Factors affecting clinicians practices on Isoniazid preventive therapy provision to people living with HIV/Aids in Dar es salaam region, Tanzania

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FACTORS AFFECTING CLINICIAN'S PRACTICES ON ISONIAZID PREVENTIVE THERAPY PROVISION TO PEOPLE LIVING WITH HIV/AIDS IN DAR ES SALAAM REGION, TANZANIA

By

Hindi Mastai Hindi

A Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Public Health of

Muhimbili University of Health and Allied Sciences
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CERTIFICATION

The undersigned certify that she has read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: ‘‘**Factors affecting clinician’s practices on Isoniazid Preventive Therapy provision to people living with HIV in Dar es Salaam Region, Tanzania’’,** in (Partial) fulfillment of the requirements for the degree of Master of Public Health of Muhimbili University of Health and Allied Sciences.

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Dr. Leyna. H. Germana

(Supervisor)

_____

Date

DECLARATION AND COPYRIGHT

I, **Hindi Mastai Hindi,** declare that this **dissertation** is my original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature: ..... **Date:** .....

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DEDICATION

This dissertation is dedicated to my lovely farther Mastai Hindi Hintay and my lovely mother Victoria Marmo Gwandu; my lovely wife Charity Malema, my son Samuel and my daughter Samantha.

ABSTRACT

Background: Isoniazid preventive therapy (IPT) for People living with HIV (PLHIV) is a necessary public health intervention especially in developing countries where both TB and HIV are serious problem. Despite its efficacy and importance the trend of IPT provision rate among eligible PLHIV in Tanzania is consistently less than 10% for the past seven years since its establishment in 2010; this is far beyond the target set by the Global STOP TB plan which aimed to achieve 50% of eligible PLHIV to be provided IPT by 2015.

Objectives: The main objective of this study was to determine factors affecting clinician's practices on IPT provision in Dar es Salaam.

Methodology: A mixed methods design was used. For quantitative method study participants were clinicians working in CTC's providing IPT; and for qualitative method the study participants were CTC'S In-charges. Stratified sampling method was used to select participants for quantitative method while purposive sampling method was used to select participants for qualitative method. Self administered questionnaire was used as collection tool for quantitative method while In-depth interviews were used for qualitative method. All conversations in In-depth interview were audio recorded, transcribed verbatim and analyzed using thematic approach.

Results: A total of 122 clinicians and 6 CTC's In- charges participated in this research. Overall IPT coverage was 7.27%. Isoniazid stock-out, lack of modern TB diagnostic technology; lack of knowledge among clinicians, poor attitude towards IPT among clinicians, lack of trainings and motivation to clinicians; and uncoordinated supervision were founded as the main factors affecting clinicians practices on IPT provision to PLHIV.

Conclusion: Implementation of IPT provision to PLHIV in Dar es Salaam is very low compared to the GLOBAL STOP TB targets. Inconsistent supply of Isoniazid, lack of knowledge on IPT among clinicians, lack of modern diagnostic technologies, lack of trainings and motivation to clinicians; and uncoordinated supervision were founded as major factors affecting clinician's practices on IPT provision.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Tuberculosis (TB) ranks among the top 10 causes of death globally and remains the leading cause of morbidity and mortality among people living with Human Immunodeficiency Virus, (PLHIV) (WHO 2016, Wong 2012). The World Health Organization 2016(WHO) global TB report estimates that there were 10.4 million new TB cases in 2015, of which 1.2 million were among PLHIV. Over 1.4 million deaths resulted from TB disease in 2015 (WHO 2016). TB cases among PLHIV is most concentrated in the WHO African Region, particularly in areas of southern Africa where as high as 81% of notified TB patients are HIV positive (WHO 2016). HIV has been identified as a major driver of the TB epidemic in Sub-Saharan Africa, where more than 80% of TB infected PLHIV live (Gray 2013). Autopsy studies have estimated that across sub-Saharan Africa, TB is the cause of death in up to 37% of adult PLHIV (Gupta 2015). A recent meta-analysis by Ford found TB to be the leading cause of hospitalization among PLHIV worldwide, estimating that 23.9% of hospitalizations among PLHIV in Africa were because of TB (Ford 2016).

Tanzania is among the top thirty countries in the world with high incidence rate of TB infection; in 2016 the incidence rate for TB was 287/100,000 population while for TB+HIV was 98/100,000 population (WHO 2016). Also the mortality rate due to TB was 51/100,000 population while due to TB+HIV was 48/100,000 population (WHO 2016). About 30% of TB patient in Tanzania are co-infected with HIV, accounting for 60%-70% of the increase in the number of TB patient in the country. Dar es Salaam Region contribute about 20% of all TB cases in Tanzania (NTLP 2016), with HIV prevalence of 4.7% (THIS 2016-2017).

The emergence of the HIV/AIDS epidemic has brought about new challenges in the fight against TB. The compromised immunity of PLHIV places them at greater risk for TB and both HIV and

TB each accelerates the other's progression. The annual risk of developing TB in PLHIV is about 10% each year and greater than 50% over the course of their lifetime (MoHCDGEC 2010); in contrast the risk of developing TB for someone who is HIV negative is only 5% in the first two years of exposure and 5-10% over the course of their lifetime (MoHCDGEC 2008).

Tuberculosis preventive therapy for PLHIV is necessary and important public health intervention especially in developing countries where both TB and HIV are serious problem. The WHO recommended the use of at least six months Isoniazid Preventive Therapy (IPT) for PLHIV without active TB in countries with high burden of TB infection (WHO 2011). In 2010 the United Republic of Tanzania through the Ministry of health, community development, gender, elders and children (MoHCDGEC) incorporated the WHO recommendations about IPT as a core function of services provided to PLHIV and as a primary responsibility of the Tanzania National AIDS Control Program (NACP); and IPT started being implemented in a phased manner in 2011. According to the National guidelines all PLHIV should be screened for Active TB using WHO four symptoms based screening (current cough, fever, night sweat, and weight loss); if no evidence of Active TB is found IPT should be provided (WHO 2011).

Strong evidence has demonstrated that Isoniazid Preventive Therapy (IPT) significantly reduces the risk of TB in people living with HIV (WHO 2008, UNAIDS 2010). Isoniazid (INH) is an organic compound used as the first-line medication in prevention and treatment of TB. It is a simple and cost-effective measure that prevents TB bacteria from becoming active if present (Shayo 2017). A community-wide randomized controlled trial in Alaska during the 1960s first identified the effectiveness of INH, observing a 55% reduction in TB incidence during a period of 6 years (Comstock 1967). Since then, the use of IPT as a community-wide intervention has been further supported by evidence noting that IPT can reduce the risk of TB disease in PLHIV by 33% to 67% (Mancino 1997).

Provision of Isoniazid preventive therapy to those newly enrolled in HIV care has grown substantially since 2009, albeit from low levels, and reached 940,269 people in 2016 (WHO 2017). Most of the increase from 2009 to 2014 has subsequently leveled off. In 2016 a total of

60 countries (representing 70% of the estimated global burden of HIV-associated TB) reported providing Isoniazid preventive therapy to people newly enrolled in HIV care, compared with 57 countries in 2015 (WHO 2017). According to the 2017 global report on TB South Africa accounted for the largest proportion (41%) of the global total IPT coverage in 2016, followed by Mozambique, Zimbabwe and Malawi (WHO 2017).

Despite progress in some countries, much remains to be done. For example of the 30 high TB/HIV countries, 18 did not report any provision of Isoniazid preventive therapy in 2016; and in 12 countries that provided data, coverage among newly enrolled in HIV care varied considerably from 2.4% in Indonesia to 73% in Zimbabwe (WHO 2017). In 2016 the IPT coverage was 42% globally, 46% in the Africa Region and 8.5% for the United Republic of Tanzania (WHO 2017). Therefore the IPT Gap Globally, in Africa Region and United Republic of Tanzania was 58%, 54% and 91.5%, respectively (WHO 2017).

1.2 Problem Statement

Tanzania is one among other countries in the world facing low IPT coverage despite being among top thirty countries with high prevalence of T.B disease. According to the National T.B and leprosy Program (NTLP) the trend of IPT provision rate among eligible PLHIV is consistently less than 10% for the past seven years since its establishment in 2010(WHO 2016); this is far beyond the target set by the Global STOP T.B plan which aimed to achieve 50% of eligible PLHIV to be provided by IPT by 2015 and 90% IPT coverage by 2025(WHO 2017).

The problem of low IPT implementation in Tanzania has been recognized and various studies have been conducted in different related areas. Despite the fact that acceptability and adherence to IPT among PLHIV is high (Shayo 2015); barriers to the implementation of IPT were diverse and can occur from National to facility level; and these includes IPT stock out, inadequate application of TB screening tool (Intensified TB case detection) to rule out active TB, inadequate patient adherence to IPT; fear of amplifying resistance to Isoniazid through IPT (WHO 2013, Lestel et al 2010); financial, supplies, policy and leadership factors (Ngombo 2013).However all previous studies were focused on elucidating the general barriers in IPT provision, but no study has been conducted to determine the factors affecting Clinician's practices on IPT provision among PLHIV in Tanzania.

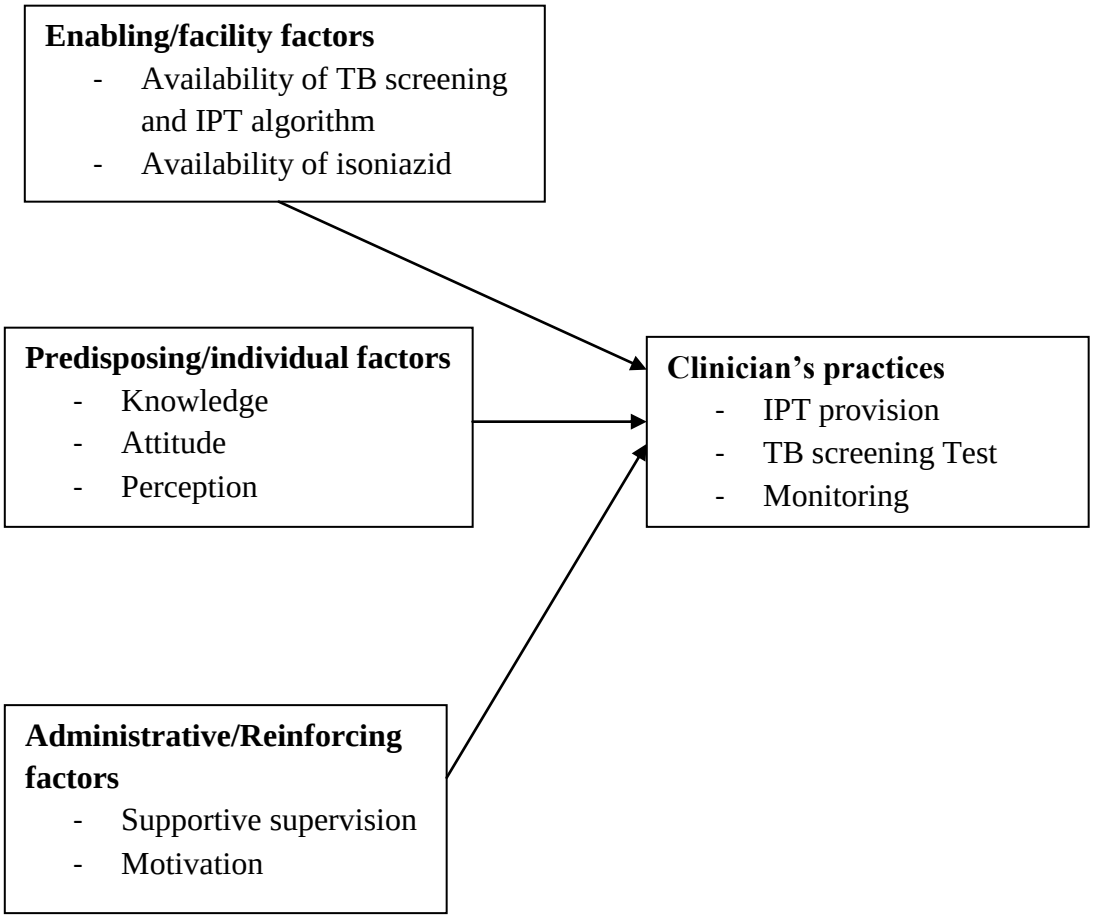
In contrast, various studies conducted worldwide identified that healthcare workers (HCWs) perception and non-compliance with the WHO IPT recommendations were cited as the common barriers for the wide use of IPT in many countries. It also reflected that the reason for barriers were due to lack of knowledge, experience and clarity on benefit of IPT by healthcare workers (Getahun et al 2010). In addition, Bateman (2011) explain that perceived operational barriers included a number of practical issues that clinicians were prohibited to use IPT; one was that using IPT without other T.B medication would induce drug resistance. Another perception barrier was the belief that exclusion of Active T.B would be difficult in setting with high prevalence of T.B and HIV infection.

Therefore the purpose of this research was to determine the factors affecting clinician's practices on IPT provision to PLHIV in Dar es Salaam.

Therefore, using a cross-sectional study we set out to determine the factors affecting clinician practices on IPT provision in PLHIV in Dar es Salaam.

1.3 Conceptual Framework

1.3.1 The diagram below represent the conceptual framework on factors affecting the clinicians practices on IPT provision as per PRECEDE Model.



***Adopted from (Green 2005)**

Figure: 1. Conceptual framework

1.4 Rationale

The findings of this study will be used to improve IPT Implementation in the CTC's providing IPT to PLHIV in Dar es Salaam; and in the country as appropriate interventions to motivate clinician's practices on IPT provision can be developed. Facility management, Council and Regional Management Teams; Implementing partners as well as the Ministry of Health, Community Development, Gender, Elderly and Children will benefit from the generated knowledge for planning and monitoring and evaluation of IPT implementation.

1.5 Main Research Question

What are the factors affecting clinician's practices on isoniazid provision to people living with HIV/AIDS in Dar es Salaam?

1.6 Specific Research Questions

1. What is the IPT provision (TB screening, IPT provision) implementation status?
2. What are the individuals factors affecting clinician's practices on IPT provision?
3. What are the health facilities factors affecting clinician's practices on IPT provision?
4. What are the administrative factors affecting clinician's practices on IPT provision?

1.7 Broad Objective

To determine factors affecting clinician's practices on isoniazid preventive therapy provision among people living with HIV in Dar es Salaam, Tanzania.

1.8 Specific Study Objectives

1. To determine the cascade of IPT implementation (TB screening, IPT provision) among PLHIV in Dar es Salaam, Tanzania.
2. To determine individual factors influencing clinicians practices on IPT provision in Dar es Salaam, Tanzania.
3. To determine health facility factors affecting clinicians practice on IPT provision in Dar es Salaam, Tanzania.
4. To assess the administrative factors affecting clinicians practices on IPT provision in Dar es Salaam, Tanzania.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews literatures that are relevant to the implementation of IPT and its barriers focusing on the healthcare providers' perspective worldwide and particularly in Tanzania.

2.2 Isoniazid preventive therapy implementation progress

Provision of Isoniazid preventive therapy to those new enrolled in HIV care has grown substantially since 2009 and reached 940,269 people by 2016 (WHO 2017). Most of the increase is from 2009 to 2014 and has subsequently leveled off. In 2016 a total of 60 countries - representing 70% of the estimated global burden of HIV-associated TB, reported providing Isoniazid preventive therapy to people newly enrolled in HIV care compared to 57 countries in 2015 (WHO 2017). South Africa accounted for the largest proportion (41%) of the global total IPT coverage in 2016, followed by Mozambique, Zimbabwe and Malawi (WHO report 2017). Despite progress in some countries, much remains to be done. For example of the 30 high TB/HIV countries, 18 did not report any provision of Isoniazid preventive therapy in 2016; and in 12 countries that did provide data, coverage among newly enrolled in HIV care varied considerably from 2.4% in Indonesia to 73% in Zimbabwe (WHO 2017). In 2016 the IPT coverage was 42% globally, 46% in the Africa Region and 8.5% for the United Republic of Tanzania (WHO 2017). Therefore the IPT Gap Globally, in Africa Region and United Republic of Tanzania was 58%, 54% and 91.5%, respectively (WHO 2017).

The development and implementation of a National IPT policy remains suboptimal in most of the countries including Tanzania. Inadequate intensified case finding, including inability to rule out active TB was one of the reasons cited most frequently for not developing and implementing IPT policy. Despite the fact that Tanzania has poor IPT coverage, there was limited local evidence-based information regarding the causing factors for this poor coverage.

2.3 Individuals factors influencing clinician's practices on IPT provision

Literature has emphasized HCWs perception, knowledge and practices as a primary area to be addressed in order to improve the IPT uptake rates (Lester 2010). In a qualitative study carried out among HIV clinics in South Africa, it was revealed that clinicians lack knowledge and experience about IPT provision to PLHIV; they are unaware of the benefits of IPT and unclear about the guidelines; and also clinicians belief that the existing screening tools are inaccurate in PLHIV (Lester 2010). Lack of familiarity and confidence in IPT among clinicians and program implementers (Mindachwe 2014); fear about INH resistance to IPT (Melaki 2011); hesitation among clinician's to provide IPT due to toxicity, side effects and adverse effects (Elder 2010, Moolphate, Mindachwe 2014) contribute to the poor implementation of IPT.

According to the recent research conducted in Ethiopia, results shows that one third of clinicians felt difficult to rule out active TB among PLHIV; nearly half of the clinicians (45.8%) have no knowledge about the eligible criteria for IPT among PLHIV; and the attitude of clinicians towards IPT provision is significantly associated with the level of knowledge on IPT (Tikuye 2013).In Tanzania, the knowledge of IPT among clinicians working in ART clinics is not enough; just 52.1% of clinicians are trained and the duration for training is very short (Ngombo 2013).However, there was limited information on whether these factors affect clinician's practices on IPT provision in Tanzania; and the extent of these challenges to support development of intervention to address them.

2.4 Facility factors affecting clinician's practices on IPT provision

The facility's factors that can affect clinicians practices includes:- availability of Isoniazid, availability of TB screening tools, availability of standard laboratory for TB confirmatory test - stain specimens with ZN, read slides with microscopes or run GeneXpert, availability of functioning X-ray machine and standard operating procedures and guidelines for clinicians to use. Non-availability of Isoniazid in the HIV/AIDS clinics is among the main factors affecting clinician's practices (Getahun et al 2012). In study conducted in Ethiopia, 42.3% of clinicians noted that their facility experienced INH stock-out over the past three months (Tikuye 2013). The reason for Isoniazid stock outs in many HIV/AIDS clinics is lack of an effective system to

manage drug supply (Legesse et al 2014). A study in Ethiopia reported that only 47% of health facilities received full quantity of drugs they ordered (Mudzteba et al 2015). Some hospital also lack sensitization workshops, technical trainings, and operational guidelines (Joanna Lai 2017).Despite the fact that availability of isoniazid and other supplies having profound effect on clinician's practices, there were little information about the extent of the shortages and how much they are attributable to clinician's practices on IPT provision in Tanzania.

2.5 Administrative factors affecting clinician's practices on IPT provision

Administrative support is an important component for success of any intervention in the work place. Policies, resources and monitoring and evaluation through regular supervisions provide a framework for daily running of an intervention. Studies have reported policy implementation gap between having IPT policy in place and the actual implementation; where lack of adequate monitoring and evaluation of policy implementation exists (Joanna Lai 2017). In Addis Ababa lack of reinforcement by health official and stakeholders working in TB/HIV clinics affected the implementation of IPT policy (Mindachwe et al 2014). Lack of commitment of health authorities and drug supply irregularities were raised by services providers as a reason for the gap between having a policy and actual implementation. (Joanna Lai 2017, Getahun 2010, WHO report 2013). Some studies stipulated that there is lack of training opportunities and motivations to clinician's who provide care and treatment including provision of IPT to PLHIV (Joanna Lai 2017). In Tanzania there was little information about the role of administrative factors in clinician's practices on IPT provision to PLHIV.

CHAPTER THREE

3.0 MATERIAL AND METHODS

3.1 Study Design

A Cross sectional study using mixed methods was deployed. The study was conducted for three weeks from 25th September 2018 to 17th October, 2018.

3.2 Study Area

The study was conducted in Dar es Salaam region - one of the 26 regions of Tanzania mainland with an area of 1,590 km square and a population of 4.365 million (National census 2012). The region has five districts namely Kinondoni, Temeke, Ilala, Ubungo and Kigamboni. Dar es Salaam region contributes about 20% of all TB cases notified in the country (NTLP report 2016), and has HIV prevalence of 4.7% (THIS 2016-2017).

3.3 Study Population

The study population included all healthcare workers in Care and Treatment Clinics (CTC) who provide clinical care and treatment services (including provision of IPT) to PLHIV in Dar es Salaam. The target population included all clinicians (physicians and nurses) working in ART clinics and who provide IPT to PLHIV.

3.4 Eligibility Criteria

3.4.1 Inclusion criteria

a. Clinicians in CTC which deliver care and treatment services including IPT provision to PLHIV.
b. Has experience in CTC services for at least twelve months (one year).

3.5 Sampling procedures and the sample sizes

3.5.1 Qualitative approach: A purposively sampling was used to obtain a sample of CTC's In-charges who were interviewed to obtain rich information based on their experience. The

ART clinics in-charges available during data collection period were recruited. In this research 6 CTC's In-charges were purposively selected from clinics that have been providing care and treatment services for at least 5 years.

3.5.2 Quantitative approach: Stratified sampling method was utilized, and our sample frame constituted CTC providing IPT in Dar es Salaam region. To ensure representative (that both health facilities level are represented) in the study sample, the sample frame was stratified into hospitals, health Centre's and dispensaries strata. Then the sample CTC was selected randomly from each stratum and the eligible clinicians in the selected CTC was selected as a participant of this study.

3.5.3 Study Sample size: The sample size was determined using the minimum sample size determination for population proportion as:

$$n = \frac{P(1-P) * (Z^2)}{D^2}$$

Where:

n= Sample size,

P = Expected frequency value that healthcare providers had good knowledge, attitude and practice towards IPT provision was taken as 50%, since the prevalence was not known.

Z = the reliability coefficient; Z=1.96 at 95% CI and

D= relative precision or the precision required on either side of the proportion is taken as 10% (d = 0.1).

Calculating the formula above, it returns n= 96.

To correct for the difference in design effect due to sampling, the sample size was again multiplied by the design effect (D=1.2). Therefore, n x D = 96 x 1.2 = 115

Considering 10% contingency for recording error or non-responses, the total sample size that the researcher considered to be necessary in order to obtain statistically significant results was, n= 126.

Hence our sample size (n) will be 126 clinicians.

3.5.4 Variables

Dependent variable: Clinicians' practice on IPT provision (TB screening, counseling, IPT prescription, and monitoring) (Yes or NO).

Independent variable: Age (Numerical); Sex (nominal)

Knowledge (ordinal): This variable measured the knowledge on IPT provision and its management. There were ten questions which assessed the knowledge of clinicians on IPT eligibility criteria, IPT provision and its management. Nine questions were multiple questions, which were closed ended and one question was an open ended. Each correct answer for each close ended question carried 1 score while wrong answer scored '0'.Then the score were classified into three level, which are:-7-9 scores High level (80%-100%); 5-6 scores; Moderate level (60%-79%); 0-4 scores Low level (<60%).

Attitude: This variable measured the Attitude of clinicians towards IPT provision for PLHIV in the aspect of its efficiency and side effects. There were ten (10) questions, one question was an open ended and nine positive statements with likert scale options of choice ranging from strongly agree to strongly disagree. The rating scale was measured as follows:-Strongly agree (5); Agree (4); Undecided (3); Disagree (2); strongly disagree (1).

Practice: This was intended to measure clinician's practices towards IPT provision. Ten questions were included in this part where eight questions ask about how often the clinicians provide IPT for PLHIV and monitor the treatment as per the national guideline, while two questions were open ended asking about major interventions required for the successful implementation of IPT in their working areas. All questions had 3 response options (Yes, always; Yes, sometimes and No). During the analysis, a summative score for all questions were developed and re-categorized into three groups - Good (80-100%)12 - 16 scores; Fair (60-79%) 9 - 11 scores; or Poor (Less than 60%) 0 - 8 scores for ease of interpretation.

Availability of TB screening and TB Algorithm: In this variable we achieved to measure the distribution of TB screening and IPT Algorithm in the CTC providing the IPT; by asking if TB screening and IPT Algorithm were either available or not in the CTC.

Availability of Isoniazid: In this variable we measured the frequency of INH stock out within CTC providing IPT; within a period of one year from 1st October 2017 to 30th September 2018.

Supportive supervision on IPT provision: In this variable we achieved to measure the frequency of supportive supervision on IPT; conducted for the period of one year from 1st October 2017 to 30th September 2018.

Training on IPT to clinicians providing IPT services: In this variable we achieved to measure frequency of trainings on IPT among the clinicians.

3.6 Recruitment and training of research assistants

One research assistant was recruited who have just completed degree of medicine from Muhimbili University of Health Sciences in academic year 2017/2018, but with experience in research. The assistant had two days of orientation to research concept, protocol, collection of data and the questionnaire. First day in class training, second day field pretest at Manzese dispensary.

3.7 Ethical Issues

Ethical approval was sought and obtained from the Research and Publication Committee of Muhimbili University of Health and Allied Health Sciences (MUHAS) on 17th September 2018(Ref.No.HD/MUH/T.412/2017). Permission to conduct research was provided by relevant authority in the region and district levels. Written informed consent was obtained from clinicians working in CTC clinics providing IPT services to PLHIV before their participation. The participants were briefed about the objectives and procedures of this study and that they have the right to agree or object to their participation, or withdraw from the study at any time. Special permission was requested from informants to tape-record information they provided during the interview. However, it was made clear that the information they provided, whether orally or in writing, will be treated strictly confidentially and information collected will only be used for research purposes.

3.8 Data collection procedures

Qualitative data collection: The interviewer (Principal investigator) introduced himself and the study to respondents (CTC in-charges). In-charges were requested to provide consent prior to In-depth interview. Interviews were conducted in privacy to enable respondents provide information. The interviews were recorded and later transcribed. The main theme of the interviews was the experiences and challenges on implementation of IPT services in the clinic. Field data collection was conducted for three weeks between 25th September 2018 and 17th October 2018.

Quantitative data collection: Study interviewer introduced himself and the study to respondents. Respondents were requested to provide consent to participate in the study. Structured interviews using a developed questionnaire were conducted to clinicians working in CTC providing IPT to PLHIV. Field data collection was conducted for three weeks between 25th September 2018 and 17th October 2018.

3.9 The Validity and reliability of the study

The study used standard question and procedures of data collection basing on the guide to develop knowledge, attitude, and practices surveys(WHO 2008), questionnaires, annexes of guidelines for intensified TB case finding and IPT for PLHIV in resource constrained settings (WHO 2011) to ensure validity and reliability of data.

Scenario description was used to ensure that the respondents get and provides the required responses.

3.10 Data Analysis

3.10.1 Qualitative Data

Prior to the start of the analysis, recorded interviews were transcribed verbatim in Kiswahili, where non-verbal cues were taken into account in the transcriptions; and finally the principle researcher translated the transcription from Kiswahili to English. To ensure accuracy a second translator double-checked the translation.

The analysis involved listening to tapes, reading and re-reading of the informants' live experience descriptions, and extracting important statements from the description thereafter, the researcher formulated the meanings to these statements.

Furthermore, informants' statements were divided into meaning units, which were condensed into more abstract forms of text that created codes, categories, and themes.

For validating the informants' experiences, findings were taken back to some informants to see if it compares with their accurate experiences. Finally, changes obtained from informants were incorporated into the final description. The bracketing principal was observed throughout so that trustworthiness of the findings is guaranteed.

3.10.2 Quantitative Data

The data after being collected were coded and entered into the database designed with Epi-info (window version 3.5.4); and finally the data was analyzed using statistical package for social scientist (SPSS-version 22). The descriptive statistics such as frequency, percentage, mean and standard deviation was utilized to summarize and describe the data. Bivariate and multiple logistic regression analyses were done to examine factors affecting clinician's practices (individual factors, facility factors and administrative factors). All independent variables and other variables with P value less than 0.2 at bivariate analysis were taken into the multiple logistic regression analysis. The measure of statistical association was odds ratio, and the measure of statistical significance was 95% confidence level expressed in P Value less than 0.05.

3.11 Study Limitations and mitigations

The study was conducted in the selected health facilities in Dar es Salaam region; that would be problematic to generalize the findings of the study to all clinicians who work outside the study sites and Tanzania in general. Since the data collection instrument was self-reported, responses might be biased of respondents' feeling at the time they filled out the questionnaire. Also the results from this study cannot be used to infer temporal relationship between the

exposure and the outcome. However, the results of this study will provide valuable insights into factors affecting clinician's practices on IPT provision to PLHIV in Dar es Salaam.
The study limitations were mitigated by increasing the sample size, by reducing selection bias through utilization of random selection procedures in selecting study participants; and by utilizing open ended question especially in qualitative method.

3.12 Dissemination of the research findings.

The study report will be disseminated and made available in the MUHAS library for use. The report will be disseminated and made available to the Dar es Salaam Regional Administrative secretary office; and the respective Municipal Executive Directors offices for use in improving the IPT provision coverage in the region. The study is planned to be submitted to a journal for publication to make it available for use by the wider community to advance knowledge.

CHAPTER FOUR

4.0 RESULTS

4.1. Socio-demographic characteristics of clinicians

A total of 122 (RR = 96.8%%; 122/126) health professionals participated in this study from 22 health facilities in Dar es Salaam. The majority of participants 76.2% (n=93) were female and the mean age was 39.3 (Standard Deviation = 10.68). A little over a half (54.1%) of the participants were nurses (n=66)while physicians were 25.4% (n=31); and other cadre(clinical officers=15,assistant clinical officers=6,pharmacyst=2and specialist=2)constituted 29.6% (n=25).About 1 in 4 (26.2%; n = 32) of the study participants were certificate holder, 44.3% (n=54) were diploma holders and 29.5% (n=36) were degree and masters holders. About 92.6% (n=113) of participants had attended trainings on TB/HIV where 62% had at least 2 trainings and 11.5% had received three or more trainings. About eight percent (7.8%; n=9) had not received any training on TB/HIV**.** Of those who had received training on TB/HIV**, a**bout 78.8% (n=89) had at least one training on IPT where as 21.2% (n=24) had not received any training on IPT**.**

Table 1: Socio-demographic characteristics of clinicians (N=122)

Characteristics	Category	Frequency n (%)
Age, years	**Mean (SD)***	
	20-39	30 (24.6)
	30-39	25 (20.5)
	40-49	36 (29.5)
	≥50	31 (25.4)
Sex		
	Male	29 (23.8)
	Female	93 (76.2)
Cadre		
	Nurse midwife	44 (36.1)
	Nurse officer	22 (18.0)
	Physician	31(25.4)
	Others	25 (20.5)
Qualification		
	Certificate	32 (26.2)
	Diploma	54 (44.3)
	Degree and above	36 (29.5)
Type of health facility		
	Government hospital	31 (25.4)
	Government health center	50 (41.0)
	Government dispensaries	30 (24.6)
	Faith based health Centre	11 (9.0)
Duration working at CTC, years	Mean (SD)	5.53 (4.57)
	Less than 3yrs	44(36)
	3-5 yrs	28(23)
	>5years	50(41)
Training on TB/HIV		
	Yes	113 (92.6)
	No	9 (7.4)
Training on IPT services(among clinicians attended TB/HIV trainings)		
	Yes	89(78.8)
	No	24 (21.2)
Number of training on IPT attended		
	Not attended	24(21.2)
	1-2	76(67.3)
	≥3	13 (11.5)

* **Standard Deviation**

4.1.1 Distribution of overall and individual domains of Isoniazid preventive therapy (IPT) practiced by clinicians attending PLHIV in Dar es Salaam

About 93.4% of the participants reported to conduct all components of IPT provision (counseling, TB screening, IPT prescription and monitoring of progress of their clients/patients). All participants (100%) reported to do counseling and TB screening of their patients. A majority of participants 94.3% prescribe IPT and 93.4% monitor clients post IPT provision; as shown in Figure 1 below:-

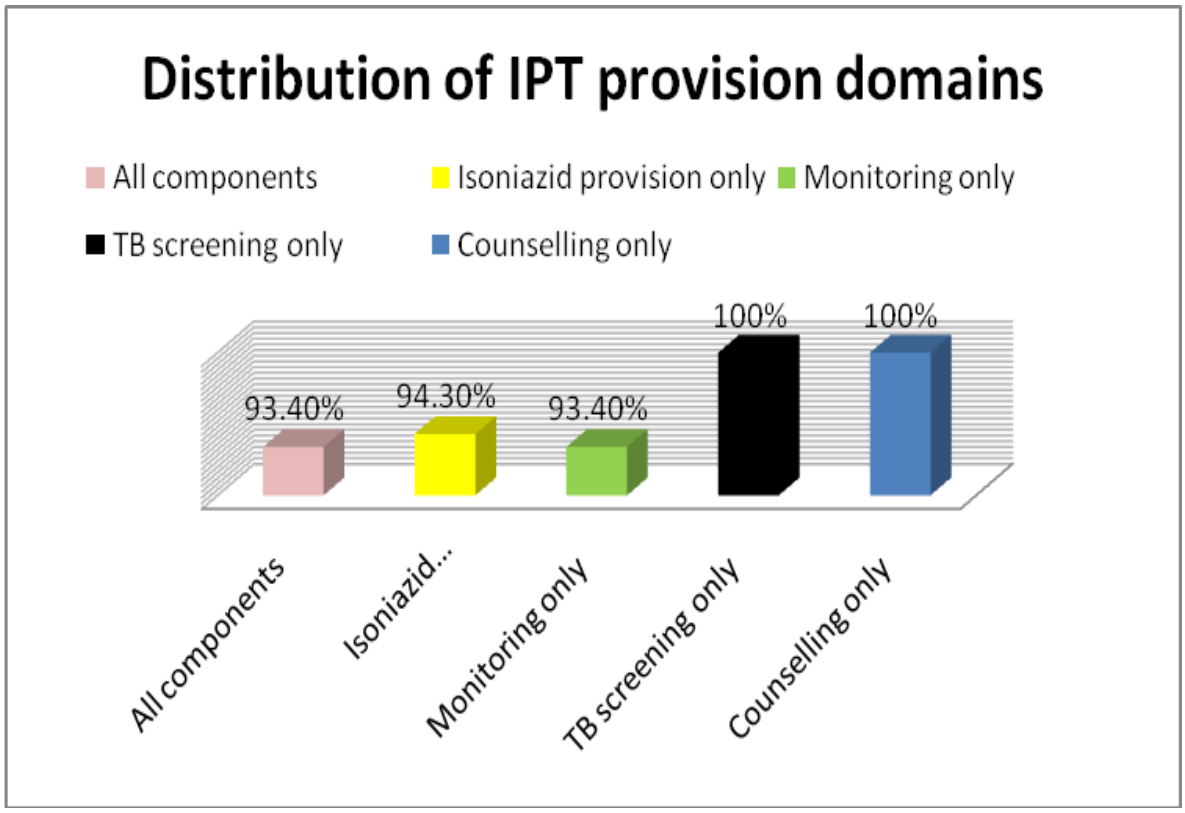


Figure 1: **Distribution of all components and individual domains of IPT among clinicians attending PLHIV in Dar es Salaam.**

4.2 Cascade of IPT implementation

According to the quarterly report of July to September 2018 in the study clinics, a total of 61,441 PLHIV were attended; out of which 51,335(84.9%) were screened for TB and 452 founded to be TB positive and 50,883 were TB negative.

Out of the 50,883 PLHIV who were found to be TB negative and thus eligible for IPT; only 4,466 (7.26%) PLHIV were started on IPT.

In-depth interview with CTC's In-charges revealed that majority of the facilities had coverage for IPT less than 25% and that they couldn't reach their 2018 targets. The main reason for poor coverage was mainly due to shortage of Isoniazid in their facilities. *'I remember between January to March 2017 we didn't have Isoniazid; hence we failed to initiate IPT even to one client. Around April to October 2017 we received Isoniazid that was suffice to cover only three hundred clients until October 2017 when we started receiving enough amount of Isoniazid up to* now' (CTC-Incharge, Magomeni Health Centre).

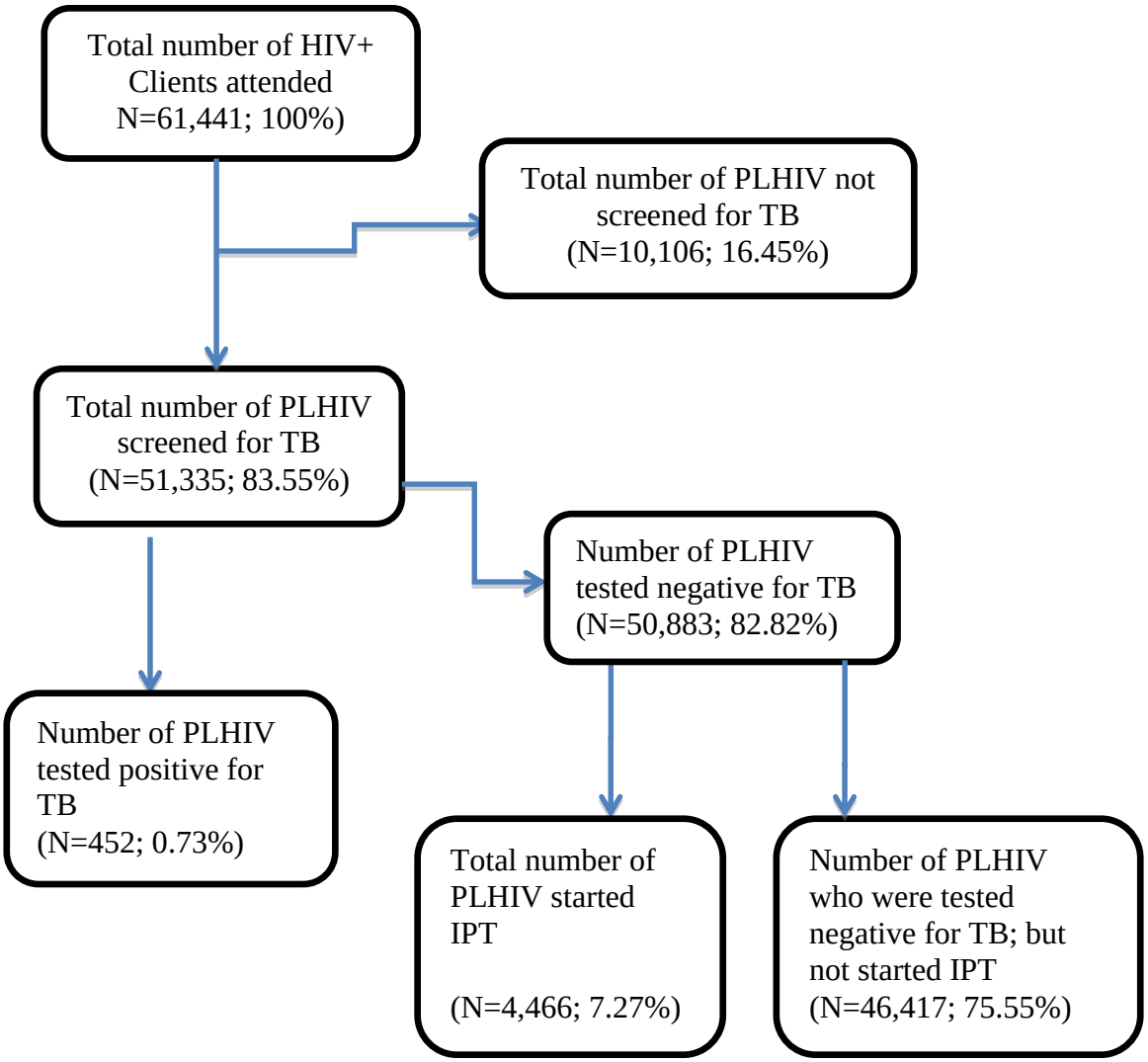


Figure 2: A flow diagram showing overall cascade of IPT implementation in the study clinics (1st July to 30th September 2018).

4.3. Individual factors affecting clinician's practices

Table 2: Individual factors affecting clinicians' practices on IPT provision

Individual factors	Clinician's practice Yes n (%)	No n (%)	Total	P value
Age				
20-29	27 (90.0)	3 (10.0)	30	
30-39	18 (72.0)	7 (28.0)	25	
40-49	34 (94.4)	2 (5.6)	36	
≥50	27 (87.1)	4 (12.9)	31	0.074
Sex				
Male	23 (79.3)	6 (20.7)	29	
Female	83 (89.2)	10 (10.7)	93	0.166
Profession				
Nurse midwife	35 (79.6)	9 (20.4)	44	
Nurse officer	20 (90.9)	2 (9.1)	22	
Physician	28 (90.3)	3 (9.7)	31	
Others	23 (95.8)	2 (4.2)	24	0.390
Qualifications				
Certificate	28 (87.5)	4 (12.5)	32	
Diploma	48 (88.9)	6 (11.1)	54	
First degree and above	30 (83.3)	6 (16.7)	36	0.773
Training on TB/HIV				
Yes	100 (88.5)	13 (11.5)	113	
No	6 (66.7)	3 (33.3)	9	0.062
Training on IPT services				
Yes	84 (93.3)	6 (6.7)	90	
No	22 (68.8)	10 (31.2)	32	**<0.001**
Number of trainings on IPT attended				
Not attended	22 (68.8)	10 (31.2)	32	
1-2	71 (93.4)	5 (6.6)	76	
≥3	13 (92.9)	1 (7.1)	14	**0.002**
Type of health facility working at				
Government hospital	25 (80.6)	6 (19.4)	31	
Government health Centre	43 (86.0)	7 (14.0)	50	
Faith based health Centre	10 (90.9)	1 (9.1)	11	
Government dispensary	28 (93.3)	2 (6.7)	30	0.504
Knowledge				
Low	5 (50.0)	5 (50.0)	10	
Moderate	38 (86.4)	6 (13.6)	44	
High	63 (92.6)	5 (7.4)	68	**0.001**
Attitude				
Negative	3 (75.0)	1(25.0)	4	
Neutral	51 (82.3)	11 (17.7)	62	
Positive	52 (92.9)	4 (7.1)	56	0.181

About 86.9% (n=106) of clinicians attempt all domains of IPT provision, out of that female were 83(89.2% of female) and male were 23(79.3% of male); this difference is not statistically significant (p=0.166).

Clinicians of age group (40-49) years have high percentage of clinicians (94.4%) who practices IPT provision properly compared to other age groups; though it is not statistically significant (p=0.074). Clinicians who had training on TB/HIV have higher percentage (88.5%) of proper IPT provision compared to those who did not attended trainings on TB/HIV; though it is not statistically significant (p=0.06). Clinicians who attended at least on training session of IPT have higher percentage of proper IPT provision compared to those who did not attended training on IPT; the difference is very significant (p<0.001).Clinicians who have attended at least two training session of IPT training have high percentage of proper IPT provision compared to those who did not attended IPT trainings; the difference is very significant (p=0.002).Clinicians with high knowledge on IPT have high percentage of proper IPT provision (92.6%) compared to those with moderate knowledge (86.4%) and those with low knowledge(50%); this difference is very significant (p=0.001). Clinicians with positive attitude have high percentage (92.9%) of proper IPT practice compared to those with negative attitude (75%), although it is not statistically significant (p=0.181).

4.4 Facility factors

4.4.1 Isoniazid stock-out status.

Out of 122 participants in this research, about 48 (39.34%) of them reported Isoniazid stock-out for more than a month; 30 participants (24.59%) reported Isoniazid stock-out for less than a month while 44 participants (36.1%) reported no Isoniazid stock-out in their facilities.

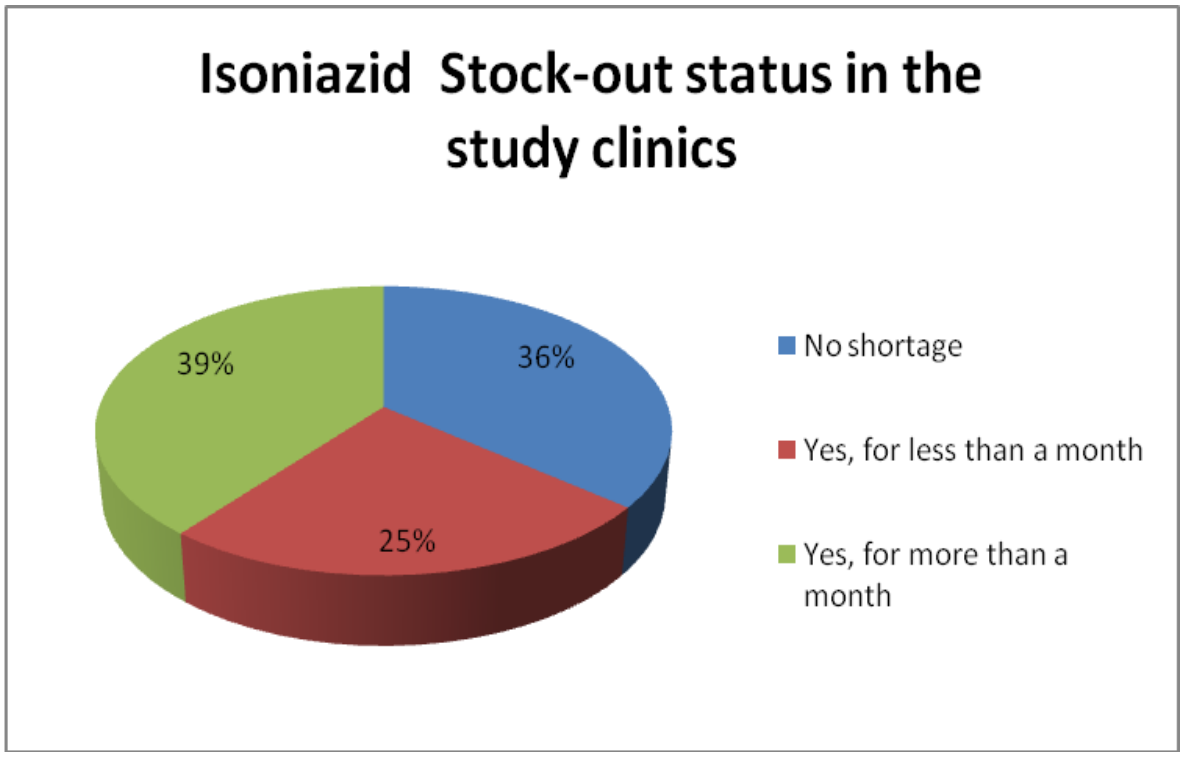


Figure 3: The figure above shows the Isoniazid stock-out status in the study clinics between 1st October 2017 and 30th September 2018.

Table 3: Bivariate regresion of facility factor affecting clinicians practices

	Clinician's practice			
Facility factor	**Yes**	**No**	**Total**	**P- value**
	n (%)	**n (%)**	**N**	
Isoniazid stock out status				
No report of Isoniazid stock out	38 (86.36)	6 (13.64)	44	
Report of Isoniazid stock out for less than a month.	28 (93.33)	2 (6.67)	30	P<0.025
Report of Isoniazid stock out for more than a month	41 (85.42)	7 (14.58)	48	

The bivariate regression of Isoniazid stock out status shows strong association between the Isoniazid stock-out status and clinicians practices; in which case the long period of Isoniazid stock-out leads to large percentage of clinicians who don't practice IPT provision and the inverse is true (P<0.025).

Inconsistent supply of Isoniazid was the most frequently reported in all study clinics especially in the last year 2017; and led to poor IPT coverage in the respective CTC clinics and the Region as a whole. One CTC in-charge said that**.** ***'The issue of inconsistent IPT supply persist since 2017 up to August 2018, IPT used to be available for a short period; therefore we used to make some calculations so that we can provide IPT to few selected clients and then we stopped. From August 2018 up to now the IPT availability is sufficient and staffs are very courageous to provide IPT to eligible PLHIV' (CTC-Incharge, Buguruni Health Centre).***

4.4.2 Availability of TB screening tools

The availability of TB screening tools in the CTC's was not sufficient in the last year of 2017 as reported by majority (70%) of CTC's in-charges; but since October 2017 onwards, the availability of TB screening tools was sufficient and was properly utilized in all CTC's providing IPT. One clinician said that ***'During that time of establishing IPT provision to PLHIV we had very few TB screening tools, and only few clinicians were trained for IPT; now days TB screening tools are available in every consultation rooms and they are laminated'.(CTC-Incharge, Buguruni-Anglican Health centre)***

4.5 Administrative factors affecting clinician practice on IPT

4.5.1 Trainings, mentorships and supervisions to clinicians

The results show that 73.8% (n=90) of clinicians attended at least one session of IPT training and 26.2% (n=32) of clinicians didn't attended even one session of IPT training.

During interview it was reported that there were few training opportunities on IPT among clinicians working on CTC's providing IPT; while mentorships and supervision were conducted frequently. The following quotes illustrate the above interpretation:

'We have a plan for mentorship in our facility and I have been conducted clinical mentorship for TB, IPT and HIV because I'm a clinical mentor. In our facility we are in better condition whereby all staffs have good knowledge about IPT and I work hard to make sure that all staffs knows what are they supposed to accomplish for their clients'(CTC-Incharge, Buguruni Health Centre).

4.5.2 Motivation for clinicians

During interview, all CTC's in-charges reported that there is no special motivation from the Government to the clinicians for IPT provision, but they depend from implementing partner for financial support. Their concerns about motivation to clinicians during In-depth interview can be illustrated by the following quotes:-

'We were receiving motivation from implementing partners for clinicians and other staffs working in CTC; but currently we haven't received because the financial year for implementing partner has elapsed. We are expecting that in the new financial year the implementing partners will provide for us. Sincerely we have no other source for monetary motivation other than implementing partners' (CTC-Incharge, Magomeni health centre).

4.6 Factors affecting clinician's practices on IPT provision.

Table 4: Multivariate logistic regression of factors affecting clinician practice on IPT

Individual Factors	Crude OR (95%CI)	Adjusted OR (95%CI)
Age		
20-29	3.5**(0.79 to 6.58)	7.67*(1.15 to 50.80)
30-39	Ref	Ref
40-49	6.61*(1.24 to 35.19)	6.82 (0.76 to 60.76)
≥50	2.62 (0.67 to 10.28)	4.76 (0.7 to 32.18)
Sex		
Female	2.16***(0.71 to 6.58)	4.9*(1.00 to 24)
Male	Ref	Ref
Training on TB/HIV		
Yes	3.84 (0.85 to 17.26)	0.61 (0.05 to 6.86)
No	Ref	Ref
Training on IPT		
Yes	6.36**(2.08 to 19.41)	9.53 (0.48 to 189.88)
No	Ref	Ref
Number of training sessions attended		
1-2	6.4**(1.99 to 20)	1.00 (0.06 to 14.73)
≥3	5.9 (0.67 to51.59)	1.00
Not attended	Ref	Ref
Knowledge		
High	12.6**(2.7 to 58.66)	18.1**(2.12 to 154.08)
Moderate	6.33**(1.4 to 28.64)	10.05*(1.18 to 85.02)
Low	Ref	Ref

* *P value < 0.05;* ** *P value < 0.01;* *** *P value < 0.001*

In bivariate logistic (Table 2) clinician's age, clinician's training on TB/HIV, clinician's training on IPT, number of sessions on IPT training among clinicians and knowledge level of clinicians shows significant association to clinician's practices on IPT. Clinicians of age 40-49 were more likely to practice IPT provision properly compared to other age group (OR=6.6; 95% CI= 1.24 to 35.19; P=0.02). Clinicians who attended training on IPT are 6.36 times more likely to practice IPT provision properly compared to those who didn't attended IPT training (OR=6.36; 95% CI= 2.08 to 19.41; P=0.001). Clinicians who had at least two IPT training sessions are more likely to practice IPT provision properly compared to those who didn't attended IPT training(OR=6.45; 95% CI=1.99 to 20.90; P= 0.002). Clinicians who have high level of knowledge pertaining IPT are 12.6 times more likely to practice IPT provision properly compared to those with low level of knowledge (OR=12.6; 95% CI= 2.7 to 58.66; P= 0.001); also clinicians with moderate level of knowledge pertaining IPT are more likely to practice IPT provision properly compared to clinicians with low level of knowledge (OR=6.33; 95% CI=1.4 to 28.64; P= 0.017).

Age, sex, high knowledge level and moderate knowledge level are significantly associated with clinician's practices in multivariate logistic regression that include all individual factors variable and other variables with p<0.2.Clinicians aged (20-29) were more likely to practice IPT provision regularly compared to other age group(AOR= 7.67; 95% CI= 1.15 to 50.8; P= 0.035). Female clinicians were 4.99 times more likely to practice IPT provision properly compared to clinicians of opposed sex (OAR= 4.99; 95% CI=1-24; P= 0.049).

Clinicians with high level of knowledge on IPT were 18.1 times more likely to practice IPT provision properly compared to clinicians with low level of knowledge on IPT (AOR= 18.1; 95% CI=2.12 to 154; P= 0.008); also clinicians with moderate level of knowledge on IPT are 10.05 times more likely to practice IPT provision properly compared to clinician with low level of knowledge on IPT (AOR= 10.05; 95% CI= 1.18 to 85; P= 0.034).

In bivariate regression clinicians who attended IPT trainings were more likely to practice IPT provision properly compared to those who didn't attended IPT trainings; but in multi-logistic regression the different is not significant.(P= 0.14).

CHAPTER FIVE

5.0 DISCUSSION

5.1 Cascade of IPT implementation

The IPT implementation cascade of the study clinics for the period of three months from July to September 2018(quarterly report) was 7.27%; whereby out of the 50,883 PLHIV who were eligible for IPT only 4,466 started IPT. This is low compared to the WHO 2015 targets and WHO 2025 targets (WHO 2017); also it can't correlate with the Tanzania National IPT coverage of 2017 which was 8.5% (WHO 2017).

The IPT implementation in Tanzania is highly affected by those factors that direct affect the clinician's practices in IPT provision. We have found that despite the fact that 93.4% of clinicians committed themselves that they are providing Isoniazid to eligible PLHIV, the percentage of IPT provision revealed that there is a big gap between what clinicians have said and the reality; hence the big challenge is not about TB screening in majority of study clinics, but mostly is about IPT prescription.

Another factor that led to poor IPT coverage was Inconsistent supply of Isoniazid in our facilities especially in financial year 2017/2018. As we found in the Isoniazid stock-out status about 63.9% of clinicians report history of Isoniazid stock-out in their facilities for at least less than a month in the financial year 2017/2018. This result is consistent with study conducted in Addis Ababa-Ethiopia, where 42.3% of clinicians noted that their facility experienced INH stock-out over the past three months (Tikuye 2013).

5.2 Individual factors affecting clinician's practices on IPT provision.

The knowledge level among clinicians have significant influence on clinician's practices on IPT provision; whereby clinicians with high level of knowledge have significantly higher likelihood of practicing IPT provision properly compared to those with low level of knowledge. The likelihood of proper practices is about 92.6% among clinicians with high level of knowledge while it is 50% for clinicians with low level of knowledge. These findings correlate with the qualitative study conducted in South Africa that found out that health care

providers knowledge and experience as primary barrier for the wide implementation of IPT (Lester 2010). Also another research revealed that poor knowledge of guideline and inconsistent in IPT prescription practices have impact to clinicians practices (Mindachwe 2014).

Positive attitude among clinicians increases the likelihood of proper IPT practice. The percentage of clinicians who practice IPT provision properly was higher among clinicians with positive attitude (92.9%) compared to clinicians with negative attitude (75%). Similar findings have been reported in Ethiopia where clinicians with positive attitude have good practice on IPT provision compared to those clinicians with negative attitude (Tikuye 2013).

Female gender has high likelihood of proper IPT practices compared to male gender. This is because most of female are submissive to the guidelines and have positive attitude toward IPT provision compared to male.

5.3 Facility factors affecting clinician's practices on IPT provision.

Inconsistent supply of Isoniazid within the study clinics was reported by about 63.9% of clinicians participated in this study. These findings correlate with study conducted in Addis Ababa-Ethiopia, where 42.3% of clinicians noted that their facility experienced INH stock-out over the past three months (Tikuye 2013). Another study in Ethiopia reported that only 47% of health facilities received full quantity of drugs they ordered (Mudzteba et al 2015). The reason for Isoniazid stock outs in many HIV/AIDS clinics is lack of an effective system to manage drug supply (Legesse et al 2014).

Poor availability and access to accurate TB diagnostic technologies among PLHIV was reported by about 70% of CTC's in-charges working in the study clinics. CTC's in-charges indicated that diagnosing TB in PLHIV was challenging, leading to uncertainty in determining eligible candidates for IPT. This result correlate with the study conducted in Kenya which found that the existing symptomatic screening tool failed to adequately detect TB among pregnant women (Kosgei 2011). In a meta-analysis of 12 observational studies, the sensitivity of the symptomatic based TB screening tool was 78.9% and specificity was 49.6% (Getahun

2011). However, another study assessing the symptom-based screening tool among PLHIV in Tanzania found a substantial false negative rate of 28.6% (Shayo 2014).

The availability of TB screening tools in the CTC's was not sufficient in the last year of 2017 as reported by majority (70%) of CTC's in-charges; but since October 2017 onwards, the availability of TB screening tools was sufficient and was properly utilized in all CTC's providing IPT. This finding correlates with the quantitative results which showed that all 122 (100%) clinicians interviewed conducts TB screening using TB screening tools.

5.4 Administrative factors affecting clinician's practices.

There is high likelihood of good IPT practices among clinicians who have attended IPT training compared to those clinicians who didn't attend IPT training. In our study clinics about 72.8%% of clinicians attended at least one training on IPT, and in most cases used to be refresher course and take few days (1-5 days); while about 26,2% of clinicians didn't attend even one training on IPT. This might be the reason of low knowledge among clinicians on IPT as well as low IPT coverage in our study clinics which was 7.27%. Similar findings has been reported in 2017 in Addis Ababa, Ethiopia where lack of sufficient and timely training on IPT was the strongest factor for poor clinicians practices on IPT provision (Lai 2017). The findings contradict the study done in Brazil [12] which reveals that IPT related training is practically oriented and takes a considerable length of time. The findings further noted that IPT and TST for patients in clinics started with training of clinicians at each clinic and progressed at 44 weeks.

The likelihood of good IPT practices increases as the number of IPT trainings attended by clinicians' increases. Clinicians who have attended at least two training sessions of IPT trainings have high percentage of proper IPT provision compared to those who did not attended IPT training. Findings revealed that, training had significant effect on IPT knowledge where number of training sessions determined retention of IPT knowledge: The more the training sessions the more the knowledge retention. For the clinicians to provide comprehensive IPT services to the patients, a single training of one to five days was not enough. Most of clinicians provide IPT services through experience.

Mentorship and supervision has been conducted to all study clinics, though there is differences in terms of frequencies of mentorships and supervisions from one study clinic to another due to their differences in Municipal authorities.

All CTCs have no sustainable system of motivation to clinicians; majority of CTC depend on financial support from the Implementing partner like MDH, in order to give clinicians some amount as motivation to them.

5.5 Conclusion

This study gives an insight of the complexity of factors affecting IPT Implementation and how to elucidate these factors. The Implementation of IPT in Dar es Salaam was low with only 7.27% coverage. The clinicians practices on IPT provision in this context was influenced by factors at different levels namely; individual factors (knowledge & attitude), facility factors (Inconsistent Isoniazid supply and lack of modern diagnostic techniques) and administrative factors (lack of trainings on IPT& lack of motivation). Ensuring optimal clinician's practices on IPT provision will require a robust engagement with both clinician's and administrators by policy makers and Implementing partners to support clinicians in IPT provision.

5.6 Recommendations

1. Health managers, drug suppliers and implementing partners should be committed to ensure an un-interrupted Isoniazid supply for the success of IPT Implementation.
2. There must be well coordinated trainings, mentorships and supervisions programs to all clinicians who prescribe IPT to PLHIV in order to increase their levels of knowledge on IPT; to increase awareness on IPT targets and set goals for improving IPT Implementation.
3. Policy makers, health managers and Implementing partners should conduct regular monitoring and evaluation of IPT provision program.
4. Policy makers, health managers and Implementing partners should establish sustainable system of motivation to clinicians.

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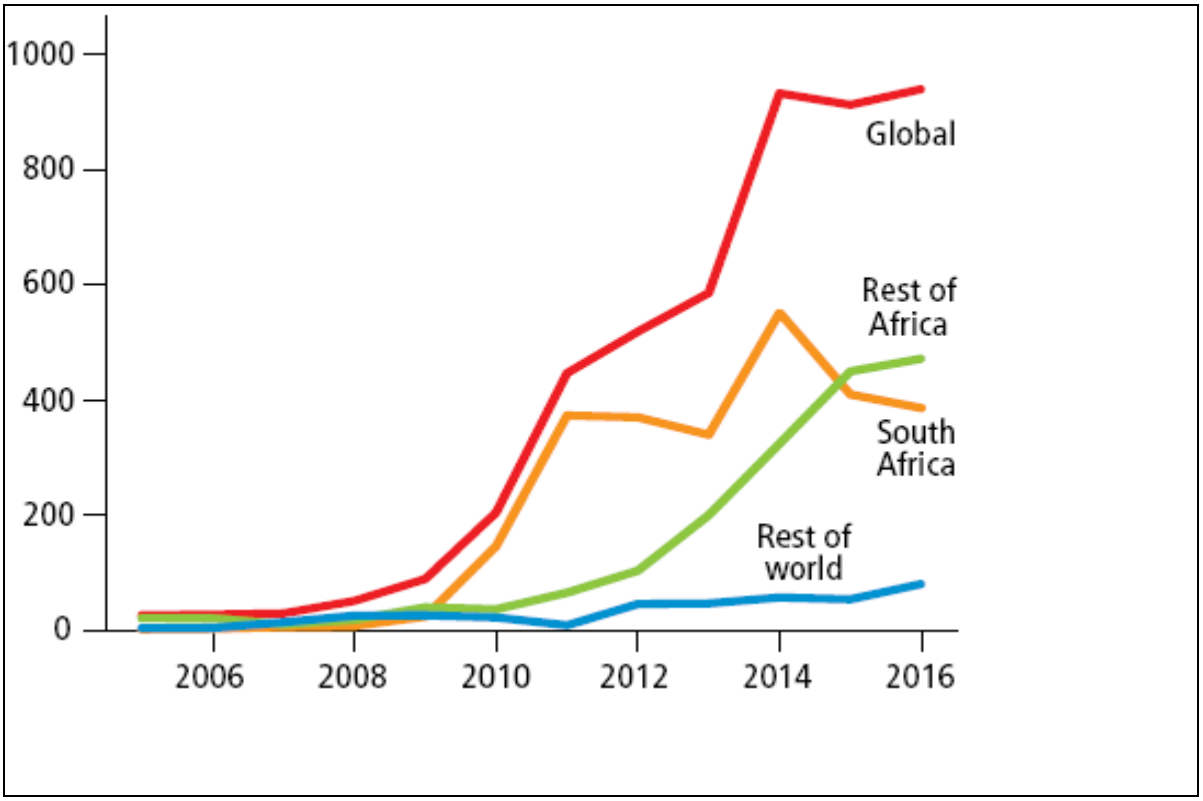
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APPENDICES

Appendix 1: Provision of TB Preventive Treatment to PLHIV in 2005-2016; WHO Global Tb Report 2017.



***World Health Organization. "Global tuberculosis report 2017"(2017)**

Appendix 2: Precede Model

The PRECEDE model is a comprehensive framework which can effectively guide the examination of barriers to evidence-based interventions and development of action plans (Green 2005). The PRECEDE model facilitates the identification of priorities and the setting of objectives, based on the premise that just as a medical diagnosis precedes a treatment, an educational diagnosis should precede an intervention plan. The phases under this conceptual model help to facilitate the potentially complex process of planning by guiding the diagnosis of health issues and development of interventions. There are four phases of the PRECEDE model, these includes (1) social, (2) epidemiological, behavioral and environmental, (3) educational and ecological, as well as (4) administrative and policy assessments.

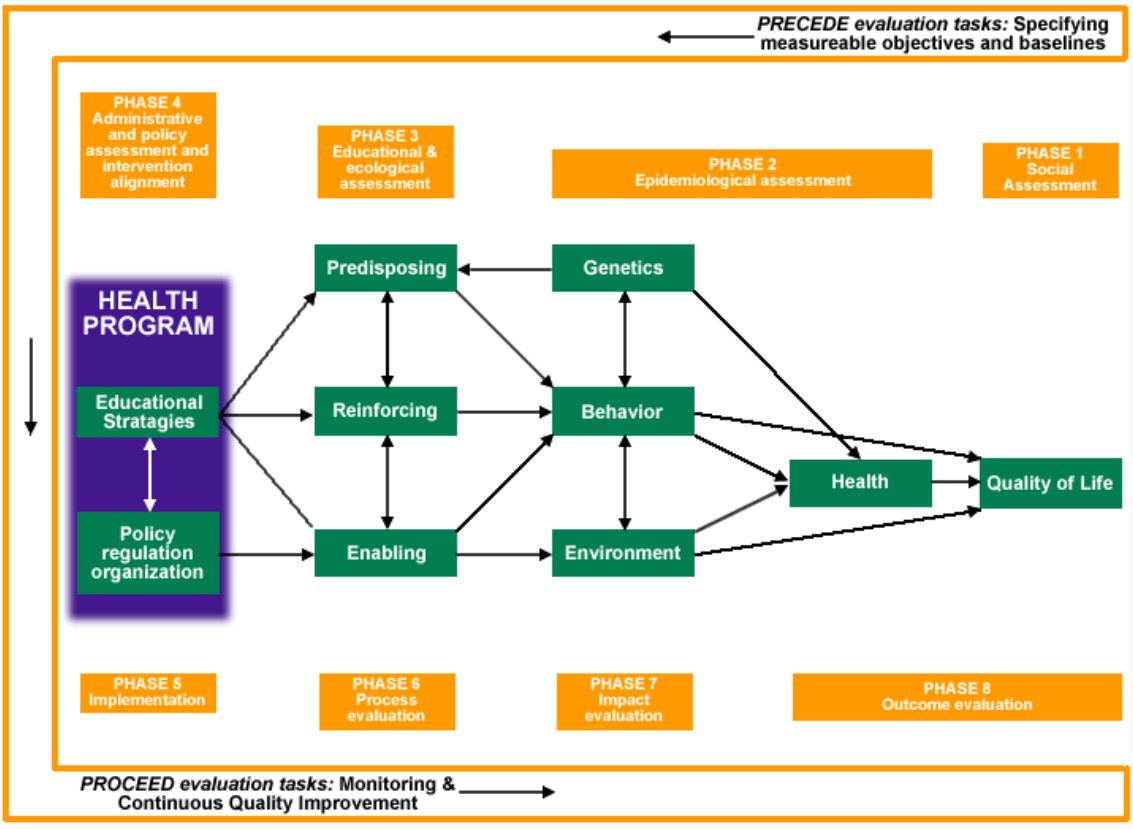


FIGURE 1. GENERIC REPRESENTATION OF THE PRECEDE-PROCEED MODEL. FROM L. GREEN AND M. KREUTER. (2005). HEALTH PROMOTION PLANNING: AN EDUCATIONAL AND ECOLOGICAL APPROACH (4 TH ED.). MOUNTAIN VIEW , CA : MAYFIELD PUBLISHERS.

PHASES OF PRECEDE Model

NO	PHASES	TASK
1	**SOCIAL DIAGNOSIS**	Identify and evaluate the problem that have an impact on the quality of life of a given population of interest.
2	**EPIDEMIOLOGICAL DIAGNOSIS**	Assess magnitude of health problem and identify issues or aspirations on which the designed intervention will focus.
	BEHAVIORAL AND ENVIRONMENTAL DIAGNOSIS	Identify key environmental and behavioral factors linked to the goals that are identified in the social or epidemiological diagnosis.
3	**EDUCATIONAL AND ECOLOGICAL DIAGNOSIS**	Assess existing, knowledge, skills, attitude, and beliefs regarding the target behavior to gain insight to the development of interventions; identify determinants of change, objectives of change and priorities that can be converted into a program plan.
4	**ADMINISTRATIVE AND POLICY ASSESSMENT**	Assess capacity and resources available to implement the developed intervention and change policies.

Adopted from (Green 2005)

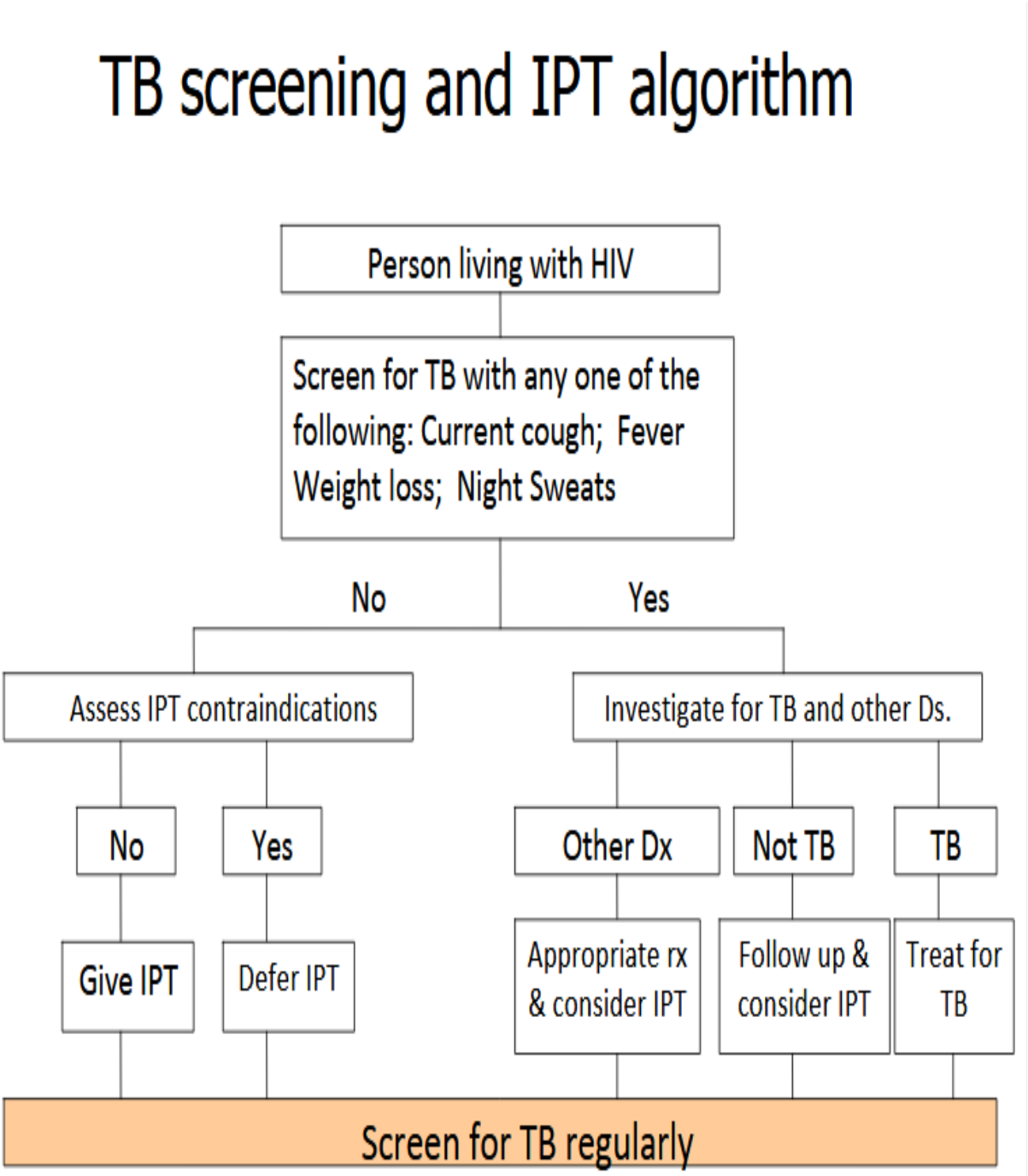
Phases 1 (social diagnosis) and 2 (epidemiological, behavioral, and environmental diagnosis) of the model assess the overall scope of the health problem at hand. Phase 3 (educational and ecological diagnosis) of the model identifies factors that predispose, reinforce, and enable the targeted behavior that is being examined. These 3 factors affecting a particular behavior are further defined as:

1. Predisposing factors- characteristics of a person that motivates behavior prior to or during the occurrence of that behavior, including an individual's knowledge, beliefs, values, and perceptions, for example, concerns about ruling out active TB.

2. Enabling factors- characteristics of the environment that facilitate action and any skill or resource required to attain specific behavior. They include programs, services, availability and accessibility of resources, or new skills required to enable behavior change, for example reminders and job aids to assist IPT prescription.

3. Reinforcing factors- incentives either in the form of rewards /punishments following or anticipated as a consequence of behavior, for example peer support or supervisor feedback on IPT.

Appendix 3: WHO TB Screening And IPT Algorithm



Appendix 4: Cascade of IPT implementation in the study clinics

S/N	Health facility	Number of PLHIV who received care during the reporting quarter(July to September 2018)	Number of PLHIV screened for TB in the reporting quarter(July to September 2018)	Number of PLHIV who were tested TB positive and started TB treatment	Number of PLHIV eligible for IPT	Number of PLHIV who were eligible for IPT; and started IPT during the reporting quarter
1	Amana hospital	6,619	5,214	32	5,182	312
2	Buguruni Anglican health Centre	1,099	1,047	2	1,045	19
3	Buguruni health Centre	4,610	3,573	14	3,559	86
4	Buza Dispensary	831	749	23	726	292
5	Gerezani dispensary	733	690	3	687	201
6	Hananasifu dispensary	1,063	632	2	630	98
7	Kijitonyama dispensary	1,039	968	6	962	50
8	Kizuiani dispensary	3,056	2,435	25	2,410	108
9	Magomeni health Centre	3,864	3,099	66	3,033	104
10	Makuburi	472	460	2	458	84

	dispensary					
11	Mbagala hospital	6,164	5,290	68	5,222	270
12	Mnazi mmoja hospital	5,997	5,609	39	5,570	191
13	Mwananyamala hospital	6,730	5,736	58	5,678	327
14	Mwenge dispensary	1,847	1,658	2	1,656	83
15	Sinza hospital	4,007	3,884	31	3,853	856
16	Tabata A dispensary	2,985	2,842	8	2,834	242
17	Tabata NBC dispensary	588	559	2	557	121
18	Tabata Segerea dispensary	1,026	911	4	907	402
19	Tandale health Centre	3,446	2,995	25	2,970	154
20	Vijibweni hospital	1,575	1,472	15	1,457	347
21	Vingunguti dispensary	2,399	2,211	16	2,195	34
22	Yombo vituka health Centre	1,291	1,291	9	1,282	85
	TOTAL	61,441	51,335	452	50,883	4,466

Appendix 5: Questionnaire (English Version)

SN	Question	Response	Code
SECTION 1: DEMOGRAPHIC CHARACTERISTICS			
1	Gender	1. Male 2. Female	SEX
2	Age (in years)	| | | Years	AGE
3	Profession	1. Nurse midwife 2. Nurse officer 3. Physician 4. Specialist 5. Others, _____ *(Specify)*	PRO
4	Qualifications	1. Certificate, 2. Diploma, 3. Bachelors/MD 4. Masters 5. Others, _____ *(Specify)*	QUAL

SN	Question	Response	Code
5	Type of health facility working at:	1. Government hospital 2. Government health centre 3. Private hospital 4. Private health centre 5. Others, _____ *(Specify)*	HFTYP
6	How many months/years have you worked in a CTC?	☐☐ Months ☐☐ Years *(If less than 12 months, fill in years)*	CTCDU
7	Have you ever been trained on integration of HIV and TB services?	1. Yes 2. No	COTRET
8	Have you ever been trained specifically on IPT?	1. Yes 2. No Go to Q 10	TRAIN
9	If the answer is yes in question 1.8; How many times you attended the IPT trainings?	☐☐ Sessions/times	SESSION
	SECTION 2: KNOWLEDGE ABOUT IPT		

<table>
<tr><th>SN</th><th>Question</th><th>Response</th><th>Code</th></tr>
<tr><td>10</td><td>In your opinion, do you think that IPT reduces the risk of TB infection for HIV positive patients?</td><td>1. Yes
2. No</td><td>RISK</td></tr>
<tr><td>11</td><td>Which combinations of TB screening symptoms is a physician required to use to identify whether PLHIV are eligible for IPT or not?</td><td><table><tr><td>Symptoms</td><td>1.Yes</td><td>2.No</td></tr><tr><td>a. Current cough, rash, weight loss, and fever.</td><td></td><td></td></tr><tr><td>b. Fever, current cough, night sweet, and rash.</td><td></td><td></td></tr><tr><td>c. Current cough, fever, weight loss, and night sweats.</td><td></td><td></td></tr><tr><td>d. Weight loss, nausea, fever, and rash.</td><td></td><td></td></tr></table></td><td>SCREEN</td></tr>
<tr><td>12</td><td>Is chest radiography a requirement for screening PLHIV for IPT eligibility?</td><td>1. Yes
2. No</td><td>CXR</td></tr>
<tr><td>13</td><td>Who is eligible to receive IPT?</td><td><table><tr><td>Candidate</td><td>1. Yes</td><td>2. No</td></tr><tr><td>a. All infants of mother’s with pulmonary TB</td><td></td><td></td></tr><tr><td>b. All children <5 yrs in contact with smear positive TB patients</td><td></td><td></td></tr><tr><td>c. All HIV positive patients who don’t have active TB</td><td></td><td></td></tr><tr><td>c. All above cases</td><td></td><td></td></tr><tr><td>d. Only b& c</td><td></td><td></td></tr></table></td><td>ELIGBLE</td></tr>
</table>

SN	Question	Response	Code
14	Is being pregnant a contraindication for starting IPT?	1. Yes 2. No	PREGNT
15	Can IPT be used as secondary prophylaxis for people with past history of TB?	1. Yes 2. No	PROPHY
16	Which of the following is the best TB preventive treatment drug?	1. Isoniazid 2. Rifampicin 3. Ethambutol 4. None	TBPREV
17	Which is the right Isoniazid dose used for chemotherapy to prevent TB in adults living with HIV?	1. 100 mg/day 2. 200 mg/day 3. 300 mg/day 4. 150 mg/day 5. None of the above	INHDOSE
18	How do you assess whether your patients are adherent to IPT or not?	1. Patient self-report 2. Detailed interview 3. Pill counts 4. Pharmacy refill data 5. All above 6. None of the above	ASSADH

<table>
<tr><th>SN</th><th>Question</th><th>Response</th><th>Code</th></tr>
<tr><td>19</td><td>In your opinion, mention the major barriers for successful implementation of IPT in your area?</td><td>1. _____
2. _____
3. _____
4. _____
5. _____</td><td>BARIER</td></tr>
<tr><td></td><td colspan="2">SECTION 3: ATTITUDE TOWARDS IPT EFFICACY AND PROVISION
Instructions:
Place a ✓□ in the box that best represents your opinion in the likert-scale measurement ranging from1 – strongly agree; 3 – undecided to 5 – strongly disagree.</td><td></td></tr>
<tr><td>20</td><td colspan="2">IPT is effective in reducing TB incidence and mortality among PLHIV
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4.Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>TBINCID</td></tr>
<tr><td>21</td><td colspan="2">PLHIV who do not have current cough, fever, weight loss or night sweats are unlikely to have active TB and should be offered IPT.
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4.Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>LTBI</td></tr>
</table>

<table>
<tr><th>SN</th><th>Question</th><th>Response</th><th>Code</th></tr>
<tr><td>22</td><td>IPT should be given to all eligible PLHIV irrespective of their immune status.
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4.Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td></td><td>CD4</td></tr>
<tr><td>23</td><td>After excluding active TB, IPT won't significantly increase the risk of developing Isoniazid resistance.
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4.Disagree</td><td>5. Strongly agree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td></td><td>INHRESI</td></tr>
<tr><td>24</td><td>Children <1 year of age should be provided with IPT if they have a household contact history with a TB case.
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4.Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td></td><td>UNDER1</td></tr>
</table>

<table>
<tr><th>SN</th><th>Question</th><th>Response</th><th>Code</th></tr>
<tr><td>25</td><td>Pregnancy is not a contraindication for IPT provision
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4.Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td></td><td>PRECON</td></tr>
<tr><td>26</td><td>Past history of TB (>2 years) is not a contraindication for IPT provision
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4.Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td></td><td>PASTTB</td></tr>
<tr><td>27</td><td>The longer the duration of IPT (>6 months), the longer the patient stays free from TB.
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4. Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td></td><td>DURATN</td></tr>
</table>

<table>
<tr><th>SN</th><th>Question</th><th>Response</th><th>Code</th></tr>
<tr><td>28</td><td>Icomply with the national and international IPT recommendations
<table><tr><td>1. Strongly Agree</td><td>2. Agree</td><td>3. Undecided</td><td>4. Disagree</td><td>5. Strongly disagree</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td></td><td>COMPLY</td></tr>
<tr><td>29</td><td>What are the limitations preventing you from complying with the recommendations?</td><td>1. _____
2. _____
3. _____
4. _____
5. _____</td><td>LIMITS</td></tr>
<tr><td></td><td colspan="2">SECTION 4: PRACTICE ON IPT PROVISION</td><td></td></tr>
<tr><td>30</td><td>Do you use the TB screening tool (algorithm) to identify PLHIV eligible for IPT?</td><td>1. Yes, always
2. Yes, sometimes
3. No</td><td>ALGORT</td></tr>
<tr><td>31</td><td>Do you encourage PLHIV to start IPT once they are eligible?</td><td>1. Yes, always
2. Yes, sometimes
3. No</td><td>START</td></tr>
</table>

SN	Question	Response	Code
32	Do you provide INH for eligible HIV+ patients?	1. Yes, always 2. Yes, sometimes 3. No	INH
		1.	
		1.	
		1.	
33	If you are providing IPT for your patients, how frequently do you refill their INH drugs prescription?	1. Daily 2. Weekly 3. Monthly 4. Every 3 months 5. Per patients convenience	FREQUENC
	CHECK: Responded 'No' to any of the following questions, Q30-35 1. Yes □ Go to Q34 2. No □ Go to Q35		

<table>
<tr><th>SN</th><th>Question</th><th>Response</th><th>Code</th></tr>
<tr><td>34</td><td>What is the main reason(s) hindering you from putting PLHIV on IPT?</td><td>
<table>
<tr><th>Reason</th><th>1. Yes</th><th>2. No</th></tr>
<tr><td>1. Fear of developing side effects</td><td></td><td></td></tr>
<tr><td>2. Fear of INH-resistance</td><td></td><td></td></tr>
<tr><td>3. Difficult to exclude active TB</td><td></td><td></td></tr>
<tr><td>4. Not sure on the benefit of IPT</td><td></td><td></td></tr>
<tr><td>5. No adequate knowledge on IPT</td><td></td><td></td></tr>
<tr><td>6. Patients refuse to take IPT</td><td></td><td></td></tr>
<tr><td>7. Patients’ poor adherence</td><td></td><td></td></tr>
<tr><td>8. Tuberculin skin test is unavailable</td><td></td><td></td></tr>
<tr><td>9. Chest x-ray is unavailable</td><td></td><td></td></tr>
<tr><td>10. Isoniazid is unavailable</td><td></td><td></td></tr>
<tr><td colspan="3">11. Other, _____
(Specify)</td></tr>
</table>
</td><td>OBSTACLE</td></tr>
</table>

SN	Question	Response	Code
35	Do you advice clients on IPT to adhere to their treatment?	1. Yes, always 2. Yes, sometimes 3. No	ADHERE
36	Do you monitor and manage clients with INH drug toxics?	1. Yes, always 2. Yes, sometimes 3. No	MONITOR
37	Did the facility experience Isoniazid stock out in the last one year?	1. Yes, for less than a month 2. Yes, for more than a month 3. No shortage	STOC-OUT
38	What is the estimated proportion of eligible PLHIV for IPT who have been initiated IPT regime for the past 6 months in your facility.	1. Less than 25% 2. Less than 15% 3. Above 25% 4. I don't know 5. Other, _____ *(Mention)*	PERCIPT
39	Please mention the major interventions required for the successful implementation of IPT in your area.	1. _____ 2. _____ 3. _____ 4. _____ 5. _____	INTERV

THE END

Appendix 6: Questionnaire (Swahili Version)

DODOSO LA KUKUSANYIA TAARIFA

KICHWA CHA HABARI CHA UTAFITI:

MAMBO YANAYOATHIRI UTENDAJI KWA WAGANGA NA WAUGUZI KATIKA UTOAJI WA DAWA YA ISONIAZID KWAAJILI YA KUKINGA UGONJWA WA KIFUA KIKUU KWA WATU WAISHIO NA VIRUSI VYA UKIMWI (VVU) NDANI YA MKOA WA DAR ES SALAAM.

SN	Swali	Jibu	Code
SEHEMU 1. TAARIFA BINAFSI ZA MSHIRIKI **MAELEKEZO: Tafadhali zungushia jibu lako sahihi ; na pia jaza kwenye eneo unalopaswa kujaza.**			
1	Jinsia	1. Mwanamme 2. Mwanamke	SEX
2	Umri wako (taja miaka)	| | | Miaka	AGE
3	Taaluma	1. Muuguzi mkunga 2. Afisa muuguzi 3. Daktari 4. Daktari bingwa 5. Nyingine _____ *(fafanua)*	PRO
4	Kiwango cha elimu	1.Astashahada, 2. Stashahada, 3. Digrii/digrii ya udaktari 4. Shahada ya uzamili	QUAL

		5.Nyingine, _____ *(fafanua)*	
5	Sehemu unapofanyia kazi	1. Hospitali ya serikali 2. Kituo cha afya cha serikali 3. Hospitali binafsi 4. Kituo cha afya cha mtu binafsi 5. Nyingine, _____ *(fafanua)*	HFTYP
6	Je ni kwa miezi/miaka mingapi umekuwa ukifanya kazi katika kitengo cha ushauri nasaha na upimaji wa VVU?	☐ ☐ Miezi ☐ ☐ Miaka *(Ikiwa ni zaidi ya miezi 12 jaza miaka*	CTCDU
7	Je ulishawahi kupata mafunzo juu ya Kifua kikuu na UKIMWI.	1. Ndiyo 2. Hapana	COTRET
8	Je ulishawahi kupata mafunzo kuhusiana na IPT?	1. Ndiyo 2. Hapana ☐ Nenda swali namba 10	TRAIN
9	Ikiwa jibu lako ni ndiyo kwenye swali namba 8; je ni mara ngapi umehudhuria mafunzo kuhusiana na IPT?	☐ ☐ Semina ngapi	SESSION

<table>
<tr><td></td><td colspan="2">SEHEMU 2:UELEWA KUHUSIANA NA DAWA YA ISONIAZID KATIKA KUKINGA UGONJWA WA KIFUA KIKUU
MAELEKEZO: Tafadhali zungushia jibu lako sahihi, na pia jaza kwenye eneo unalopaswa kujaza</td><td></td></tr>
<tr><td>10</td><td>Kwa mtazamo wako unadhani dawa ya isoniazid inapunguza uwezekano wa mtu mwenye kuishi na VVU kupata ugonjwa wa kifua kikuu?</td><td>1. Ndiyo
2. Hapana</td><td>RISK</td></tr>
<tr><td>11</td><td>Je ni lipi kati ya makundi yafuatayo ambalo lina dalili kuu nne za ugonjwa wa kifua kikuu ambazo hutumiwa na Daktari katika kuamua ama kumpatia au kutompatia Isoniazid(IPT)mtu anayeishi na VVU?</td><td>Weka alama ya vema(√) kwenye jibu lako sahihi.
<table>
<tr><th>Dalili</th><th>1.Ndiyo</th><th>2.Hapana</th></tr>
<tr><td>a.Kikohozi cha muda mfupi, kutokwa na vipele mwilini, kupungua uzito, na homa.</td><td></td><td></td></tr>
<tr><td>b.Homa, kikohozi cha muda mfupi, kutokwa jasho jingi nyakati za usiku, na kutokwa na vipele mwilini.</td><td></td><td></td></tr>
<tr><td>c.Kikohozi cha muda mfupi,homa,kupungua uzito, na kutokwa jasho jingi nyakati za usiku</td><td></td><td></td></tr>
<tr><td>d.Kupungua uzito, kichefuchefu, homa, kutokwa na vipele mwilini.</td><td></td><td></td></tr>
</table></td><td>SCREEN</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

<table>
<tr><td>12</td><td>Je unadhani x-ray ya kifua ni kipimo kinachoweza kutumika kama kigezo kimojawapo ambacho kinaweza kuamua mtu anayeishi na VVU kupewa au kutokupewa dawa ya Isoniazid (IPT)?</td><td colspan="2">1. Ndiyo
2. Hapana</td><td>CXR</td></tr>
<tr><td>13</td><td>Kwa uelewa wako nani anapaswa kupewa dawa ya Isoniazid(IPT)?</td><td colspan="2">Weka alama ya vema(√) kwenye jibu lako sahihi.
<table><tr><td>Mhusika</td><td>1.Ndiyo</td><td>2.Hapana</td></tr><tr><td>a. Watoto wachanga ambao mama zao wanaugonjwa wa kifua kikuu</td><td></td><td></td></tr><tr><td>b. Watoto wote wenye umri chini ya miaka mitano(5) ambao wanaishi na watu wenye ugonjwa wa kifuakikuu uliothibitishwa kwenye vipimo vya makohozi.</td><td></td><td></td></tr><tr><td>c. Watoto wote waishio na VVU ambao hawana ugonjwa wa kifua kikuu.</td><td></td><td></td></tr><tr><td>c. Vipengele vyote hapo juu ni sahihi</td><td></td><td></td></tr><tr><td>d. Vipengele sahihi ni namba mbili(2) na namba tatu(3) tu.</td><td></td><td></td></tr></table></td><td>ELIGBLE</td></tr>
</table>

14	Je unafikiri kuwa ujauzito ni sababu tosha kwa mama mjamzito mwenye kuishi na VVU kutoanzishiwa dawa ya Isoniazid?	1.Ndiyo 2.Hapana	PREGNT
15	Je Isoniazid inaweza kutumika kama kinga dhidi ya ugonjwa wa kifua kikuu kwa watu waishio na VVU; ambao walishaugua kifua kikuu miaka kadhaa iliyopita?	1.Ndiyo 2.Hapana	PROPHY
16	Je ni dawa ipi kati ya zifuatazo yenye ubora zaidi na yenye kufaa kutumika kumkinga mtu anayeishi na VVU dhidi ya ugonjwa wa kifua kikuu?	1. Isoniazid 2. Rifampicin 3. Ethambutol 4. Hakuna inayofaa kati ya hizo.	TBPREV
17	Je ni kiasi gani cha dozi ya Isoniazid ambayo inatosha kukinga ugonjwa wa kifua kikuu kwa watu waishio na VVU(ambao ni watu wazima).	1. 100 mg/siku 2. 200 mg/siku 3. 300 mg/siku 4. 150 mg/siku 5. Hakuna inayofaa kati ya hizo.	INHDOSE
18	Je ni kwa namna gani utaweza kutathmini matumizi sahihi ya IPT (ufuasi) kwa mtumiaji?	1.Kwa kufuata maelezo toka kwa mgonjwa. 2.Kupitia mahojiano ya kutosha baina ya mtoa huduma na mteja. 3.Kwa kuhakiki vidonge. 4.Kupitia kumbukumbu za dawa toka	ASSADH

<table>
<tr><td></td><td></td><td>famasi
5.Majibu yote hapo juu ni sahihi.
6.Hakuna jibu sahihi hapo juu</td><td></td></tr>
<tr><td>19</td><td>Taja changamoto zinazopelekea kusiwe na ufanisi katika utoaji wa dawa ya isoniazid kwaajili kukinga ugonjwa wa kifua kikuu kwa watu waishio na VVU.</td><td>1._____
2._____
3._____
4._____
5._____</td><td>BARIER</td></tr>
<tr><td></td><td colspan="2">SEHEMU 3: MITAZAMO BINAFSI KUHUSIANA NA UWEZO WA DAWA YA ISONIAZID KAMA KINGA DHIDI YA UGONJWA WA KIFUA KIKUU KWA WATU WAISHIO NA VVU; NA PILI NI KUHUSU USAHIHI KATIKA UTOAJI WA DAWA YA ISONIAZID KWA WATU WAISHIO NA VVU.
MAELEKEZO:
Tafadhali weka alama ya vema(√)katika kipengele unachokubaliana nacho katika kipimo cha maoni;ambacho kinaanzia na:- Nakubali sana(5);nakubali (4); sina maamuzi katika hili(3);sikubali(2) na sikubali kabisa(1)</td><td></td></tr>
<tr><td>20</td><td colspan="2">IPT inauwezo wa kupunguza ongezeko la wagonjwa wa kifua kikuu pamoja na vifo miongoni mwa watu waishio na VVU.
<table><tr><td>1. Nakubali sana</td><td>2. Nakubali</td><td>3.Sina maamuzi katika hili.</td><td>4.Sikubali</td><td>5.Sikubali kabisa</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>TBINCID</td></tr>
</table>

<table>
<tr><td>21</td><td>Watu waishio na VVU ambao hawana kikohozi cha muda mfupi,homa,kupungua uzito, ama kutokwa jasho nyakati za usiku; wanaouwezekano mkubwa wa kutokuwa na ugonjwa wa kifua kikuu na kwahivyo wanapaswa kupewa Isoniazid.

<table><tr><td>1. Nakubali sana.</td><td>2. Nakubali</td><td>3. Sina maamuzi katika hili.</td><td>4.Sikubali</td><td>5. Sikubali kabisa</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>LTBI</td></tr>
<tr><td>22</td><td>Isoniazid inapaswa kutolewa kwa watu wote waishio na VVU wenye vigezo vya kupewa; bila kujali hali zao za kinga mwilini.

<table><tr><td>1. Nakubali sana</td><td>2. Nakubali.</td><td>3. Sina maamuzi katika hili.</td><td>4.Sikubali</td><td>5. Sikubali kabisa</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>CD4</td></tr>
<tr><td>23</td><td>Baada ya kuwachambua wenye dalili za ugonjwa wa kifua kikuu; utumiaji wa dawa ya Isoniazid haupelekei mtumiaji kupata usugu wa dawa.

<table><tr><td>1. Nakubali sana</td><td>2. Nakubali</td><td>3. Sina maamuzi katika hili.</td><td>4.Sikubali</td><td>5. Sikubali kabisa</td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>INHRESI</td></tr>
<tr><td>24</td><td>Watoto wenye umri chini ya mwaka mmoja wanapaswa kupewa Isoniazid iwapo walishapata kuishi na jamaa wenye ugonjwa wa kifua kikuu.</td><td>UNDER1</td></tr>
</table>

	1. Nakubali sana	2. Nakubali	3. Sina maamuzi katika hili.	4.Sikubali	5. Sikubali kabisa	
25	Ujauzito sio kiashiria kinzani cha mteja kupewa Isoniazid.					PRECON
	1. Nakubali sana	2. Nakubali	3. Sina maamuzi katika hili.	4.Sikubali	5. Sikubali kabisa	
26	Historia ya kuugua ugonjwa wa kifua kikuu kwa zaidi ya miaka miwili sio kiashiria kinzani kwa mteja kupewa dawa ya Isoniazid.					PASTTB
	1. Nakubali sana	2. Nakubali	3. Sina maamuzi katika hili.	4.Sikubali	5. Sikubali kabisa	
27	Kwa kadiri mteja anavyotumia Isoniazid kwa muda mrefu (mfano kwa zaidi ya miezi sita); vivyo hivyo ndipo mteja atakuwa na kinga ya kutosha dhidi ya ugonjwa wa kifua kikuu.					DURATN
	1. Nakubali sana	2. Nakubali.	3. Sina maamuzi katika hili.	4.Sikubali	5. Sikubali kabisa	

<table>
<tr><td>28</td><td colspan="2">Je kwa ujumla unakubaliana na usemi kwamba unaendana na miongozo ya kitaifa na kimataifa kuhusu IPT?
<table>
<tr><td>1. Nakubali sana</td><td>2. Nakubali</td><td>3. Sina maamuzi katika hili.</td><td>4.Sikubali</td><td>5. Sikubali kabisa</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table></td><td>COMPLY</td></tr>
<tr><td>29</td><td>Kama hukubaliani na swali namba 28 hapo juu; taja sababu unazoamini kuwa zinapelekea usiendane na miongozo na maelekezo ya kitaifa na kimataifa.</td><td>1. _____
2. _____
3. _____
4. _____
5. _____</td><td>LIMITS</td></tr>
<tr><td></td><td colspan="2">SEHEMU 4:SHUGHULI ZA UTOAJI DAWA YA ISONIAZID</td><td></td></tr>
<tr><td>30</td><td>Je unatumia mwongozo wa kuchambua/kugundua ugonjwa wa kifua kikuu miongoni mwa watu waishio na VVU; ili kuanisha wenye vigezo vya kupewa Isoniazid?</td><td>1. Ndiyo,mara zote.
2.Ndiyo,mara kadhaa.
3. Hapana</td><td>ALGORT</td></tr>
<tr><td>31</td><td>Je huwa unawatia moyo watu waishio na VVU kuanza kutumia Isoniazid mara tu wanapokamilisha vigezo?</td><td>1.Ndiyo,mara zote.
2.Ndiyo,mara kadhaa.
3.Hapana</td><td>START</td></tr>
<tr><td>32</td><td>Je huwa unatoa dawa ya Isoniazid kwa watu waishio na VVU ambao wanavigezo?</td><td>1.Ndiyo,mara zote.
2.Ndiyo,mara kadhaa.
3.Hapana</td><td>INH</td></tr>
</table>

<table>
<tr><td>33</td><td>Ikiwa kweli unatoa dawa ya Isoniazid kwa wateje wenye vigezo; je huwa unatoa hizo dawa mara ngapi kwa mteja?</td><td>1.Kila siku.
2.Kila baada ya wiki moja.
3.Kila baada ya mwezi mmoja.
4.Kila baada ya miezi mitatu.
5.Kwakadirimgonjwa atakavyopendekeza.</td><td>FREQ</td></tr>
<tr><td></td><td colspan="2">ANGALIZO:
JE unajibu la HAPANA katika mojawapo ya maswali kuanzia swali namba 30 hadi 32?
1.Ndiyo→Nenda swali namba 34
2.Hapana→Nenda swali namba 35</td><td></td></tr>
<tr><td>34</td><td>Je ni jambo gani linakuzuia wewe usiwape dawa yaIsoniazid watu waishio na VVU ambao wanavigezo vya kupewa dawa?</td><td>Weka alama ya vema(√) kwenye jibu lako sahihi.
<table>
<tr><td>Sababu za msingi.</td><td>1.Ndiyo</td><td>2.Hapana</td></tr>
<tr><td>1. .Hofu ya kutokea usugu wa dawa</td><td></td><td></td></tr>
<tr><td>2. Hofu dhidi ya athari hasi za dawa.</td><td></td><td></td></tr>
<tr><td>3. Ugumu katika kutambua/kuchambua watu wenye ugonjwa wa kifua kikuu</td><td></td><td></td></tr>
<tr><td>4. Sina uhakika kuhusu faida za dawa ya isoniazid</td><td></td><td></td></tr>
<tr><td>5. Sina ujuzi wa kutosha kuhusu dawa ya Isoniazid.</td><td></td><td></td></tr>
<tr><td>6. Wagonjwa kukataa</td><td></td><td></td></tr>
</table></td><td>OBSTAC</td></tr>
</table>

		kutumia dawa ya Isoniazid.			
		7. Wagonjwa kutokutumia dawa ya Isoniazid kama inavyopaswa.			
		8. Kukosekana kwa kipimo cha kifua kikuu kupitia ngozi			
		9. Kukosekana kwa picha za mionzi za kifua			
		10. Kukosekana kwa dawa ya Isoniazid			
		11. Nyinginezo_____ *(fafanua)*			
35	Je huwa unawashauri wateja ambao wanatumia Isoniazid kuzingatia ufuasi wa dawa?	1.Ndiyo, mara zote. 2.Ndiyo, mara kadhaa. 3.Hapana			ADHERE
36	Je huwa unafuatilia na kutoa matibabu kwa awateja ambao wamepata athari kutokana na matumizi ya dawa ya Isoniazid?	1.Ndiyo, mara zote. 2.Ndiyo, mara kadhaa. 3.Hapana			MONITOR
37	Je ulishawahi kukutana na changamoto ya ukosefu wa dawa ya Isoniazid katika kituo chako katika kipindi cha mwaka	1.Ndiyo, kwa kipindi kisicho fika mwezi mmoja. 2.Ndiyo, kwa kipindi kinachozidi mwezi mmoja			STOC-OUT

	mmoja uliopita	3.Hakujawahitokea ukosefu wa dawa ya Isoniazid katika kipindi cha mwaka mmoja uliopita.	
38	Je kwa kukisia ni asilimia ngapi ya watu waishio na VVU,ambao walikua na vigezo vya kupatiwa IPT,ambao tayari wameshapata IPT katika kipindi cha miezi sita(6) iliyopita?	1.Chini ya asilimia ishirini na tano(<25%) 2.Chini ya asilimia kumi na tano(15%). 3.Zaidi ya asilimia ishirini na tano(25%) 4.Makisio mengine ya asilimia._____ (fafanua)	PERCIPT
39	Tafadhali orodhesha sababu za msingi ambazo zitawezesha utekelezaji wa utoaji wa dawa ya Isoniazid kwa walengwa kwa ufanisi zaidi.	1. _____ 2. _____ 3. _____ 4. _____ 5. _____	INTERV

Nashukuru sana kwa ushiriki wako.

Appendix 7: In-Depth Interview Guide

1. What do you understand about IPT?

2. Please explain the IPT implementation status in your Clinic? Did your clinic achieve the intended target for IPT uptake among eligible PLHIV in a year 2017?

3. What are the reasons for not reaching your target for year 2017?

4. Please explain about the availability of TB screening tools and IPT Algorithm in your health facility?

5. Please provide the details about the availability of Isoniazid in your ART clinic for last financial year 2017/2018?

6. Please provide clarification about mentorship and supportive supervision programs to the clinicians regarding IPT provision services?

7. Could you explain the motivations that are provided to you clinicians working in ART clinics?

Appendix 8: Informed Consent Agreement (English Version)

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

DIRECTORATE OF RESEARCH AND PUBLICATIONS.

INFORMED CONSENT

ID-NO ☐☐☐

Consent to participate in this study

Greetings! My name is ….. I am working on this research project with the objective to determine the factors affecting clinicians' practices on Isoniazid provision to PLHIV in Dar es salaam.

Purpose of the study

This study has the purpose of collecting information about the individual factors, facility's factors and administrative factors affecting clinician's practices on IPT provision among PLHIV Dar es Salaam. You are being asked to participate in this study because you have particular knowledge and experiences that may be important to the study.

What Participation Involves

If you agree to participate in this study the following will occur:

1. You will sit with a trained interviewer and answer questions about what factors you think affect the clinician's practices on IPT provision to PLHIV, and finally your comments on what should be done to improve the situation. The interviewer will be recording your responses in the questionnaire.
2. No identifying information will be collected from you during this interview, except your age, level of education, and your experience in HIV/AIDS services.
3. You will be interviewed only once for approximately 30 minutes in a private setting.

Confidentiality

I assure you that all the information collected from you will be kept confidential. Only people working in this research study will have access to the information. We will be compiling a report, which will contain responses from several clinicians working in ART clinics providing IPT without any reference to individuals. We will not put your name or other identifying information on the records of the information you provide.

Risks

You will be asked questions about factors that affect clinician's practices. Some questions could potentially make you feel uncomfortable. You may refuse to answer any particular question and may stop the interview at anytime.

Rights to Withdraw and Alternatives

Taking part in this study is completely your choice. If you choose not to participate in the study or if you decide to stop participating in the study you will not get any harm. You can stop participating in this study at any time, even if you have already given your consent. Refusal to participate or withdrawal from the study will not involve penalty or loss of any benefits to which you are otherwise entitled.

Benefits

The information you provide will help to increase our understanding on factors affecting clinicians practices on IPT provision to PLHIV so that we can address them, and finally increasing the IPT coverage in the country as whole.

In Case of Injury

We do not anticipate that any harm will occur to you or your family as a result of participation in this study

Who to contact

If you ever have questions about this study, you should contact Hindi Mastai Hindi- Principal Investigator, Muhimbili University of Health and Allied Sciences (MUHAS), P.O. Box 65001, Dar es Salaam (mobile no. 0752-474729). If you ever have questions about your rights as a participant, you may call Dr. Bruno Sunguya, Chairman of the College Research and Publications Committee, P. O. Box 65001, Dar es Salaam. Tel: 2150302-6 and Dr. Leyna Germana who is the supervisor of this study (0782-847320).

Signature

Do you agree?

Participant Agrees [__]

Participant disagree [__]

I _____ have read/understood the contents in this form. My questions have been answered. I agree to participate in this study.

Signature of Participant _____

Signature of witness (if participant cannot read) _____

Signature of Principal investigator _____

Date of signed consent _____

Appendix 9: Consent Form (Swahili Version)

KIAMBATANISHO 9: FOMU YA RIDHAA

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI CHA MUHIMBILI

IDARA INAYOSIMAMIA TAFITI NA MAJARIDA.

FOMU YA RIDHAA

Namba ya utambulisho ☐☐☐

Ridhaa ya Kushiriki katika utafiti huu

Habari! Jina langu naitwa ..……..nafanya kazi katika mradi huu wa utafiti wenye lengo la kuchunguza sababu zinazopelekea wahudumu wa afya kutokutekeleza majukumu yao vizuri katika utoaji wa dawa zenye kuwakinga watu waishio na VVU dhidi ya Kifua kikuu.

Malengo ya Utafiti

Utafiti huu una lengo la kukusanya taarifa zitakazotuwezesha kujua changamoto zinazopelekea wahudumu wa afya kutokutekeleza majukumu yao vizuri katika utoaji wa dawa zenye kuwakinga watu waishio na VVU dhdi ya Kifua kikuu.. Unaombwa kushiriki katika utafiti huu kwa sababu una uelewa ambao unaweza kuwa muhimu katika tafiti hii.

Ushiriki

Ukikubali kushiriki katika utafiti huu yafuatayo yatatokea:

1. Utakaa na msaili/mtafiti aliyepewa mafunzo ya jinsi ya kuhoji na kujibu maswali yahusuyo changamoto zinazopelekea wahudumu wa afya kutokutekeleza majukumu yao vizuri katika utoaji wa dawa zenye kuwakinga watu waishio na VVU dhdi ya Kifua kikuu. Msaili atakua ananukuu majibu yako katika dodoso.
2. Hakuna taarifa zozote za utambulisho tutakazokusanya wakati wa usaili isipokua umri, kipindi cha ugonjwa, kazi/shughuli za kazi, kiwango cha elimu na hali yako ya ndoa.
3. Utahojiwa mara moja tu kwa takribani dakika 25.

Usiri

Nakuhakikishia kwamba taarifa zote zitakazokusanywa kutoka kwako zitakua ni siri, ni watu wanaofanya kazi katika utafiti huu tu ndio wanaweza kuziona taarifa hizi. Hatutaweka jina lako au taarifa yoyote ya utambulisho kwenye kumbukumbu za taarifa utakazotupa.

Madhara

Utaulizwa maswali juu ya ufahamu wako na mtazamo wako juu ya changamoto zinazopelekea wahudumu wa afya kutokutekeleza majukumu yao vizuri katika utoaji wa dawa zenye kuwakinga watu waishio na VVU dhdi ya Kifua kikuu..Baadhi ya maswali yanaweza kukufanya usijisikie vizuri. Unaweza kukataa kujibu swali lolote na unaweza kusimamisha usaili wakati wowote.

Haki ya kujitoa na mbadala wowote

Kushiriki katika utafiti huu ni uchaguzi wako, kama utachagua kutokushiriki au utaamua kusimamisha kushiriki hutapata madhara yoyote. Unaweza kusimamisha kushiriki katika tafiti hii muda wowote hata kama ulisharidhia kushiriki. Kukataa kushiiriki au kujitoa katika utafiti hakutasababisha adhabu yoyote au upotevu wa faida yoyote unayotakiwa kupata.

Faida

Taarifa utakayotupatia itasaidia kujua sababu sababu zinazopelekea wahudumu wa afya kutokutekeleza majukumu yao vizuri katika utoaji wa dawa zenye kuwakinga watu waishio na VVU dhdi ya Kifua kikuu. Na pia zitatuwezesha kujua ni njia zipi tunazoweza kuzitumia katika kutatua changamoto zitakazo bainishwa katika utafiti huu.

Endapo Utadhurika

Hatutegemei madhara yoyote kutokea kwa kushiriki kwako katika tafiti hii.

Watu wa kuwasiliana nao

Kama una maswaIi katika utafiti huu unaweza kuwasiliana na mratibu mkuu wa mradi, Hindi Mastai Hindi Chuo Kikuu cha Muhimbili, S.L. P 65001, Dar es Salaam (Simu. No 0752474729). Kama utakua na maswali yoyote kuhusu haki zako kama mshiriki unaweza kupiga simu kwa Dr. Bruno Sunguya ambaye ni Mwenyekiti wa kamati ya chuo ya utafiti na machapisho, S.L.P 65001, Dar es Salaam. Simu namba: 2150302-6,na Dr. Leyna Germana ambaye ni msimamizi wa utafiti huu (Simu nambari. 0782-847320).

Sahihi

Unakubali?

Mshiriki amekubali [__]

Mshiriki amekataa [__]

Mimi _____ nimesoma/nimeielewa hii fomu, maswali yangu yamejibiwa.Nakubali kushiriki katika utafiti huu.

Sahihi ya mshiriki _____

Sahihi ya shahidi (kama hawezi kusoma na kuandika) _____

Sahihi ya mtafiti muandamizi _____

Tarehe ya makubaliano _____