seen to comply with ICF with a score 225(75%), 228(76%), 225(75%) 227(75.7%) and 230(76.7%) respectively. Facilities that did not comply were Ga South, Ga West Municipal, Achimota Government Hospital, Madina Polyclinic and Tema Polyclinic.

Table 4. 2: Health Facility Compliance Level To ICF.

Facility	Total Compliance	Percentage %
Ridge Hospital	225	75
La General Hospital	225	75
Lekma Hospital	228	76
Ga South Municipal Hospital	220	73.3
Prampram polyclinic	227	75.7
Achimota Gov. Hospital	175	58.3
Ga East municipal Hospital	230	76.7
Madina Polyclinic	143	47.7
Tema Polyclinic	201	67
Ga West Municipal Hospital	201	67

4.6 Association of Health Worker Demographics with Health Worker Compliance Level

Table 4.3 shows bivariate analysis, a chi square was used to determine factors significantly associated with the level of compliance. Results from the table below reveals that, the type of profession (p-0.001), level of knowledge (p- 0.013) and age (p- 0.026) were significantly associated to the compliance level of health workers to ICF.

Table 4. 3: health worker compliance against their background characteristics

variable	Compliance	Non-compliance	p- value
Age			0.026
20-35	6 (27.3)	12 (42.9)	
36-45	16 (72.7)	11 (39.3)	
46-55	0	5 (17.9)	
Sex			0.981
Male	7 (31.8)	9 (32.1)	
Female	15 (68.2)	19 (67.9)	
Educational status			0.254
Diploma	7 (31.8)	5 (17.9)	
Degree	13 (59.1)	16 (57.1)	
Postdegree	2 (9.1)	7 (25.0)	
Cadre			<0.001
Nurse	2 (9.1)	20 (71.4)	
Doctor	2 (9.1)	3 (10.7)	
Laboratory technician	10 (45.5)	2 (7.1)	
Pharmacist	8 (36.4)	3 (10.7)	
Years of experience			0.382
<2 years	5 (22.7)	11 (39.3)	
2-5 years	15 (68.2)	16 (57.1)	
>5years	2 (9.1)	1 (3.6)	
Level of knowledge			0.013
High	9 (40.9)	3 (10.7)	
moderate	13 (59.1)	25 (89.3)	

Table 4.4 shows logistic regression showing factors associated with the level of compliance. Age, the cadre and the level of knowledge were associated with the level of compliance. After controlling for all other factors, the cadre of the health personnel was still associated with the level of compliance. Doctors , laboratory technician and pharmacist were more 5.17 , 37.3 and 9.01 times respectively more likely to have a high level of compliance compared to nurses.

(Doctors aOR-5.17 95%CI-0.40-66.08, p-0.207 | Laboratory technician aOR-37.3, 95% CI-4.20-332.0, p-0.001 | Pharmacist aOR-9.01 95%CI-0.11-45.8, p-0.596)

Table 4. 4: Logistic regression showing factors associated with the level of compliance

Variable	cOR	95% CI	p-value	aOR	95% CI	p-value
Age						
20-35	Ref			Ref		
36-45	2.91	0.84-10.10	0.093	2.77	0.55-13.9	0.217
46-55	1	-	-	1		
Cadree						
Nurse	Ref			Ref		
Doctor	6.67	0.66-66.8	0.107	5.17	0.40-66.08	0.207
Laboratory technician	50	6.11-409.1	<0.001	37.3	4.20-332.0	0.001
Pharmacist	26.67	3.73-190.9	0.001	9.01	0.31-259.49	0.200
Level of knowledge						
Moderate	Ref			Ref		
High	5.77	1.32-25.05	0.019	2.26	0.11-45.83	0.596

4.7 Challenges with the Implementation of the ICF at the Health Facility

The respondents were asked if there are any challenges they are facing regarding the implementation of the intervention. Their responses are presented below:

Majority of the health personnel revealed that they need further training on the ICF intervention. The need for training was the biggest challenge as said by Participants. Participants were unable to screen patients which are most at times not with the symptoms of TB. Of a huge concern during health education is stigmatisation associated with the TB disease. The respondents also reported that the screening tool was too cumbersome to understand. Cumbersome nature has got to do with the scoring of the patients to determine who should be sent to the laboratory and for X-ray. They suggested if there is a way the screening tool can be revised to make it more understandable and easier to use.

Documentation was also another problem the respondents itemized as part of the challenges. Some of the respondents indicated that their issue is not with screening of the patients but how to document it. Documentation of the patients screened data into a different database/register becomes very difficult. The respondents quizzed if there was a simpler way to document new and existing patient's data.

The overburdening of the staff was also one of the challenges reported by some of the respondents. From observation most of the facilities are understaff. Recruiting more staff can help decrease the burden on the existing health personnel and they will have more time to screen the patients. The challenges reported by the participants are summarized on the next page.

Table 4.5: Challenges Associated With the Implementation of ICF

Challenges	frequency	Percentage %
Further training on ICF		
Yes	37	74
Over Burdening of health staff		
Yes	27	54
Cumbersome screening tool		
Yes	26	52
Documentation		
Yes	30	60

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter presents on the discussions based on the results obtained from the analysis of data obtained in chapter four. The chapter addresses the level of knowledge of health personnel on ICF, number of cases screened for TB, presumptive cases screened for TB, the TB cases detected and notified.

Evidence exist that relying exclusively on modalities of TB screening in only patients with tuberculosis (TB) symptoms who present voluntarily at health care facilities – not only misses opportunities to diagnose TB and initiate treatment, but also contributes to increased disease severity and mortality (1). ICF on the other hand, a provider-initiated systematic screening for active TB in all patients enables health professionals to detect cases of TB without unnecessary delay and facilitates prompt initiation of treatment so that the subsequent chain of transmission can be interrupted (Jurcev-Savicević, 2011).

5.2 Level of Knowledge of Health Personnel on ICF

Detection of TB cases mostly depends mainly on health personnel's knowledge on the identification of suggestive symptoms and the prompt availability of tools to further test for TB. A number of people do not exhibit symptoms that will draw attention to lead to one being tested for TB and these cases are often undiagnosed. In this study it was noticed that all the health personnel either had a moderate (76%) or high knowledge (24%) on ICF.

In a study by Alotaibi et al., (2019), similar findings revealed that, where most of the health personnel (78%) had average or above knowledge score on TB detection however, important knowledge gaps were noted. However, in another study by Shrestha et al., 2017, the level of knowledge on TB infection control and detection among almost half (45.8%) of the health

personnel was poor. The knowledge level was significantly associated with educational status, and TB training and/or orientation received. The difference in the finding may be due to the level of health facility and constant supervision by superiors to identify what the needs of health staffs are.

A high knowledge on TB symptoms and on ICF have been proven to increase the number of presumptive TB cases (WHO, 2013). However a high knowledge alone does not necessarily ensure increase in detection of TB without improvement in methods used in detecting TB cases and subsequently treatment. More should be done to ensure that the knowledge on ICF translate to ensuring that highest proportions of patients that visit clinics/hospitals are screened and presumptive case tested and if positive put on treatment.

5.3 Number of TB Cases Detected by ICF.

Detection of TB cases mostly depends mainly on one's ability to identify suspected patients with TB symptoms to willingly report to the hospital for proper diagnosis. It is expected that in health facilities that ICF is implemented, TB case notification will increase. The findings of this study revealed that while some facilities experienced increased TB case notification during the study period, others experienced decreased case notification. However the remaining health facilities increased and decreased over the period.

In a study conducted in Nigeria by Oshie et al., (2015) from 2013 to 2014, findings from trend analysis indicated that while case findings increased in the evaluation population during the intervention period, there was no commensurate increase in cases detected in the control population. Similar findings were reported by a study conducted in Bangladesh where there was also an increase in TB cases detected in all the health facilities during the intervention period for its intervention population (Talukder et al., 2012).

The differences in the yield and trend of TB cases detected at the various health facilities may be due to health system factors. Some of the facilities like the GARH (the facility with the highest number of TB cases detected) had ICF at all the OPDs, had a functional laboratory and had all the level of health professions involved in TB screening, diagnosis and treatment. In facilities with no dedicated facilities and staff, healthcare staff often found themselves overburdened with other duties making the ICF intervention ineffective.

5.4 Compliance to ICF

Health workers compliance to the ICF intervention is crucial for patients that present to their facility to be screened for TB. It is very crucial to determine health workers compliance to the screening and diagnostic protocols necessary to screen and presume suspected TB patients. Likewise the presumed patients' needs to be diagnosed and if positive put on treatment. Literature suggests that many health care personnel do not fully adhere to routine workplace screening and treatment policies (Bratcher et al., 2000).

Findings from this study reveal that majority (56 %) of health workers did not comply to the guidelines with ICF and 44% were compliant to the guidelines of ICF. The years of experience and the type of profession contributed to the level of compliance of the health workers.

Facility's compliance level from the study revealed that, 5(50%) of the health facilities complied with ICF guidelines. 4(40%) of the 5(50%) facilities were hospitals and 1(10%) being a polyclinic. Facilities that did not comply consisted of three hospitals and two polyclinics. The outcome showed that quite a number of the hospitals are complying with ICF policy. The hospitals have all the category of health staffs which was determined to have a significant association to compliance. All the category of staffs are adequate in numbers compared to that of polyclinics. The hospitals because of the level, the category of staffs will all bring their

experience to play. The category of staffs at the polyclinics must be improved in order to improve upon the implementation of ICF.

The cadre of the health personnel was found to be significantly associated with the level of compliance to ICF. Laboratory personnel were found to be more compliant with the intervention. Other health personnel should be encouraged to follow all the processes of ICF especially nurses.

5.5 Challenges with the Implementation of the ICF at the Health Facility

The need for further training was one of the major issues that were reported by the health personnel. This finding emerged from explicit statements health personnel made about their own incomplete understanding, as well as from comments that implicitly reflected a poor understanding of the ICF intervention. Considering the demonstrated importance of knowledge of a health worker as a facilitator to early diagnosis, a study by Joseph et al., (2014) the findings suggested the need to provide more comprehensive and periodic TB education to health personnel. Education can be done through such mechanisms as distribution of written educational materials during periodic TB screenings and workshop. This education may include topics such as new infection control guidelines, changing local TB epidemiology, sources of TB risk to health workers, and importance of ICF.

Findings also revealed that documentation was a major challenge. Documentation of patient screened, those presumed to be cases and those confirmed TB needs to be captured appropriately. If health facilities fail to correctly record and report the actual address of patients, and include or miss cases in the numerator of case notification, it results in an under- or over reporting of cases which may lead to poor policy for TB and poor planning for medications and important logistics for TB management. A study by Dangisso et al., in Ethiopia on trends of tuberculosis case notification and treatment revealed that documentation was a crucial

challenge. In some of their study sites there were cases of over reporting and underreporting (Dangisso et al., 2014).

The respondents also reported that the screening tool was too cumbersome to understand. The cumbersome nature of the screening tool have also been identified by the Ghana National TB Control and undergoing revision to make it easily understandable and easier to work with (Ghana NTP)

The overburdening of the staff was also one of the challenges reported by some of the respondents. All staffs must be trained on ICF in other to increase the workforce to maximise results. Screening of patients may not be a difficult task but proper documentation has been a major challenge but when workforce is increased with proper training will yield effective results. The overburdening of the staff is a health system factor than can be addressed by recruiting and training more staff to work in these health facilities.

5.6 Limitations

Although this study yielded valuable information on intensified case finding interventions being implemented in ten public health facilities in greater Accra, there were some limitations. First this was a retrospective study of records of where the intervention is still on going. Data to serve as a baseline in most of the study site was not available. Validation of the diagnosis of TB cases was not possible. Finally, the study did not explore the possible events and prevailing circumstances that may have affected the outcomes and thrown light on some of the findings such as low proportion of TB cases detected in some of the health facilities, the decreasing trends in some facilities.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study showed that majority (56%) of the health personnel demonstrated moderate knowledge in ICF while 44% had a high knowledge on ICF. Of all the facilities that were evaluated, Greater Accra Regional Hospital recorded the highest number of patients screened for TB, 392302. The Ga East Municipal Hospital was the facility with the least number of OPD cases screened for TB, 1574. The year with the most number of presumptive TB cases was 2018 while 2016 was the year with the least number of presumptive TB cases for each of the facilities. Over the period under investigation the highest yield of TB cases were notified in the Greater Accra Regional Hospital (GARH). Facilities with increasing trend of case notification include Ga South municipal hospital and Ga East municipal hospital while Madina polyclinic and the GARH experience a decreasing trend. The rest of the facilities experienced unstable trends. 44% of health personnel were compliant to ICF. The type of profession was found to be significantly associated with the level of the health worker compliance. Challenges identified by health personnel implementing ICF include the need for further training, overburdening of staff, documentation challenges and cumbersome screening tool.

6.2 Recommendation

I recommend that, further studies should be done to find out the factors associated with the low yield of TB cases in some of the facilities as well as the decreasing trends in some of the

facilities. This will therefore help in identifying the implementation gaps and further take necessary steps to solve the problems.

Following this,

- I recommend that the district and facility managers managing tuberculosis should be met on the issue of low number of TB cases detected and unsteady trends and find permanent solution to it.
- Health staff must receive a very comprehensive training on ICF and other case detection interventions so as to broaden their knowledge.
- I recommend that all health workers must be trained not a special kind of people on ICF so that all the team members of health will take part in this exercise.
- The screening tool should be reviewed and integrated into the general assessment tools at the various OPDS to facilitate implementation performance at the facility.

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APPENDICES

APPENDIX A: PARTICIPANT INFORMATION SHEET

UNIVERSITY OF GHANA

SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH POLICY, PLANNING AND MANAGEMENT

PARTICIPANTS INFORMATION SHEET FOR HEALTH WORKERS

The information sheet provides information about the research for participant to make an informed decision of whether to participate in the study or not. It outlines the nature of the research, what the research involves, risks, benefits and compensation.

- i. **Title of Study:** **An evaluation of the implementation of the intensive TB case finding in ten selected health facilities in the Greater Accra Region.**
- ii. **Introduction:** My name is Margaret Asante, a Master of Science in Public Health Monitoring and Evaluation student of the School of Public Health, University of Ghana and I am the Principal Investigator. My telephone number is 0244832817, and email magigakpo@gmail.com
- iii. **Background and Purpose of research:** Tuberculosis (TB) remains a major public health problem in Ghana. In 2011, an estimated 20, 000 people developed active TB, of these, about 22% were not detected and notified. TB mortality rate remains high at about 7.5 per 100 000 people. There is generally low case detection and this was a priority in Ghana's National Tuberculosis Health Sector Strategic Plan, 2009–2013. The problem of low case detection persisted over the years till the introduction of ICF in 2015 which became more functional in 2016. Although early case detection, ICF has been adopted as the primary approach to identifying and detecting the disease, average case detection rate in Ghana is 32% which is even below the African Region's 47% rate of TB detection, and thus, below the projected 70% detection stipulated by WHO. This remains a huge challenge in Africa because, not all cases have been detected. Therefore, this study would evaluate the implementation of intensified TB case finding and its yields to TB detection among ten health facilities in Greater Accra. Findings from this study will provide useful information that will be used to improve efforts being put in place to increase TB case detection.

- iv. **Nature of research:** This is a descriptive cross-sectional study. In depth interviews will be conducted to know your knowledge level and challenges with regards to the implementation of ICF. You are being asked to take part in this study because you are a health worker who is involved in ICF within the selected facilities for this study, should you agree to be part of this research, you will be asked to answer a few questions which will be posed to you by a member of the team. The interview will be recorded and transcribed without revealing your identity.
- v. **Participants involvement:**
- **Duration/what is involved:** You will be required to give responses to questions related socio-demographics, your general knowledge about the processes a of ICF and the guidelines in performing ICF and your experiences/challenges regarding the implementation of the intensive TB case finding. It is expected the entire process will not last more than 30 minutes.
 - **Potential Risk:** in participating in this study, you will be asked to share some personal views and experiences concerning the ICF implementation. You do not have to answer every question, you may also withdraw from the study at any time that you wish to do so. I will give you an opportunity at the end of the interview to review your responses, and you can ask to change any responses that you want. You do not have to give me any reason for withdrawing.
 - **Benefits:** this study will provide no direct benefits to you, it will however provide useful information that will be used to improve health care delivery so far as TB case management is concerned.
 - **Cost:** You will not incur any cost by participating in this study.
 - **Compensation:** You will not receive any material compensation for participating in this study. You will be thanked for your effort and time.
 - **Confidentiality:** Every information given will be kept strictly confidential, your name will not be needed. Electronic copies of data will be stored on a computer and encrypted with a password which will only be known to the PI. The information collected will be used only for research purposes and the interview will be conducted in a secured room. When analyzing data, your name or any personal identifiable information will not be used.
 - **Voluntary participation/withdrawal:** Participation in this study is voluntary and you can willingly withdraw from this study at any period without any consequences or penalty or having to give any reasons.

- **Outcome and Feedback:** Findings from this study will first be reported in a thesis as part of the partial fulfilment of a Masters of Public Health monitoring and evaluation degree at the University Of Ghana School Of Public. The Ministry of Health and her agencies such as the Ghana Health Service through the National Tuberculosis Control Programme and the Ethics Review Committee will also be beneficiaries of the findings from this study.
- **Funding information:** The study is being funded solely by the Principal Investigator
- **Sharing of participants information/Data:** Data generated from this study will be owned solely by the Principal Investigator and kept strictly confidential.
- **Provision of Information and Consent for participants**
A copy of the information sheet and the consent form will be given you for keep after signing it.
- **Contacts for Additional Information**
If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact me Margaret Asante, School of Public Health, University of Ghana, Legon on: Tel 0244832817 or email magigakpo@gmail.com, Dr. Seth Kwaku Afagbedzi: Tel: 0244591953 or email safagbedzi@gmail.com
- **For ethical issues and your right as a participant, contact**
Madam Hannah Frimpong, GHS-ERC Administrator, and Office: +233 302 681109, Mobile: 0507041223 or via email: Hannah.Frimpong@ghsmail.org

APPENDIX B: DATA ABSTRACTION FORM

DEPARTMENT OF HEALTH POLICY, PLANNING AND MANAGEMENT,

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LEGON

DATA ABSTRACTION FORM FOR EXTRACTION OF DATA THE IMPLEMENTATION OF INTENSIVE TUBERCULOSIS CASE-FINDING IN SELECTED HEALTH FACILITY IN THE GREATER ACCRA REGION IN GHANA.

CHECKLIST FOR RECORD REVIEW ON TB DATA

Name of research assistant: _____

Record review date: ____/____/____ Sub-municipality _____

Number of TB Client (e.g. TC 001)

Name of health facility _____ year of reporting

Address of case screened _____

ITEMS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total number of adults screened												
Total no. of children screened												
PLWHIV screened												
DM screened at the OPD												
Total no. of males turned positive												
Total number of females turned positive												
Total number of positive cases registered and put on treatment												
Number of cases who didn't end up in the lab												

APPENDIX C: QUESTIONNAIRE FOR THE STUDY

DEPARTMENT OF HEALTH POLICY, PLANNING AND MANAGEMENT,

SCHOOL OF PUBLIC HEALTH

UNIVERSITY OF GHANA

LEGON

**QUESTIONNAIRE ON THE IMPLEMENTATION OF INTENSIVE TB CASE-FINDING
AMONG HEALTH WORKERS IN SELECTED HEALTH FACILITIES IN THE GREATER
ACCRA REGION, GHANA.**

This questionnaire is prepared for a dissertation for a Master of Science, monitoring and evaluation Course. Please answer questions with all honesty.

Name of interviewer: _____

Date of interview: ____/____/____ Sub-municipality_____

A. Participants demographic background

1. Age of health worker 20-35_ 36-45_ 46-55_ 56+_
2. Sex of health worker Male_ female_
3. Professional status doctor_ nurse_ laboratory technician_ tax shifting officer_
4. Level of education diploma_ degree_ post degree_
5. years of experience 1 year_ 2 years_ 3 years_ 4 years_ 5 years_

LEVEL OF KNOWLEDGE

KNOWLEDGE LEVEL	Yes	No
1. All patients seen at the ART, DM and general OPDs are eligible for screening.		
2. Patients identifies with cough of any duration at the main OPD, ART and DM clinics are eligible for screening.		
3. The screening tool is a set of questions that is used to screen suspected TB cases.		
4. Eligible patients are taught to produce sputum for further lab tests (gene Xpert)		
5. Non-eligible patients are taught how to produce sputum sample for gene Xpert examination.		
6. Sample are well labeled and sent to the by the health worker		
7. Samples are given to patients to send to the lab		
8. Positive cases are put on treatment (anti kochs)		
9. Rifampicin resistant patients are put MDR management		
10. Health workers practicing ICF must be trained at least once		
11. Health workers practicing ICF needs no training and can learn on the job		
12. A special group of people are supposed to practice ICF		

COMPLIANCE LEVEL	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER
1. I have the algorithm for intensive TB case finding at my unit					
2. I refer to the guideline of ICf during the process of my work					
3. Health education at the OPD help at the ICF					
4. Cases that are seen coughing are identified and seen with screening tool					
5. I assist eligible patients to produce sputum sample					
6. I send well labelled sputum sample to the lab with a filled request form					
7. When results are ready, I call clients to go for it					
8. When results are ready I go to the lab for it					
9. When results are ready and positive the doctor is notified and patient is put on treatment					
10. When results are negative, patients are required to do an x ray					
11. When results of x ray are suggestive of TB that negative case is put on treatment					
12. Patient is handed over to dots to supervise treatment.					

APPENDIX D: INTERVIEW GUIDE

**DEPARTMENT OF HEALTH POLICY, PLANNING AND MANAGEMENT,
SCHOOL OF PUBLIC HEALTH**

UNIVERSITY OF GHANA

LEGON

AN INTERVIEW GUIDE FOR IN-DEPTH INTERVIEW OF HEALTH WORKERS ON
THEIR EXPERIENCES IN THE IMPLEMENTATION OF ICF.

This interview guide is prepared for a dissertation for a Master of Science, monitoring and
evaluation Course. Please answer questions with all honesty.

Name of interviewer: _____

Date of interview: ____/____/____ Sub-municipality_____

Experiences

1. Do you know about ICF?
2. How have your experiences been?
3. Can you share your worst and good moments during ICF?

Challenges

1. What are some of your challenges when practicing ICF?
2. Do you have solutions to them? Can you tell me a few?