FACTORS AFFECTING THE IMPLEMENTATION OF INTERMITTENT PREVENTIVE TREATMENT OF MALARIA IN PREGNANCY IN DAR ES SALAAM HEALTH FACILITIES.

By

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A Dissertation submitted in Partial Fulfillment of the Requirement for the Degree of Master of Public Health of the Muhimbili University Of Health and Allied Sciences

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CERTIFICATION

The undersigned certifies that she has read and hereby recommend for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitled **Factors Affecting the Implementation of Intermittent Preventive Treatment of Malaria in Pregnancy in Dar Es Salaam Health Facilities,** in partial fulfillment of the requirements for the degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences.

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Dr. Dinah Gasarasi

(Supervisor)

Date: _____

DECLARATION AND COPYRIGHT

I, Josephine Kokwemage Nyonyi, declare that this dissertation is my own 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 _____

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DEDICATION

This study is dedicated to all women and families that have experienced the fate of Malaria during pregnancy.

ABSTRACT

Background

Tanzania adapted the World Health Organization (WHO) policy of giving two doses of Sulphadoxine- Pyrimethamine (SP) to pregnant women attending Antenatal clinics (ANCs) in order to control malaria in pregnancy. Implementation of IPT policy has been observed to face various challenges making the targeted coverage of 80% too far from being achieved. The main objective of this study was to identify factors affecting the uptake of Intermittent Preventive Treatment of Malaria among pregnant women attending ANCs in Dar-es Salaam region.

Methodology

A cross sectional study was carried out where interviewer guided questionnaires were administered to 302 pregnant women and 25 healthcare workers. The Reproductive and Child Health (RCH) cards of the pregnant women were also inspected for additional information. Focus Group Discussions (FGD) were conducted to the ANC staff and non participatory ANC observations were made using a standardized checklist.

Results

The IPT program in Dar es salaam public health facilities has successfully achieved higher coverage for both IPT 1 and IPT 2, (90% and 79.5% respectively).Gestation age appeared to have an influence on knowledge of pregnant women in IPT ($p=0.04$) and knowledge seem to have a significant relationship with IPT coverage ($p= 0.03$). Generally there was high knowledge among health care workers and availability of drug for IPT administration was good (92%), the probable reason for high coverage.

Conclusion.

The IPT program has successfully achieved higher coverage for both IPT 1 and IPT 2. Factors that were observed to influence coverage include knowledge of both healthcare workers and pregnant women, availability of SP and monitoring of IPT services. Knowledge of the pregnant women was found to be generally high and had an influence on the coverage of IPT.

Health worker knowledge and attitude on IPTp was found to be high. Improved monitoring of IPT services will enhance copying of the best practice from one health facility to others.

Recommendations

There should be continuous efforts that the health care workers are now practicing, probably by providing them with refresher training. More advocacies are needed including creation of clear IEC messages to help the healthcare workers in implementing the program. The IPT program should provide standardized improved IEC messages that will provide well understood information. The study also recommends that a similar study should be conducted in private health facilities to find out if they contribute significantly to the coverage of IPT Dar es salaam region

GLOSSARY

Coverage, a measure of IPTp uptake, was defined as the percentage of the number of respondents interviewed that had received none, one, two or three doses of SP in pregnant women of 20 weeks and above.

Availability of drugs, a facility was considered to have drugs if the stock out did not exceed seven days in the past one month.

PMTCT-1, Prevention of Mother to Child Transmission (PMTCT) category one means those pregnant who are HIV positive.

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ABBREVIATIONS

ANC	Antenatal Care
CHMT	Council Health Management Team
DOT	Direct Observation Therapy
FANC	Focused Antenatal Care
GDP	Gross Domestic Product
IPT	Intermittent Preventive Treatment
IPTp	Intermittent Preventive treatment in Pregnancy
IPT 1	The first dose of Intermittent Preventive Treatment
IPT2	The second dose of Intermittent Preventive Treatment
IPT 3	The third dose of Intermittent Preventive Treatment
ITN	Insecticide treated net
MDG	Millenium Development Goals
MiP	Malaria in Pregnancy
PMTCT	Prevention of mother to child transmission
RCH	Reproductive and child health
SP	Sulphadoxine -Pyrimethamine
TDHS	Tanzania Demographic and Health Survey
THMIS	Tanzania HIV/Malaria Indicator Survey
TSPA	Tanzania Service Provision Assesment
USAID	United States Agent for International Development
WHO	World Health Organisation

CHAPTER ONE

1. INTRODUCTION

1.1 Background

Malaria infection during pregnancy is an enormous public health problem, with substantial risks for the mother, the fetus and the neonate. A study conducted in 2007 indicated that worldwide, over 125 million pregnancies occurred in areas of malaria transmission. However, the morbidity and mortality caused by Malaria in pregnancy is most pronounced in endemic regions of sub-Saharan Africa (Pell et al, 2011).

Each year approximately 50 million women living in malaria endemic countries throughout the world become pregnant, of whom over half live in tropical areas of Africa with intense transmission of *Plasmodium falciparum*. An estimated ten thousand of these women and two hundred thousand of their infants die as a result of malaria infection during pregnancy and severe malarial anaemia contributes to more than half of these deaths (WHO, 2008).. In Tanzania about 1.7 million pregnant women are at risk of contracting malaria every year and approximately 10% of maternal deaths in Tanzania are linked to malaria.

Pregnant women who are infected with Malaria have an increased risk of severe maternal anaemia, parasites in the placenta, low birth weight, prematurity and increased infant mortality (Maternal and child health fact sheet, 2008). In areas of low transmission of *Plasmodium falciparum*, where levels of acquired immunity are low, women are susceptible to episodes of severe malaria, which can result in stillbirths or spontaneous abortion or in the death of the mother. In areas of high transmission of *P. falciparum*, where levels of acquired immunity tend to be high, women are susceptible to asymptomatic infection, which can result in maternal anaemia and placental parasitaemia, both of which can subsequently lead to low birth weight. Although there are fewer data about the role of *P. vivax*, there is evidence that it can also cause anaemia and low birth weight. Low birth weight is an important contributor to infant mortality. It has been estimated that malaria during pregnancy is responsible for 5–12% of all low birth weight and 35% of preventable low birth weight; and contributes to 75 000 to 200 000 infant deaths each year(WHO 2007).

The World Health Organization (WHO) currently recommends a package of interventions for controlling malaria during pregnancy in areas with stable (high) transmission of *P. falciparum* (WHO 2004),[1], which includes;

- The use of insecticide treated nets (ITNs),
- Intermittent preventive treatment (IPT) and
- Effective case management of malaria and anaemia.

Effective implementation of the recommended strategy for malaria in pregnancy requires close collaboration between malaria control and reproductive health programmes at all levels, including policy development, planning, logistics, procurement, training and service delivery.

In 2001, USAID initiated a program under the Maternal Neonatal Health Program to revise the national guidelines for treating malaria during pregnancy and to strengthen health services for pregnant women. Working in collaboration with the Ministry of Health the new guidelines that adopted WHO guidelines were therefore developed and included the practice of Intermittent Presumptive Treatment (IPT) using the anti-malarial drug Sulfadoxine Pyrimethamine (SP), a proactive and effective intervention that prevents and controls the effects of malaria on mothers and their unborn children. The Reproductive and Child Health Services' policy for IPT is two doses of sulfadoxine-pyrimethamine (SP), given as directly observed therapy initiated at first visit after quickening and second dose within the third trimester, no less than four weeks following the first dose. In the context of the HIV epidemic and increasing SP resistance, discussions have arisen on the optimal number of IPTp doses required to maintain protection for the mother and her child. Based on its relatively low HIV prevalence rate of 6%; Tanzania is the only East-African country keeping a two dose regimen regardless of HIV status as WHO recommends the introduction of a three dose regimen where HIV prevalence is above 10% (Gross et al 2011).

Efforts to implement the new guidelines including restriction of the use of SP to pregnant women and training of ANC providers on Focused Antenatal Care (FANC) began in 2004

with funding from USAID through ACCESS program. FANC training coverage grew from 24 health facilities in 2004 to all 5000 health facilities in 2009 (JHPIEGO 2005). The program's goal was 85% coverage by 2010 which is 5% higher than the global target.

Several studies have been conducted to assess the IPT implementation status in different parts of malaria endemic countries including Tanzania. A household survey in Tanzania showed that over 90% of pregnant women who attended antenatal clinic reported that they had not been asked whether they wanted SP (Marchant et al, 2008). This shows that health care providers may not be implementing the IPT policy as per guidelines. The reasons for the limited initiative in counseling pregnant women to take SP are not very well known.
Another study conducted in urban and semi urban settings of Nigeria revealed that despite the perception of malaria as a common health problem during pregnancy, most pregnant women had poor knowledge, attitude and practice of the management of the condition (Ehijie et al, 2007).

Data collected from USAID maternal health program sentinel sites in 2009 indicate that higher rates of second dose of IPT correlate well with sites reporting constant stock of SP during the reporting period (JHPIEGO 2005). The Ministry's policy is to give SP free of charge; however survey reports from the National malaria control program have shown that there are some health facilities that experience frequent stock outs of the drug.

In the era of introducing artemisinin combination therapy, restricting the use of monotherapies for Malaria treatment, purposely did not include SP for the reason that it is being used for IPT in pregnancy. SP is cheap from the private outlets and pregnant women are able to purchase in case there is none at the public health clinics. SP remains the drug of choice for IPT even though it is no longer the first line drug for malaria treatment. This is because the aim of IPT is to prevent the worst effects of malaria infection in pregnancy rather than to cure a potentially life threatening illness (NMCP 2006).

While the Ministry of Health and Social welfare, donors and other stakeholders have been fighting to ensure high IPT uptake, training alone does not seem sufficient enough to reach the

target of 80% coverage. There is therefore a need to identify factors that need an emphasis so that they can be addressed to improve IPT coverage. These factors may be knowledge of health care providers as well as the design of the policy to ensure that IPT is being practiced. Awareness of pregnant women as well as their perspective on IPT use may also be an important role affecting the uptake of IPT.

1.2 The statement of the problem

Since IPT introduction in Tanzania in 2001, the proportion of women who received IPT during antenatal care has not been on the constant increase as expected to reach the global target of 80% by 2010. Instead national coverage at three different surveys have shown fluctuations in the levels of coverage where the Tanzania Demographic and Health Survey (TDHS) of the year 2004-05 indicated the coverage of 22%, The Tanzania Health Management Information System (THMIS) of the year 2007-08 indicated the coverage of 30% and the TDHS of the year 2010 indicted the coverage of 26%.

This indicates that despite the policy introduction and the training of ANC providers in all health facilities in the country, there are factors affecting the adherence to the IPT policy.

The 2006 Tanzania Service Provision Assessment (TSPA) found that fewer than 1 out of 10 first visit ANC clients are counseled regarding the second dose of IPT – a missed opportunity to increase uptake of IPT. Data collected from USAID maternal health program sentinel sites in 2009 indicate that higher rates of second dose of IPT correlate well with sites reporting constant stock of SP during the reporting period (JHPIEGO 2005). Several other studies have been conducted in Kilombero, Rufiji, Pangani and Korogwe districts in rural Tanzania and found that shortage of human resources, availability of safe and clean water for DOT administration and knowledge of health care providers affect IPT uptake more than women's timing of ANC .

Similar studies conducted in different countries in Africa suggest that , poor awareness of women, problems of geographical accessibility of ANC centers, social economic problems, attitude and practice of IPT among health service providers and pregnant women may be contributing to poor utilization of IPT services and hence low coverage (Almeida et al 2011).

Given the differences that exist between some rural and urban settings, it will be of interest to find out whether the same factors affect IPT uptake in an urban setting.

This study was therefore designed to assess IPT use among pregnant women attending public health care facilities for antenatal services in an urban area. Their knowledge, attitude towards IPTp use, compliance with IPTp and factors influencing IPTp coverage were determined.

1.2 Research questions

1. What is the level of awareness of pregnant women on IPT use for prevention of malaria in pregnancy?
2. What do pregnant women know on the effects of malaria in pregnancy?
3. What is the level of clients acceptance of the drug used in IPT?
4. What do health care workers know about IPT?
5. How do health care workers institute IPT?
6. What challenges do health care workers face in IPT provision?
7. What is the level of availability of the drug and clean water used in IPT?

1.3 Study Objectives

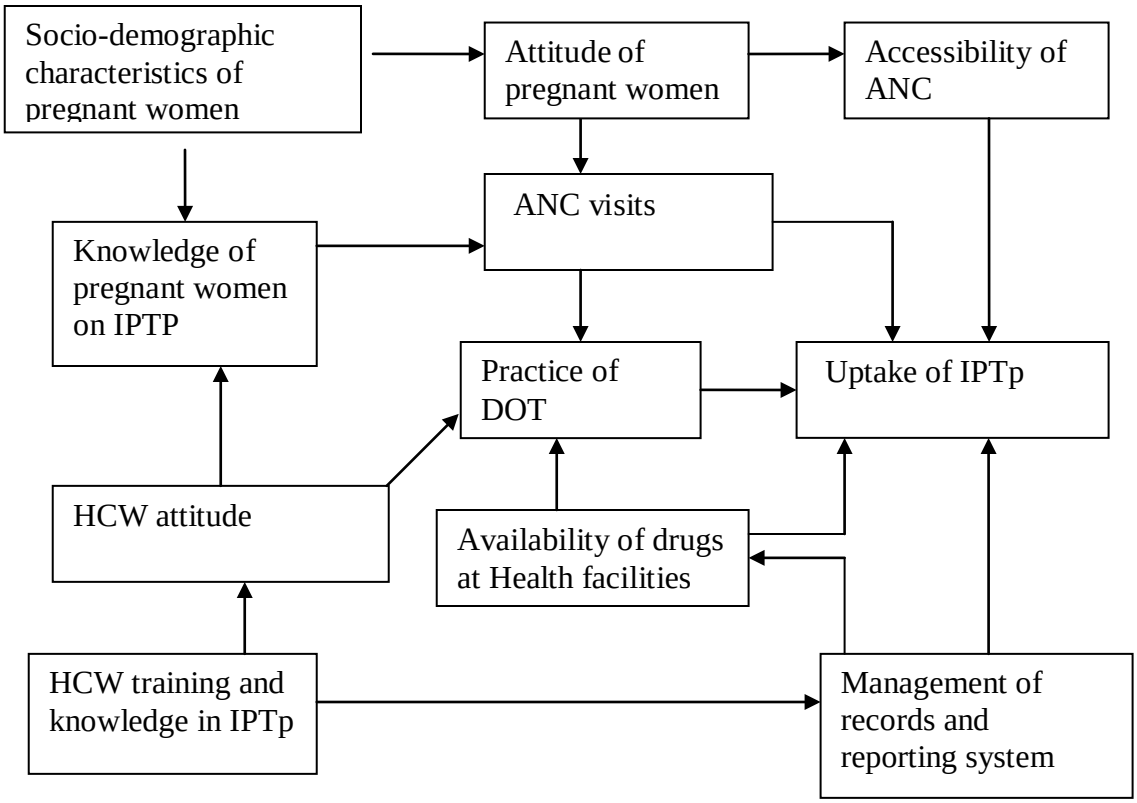
1.3.1 Main Objective:

To identify factors affecting the uptake of Intermittent Preventive Treatment of Malaria among pregnant women in Dar es Salaam region

1.3.2 Specific objectives:

1. To determine the proportion of pregnant women who receive SP for IPT in identified health facilities in Dar-es-Salaam.
2. To determine the proportion of pregnant women with knowledge on IPT.
3. To asses the attitude of antenatal clinic attendees on IPT.
4. To determine the proportion of Health care workers who have knowledge on IPT.
5. To assess attitude and Practice of Health care workers on IPT services.
6. To asses the level of monitoring of IPT services in health facilities.
7. To asses the availability of drug and clean water for IPT administration.

1.4ConceptualFramework



1.4 Rationale

Prevention of malaria during pregnancy is one of the major interventions in helping to reduce maternal and infant morbidity and mortality with the aim of contributing to achieving millennium development goals (MDG's) number four, five and six. After the implementation of the IPT program in the country ten years ago, no study has been conducted to assess the performance of the program in Dar es Salaam region where factors like human resource and access to drugs and clean water are not the main issues . This study will contribute towards identification of individual or client and service provider factors that affect IPT uptake in Dar es Salaam. Information that has been gathered from the study can be used by the Council Health Management Team (CHMT) to improve upon the IPTp program in the districts. It can also be used by other districts in similar settings to help improve upon their IPT program.

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Policies and strategies on IPT implementation.

In the year 2000 in Abuja, Nigeria, African governments pledged to implement measures to ensure that 60% of pregnant women in malaria-endemic areas had access to effective prevention interventions by 2005. Ten years after the Abuja declaration, most malaria-endemic countries in sub-Saharan Africa have adopted intermittent preventive treatment and insecticide-treated nets as interventions for prevention of malaria in pregnancy and the number of countries with nationally representative coverage data for either intervention has increased to 40 of 47 countries. However, very few countries have reached either the targets for 2005 set at the Abuja meeting in 2000 or their own policy ambition, Infact countries are even further away from the more recent Roll Back Malaria Initiative targets set for 2010, calling for 80% coverage of insecticide-treated nets in all populations and 100% coverage of intermittent preventive treatment in pregnancy (Van Eijk et al 2011).Tanzania being a signatory to the Abuja Declaration (2000); Roll Back Malaria has been introduced at the central, regional and district levels and partners have been collaborating with Ministry of Health and Social Welfare (MoHSW) to ensure that efforts to implement the key interventions are becoming a success.The Tanzania Malaria Medium Term Strategic Plan (2008-2013) aimed at reaching 80-85% coverage for key interventions by 2010, IPT coverage being among them. However the coverage of IPT as noted by the year 2010 TDHS was 26%, very far away from the target.

2.2 IPT implementation.

Implementation of IPT strategy has been established in many health facilities in malaria endemic areas including Tanzania. However, it is estimated that less than five percent of pregnant women in sub Saharan Africa have access to effective malaria interventions; this is worse in the rural areas (RBM infosheet 4, 2010). A survey carried out in four African countries showed that less than 20% of women use a prophylactic regimen close to the World Health Organization (WHO) recommendations As a result of this poor access, malaria

remains one of the most important causes of maternal and childhood morbidity in sub-Saharan Africa (Akinleye O. S et a 2009).

2.3 Knowledge about IPT

A study conducted in two health facilities in rural Nigeria (2009) showed that 23.9% of the pregnant women who have heard about IPTp were able to give a good definition of IPTp, furthermore only 52.3% had received at least one dose of SP during their pregnancy and 40% were afraid of taking the drug during pregnancy (Ehijie et al, 2007). This shows that pregnant women's knowledge on the IPT subject is an issue that needs to be addressed to increase coverage. In order to ensure that pregnant women get the right information on IPT, health care workers need to have proper knowledge such that they transfer that knowledge to the target group appropriately.

A study done in one of the districts in Ghana found that all of the staff interviewed knew of when to start IPTp, reason for the timing of IPTp and the number of doses (frequency) of SP to be given during pregnancy. Only 18 (60.0%) knew when to stop giving SP. The level of knowledge of the side effects of SP was low as only 11 (36.7%) knew of all the common side effects of SP to be expected. Also, only 17 (56.7%) knew of all the important contraindications to giving SP during pregnancy (Antwi D G 2010).

2.4 Acceptance of IPT

While a study conducted in Malawi evaluating IPT showed a decline in placental infection (32% to 23%) and in the number of low birth weight babies (23% to 10%), It also found that 75% of all pregnant women took advantage of IPT when offered(Van Eijk et al 2011). several other studies viewed SP as harmful, suggesting that it caused miscarriages and side effect that included mouth sores, fatigue, fever, rashes and itchiness, however these studies suggested that although these perceptions exist, there were very few cases of adverse effects, and that these ideas were based on hearsay rather than personal experience (Mubyazi et al, 2008).

While empirical evidence from Kenya and Malawi indicate high efficacy of IPTp in reducing anaemia during pregnancy and increasing birth weight, reports on treatment failures and parasite resistance to SP in malaria endemic countries has stimulated debates about the

appropriateness of SP and has prompted some African National Malaria Control Programs (NMCP) to recommend combination therapy . Depending on further scientific documentation on safety and efficacy in pregnancy, artemisinin-based combination therapy (ACT) may be a useful alternative to SP in the future. (Mubyazi et al 2005).

2.5 Provision of IPT at ANCs

It is possible that shortage of human resource, lack of qualified personnel and continued education and high patient load in public settings hamper the provision of other important health services including proper ANC interventions.

Three national household and facility surveys conducted in Tanzania between 2005 and 2007 revealed that women who reported attending an antenatal clinic when they were pregnant, who said they had not received the first dose of IPTp, were asked why they had not, over 90% reported that they had not been asked whether they wanted it(Marchant et al, 2008).

It was also noted in a qualitative study conducted in Korogwe district that poor quality of healthcare services contributed to poor attendance of pregnant women at health facilities providing ANC services [2]. Women are disappointed when; they wait longer at the service delivery point, are mishandled by nurses, and lack of diagnostic facilities. These factors affect women's attendance of ANC for fear of the lack of privacy at the consultation or bad language of the nurses, unfriendly opening hours and/or unfair and unexpected costs (Mboera et al, 2005). The need for the skilled ANC staff in the health-care system is one of the prerequisites for attracting women to clinics. Provision of poor quality of health services is said to be very common in rural settings, it would be of interest to find out whether the conditions are any better in urban settings.

2.6 Availability of visual aid and health education materials

Availability of clear messages that provide IPT knowledge is critical for making sure that pregnant women are sensitized about IPT every time they come to clinic. In Tanzania, available information indicates that health education and information communication provided to the community has had limited impact on behavioral changes and hence disease prevention and control. In part, this is due to the ineffective communication strategies used in health

education communication programs between systems and between systems and providers (Tarimo 2007).

Although various studies in the country have indicated that healthcare facilities are the most reliable source of health education, such facilities are often not accessed by many people particularly in rural areas because of healthcare charges, long distances, inadequate and unaffordable transport systems, poor quality of care, equity, poor governance, and inadequate human resource (Tarimo 2007).

In another surveillance study in Tanzania, the results showed a decline in the percent of facilities displaying posters explaining the purpose and benefits of IPTp from 70% in 2005 to 50% in 2007 (Ehije et al 2007)

2.7 Coverage of IPT.

In an analysis of national survey in Africa in 2007, low coverage with intermittent preventive treatment and insecticide-treated nets was found to contrast with high antenatal-clinic attendance, an estimated 25% of 25·6 million pregnant women received at least one dose of treatment and 19·8 million (77%) visited an antenatal clinic (31 countries). It was also found that estimated coverage was lowest in areas of high-intensity transmission of malaria. This finding suggests that there are missed opportunities when women attended clinics but are not given intermittent preventive treatment (or insecticide-treated nets). Factors identified to influence coverage include unclear messages about intermittent preventive treatment in pregnancy, especially about timing of the doses, Sulfadoxine–Pyrimethamine stockouts, limited understanding of intermittent preventive treatment, late enrolment or irregular antenatal clinic visits, and nurse underachievement (Ankileye et al, 2009).

The 2010 TDHS showed that the Percentage of last births in the 2 years preceding the survey for which the mother got at least one dose of SP/Fansidar during an antenatal visit was 63.9 for urban areas and 58.9 for rural areas, while the Percentage of last births in the 2 years preceding the survey for which the mother got complete intermittent preventive treatment (IPT) during an antenatal visit was 29.6 in urban areas and 24.8 in rural areas (DHS 2010).

In a study conducted in Kibaha district in Tanzania, about a third (40.0%) of the mothers did not receive SP for IPT because of unavailability. Of those receiving, about a third (40.0%) did not swallow the tablets at the clinic because of empty stomach and sharing of water cup (Tarimo 2007).

Another study conducted in Kilombero valley showed that among all women eligible for IPTp, 79% received a first dose of IPTp and 27% were given a second dose. Although pregnant women initiated ANC attendance late, their timing was in line with the national guidelines recommending IPTp delivery between 20-24 weeks and 28-32 weeks of gestation. Only 15% of the women delayed to the extent of being too late to be eligible for a first dose of IPTp. Less than 1% of women started ANC attendance after 32 weeks of gestation (Gross K et al 2011).

It has been observed that good access to ANC does not warrant high uptake of IPTp-SP, since quality of care delivery factors, health care workers's knowledge and motivations, and target population's knowledge, attitudes towards IPTp and practices remain important (Mubyazi et al, 2008).

With all these findings from different studies and their recommendations, one would expect to see a remarkable change in IPT uptake over the past ten years. However this has not been observed, it is very possible that there are other underlying factors that need to be addressed or it could be that the efforts that are in place for IPT implementation need to be strengthened.

CHAPTER THREE

3. METHODOLOGY

3.1 Study site

Dar-es –Salaam is located between latitudes 6.36 degrees and 7.0 degrees to the south of Equator and longitudes 39.0 and 33.33 to the east of Greenwich. It is bounded by the Indian Ocean on the east and by the Coast Region on the north, west and south sides.

The region is divided into three ecological zones, namely the upland zone comprising the hilly areas to the west and north of the City, the middle plateau, and the low lands including Msimbazi valley, Jangwani, Mtoni, Africana and Ununio areas. The main natural vegetation includes coastal shrubs, Miombo woodland, coastal swamps and mangrove trees.

A theoretical model based on climate data (rainfall and temperature) characterizes Dar es Salaam as an area with endemic and perennial malaria, with transmission occurring during the entire year (Castro et al, 2004). According to the city administrative definition, Dar es Salaam has an area of 1,393 square kilometers, which is about 0.19% of the entire Tanzania Mainland's area. Temeke Municipality has the largest land surface area followed by Kinondoni while Ilala has the smallest area. (Appendix 1, Fig 1) Based on the 2002 Population and Housing Census, Dar es Salaam had 2,487,288 inhabitants, of whom 1,254,853 were males and the rest females. Of the three Municipalities, Kinondoni had the highest population with a total of 1,083,913 inhabitants, followed by Temeke with 768,451 and Ilala with 634,924 inhabitants (Dar-es-Salaam city council, 2004). The relatively high population growth rate is due to increased birth rates, immigration rates, and more significantly by transient population. A dense population also has a major impact on the spatial distribution of mosquitoes. Since they do not have to fly too far to find a source of blood, they tend to be much localized, contributing to the development of pockets of malaria transmission in town (Castro et al 2004).

3.2 Study design

This was a cross sectional study based on health facilities. The study was conducted to collect both quantitative and qualitative data from pregnant women and health care workers from identified Antenatal clinics in Dar-es-Salaam.

3.3 Study population

3.3.1Target population

The target population was pregnant women and antenatal health care providers in Dar-es Salaam region.

3.3.2 Study sample

This study involved all pregnant women attending the ANCs in the public health facilities of Dar-es salaam region. Healthcare workers at the antenatal clinics of the health facilities that provide antenatal services in the region were also included.

3.4 Sample size calculation

The number of pregnant women that was included in the study was sampled using the following formula.

$$n = \frac{z^2 p\,(1-p)}{E^2}$$

Where:

n = the minimum required sample size.

z = standard normal deviate corresponding to 95% confidence interval, which equals to 1.96.

P= proportion of pregnant women who received SP for IPT taken to be 26% (TDHS 2010)

E = the margin of error on P estimated to be at 5%

Therefore, $n = \frac{1.96^2 \text{ X}26\,(100 - 26)}{5^2}$

$$n = 296.253$$

Hence the required minimum sample size was 296 pregnant women. The compensation for non response calculation was calculated as:
Study sample =296
Assuming 10% were not going respond to the questions
10%*296 =29.6
Therefore about 30 clients more needed to be interviewed to compensate for non response.
The total sample became 296+ 30 = 326.
However there was only one client who was not able to respond, a total no of 302 pregnant women were interviewed.

The number of health facilities that was included in the study was taken as 30% of all health facilities in DSM
That is; 30% *83
N = 24.9 =25
Hence 25 facilities were visited.

All the three municipal hospitals and five health centers were purposively included in the study while the remaining 17 health facilities were dispensaries that were proportionately selected as follows:

Kinondoni Municipal:

Total number of dispensaries = 30
Sampled dispensaries were = 17/75*30 =6.78 =7
These included; Kigogo, Tandale, Mabibo, Tegeta, Mabwepande, Msewe and Kimara dispensaries. Kambangwa dispensary was included because it serves as a satellite for Mwananyamala district hospital's RCH clinic.

For Temeke Municipal:

Total number of dispensaries = 27
Sampled dispensaries were = 17/75* 27 = 6.12 =6

These were Azizi Ali dispensary, Tambukareli dispensary, Rangi tatu dispensary, Round table maternity home, Mjimwema dispensary and Vijibweni hospital(This was grouped in dispensaries as the hospital is still new and located remotely, there was only one health care worker at the RCH clinic on the day of visit)

For Ilala municipal:

Total number of dispensaries =17.

Sampled dispensaries were= 17/75 *17 = 3.85 = 4

These were Kiwalani, Tabata, tabata NBC and Vingunguti dispensaries.

The actual dispensaries were chosen basing on the knowledge of their location and cost implications.

The number of pregnant women to be sampled from each facility was based on the service population; a sampling frame N was obtained by summing up the number of women attending ANCs in all sampled health facilities within a period one month, the average number of pregnant women per day was then calculated by dividing by 30days, then only 30% of the number of pregnant women attending antenatal clinic per day was taken sampled women. All pregnant women that will be met on the day of the visit were purposely interviewed until the sampled number is obtained.

3.5 Sampling methods

Both probability and non probability sampling methods were used. Non probability Sampling included the three district hospitals, five health centers and pregnant women from each facility, while proportional to size sampling was used to obtain the number of clients from each facility that was visited.

3.6 Data collection procedures

3.6.1 Pregnant women

Quantitative data: Interviewer administered questionnaires were used to collect quantitative information. The questions asked included socio-demographic factors, knowledge about Malaria and IPT and attitude towards taking IPT for pregnant women (Appendix 4)

Pregnant women who were met on the day of the visit were interviewed until the sample size was reached.

3.6.2 Health care workers

Health care workers at the ANC were also interviewed to collect both qualitative and quantitative data.

Quantitative data: There were four sections with structured questions for collection of information on practice of IPT, knowledge of IPT, Supervision and monitoring.

(Appendix 6).

All antenatal healthcare providers that were met on the day of visit were interviewed

Non participant observation was used to collect information on IPT health education materials like posters and flyers, health talk before the beginning of the clinic and coverage of IPT.

Qualitative data: There was one section for the Focus group discussion to assess the perception of health care workers towards IPT implementation. Tape recorders were used to collect the information which was then transferred into written information after returning from the field.

3.7 Data collection process

An introduction letter was sought from MUHAS to introduce the exercise to the municipals, Permission letters were obtained from the three Municipals' offices; these were used as introduction letters to the facilities. The data collection exercise went for a period of 13 working days; some facilities were only visited once, however due to clients workload, some facilities had to be visited twice to obtain information from the Health care workers.

3.7.1Training of research assistants

Two data collectors were involved in the study, these were given a one day orientation then pretesting was done as on the job training.

Each data collector was given a list of facilities to be visited in her municipal, a set of data collection instruments and a copy of permission letter to conduct the study in health facilities.

3.8 Data management and analysis

3.8.1 Management of the data

Data cleaning was done after data collection, entry, storage and analysis was also done by the principal investigator with the help of a statistician.

3.8.2 Analysis of data

Variables

Dependent variable: Uptake of IPT

Independent variable: Socio demographic characteristics **(**Age**,** Gravidity, Parity, marital status, level of education), knowledge of IPT, Perception of IPT, availability of drugs, availability of clean water, supervision and monitoring of IPT.

Data was analyzed using Microsoft Office Excel 2007 and SPSS computer software.

Data was then summarized using frequency tables, graphs, means and standard deviations. Chi-square test analyses were used to test the association between categorical variables. The A p-value of less than 0.05 was taken to be significant at a confidence interval of 95%.

The socio-demographic characteristics like education and marital status were categorized and chi square test was used to test their association with the IPT uptake.

The perception of healthcare providers was analyzed manually.

3.9 Study limitations

The sampling process used to sample pregnant women from health facilities was based on convenient process; this could have affected the results especially in terms of both dependent and independent variables.

3.10 Ethical consideration

Ethical clearance (Appendix 11) was sought from the Office of the Director of Research and Publications of Muhimbili University of Health and Allied sciences (MUHAS) before the study was conducted.

An introduction letter (Appendix 12) was obtained from MUHAS to introduce data collectors to the Municipals. The Municipal officers for health and the Heads of the ANC's were informed of the study and their permission to conduct the study was sought.

During the study period, informed consent (Appendix 9) was sought from all eligible participants before the interviews were held. The study however does not constitute any issues of ethical concern, study participants were assured of anonymity in data collection and processing.

3.11 Pretesting the tool

The tools were pretested before the actual data collection exercise began; necessary amendments and corrections were done to ensure that all the important information required from the field was captured. These included changing section four of appendix one into a groups interview, this helped to avoid multiple responses from the same facility. There were also several questions where the 'other' option needed to be added.

CHAPTER FOUR

4. RESULTS

The results chapter first summarizes results of the antenatal clients (pregnant women) then results of Health care workers and health facility factors influencing IPT implementation. For pregnant women the results are divided into three sections; socio demographic characteristics, knowledge on IPT and attitude on IPT. For the health care workers the results are divided into knowledge, attitude and practice of IPT, availability of drug and clean water for IPT administration was assessed using a standardized checklist.

4.1 Part one: Results for pregnant women.

A total of 302 pregnant women were interviewed from the Ilala, Kinondoni and Temeke municipals, this was 93% of the estimated sample size.

4.1.1 Social demographic characteristics

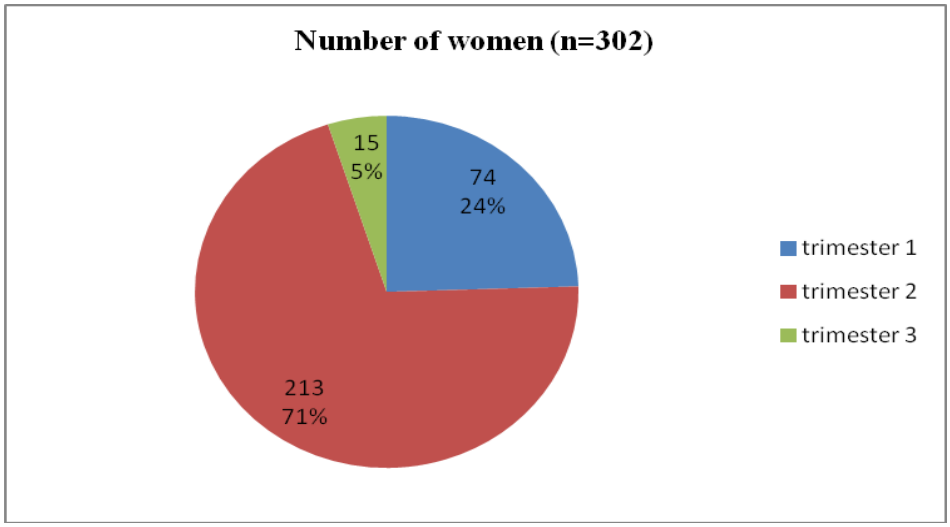
The mean age of pregnant women was found to be 25.8years (SD 5.6) and the age range was 15 to 42 years for pregnant women. The majority of pregnant women who were interviewed were married 234(77.5%), 124 (41.1%) of the interviewed women were in their first pregnancy, 168 (55.6%) were in gestation age 20 to 32 week, of which 122 (73%) were in the week of 28 and above. The mean parity was 1.8 (SD 1.1) ranging from zero to five. 186 (61.6%) women had primary education, 89 (29.5%) had above primary education, only 27(8.9%) did not have a formal education.

Table 1 summarizes the social demographic characteristics of the pregnant women.

Table 1: Social demographic characteristics of pregnant women

Variables	Number of women (n=302)	Percent
Age group (years)		
15-24	131	43.4
25-34	144	47.7
35 -44	16	8.9
Marital Status		
Married	234	77.5
Not married	45	14.9
Co habiting	23	7.7
Gravidity		
Primigravida	124	41.1
Secondgravida	85	28.1
Multigravidae	93	30.8
Parity		
0	148	49.0
1	89	29.5
2	40	13.2
3 and above	25	8.3
Gestation age (Weeks)		
Up to-19.0	116	38.4
20-32	168	55.6
33 and above	18	6.0
Education Level		
No formal education	20	6.6
School drop outs	7	2.3
Primary education	186	61.6
Secondary education	82	27.2
Above secondary	7	2.3

Figure 2: Trimester of first ANC attendance



4.1.2 Coverage of IPT in identified health facilities.

The coverage of IPT was obtained by observing the client MCH cards, this showed that out of the 302 pregnant interviewed, 186 pregnant women were above 20 weeks of gestation and were eligible to be given SP. The coverage of SP for a woman who got at least one dose was found to be 90%(168), and out of 122 pregnant women who were eligible to get the second dose 97(79.5%) received SP. Table 2 shows that 186 pregnant women were eligible to receive SP, out of these; 87(47%) got one dose and 81(44%) got two doses. Not all women who received second dose were also given the first dose, this was found in the MCH cards of four women where two of them had refused to take the first dose, and the other two did not find the drugs at the facility by the time they were supposed to get one. Table 3 shows the gestation age at which pregnant women were given both first and second doses, from the table it can be seen that out of 164 pregnant women who got the first dose, 150(91%) got their SP at the recommended gestation age of 20-24 weeks, likewise out of 97 pregnant women who got the second dose 85(87%) were given at the right recommended age of 28-32 weeks.

Table 2: Number of SP doses that pregnant women received

Number of SP doses given	Eligibility		Total (%)
	Eligible (≥ 20 weeks)(%)	Non eligible (< 20 weeks)(%)	
0 dose	18 (10)	116 (100)	134(44.4)
1 dose	87 (47)	0 (0)	87(28.8)
2 doses	81 (44)	0 (0)	81(26.8)
Total	**186 (100)**	**116(100)**	**302(100)**

Table 3: IPT doses with gestation age.

	First dose of SP		Second dose of SP	
	Frequency	Percent	Frequency	Percent
20-24 Weeks	150	91.5	4	4.1
28-32Weeks	13	7.9	85	87.6
Above 32 weeks	1	0.6	8	8.2
Total	**164**	**100**	**97**	**100**

4.1.3 Knowledge of pregnant women on IPT

There were eleven responses assessing the knowledge of pregnant women on IPT, a client who was not able to provide any of the correct responses was considered with low knowledge. For the purpose of this study and considering the mode of knowledge transfer from healthcare workers to their clients, pregnant women who were able to provide up to 60% of the correct responses were considered as having adequate knowledge, likewise those who scored above 60% were considered as having high knowledge. Table 4 shows the components of IPT knowledge among all pregnant women interviewed, About 81.8% of the pregnant women knew that the drug of choice for IPT is SP. However, only 38.7% knew that SP can be taken for malaria prevention and 60.6% knew that SP should be taken twice during pregnancy.

Generally there was low knowledge on the effects of malaria in pregnancy as it can be seen in table 4 the most frequent response was death (51%) while anaemia, spontaneous abortion, low birth weight and premature births were mentioned by less than 50% of the clients interviewed.

Table 4: Knowledge of respondents in IPT

Components in Knowledge variable	Respondents with correct answer	
	Frequency	Percent
Use of SP for malaria prevention	117	38.7
Use of ITNs for malaria prevention	268	88.7
Use of mosquito repellant for prevention	56	18.5
Wearing of protective clothing	24	7.9
The drug of choice IPT	247	81.8
Frequency of SP doses in pregnancy	186	60.6
Anaemia as an effect of malaria	29	9.6
Death as an effect of malaria	154	51
Spontaneous abortion as an effect of malaria	129	42.7
Low birth weight as an effect of malaria	69	22.8
Prematurity as an effect of malaria	29	9.6

Table 5 shows summary of knowledge of IPT among pregnant women, of the 302 women who were interviewed 181 (59.9%) had adequate knowledge on IPT, 116(38.4%) had high knowledge and only 5 (1.7%) had low knowledge on IPT.

Table 5: Summary of knowledge of pregnant women in IPT

	Frequency	Percent	Cumulative Percent
Low Knowledge	5	1.7	1.7
Adequate Knowledge	181	59.9	61.6
High knowledge	116	38.4	100.0
Total	302	100.0	

Levels of Knowledge of ANC clients appeared to have a significant relationship on the number of IPT doses, Table 6 shows out of 81 who got two doses, 100% had either adequate or high knowledge in IPT (P value = 0.03)

Table 6: Relationship between knowledge and IPT coverage.

	Levels of knowledge			
	low Knowledge(%)	Adequate Knowledge (%)	High knowledge (%)	Total(%)
0 dose	2 (1.5)	85 (63.4)	47 (35.1)	134 (100.0)
1 dose	3 (3.4)	41 (47.1)	43 (49.4)	87 (100.0)
2 doses	0 (0.0)	55 (66.7)	26 (33.3)	81 (100.0)
Total	5 (1.7)	181 (59.9)	116 (38.4)	302 (100.0)

4.1.4 Social demographic characteristics in relation to knowledge on IPT

In order to find out the reasons for the different levels of knowledge of the pregnant women, a comparison of demographic background was run against different levels of knowledge using chi square test for analysis to predict any significant associations; however results showed that knowledge is not influenced by marital status, education level, age nor time of first ANC attendance, (p values= 0.66, 0.19, 0.06, 0.20 respectively) , on the other hand gestation age appeared to have an influence on the level of knowledge, (p = 0.04). Table 7 shows the relationship between gestation age and level of knowledge on IPT.

Table 7: Relationship between knowledge and gestation age.

		Knowledge on IPT			
Gestation age		**No Knowledge**	**Adequate Knowledge**	**Good knowledge**	**Total**
3-19	Count	1	67	48	116
	% within KnowlIPT	20.0	37.0	41.4	38.4
20-27	Count	3	43	18	64
	% within KnowlIPT	60.0	23.8	15.5	21.2
28-32	Count	1	56	47	104
	% within KnowlIPT	20.0	30.9	40.5	34.4
33+	Count	0	15	3	18
	% within KnowlIPT	0.0	8.3	2.6	6.0
Total	Count	5	181	116	302
	% within KnowlIPT	100.0	100.0	100.0	100.0

4.1.5 Attitude of antenatal clinic attendees on IPT

Attitude of pregnant women was assesses using nine questions whereby clients were interviewed on different methods of malaria prevention they prefer using and why they are using those particular methods.

The study has shown that there were 186 pregnant women who were eligible to take SP of which 163 (87.6%) reported that they have taken at least one dose of SP. When the remaining 23(12.4%) were asked why they did not take SP; 14(7.4%) clients said that SP is no longer used for malaria treatment and 9(4.8%) said that they are using traditional medicines for malaria prevention. However, when all the 302 pregnant women were interviewed about various methods they prefer to use for malaria prevention, only 15(8%) mentioned that they use SP as one of the methods. Table 8 shows the frequency of use of various methods of malaria prevention claimed to be used by the study group.

Table 8: Frequency of use of various methods of malaria prevention.

Method	Frequency	Percent
Nets	272	46
long clothes	153	26
Sprays	78	13
Coils	29	5
SP	15	3
Repellants	4	1
Fans	19	3
Environment	20	3
Total	**590**	**100**

Table 9 shows the thoughts of the study group toward the effectiveness of SP, while the majority 275 (91.1%) responded that SP is effective, only 6(2%) said that it is not effective and 21(7%) were not sure on the effectiveness of this drug.

Table 9: Attitude of pregnant women on the effectiveness of SP (n = 302)

	Frequency	Percent
SP is effective	275	91.1
SP is not effective	6	2.0
Not sure whether SP is effective	21	7.0
Total	**302**	**100.0**

16 (5.3%) of the women interviewed agreed that they have ever been convinced by a friend or relative not to use SP, but only 6(2%) perceived that the reasons they were given were convincing enough for them not to take the medicine. Some of the reasons given were that SP will cause abortion (4), SP should be taken only upon testing for malaria (1) and SP should be taken only when prescribed by the medical practitioner (1).

4.2. Part two: Results for Health care workers

This section shows the results on the knowledge, attitude and practice of Health care workers on IPT implementation. A total of 52 Health care workers were interviewed in the 25 facilities that were visited.

4.2.1 Social demographic characteristics of health care workers (HCW)

The mean age of healthcare workers interviewed was 45.4(SD 9.2), ranging from 24 to 62 years. The majorities 51(98.1%) were females and only one male was interviewed. In addition to that 96.6% were well qualified in nursing profession and 3.8 % were medical doctors. Table 10 shows the summary of the social demographic characteristics of the health care workers interviewed.

Table 10: Socio demographic characteristics of Healthcare workers.

Variables	Number of Health care workers (n=52)	Percent
District		
Ilala	16	30.8
Kinondoni	23	44.2
Temeke	13	25.0
Age in years		
24-34	6	11.5
35-44	19	36.5
45-54	16	30.8
55-64	11	21.2
Sex		
Male	1	1.9
Female	51	98.1
Title		
Nurse assistant	5	9.6
Nurse midwife	20	38.4
Registered nurse	25	48.2
Medical doctor	2	3.8
Type of Health Facility		
Health centre	13	25.0
Dispensary	32	61.5
Hospital	7	13.5

4.2.2 Health care workers' knowledge on IPT

Knowledge of health care workers was assessed by using ten questions with 18 responses, a client who was not able to provide any of the correct responses was considered with low knowledge. Like in assessment of knowledge of pregnant women a score of 60 % and above was considered as high knowledgeable, and below 60% was considered as adequate knowledge. Table 11 shows that out of 52 health care workers who were interviewed, none

had low knowledge on IPT, 35(67.3%) had adequate knowledge on IPT and 17(32.7%) had high knowledge .

Table 11: Knowledge of Health care workers in IPT

	Frequency	Percent
Low knowledge	0	0.0
Adequate knowledge	35	67.3
High knowledge	17	32.7
Total	52	100.0

Further analysis using chi square test was carried out to assess whether there is an association between the age of the healthcare workers and knowledge on IPT. The results show that there is no association between age of the respondent and knowledge on IPT (p value = 0.28). When knowledge of health care workers was assessed in relation to other variables like sex, location of work by district and level of education, no relationship was found to be significant (p values = 0.67, 0.22, 0.40 respectively)

4.2.3 Attitude of Health care workers on IPT services.

Attitude of Health care workers was assessed using focus group discussion in the sampled health facilities, the FGDs ceased when no new data emerged, a total of 11 focus group discussions were conducted, the discussions were translated and then transcribed, below are the summary of the findings under each theme.

4.2.3.1 Malaria as a threat to pregnant women.

All the groups that were interviewed agreed about malaria being a threatening disease and hence the reason for continuous efforts to fight the disease. It was heard from one of the dispensaries that *'since the introduction of SP they experience fewer cases of fever and fatigue from pregnant women, sometimes pregnant women even ask for the SP themselves since they know that it helps them'.*

Table 12: Showing attitude towards malaria as a threat

	Frequency	Percent
Disagree	0	0.0
Agree	11	100
Strongly agree	0	0
Total	11	100.0

4.2.3.2 Opinion on Prevention of malaria in pregnancy

HCW pointed out that early attendance to ANC, health education and measures of prevention before 20 weeks of gestation should be emphasized; it was also pointed out that the responsibility of preventing malaria in pregnancy should be multi sectoral. This was further explained that IPT and ITNs are given only to pregnant women, but these women live in the community that has malaria and the extent to which the community is sensitized against malaria is still questionable.

One of the health care workers in Ilala district mentioned that '*the majority of the communities in Dar es Salaam are on busy lifestyle which does not give them enough time and money to afford proper diet; this lowers their immunity and hence make them prone diseases including malaria'*.

Table 13: Showing various opinions towards prevention of malaria in pregnancy

	Frequency	Percent
Prevention before 20 weeks	4	36.4
Multisectoral collaboration	6	54.5
Change of lifestyle	1	9.1
Total	11	100.0

4.2.3.3 Opinion on the Provision of IPT by other healthcare providers

This was controversial as many health care workers were not ready to point out their weaknesses. However it was mentioned in one of the groups that staff motivation like Focused Antenatal Care (FANC) training encourages staff to provide required services, at Mnazi Mmoja health facility HCW experience clients from outside their service area who have not received not only SP but other essential services (such as Iron tablets and ITNs) that they were

supposed to receive from their nearby facilities. This shows that there are probably other facilities where providers do not provide these services.

An observation at Rangi Tatu dispensary showed a provider did not issue SP to a client who was eligible just because the medicine had just gotten finished from her dispensing table and at that time she was too tired to go and request more from the pharmacy. However this provider mentioned that a client will get SP when she comes to the clinic for the upcoming visits.

4.2.3.4 Acceptance of SP by the clients

It was not easy to predict client acceptance in larger health facilities like the three district hospitals where they give SP to clients to go and drink it at home. In smaller health facilities where DOT was observed, client acceptance was almost 100%, facilities reported that very few clients refuse and however with additional counseling they end up taking the medication. This was also noted when interviewing the clients where most of them seem to accept the medicines that they are given from the health facilities, claiming that *'these are government medicines and the government cannot give out something that will harm its people'*.

HCW mentioned that with the implementation of FANC training guidelines, some clients even ask for the drug when they reach the right gestation age. However for those clients who are Prevention of Mother To Child Transmission (PMTCT) 1 category and those allergic to sulphur and some who have just taken antimalarials a few days before coming to the clinic are not given SP for IPT.

4.2.4 Practice of IPT

Practice of Health care workers on IPT provision was assessed through an observation checklist as well as in the focus group discussion.

The results from table 12 showed that 20(80%) of health facilities provided health education early in the morning before the start of services and also do provide a separate session that includes counseling and testing those who attend ANC for the first time. Despite having malaria mentioned in health education in 18(72%) health facilities, only 9(36%) talked about IPT. Table 14 shows the different aspects of practice that were observed on the day of visit. Request forms that include SP were found in all the 25 health facilities, SP was available in 23

(92%) facilities, DOT was observed in 14 (56%) facilities, of which 9 facilities were providing free water for DOT, one facility was providing water for sale and clients were observed to take DOT with their own water from 4 facilities.

This study observed that there were self generated posters on the walls with IPT messages in 14(56%) facilities, however some of these messages were in English language and more scientific than the level of education of the expected clients. Figure 4 in the appendix 2. Shows some of the IPT messages displayed at health facilities.

Table 14: IPT practice as observed on the day of visit.

Variable	Number of facilities (n = 25)	Percent
Health talk at ANC on day of visit	20	80
Health talk included malaria in pregnancy	18	72
Health talk included IPTp	9	36
Request forms include SP	25	100
Posters of IPTp/MIP on the wall	14	56
ANC Report Book for daily summaries	25	100
SP given is recorded in ANC report Book for daily summaries	25	100
SP given is recorded in ANC cards of clients	24	96
SP available at ANC	23	92
Practice of DOT observed	14	56
Presence of Adverse Effects forms for SP	5	20
Presence of free, clean, safe water for DOT	9	36
Presence of safe, clean water for sale for DOT	1	4
Availability of IPTp National protocol	14	56
Availability of IPTp training manual	13	52

4.2.5 Monitoring of IPT services in health facilities.

Out of 25 health facilities that were visited, 17 (68%) mentioned that they had received IPT supervision from the District team, Table 15 shows the particular aspects of IPT supervision that the 17 facilities received. From the table we can see that only 1(3%) facility mentioned that they had received supervision on the availability of water, 13(34%) had their ANC records checked, these include the ANC books that records the number of clients visited the facility and the kind of reproductive health service that they have received.

Table 15: Aspects of IPT supervision received by the facilities

IPT supervision	Number of facilities	Percent
ANC Records	13	34
Stores records	6	16
MCH cards	8	21
Water availability	1	3
General IPT supervision	10	26

4.8 Availability of drug and clean water for IPT administration

SP availability has shown to be a basis of IPT uptake, as out of 46 healthcare workers who said they have experienced a stock out in the last three months, 34(73.9%) mentioned that they do not provide any IPT services when there is no SP. During this study SP was not available in 23(92%) of the health facilities.

Water availability did not seem to be challenge to IPT provision as most pregnant women have been informed that they should be carrying water when they come to the clinic, However practice of DOT was observed in 14 (56%) of the facilities of which 9(36%) facilities indicated that they do provide safe and clean water, of these 9; only one facility buys commercial water (UHAI) and provides it for free while other eight facilities boil water and store it in the bucket. In all the nine facilities the cups provided for taking drugs are of reusable types so they also set aside cleaning facilities for those cups. Appendix 3 shows water for IPT administration at Vijibweni hospital. It was mentioned at Mnazi mmoja health centre that out

of 30 clients, only about three are ready to drink the water that is provided at the clinic for free, the rest purchase water from the nearby shop outside the facility.

CHAPTER FIVE

5. DISCUSSION

This study assessed the factors influencing the implementation of IPT in public health facilities located in urban and semi urban settings of Dar es Salaam region. The factors assessed were knowledge attitude and practice of both pregnant women and health care workers in relation to IPT coverage and services.

5.1 Coverage of IPT

The study found that at least 90% of pregnant women received at least one dose, and 79.5% received the second dose This figure of 90% pregnant women got at least one dose is higher than the one in the 2010 TDHS (63.9%) for urban areas, it is also higher than the Abuja target of 60% by 2005(WHO 2000)[3] and the global target of 80% by 2010 (WHO 2005) [4]. Studies done in Kilombero (Gross K et al, 2011) and Kibaha (Tarimo 2007) districts indicated that coverage of IPT is influenced more by the availability of SP, in this study; SP was available in 92% of the facilities, the probable reason for the high coverage. Some of the health care workers in the health facilities that do provide delivery services like hospitals and health centres have confirmed that there is a marked decrease of cases of complications due to malaria in pregnancy as a result of increased uptake.

The approach that was used to record coverage would have been more accurate if all the facilities were practicing DOT, in this study only 14 (56%) facilities were giving SP as DOT. The other health facilities would either issue a prescription or give the medicine to the client to go and take at home and make a note in the MCH cards as it was observed in the many of the facilities in Kinondoni district, this method would not guarantee that the client will really take the medicine.

The recommended approach by WHO to measuring IPT1, 2 or 3 is to use the number of registrants, that is, the number of pregnant women who are attending the ANC for the first time during their most recent pregnancy in a particular year as the denominator and the number of pregnant women receiving one, two or three doses of SP under observation by a health worker as the numerator (Antwi 2010) .

This study could not follow the WHO approach as the number of pregnant women who would be included in the denominator would be at various gestational ages some of which definitely would not have reached the time to have completed all doses of IPT and hence increasing the size of the denominator. A larger than expected denominator makes the percentage of pregnant women receiving the SP doses smaller. This may have accounted for the apparently lower IPT values that were quoted by other studies (Gross et a 2011) (Marchant T et al 2008) (Tarimo 2007).

5.2 Knowledge about IPT

The study showed that there was a general high knowledge on IPT among pregnant women and it has shown that higher knowledge correlates well with and IPT coverage ($p= 0.03$). However having knowledge alone is not enough as transferring knowledge into practice is another issue to be considered, a gap was observed when clients were interviewed about the drug of choice for IPT, more than 80% knew that the drug is SP but only 38.7% could mention SP as one of the methods used in Malaria prevention and only 60% knew that SP has to be taken twice during pregnancy. A study done in Korogwe district (Mubyazi G et all, 2005) showed that there was inadequate recognition that SP prescribed at the ANC facilities was for malaria preventive purposes, these findings are corroborated by the current status which clearly demonstrate a knowledge gap among the ANC clients.

Knowledge of healthcare workers was also generally high, according to the knowledge scale, no one had low knowledge. Knowledge of health care workers has probably contributed to the high knowledge of pregnant women. However it was observed that the health education that is provided in the morning before the clinic starts is not enough, as some clients usually have discomforts of being pregnant and some come late. The outcome of this is difficulties in acceptance of the drug when these pregnant women are issued with SP when they reach the right gestation age of receiving SP. A study conducted in rural Nigeria showed that, despite having heard about IPTp, 44(40.4%) women were afraid of taking drugs in pregnancy
(Akinleye O.S et al, 2009)[12].

This study also showed there is little awareness to the use of SP for malaria prevention as only 15 (3%) mentioned that they use SP for malaria prevention, this shows that despite having high coverage there are still challenges for pregnant women's understanding of SP for IPT. an issue that can affect uptake in the future. Similar findings were found in a study in Korogwe and Nigeria that there is inadequate recognition that SP prescribed at the ANC facilities is for malaria preventive purpose. (Ehijie F O et al, 2007).

5.3 Attitude on the use of SP

The majority of pregnant women 275(91.1%) showed a positive attitude towards the effectiveness of SP, when probed to explain more why they think is effective, the response was '*any medicine that is issued by the government facility is safe to take'* This could have resulted from the health talk that these clients are given as they are threatened from buying medicines from private outlets without consulting a health practitioner. Given the fact that more than 50% of the clients interviewed had an education level of primary school and below, the only trust they could have is from the healthcare practitioner who is attending them. A similar study conducted in Nigeria showed respondents' belief in the effectiveness of SP for IPT was low and suggested the cause as being poor delivery mechanism for the intervention or a poor educational program delivered to pregnant women at the antenatal clinic (Ehijie F O, et al 2007).

5.4 IPT Practice

This study observed that even when there was one healthcare worker on duty that day as it was observed at some dispensaries and one hospital, the health care worker would ensure to give the required services like issuing of SP without ensuring that the client has got enough information about the drug. This suggests a reason as to why a few respondents mentioned SP as one of the methods of malaria prevention and a few who would resist taking the drug. However, In case of resistance to taking the drugs healthcare workers would cohese the clients to take the drug by threatening to withhold services if they got any problem.

Despite having difficulties to point out whether other health care workers do not provide IPT services, the study observed that facilities visited in Ilala district would frequently experience several clients from outside their service areas. This may be an indication of the level of confidence clients may have in those facilities and services provided. The study did not look at the difference in coverage between the facilities that provide water and those that do not as it was not within the scope of the study however it was observed that there was no much difference in IPT practice in health facilities providing water for IPT administration and those that do not provide, however the best practice of providing water for DOT was observed in Tabata NBC dispensary whereby the facility has set aside budget for buying water for DOTs in the facility. The rest of facilities that were providing water for free, there was a challenge of the salt content in the water however in semi urban areas like Vijibweni hospital, this salt was not a problem to its clients as the whole area is using that type of water. This study also observed that of the 44% of facilities that do not provide DOT, the majority were from Kinondoni district, this study could not find out why as it was out of the study objectives.

The health care workers reported that they rarely get clients who experience side effects to SP, and report that this happened mainly in the past, one would wonder why in the past however the healthcare workers pointed out that in the past the majority did not know their physiological response to sulphur.

5.5 Monitoring of IPT services.

This study observed that monitoring and supervision activities received by the health facilities could have contributed to the staff commitment to IPT provision and hence high coverage of IPT. Similar findings were found in a study in Bosomtwe district in Ghana (Antwi 2010), whereby supervisory visits contributed to the high staff commitment to IPT. However there is still room for improvement as the results have shown that only 17(68%) have received supervision.

CHAPTER SIX

6. CONCLUSION AND RECCOMENDATIONS

6. 1 Conclusion

The IPT program has successfully achieved higher coverage for both IPT 1 and IPT 2, (90% and 87% respectively). The knowledge of the pregnant woman in IPT highly depends on the health worker knowledge and attitude. Knowledge of the pregnant women on SP for IPT was found to be generally good and had an influence on the coverage of IPT. Health workers knowledge and attitude on IPTp was found to be good.

Improved monitoring of IPT services will enhance copying of the best practice from one health facility to others, this will include setting aside budget for purchasing water for DOT and drugs in case of stock outs.

6.2. Recommendations

Since it was observed that there is health care education in many facilities, there should be continuous efforts for continuing education for health care workers, probably by providing them with refresher training. This will enable a constant high uptake as the clients will be constantly informed. However, the health education that is provided at the clinics should be for the whole group and not for those attending for the first time only, in this way clients will get a better chance to understand and ask questions concerning IPT and other antenatal services

While the IEC messages observed were facility generated, the IPT program should ensure provision of standardized improved IEC messages that contain clear and well understood information. This information should show not only the benefits of IPT, but also the number of doses and gestation age at which pregnant women should take this dose. A good example can be taken from the Tetanus vaccine messages that were also observed in this study. More advocacy is also needed to help the healthcare workers in implementing the program.

Since IPT coverage in Dar-es salaam region includes both public and private facilities, and there is a significant number of pregnant women attending to private health facilities in the region due to socio economic status and use of health insurance. It is recommended that a similar study be conducted in private health facilities to assess the level of coverage and how much it affects the overall coverage in the region.

Monitoring of IPT services should also be emphasized to ensure constant availability of drug and clean water for IPT administration. Health facilities should copy the best practice from other facilities that have a budget for provision of safe and clean water; this information can be transferred by the supervision team within the districts. Improved monitoring should also ensure that healthcare workers are constantly gaining updated knowledge for better provision of their services.

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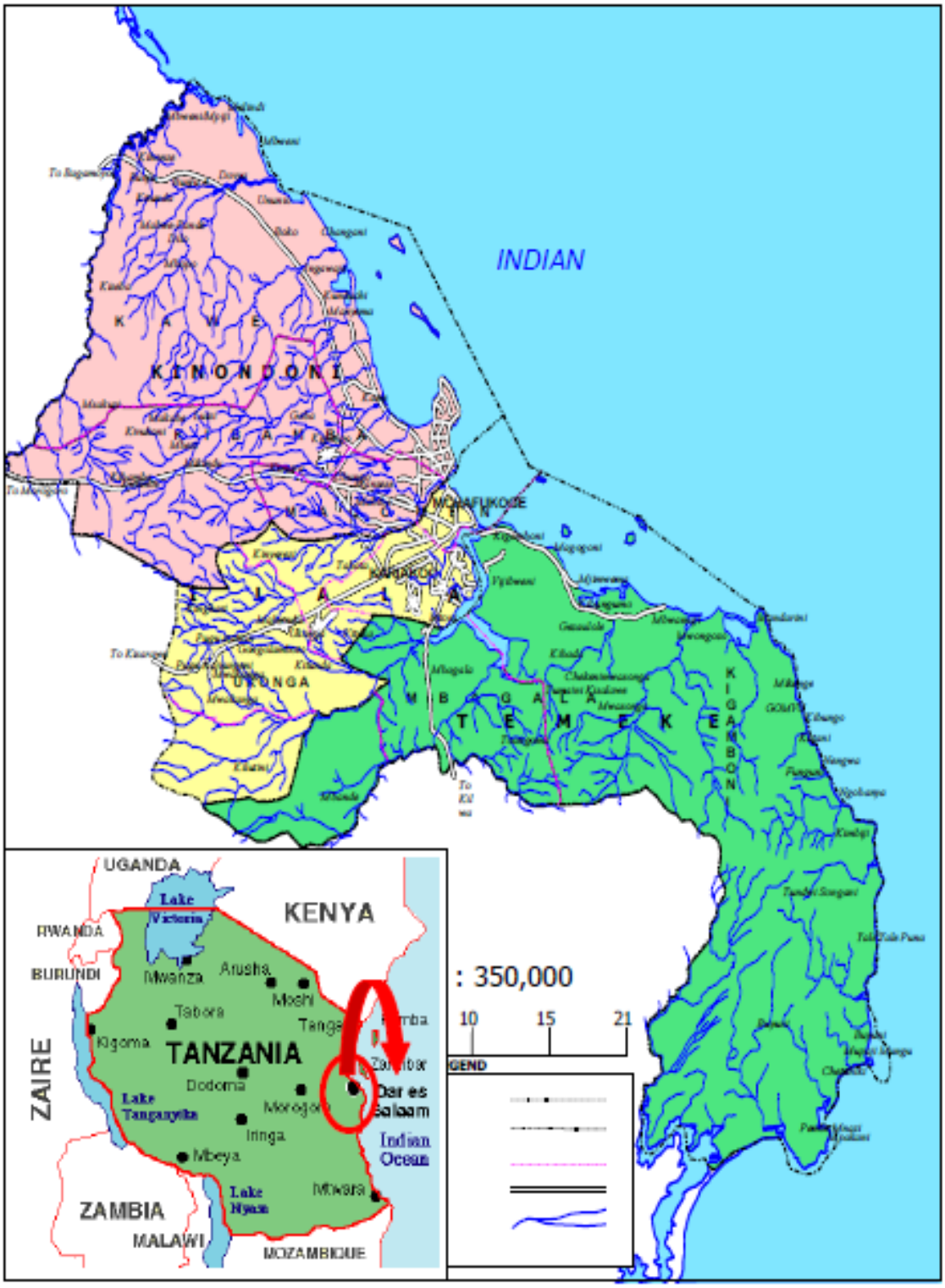
APPENDIX 1: Figure 1: Map of Dar Es Salaam City Council Showing municipalities.



Appendix 2: IEC messages at health facilities

Appendix 3: Water storage bucket and drinking cups at one of the health facilities

APPENDIX 4: QUESTIONNAIRE FOR ANC CLIENTS (Pregnant women)

IDENTIFICATION:

Questionnaire no:…….. District: ……
Date of interview: …….. Name of health facility: ..…….
Name of Interviewer……

INTRODUCTION: We are healthcare workers from Muhimbili University of Health and Allied sciences, we are here to collect information on IPT use, this information is going to be used for research purpose only and it is expected that the outcome of the research will be used to improve IPT use among pregnant women.
We therefore request for your time and cooperation to participate in this interview that will not take much of your time.

SECTION 1: SOCIO-DEMOGRAPHIC FACTORS.

Instructions*: Please follow instructions under each section before interviewing the client. All the instructions are written in italics. Fill in the correct answer for questions 1 and 2 in this section. For the rest of the questions write the number of the corresponding answer in the box. Note: Do not read the responses for the client to choose the right answer. Read the question and wait for the response, write the number in the box corresponding to the relevant answer. Each question has only one right answer.*

Q1. Age in years: ..... ☐

Q2. Gestation period in weeks ☐
(Confirm the age of pregnancy from the MCH card)

Q3. Gravidity: (No of pregnancy)……..

1) 0 ☐
2) 1 ☐
3) 2 ☐
4) 3 ☐
5) 4 ☐
6) 5+ ☐

Q 4. Parity: (No of live births)……..

1) 0 ☐
2) 1 ☐
3) 2 ☐
4) 3 ☐
5) 4 ☐
6) 5+ ☐

Q 5. Marital Status:

1) Married ☐
2) Widowed ☐
3) Single ☐
4) Co-habiting ☐

Q 6. Level of education

1) Tertiary ☐
2) Secondary ☐
3) Primary ☐
4) No education ☐
5) Other, specify…… ☐

Q 7. How many months into your pregnancy did you first attend ANC? ☐

Check antenatal card record for the following information.

Q 8. Gestation (weeks) recorded at first visit ☐

Q 9. Number of doses SP recorded (given) ☐

SECTION 2: SP ADMINISTRATION

Q 10: At what gestational age (in weeks) was the first dose of SP given?

1) 20-24 weeks ☐

2) 28-32 weeks ☐

3) 32+ weeks ☐

Q 11. At what gestational age (in weeks) was the second dose of SP given?

1) 20-24 weeks ☐

2) 28-32 weeks ☐

3) 32+ weeks ☐

SECTION 3: KNOWLEDGE OF IPTp

Q 12. Have you ever heard of prevention of malaria during pregnancy?

1) Yes ☐ *If yes, go to question 13*

2) No ☐ *If No, go to question 14*

Q 13. Where did you first hear about prevention of malaria in pregnancy?

1) Atenatal Clinic ☐

2) Television ☐

3) Leaflets ☐

4) Relatives ☐

5) Other (Specify)…… ☐

Q 14. What are the different ways used for prevention of Malaria in pregnancy that you know?
Instructions: Write the number of all responses that are applicable

1) Taking drugs ☐

2) Sleep under an insecticide treated net ☐

3) Use mosquito repellent ☐

4) Wear protective clothing, especially at night ☐

5) Don't know ☐

6) Other, specify…… ☐

Q 15. What drug is used for IPT at Antenatal clinics?

1) SP ☐ *continue with question 16*

2) ALU ☐

3) Other (Specify)…… ☐

If the answer is ALU or OTHER, go to question 19

Q 16. How many times during a pregnancy does a woman have to swallow the SP tablets at the ANC?

1) Once ☐
2) Twice ☐
3) Thrice ☐
4) Don't know ☐
5) Other (Specify)……. ☐

Q.17 Are you aware of any effects of malaria in pregnancy?

1.) Yes ☐ *If Yes go to question 18*
2.) No ☐ *If No go to question 19*

Q. 18. If yes to previous question, what are the effects of malaria in pregnancy? *(Check all that is applicable*)

1) Can cause anaemia ☐
2) Can cause death ☐
3) Can cause spontaneous abortion ☐
4) Can cause low birth weight ☐
5) Can cause prematurity ☐
6) Don't know ☐
7) Other, specify…….. ☐

SECTION 4: CLIENTS ATTITUDE TOWARDS IPTp

Instructions: write the corresponding number of the answer in the box provided.

Q 19. Have you suffered a malaria episode during this pregnancy?

1) Yes
2) No

Q 20. What do you do to prevent yourself from getting malaria?

1) Use mosquito net
2) Wear protective clothing
3) Use insecticide to kill mosquitoes
4) Use mosquito coils
5) Take preventive medicines
6) Other (specify) ……..……

Q 21. Have you ever taken medicine for prevention of malaria in pregnancy?

1) Yes *If Yes, skip the next question, go to question 23*
2) No *If No, continue with question 22*

Q 22. What were the reasons for not taking the medicine at the ANC clinic?

1) The pregnancy is still young below (24 weeks)
2) The medicine was not available at the clinic
3) I use other malaria prevention methods
4) The medicine will interact with my pregnancy
5) I am allergic to sulphur
6) SP does not treat malaria
7) Other (Specify)……

Q 23. How many times have you taken this medicine at the ANC clinic?

1) Once
2) Twice
3) Thrice
4) Other (specify)……..

Q 24.What were the reasons given for taking the medication that number of times?

1) I am yet to get the second dose
2) No drugs available
3) the medicine made me feel very bad I can't take it again
4) I was told it has to be taken twice
5) I was informed it has to be taken thrice
6) Do not know
7) other (*Specify)* …….……

Q 25. Do you think that SP is effective in preventing malaria in pregnancy?

1) Yes *If yes, go to question 27*
2) No *If No, continue with question 26*

Q 26. What reasons make you think SP is not effective in IPT?

1) It has shown resistance in treating malaria
2) It is no longer used for Malaria treatment
3) Advocated drug is ALu
4) other *(Specify*)……

Q 27. If your family/Spouse take care of the drugs you take during your pregnancy; have you ever been discouraged to take IPT?.....

1) Yes *If Yes, continue with question 28*
2) No *If No, End of Interview*

Q 28. What reasons were you given for you not to take IPT?.....

1) It will cause miscarriage ☐
2) Modern medicines are not good for the baby ☐
3) Use of traditional medicines instead ☐
4) Use other protective measures but avoid medicines ☐
5) Other (Specify)…… ☐

Q 29. Do you think that the reasons you were given were logically sound to make you not take the medicine?

1) Yes ☐
2) No ☐

End of Interview

APPENDIX 5: DODOSO KWA MAMA MJAMZITO

UTAMBULISHO

Nambari ya dodoso……. Wilaya …….
Tarehe ya usaili…….. Jina la kituo……

Jina la Msaili……

UTANGULIZI:

Sisi ni wafanyakazi wa afya kutoka Chuo Kikuu Cha Afya na Tiba cha Muhimbili, tupo hapa kwa ajili ya kukusanya taarifa zinazohusiana na matumizi ya IPT, taarifa hisi zitatumika kwa ajili ya utafiti tu na matokeo ya utafiti huu yanatarajiwa kutumika kuboresha huduma hizi za IPT kwa wajawazito.

Kwa hiyo tunaomba muda na ushiriakiano wako kwa kushiriki katika usahili huu ambao hautachukua muda mwingi.

SEHEMU YA KWANZA:

Maelekezo*: Tafadhali fuata maelekezo katika kila kipengele kabla ya kufanya usahili. Andika jibu sahihi kwenye visanduku kwa swali la 1 na 2 kwa kipengele hiki. Kwa maswali yaliyobaki, andika namba ya jibu sahihi kwenye kisanduku kilicho sambamba na jibu hilo.*

Zingatia*: Usisome majibu kwa msahiliwa kuchagua lililo sahihi bali soma swali kisha subiri upate jibu na kasha andika namba ya jibu lililo sahihi kwenye kisanduku kilicho sambamba na jibu hilo.*

Kila swali lina jibu moja tu ambalo ni sahihi.

Q1. Umri wako ni miaka mingapi?..... ☐

Q2. Umri wa mimba (wiki ngapi)..... ☐

(Hakikisha umri wa mimba kwa kuangalia kwenye kadi ya kliniki)

Q3. Hii ni mimba yako ya ngapi?.....

1) 0 ☐
2) 1 ☐
3) 2 ☐
4) 3 ☐
5) 4 ☐
6) 5+ ☐

Q4. Idadi ya watoto waliozaliwa wakiwa hai

1) 0
2) 1
3) 2
4) 3
5) 4
6) 5+

Q 5. Hali ya ndoa:

1) Nimeolewa
2) Mjane
3) Sijaolewa
4) Ninaishi tu na mwanaume

Q 6. Je , elimu yako ya juu ni ipi?

1) Chuo kikuu
2) Sekondari
3) Msingi
4) Sijasoma
5) Nyingineyo, taja……..

Q7. Je ulianza kuhudhuria kliniki ya wajawazito ukiwa na ujauzito wa miezi mingapi?

Angalia kadi ya kliniki kwa taarifa zifuatazo

Q8. Umri wa mimba (katika wiki) kipindi alipoanza kuhudhuria kliniki……

Q9. Dozi za SP alizokwishapata……

SEHEMU YA PILI

Q10. Umri wa mimba wakati mama mjamzito amepatiwa SP kwa mara ya kwanza……

1) Wiki ya 20-24 ☐

2) Wiki ya 28-32 ☐

3) zaidi ya wiki 32 ☐

Q11. Umri wa mimba wakati mama mjamzito amepatiwa SP kwa mara ya pili

1) Wiki ya 20-24 ☐

2) Wiki ya 28-32 ☐

3) zaidi ya wiki 32 ☐

SEHEMU YA TATU

Q12. Umeshawahi kusikia kuhusu kinga ya malaria kwa wajawazito?

1) Ndiyo ☐ *Nenda swali la 13*
2) Hapana ☐ *Nenda swali la 14*

Q13. Ulisikia wapi kwa mara ya kwanza kuhusu kinga ya malaria kwa wajawazito?

1) Kliniki ya wajawazito ☐
2) kwenye runinga ☐
3) vipeperushi ☐
4) Marafiki ☐
5) nyingine (***taja***)……

Q14. Kuna njia ngapi tofauti za kujikinga na malaria kwa wajawazito unazozifahamu?
Andika namba za majibu yote yatakayokuwa sahihi.

1) Kumeza dawa ☐
2) Kutumia neti iliyo na kinga(ITN) ☐
3) Kutumia dawa ya mbu ☐
4) Kuvaa nguo inayofunika mwili mzima hasa wakati wa usiku ☐
5) Sifahamu ☐
6) Nyingine (***taja***)…….. ☐

Q.15 Dawa gani inatolewa kliniki kama kinga kinga ya malaria kwa wajawazito?

1) SP ☐ *nenda swali la 16*
2) ALu ☐ *nenda swali la 19*
3) Nyingine (taja)……. ☐ *nenda swali la 19*

Q. 16 Ni mara ngapi mama mjamzito anapaswa kumeza vidonge vya SP katika ujauzito wake?

1) Mara moja ☐
2) Mara mbili ☐
3) Mara tatu ☐
4) Sijui ☐
5) Nyingine (taja)……..

Q. 17 Je, unafahamu madhara yanayotokana na kupata Malaria wakati wa ujauzito?

1) Ndiyo ☐ *Nenda swali la 18*
2) Hapana ☐ *Nenda swali la 19*

Q18. Ni madhara gani yanayotokana na kupata malaria wakati wa ujauzito?
Andika namba za majibu yote yaliyo sahihi

1) Anemia ☐
2) Kifo ☐
3) Mimba kuharibika ☐
4) kuzaa mtoto mwenye uzito mdogo ☐
5) kuzaa mtoto kabla siku zake hazijafikia ☐
6) Sijui ☐
7) nyingine (***taja***)…….. ☐

SEHEMU YA NNE

Maelekezo: Andika namba ya jibu lilio sahihi kwenye kisanduku kilicho mbele ya jibu hilo.

Q. 19 Umeshaugua malaria katika ujauzito huu?

1) Ndiyo ☐
2) Hapana ☐

Q. 20 Unafanya nini ili kujikinga usipatwe na malaria?

1) Natumia chandarua wakati wa kulala ☐
2) Navaa nguo ndefu ☐
3) Natumia dawa za mbu za kupulizia ☐
4) Natumia dawa za mbu za kuchoma ☐
5) Nameza dawa za kujikinga ☐
6) Nyingine (taja) ……..…… ☐

Q. 21 Umeshawahi kumeza dawa kwa ajili ya kujikinga na malaria?

1) Ndiyo ☐ *Nenda swali la 23*
2) Hapana ☐ *Endelea na swali la 22*

Q.22 Ni sababu zipi zinakufanya usimeze dawa za kujikinga na malaria katika kliniki hii?

1) Ujauzito wangu bado ni mchanga chini ya wiki 24 ☐
2) Dawa haikupatikana klininki ☐
3) Nilikuwa natumia njia nyingine za kuzuia na malaria ☐
4) dawa itaharibu mimba yangu ☐
5) Nina allergy na sulphur ☐
6) SP haitibu malaria ☐
7) Sababu nyingine taja ……

Q.23 Ni mara ngapi umemeza dawa za kujikinga malaria katika kliniki hii?

1) Mara moja ☐
2) Mara mbili ☐
3) Mara tatu ☐
4) Nyingine (taja) ☐

Q. 24 Ni sababu zipi zilikupelekea umeze hizi dawa kwa hiko kipindi ulichotaja ?

1) Bado sijafikia wakati wa kupata dozi ya pili ☐
2) dawa hazikuwepo wakati nahitaji kupata dozi ya pili ☐
3) dawa ilinifanya nijisikie vibaya siwezi kumeza tena dozi ya pili ☐
4) Niliambiwa kuwa inabidi nimeze mara mbili ☐
5) Niliambiwa kuwa inabidi nimeze mara tatu ☐
6) Sijui ☐
7) Sababu nyingine, taja…….

Q. 25 Unafikiri vidonge vya SP vinafaa kukinga malaria kwa wajawazito?

1) Ndiyo ☐ *Nenda swali la 27*
2) Hapana ☐ *Endelea na swali la 26*

Q. 26 Ni sababu gani zinakufanya ufikiri vidonge vya SP havifai kutumika kwa ajili ya kujikinga na malaria kwa wajawazito?

1) SP imeonyesha usugu kwa kutibu malaria ☐
2) Haitumiki tena kutibu malaria ☐
3) Dawa inayotumika ni ALu ☐
4) Nyingine(***taja***)…….. ☐

Q. 27 Umeshawahi kushawishiwana ndugu wa karibu/ mumeo usimeze dawa za SP kwa ajili ya kujikinga na malaria?

1) Ndiyo ☐ *Nenda swali la 28*
2) Hapana ☐ *Mwisho wa usahili.*

Q. 28 Ulipewa sababu gani za kutomeza dawa hizo?

1) Zitaharibu mimba ☐
2) Dawa za kisasa si nzuri kwa watoto ☐
3) Nitumie dawa za kienyeji ☐
4) Nitumie njia nyingine za kujikinga na malaria na si dawa ☐
5) Nyingine (taja)…… ☐

Q.29 Unafikiri sababu ulizopewa ni za msingi kukufanya wewe usiweze kumeza dawa hizo?

1) Ndiyo ☐
2) Hapana(elezea)…… ☐

APPENDIX 6: QUESTIONNAIRE FOR ANC STAFF

IDENTIFICATION:
Questionnaire number:…… Date of interview:……..
District …… Name of health facility……..

Name of interviewer……

INTRODUCTION: We are healthcare workers from Muhimbili University of Health and Allied sciences, we are here to collect information on IPT use, this information is going to be used for research purpose only and it is expected that the outcome of the research will be used to improve IPT use among pregnant women.
We therefore request for your time and cooperation to participate in this interview that will not take much of your time.

SECTION 1: SOCIAL DEMOGRAPHIC INFORMATION
Instructions: Please write the number of the corresponding answer on the box relevant to the question.

Q1. Age in years... ☐

Q 2. Sex: 1) Male ☐
2) Female ☐

Q 3. Staff category:
1) Nurse assistant ☐
2) Enrolled nurse ☐
3) Nurse Midwife ☐
4) Public health nurse ☐
5) Registered nurse ☐
6) Other, specify…… ☐
……

SECTION 2: KNOWLEDGE ABOUT IPTp

Please write the corresponding number for the right answer in the box provided.

Q 4. What is Intermittent Preventive Treatment of malaria in pregnancy (IPT)?

1) Giving curative doses of an effective anti malaria drug weekly during pregnancy
2) Giving of curative doses of an effective antimalarial drug at predefined intervals during pregnancy
3) The injection of artesunate to a pregnant woman when she has malaria
4) Giving of artesunate combined treatment (ACT) to pregnant women when they have malaria
5) Don't know

Q 4. What medicine is recommended for IPTp use in Tanzania?

1) Chloroquine
2) Artesunate- amodiaquine
3) Fansidar (SP)
4) Artemether-Lumefantrine
5) Don't know
6) Other (specify)……..

Q 6. When is IPTp supposed to be started during pregnancy?

1) In the first trimester
2) In the middle of the second trimester
3) In the third trimester
4) At 16 weeks of gestation or after quickening
5) Don't know
6) Other (Specify)……

Q 7. Why would you not give the medicine at the beginning of pregnancy?

1) It will make the woman vomit
2) It can have a negative effect on the fetus
3) It will cause the woman to fall sick

4) It will lead to anaemia in the woman
5) Don't know
6) Other (Specify)…….

Q 8. How many times during pregnancy is it recommended to give IPT in Tanzania?

1) Once
2) Twice
3) Thrice
4) Four times
5) Don't know
6) Other (Specify)…….

Q 9. After what interval is it recommended that IPTshould be give after the first dose?

1) A Month
2) A Fortnight
3) Three months
4) A week
5) Don't know
6) Other (Specify)…….

Q 10. What are some of the known side effects of taking the IPT medicine?

1) Skin rash
2) Vomiting
3) Nausea
4) Do not know
4) Other (Specify)…….

Q 11. Under what circumstances would it be unadvisable to give SP to a pregnant woman?

1) If the woman is allergic to sulphur drugs.
2) If the woman is in the first trimester.
3) If treated with SP less than a month ago .

4) Do not know
5) Other (Specify)

Q 12. What other measures should be taken by pregnant women to prevent malaria other than taking IPT medicine?

1) Sleep under insecticide treated mosquito net
2) Wear protective clothing, especially during the night
3) Use mosquito repellent
4) Do not know
5) Other (Specify) …….

Q 13. What are some of the benefits of IPT?

1) Reduces the incidence of low birth weight infants
2) Reduces the incidence of maternal anaemia
3) Reduces the incidence of infant mortality
4) Reduces the incidence of maternal mortality
5) Do not know
6) Other (Specify)……..

SECTION 3: PRACTICE OF IPTp IN THE ANC

Q 14. Do you administer IPTp in your facility?

1) Yes *Continue with question 15*
2) No *Skip this section, go to section four*

Q 15. How is the medicine administered at your clinic?

1) Given to the pregnant women to take home
2) We observe the pregnant women take the medicine in clinic
3) Prescriptions are written for the pregnant women to go and collect at the pharmacy
4) Other ,specify ……

Q 16. Do pregnant women come back to take the medicine at the clinic?

1) Yes ☐

Q 17. Has any of the pregnant women ever reported any side effects?

1) Yes ☐
2) No ☐ *If **No,** go to question 19*

Q 18. If yes, what was reported?

1) Nausea ☐
2) vomiting ☐
3) Diarrhoea ☐
4) skin rash ☐
6) Other (Specify)……. ☐

Q 19. Have you ever run out of the medicine for IPTp in your clinic?

1) Yes ☐ *If yes continue with question 20*
2) No ☐ *If no go to question 22*
3) Don't know ☐

Q 20. (*If yes)* How many times during the last three months?

1) Once ☐
2) Twice ☐
3) more than 2 times ☐
4) Don't know ☐
6) Other (Specify)……. ☐

Q 21. What happened to the IPTp programme when there was no SP?

1) Suspended till we got the medicine ☐
2) Asked women to buy SP ☐
3) Referred women to other Health Facilities ☐
4) Other, specify…… ☐

Q 22. Where do you normally get the supplies of medicine for IPTp from?

1) Private pharmacies ☐
2) Medical Stores Department ☐
3) Don't know ☐
4) Other, specify ……. ☐

Q 23. Do you supply clean safe water for the pregnant women to take the IPTp medicine?

1) Yes ☐
2) No ☐ *If **No,** continue with question 24*

Q 24. If no, how do the women get water for the medicine?

1) Buy water from the clinic ☐
2) Bring water from outside the unit ☐
3) They take the medicine when they go back home. ☐
4) Other, specify…… ☐

SECTION 4: SUPERVISION AND MONITORING OF IPTp PROGRAMME

Q 25. Did you have any supervisory/monitoring visits at your unit in the past three months?

1) Yes ☐
2) No ☐

Q 26. Did you have any supervisory/monitoring visits in the past three months for IPTp?

1) Yes ☐ *If **YES** continue to question 27*
2) No ☐ *If **No,** go to the next section (section 5)*

Q 27 . (If yes in qn 26) What areas did the supervision focus on?

1) Antenatal records ☐
2) Store records ☐
3) MCH cards ☐
4) Availability of water ☐
5) Practice of IPT in general ☐
6) Other specify……. ☐

Q 28. Who did the monitoring/supervision?

1) External team ☐
2) Internal team ☐
3) CHMT ☐
4) Both ☐
5) Don't know ☐
6) Other (specify)……... ☐

SECTION 5: PERCEPTION OF HEALTH CARE PROVIDERS TOWARDS IPT

Interview guide: FOCUS GROUP DISCUSSION

Instruction: Please use a recorder to take the responses in this section of focus group discussion, The facilitator does the probing for each question and leads the process of discussion for each area.

Q 1. Do you believe that malaria is a threat to pregnant women? .....

Q2. What is your opinion on malaria prevention in pregnancy?

Q3. Do you believe that IPT provision help to protect pregnant women from malaria?

Q 4. Do you think that some healthcare providers do not provide IPT?

Q5. From your day to day experience, how many pregnant women refuse to take SP and what reasons do they give?

Q6. What are some of the reasons that pregnant women give for not taking IPTp and you agree with?

Q7. What are some of the reasons that pregnant women give for not taking IPTp and you do not agree?

APPENDIX 7 :DODOSO KWA AJILI YA WAFANYAKAZI WA KLINIKI YA WAZAZI

UTAMBULISHO

Nambari ya Dodoso: ..... Wilaya: .....
Tarehe ya usaili..... Jina la kituo: .....

Jina la mtoa usaili .....

UTANGULIZI:

Sisi ni wafanyakazi wa afya kutoka chuo kikuu cha afya na tiba cha Muhimbili, tupo hapa kwa ajili ya kukusanya taarifa zinazohusiana na matumizi ya IPT, taarifa hisi zitatumika kwa ajili ya utafiti tu na matokeo ya utafiti huu yanatarajiwa kutumika kuboresha huduma hizi za IPT kwa wajawazito.
Kwa hiyo tunaomba muda na ushiriakiano wako kwa kushiriki katika usahili huu ambao hautachukua muda mwingi.

SEHEMU YA 1: TAARIFA ZA KIJAMII

Maelekezo*: Tafadhali andika namba ya jibu sahihi kwenye kisanduku kilicho sambamba na jibu hilo .*

Q1. Umri wako ni miaka mingapi? ☐

Q 2. Jinsia:

1) Mwanaume ☐
2) Mwanamke ☐

Q 3. Cheo cha msailiwa

1) muuguzi msaidizi ☐
2) Muuguzi mwandamizi ☐
3) Muuguzi Mkunga ☐
4) Muuguzi wa afya ya umma ☐
5) Muuguzi aliyesajiliwa ☐
6) nyingine, taja ..... ☐

SEHEMU YA 2: UFAHAMU JUU YA IPT

Tafadhali andika namba ya jibu sahihi kwenye kisanduku kilicho sambamba na jibu hilo .

Q 4. Unaelewa nini juu ya neno 'Kuzuia malaria wakati wa ujauzito?' (IPT)?

1) Kutoa dozi ya dawa madhubuti ya kupambana na malaria kila wiki wakati wa ujauzito
2) Kutoa dozi ya dawa madhubuti ya kupambana na malaria Kwa vipindi maalum wakati wa ujauzito
3) Kutoa dozi ya sindano ya Artesunate na mwanamke mjamzito wakati ana malaria
4) Kutoa tiba ya dawa mseto(ACT) kwa wanawake wajawazito Wakati wana malaria.
5) Sifahamu.

Q 4.Nini dawa ni ilipendekeza kwa ajili ya matumizi ya IPT hapa Tanzania?

1) chloroquine
2) Artesunate-amodiaquine
3) Fansidar (SP)
4) Artemether Lumefantrine-
5) Sijui
6) Nyingine (taja) .....

Q 6. Ni wakati gani mama mjamzito anatakiwa kuanza kupata IPT?

1) Katikamiezi mitatu ya kwanza
2) Katikati ya miezi mitatu ya pili
3) Katika miezi mitatu ya mwisho
4) Katika wiki ya 16 za ujauzito au baada ya mimba kuhuisha
5) sijui
6) Nyingine (taja) .....

Q 7.Kwa nini dawa hii haitolewi mwanzoni mwa ujauzito?

1) Itamsababisha mama mjamzito atapike
2) Inaweza kuwa na athari hasi katika kijusi
3) Inaweza kusababisha mwanamke kuugua
4) Itasababisha upungufu wa damu kwa mwanamke
5) Sijui
6) Nyingine (taja) .....

Q 8.Ni mara ngapi wakati wa ujauzito inashauriwa kutoa dozi za IPT nchini Tanzania?

1) Mara moja
2) Mara mbili
3) Mara tatu
4) Mara nne
5) Sijui
6) Nyingine (taja) .....

Q 9. Je, ni baada ya muda gani inashauriwa kutoa dozi ya pili ya IPT baada ya dozi ya kwanza?

1) Mwezi
2) wiki mbili
3) Miezi mitatu
4) Wiki moja
5) sijui
6) Nyingine (taja) .....

Q 10.Je, ni baadhi ya madhara anajulikana upande wa kutumia dawa matibabu?

1) Vipele vya ngozi
2) Kutapika

3) Kichefuchefu
4) Sijui
5) Nyingine (taja) ……

Q 11. Ni katika hali gani haishauriwi kutoa SP kwa mwanamke mjamzito?

1) Kama mwanamke ana mzio wa dawa za sulphur.
2) Ikiwa mwanamke mjamzito yupo katika miezi mitatu ya kwanza.
3) Kama mwanamke huyo amepata SP chini ya mmoja uliopita.
4) Sijui
5) Nyingine (taja)

Q 12. Mbali na dawa za IPT, ni hatua gani nyingine zichukuliwe kwa wanawake wajawazito ili kuzuia malaria?

1) Kulala kwenye chandarua chenye dawa ya mbu
2) Kuvaa nguo ndefu, hasa wakati wa usiku
3) Kutumia dawa za kufukuza mbu
4) Sijui
5) Nyingine (taja) .....

Q 13. Je, nini baadhi ya faida ya IPT?

1) Hupunguza matukio ya kuzaliwa watoto wenye uzito wa chini.
2) Hupunguza matukio ya upungufu wa damu ya uzazi
3) Hupunguza matukio ya vifo vya watoto wachanga
4) Hupunguza matukio ya vifo vya wajawazito
5) Sijui
6) Nyingine (taja) .....

SEHEMU YA 3: UTOAJI HUDUMA ZA IPT KATIKA KLINIKI

Q 14. Je, mnatoa huduma za IPT katika kituo hiki?

1) Ndiyo ☐ *Kama ni **hapana**, ruka sehemu hii.*
2) Hapana ☐ *Kama **Ndiyo,** kuendelea na swali 15*

Q 15. Ni kwa jinsi gani dawa za IPT hutolewa katika kliniki hii?

1) Wanawake wajawazito hupewa dawa wakamezee nyumbani ☐
2) Wanawake wajawazito humeza dawa katika kliniki ☐
3) Wanawake wajawazito hupewa cheti kwenda kuchukua dawa katika dirisha la dawa ☐
4) nyingine, taja ..... ☐

Q 16. Je, wanawake wajawazito kurudi kumezea dawa katika kliniki?

1) Ndiyo ☐
2) Hapana ☐

Q 17. Mmeshawahi kupata taarifa yoyota ya madhara ya dawa bii kutoka kwa wanawake wajawazito?

1) Ndiyo ☐
2) Hakuna ☐ ***Kama** ni **hapana,** kwenda kwa swali19*

Q 18.Kama ndiyo, ni taarifa zipi zinaripotiwa?

1) Kichefuchefu ☐
2) kutapika ☐
3) Kuhara ☐
4) upele ☐
6) Nyingine (taja) ..... ☐

Q 19.Je, mmewahi kuishiwa na dawa za IPTp katika kliniki yako?

1) Ndiyo ☐ *Endelea na swali la 20*
2) Hapana ☐ *nenda kwenye swali 22*
3) Sijui ☐

Q 20.*(Kama ndiyo)* Ni mara ngapi mmeishiwa dawa kwa kipindi cha miezi mitatu iliyopita?

1) Mara moja ☐
2) Mara mbili ☐
3) zaidi ya mara 2 ☐
4) Sijui ☐
6) Nyingine (taja) ..... ☐

Q 21.Ni nini kinafanyika kwenye mpango IPTp wakati hakuna SP?

1) Huduma zinasimamishwa mpaka dawa zipatikane ☐
2) Wanawake hushauriwa kwenda kununua SP ☐
3) Wanawake huelekezwa kwenda kwenye vituo vingine ☐
4) nyingine, taja ..... ☐

Q 22.Kwa kawaida huwa mnapata wapi dawa kwa ajili ya IPT?

1) Maduka ya dawa ya binafsi ☐
2) Bohari kuu ya madawa (MSD) ☐
3) Sijui ☐
4) nyingine, specify ..... ☐

Q 23.Je, mnatoa maji safi na salama kwa wanawake wajawazito kumezea dawa za IPTp?

1) Ndiyo ☐
2) Hakuna ☐ ***nenda*** *swali la 24*

Q 24.Kama hakuna, ni jinsi gani wanawake hupata maji kwa ajili ya dawa?

1) Kununua maji kutoka kliniki ☐
2) Huleta maji kutoka nje ya kitengo ☐
3) Wao huchukua dawa na kwenda kumezea nyumbani. ☐
4) nyingine, taja ..... ☐

SEHEMU YA 4: USIMAMIZI NA UFUATILIAJI WA MPANGO WA IPT

Q 25. Je, kuna ziara yoyote ya usimamizi / ufuatiliaji katika kitengo chako katika miezi mitatu iliyopita?

1) Ndiyo ☐
2) Hapana ☐

Q 26. Je, kuna ziara yoyote ya usimamizi / ufuatiliaji wa IPT katika miezi mitatu iliyopita?

1) Ndiyo ☐ *endelea kuhoji 27*
2) Hakuna ☐ *ruka sehemu hii, nenda sehemu ya 5*

Q 27. Ni maeneo gani ambayo usimamizi huo ulitilia mkazo?

1) kumbukumbu za wajawazito ☐
2) rekodi za stoo ☐
3) Kadi za kliniki (MCH) ☐
4) Upatikanaji wa maji ☐
5) Utoaji wa IPT kwa ujumla ☐
6) nyingine (taja) ..... ☐

Q 28. Ni nani ambaye alifanya ufuatiliaji / usimamizi huu?

1) Timu kutoka nje ☐
2) Timu ya ndani ☐
3) CHMT ☐
4) Wote ☐
5) Sijui ☐
6) Nyingine (taja) ..... ☐

SEHEMU YA 5: MTAZAMO WA WATOA HUDUMA ZA AFYA KUHUSU HUDUMA ZA IPT

Mwongozo wa mahojiano: Mazungumzo na makundi

Maelekezo: Tafadhali tumia kinasa sauti kuchukua majibu katika sehemu hii ya mtazamo wa majadiliano ya kundi, Msimamizi afanye uchunguzi kwa kila swali na aongoze mchakato wa majadiliano kwa kila eneo.

Q 1. Je, unaamini kuwa malaria ni tishio kwa wanawake wajawazito? .....

Q 2. Una Maoni gani juu ya kuzuia malaria katika ujauzito?

Q 3.Je, unaamini kuwa utoaji matibabu ya IPT husaidia kulinda wanawake wajawazito na malaria?

Q 4.Je, unafikiri kwamba baadhi ya watoa huduma za afya hawatoi huduma za IPT?

Q 5.Kutokana na uzoefu wa kila siku, wanawake wajawazito wangapi hukataa kuchukua SP na hutoa sababu gani?

Q 6.Je, nini baadhi ya sababu ambazo wanawake wajawazito wanaokataa IPT hutoa na wewe kukubaliana nazo?

Q 7. Je, nini baadhi ya sababu ambazo wanawake wajawazito wanaokataa IPT hutoa nawe hukubaliani nazo?

APPENDIX 8: CHECK LIST FOR ANC UNIT OBSERVATION

Date:……

Name of facility ……

District ……

(Please tick where appropriately)

	YES	NO
Health talk given at ANC on day of visit		
Health talk given that day included malaria in pregnancy		
Health talk given that day included IPTp		
Presence of request forms for ANC medicines including SP		
Presence of posters of IPTp/MIP on the wall		
Presence of ANC Report Book for daily summaries		
SP given is recorded in ANC report Book for daily summaries		
SP given is recorded in ANC cards of clients		
SP available at ANC		
Practice of DOT observed		
Presence of Adverse Effects forms for SP		
Presence of free, clean, safe water for DOT		
Presence of safe, clean water for sale for DOT		
Availability of IPTp National protocol		
Availability of IPTp training manual		

Any additional observations made: ……..

……

……

APPENDIX 9: INFORMED CONSENT - ENGLISH VERSION

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

DIRECTORATE OF RESEARCH AND PUBLICATIONS

INFORMED CONSENT

ID-NO ☐☐☐

Consent to Participate in this Study

My name is…….... I am doing research on Factors Affecting the implementation of Intermittent Preventive treatment of Malaria in pregnancy in Dar-es salaam health facilities**.** I am going to give you information and invite you to be part of this research.

Purpose of the Study

This study has the purpose of collecting information factors affecting the uptake of Intermittent Preventive Treatment of Malaria among pregnant women attending ANCs in Dar-es Salaam region. 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 be interviewed with a questionnaire and you will be required to provide the responses at your best knowledge as guided by the interviewer.

2. It will take sometimes to fill the questionnaire. After you have completed to respond to the questions, the interviewer will thank you for your participation and that will be the end of your interview.

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 clients from different health facilities 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 not be asked questions that will interfere with your personal esteem. Please be truthful in your responses.

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 prevalence and factors affecting the implementation of IPT. Identifying the underlying factors that hinder IPT implementation is an important step toward the development of effective prevention program aimed at reducing the effects of Malaria in pregnancy.

Who to contact

If you ever have questions about this study, you should contact the study Coordinator or the **Principal Investigator, Josephine Nyonyi ,**Muhimbili University of Health and Allied Sciences (MUHAS), P.O. Box 65001, Dar es Salaam (Tel. no. 0713 484 351).

Signature

Do you agree?

Participant Agrees [__]

Participant disagree [__]

Signature of Participant_____

Signature of witness (if participant cannot read)_____

Signature of research assistant_____

Date of signed consent_____

APPENDIX 10: INFORMED CONSENT SWAHILI VERSION

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
DIRECTORATE OF RESEARCH AND PUBLICATIONS
FOMU YA RIDHAA

NambayaUtambulisho☐☐☐

Ridhaa ya Kushiriki katika utafiti huu

Habari! Jina langu naitwa .....nafanya kazi katika mradi huu wa utafiti wenye lengo la kuangalia matumizi ya kinga ya malaria kwa wajawazito katika vituo vya Dar es salaam. Nakukaribisha kuwa sehemu ya utafiti huu.

Malengo ya Utafiti

Utafiti huu una lengo la kukusanya taarifa ya zinazohusiana na matumizi ya kinga ya malaria kwa wajawazito wanaohudhuria kliniki katika mkoa wa Dar-es-salaam.Unaombwa kushiriki katika utafiti huu kwa sababu una uelewa na uzoefu unaoweza kutusaidi katika utafiti huu muhimu.

Ushiriki unahusisha nini

Ukikubali kushiriki katika utafiti huu utafanya yafuatayo:

1. Mtafiti aliyepewa mafunzo atakuuliza maswali na utatakiwa kujibu kwa ufahamu wako kwa kuzingatia maelekezo yatakayotolewa.

2. Itachukua muda mchache kujaza dodoso hilo. Baada ya kumaliza kujibu maswali, mtafiti atakushukuru na huo ndio utakuwa mwisho wa mahojiano.

Usiri

Nakuhakikishia kwamba taarifa zote zitakazokusanywa kutoka kwako zitakua ni siri, ni watu wanaofanya kazi katika utafiti huu tu ndio wanaweza kuziona taarifa hizi. Tutajumuisha ripoti ambayo itakua na majibu kutoka kwa washiriki kadhaa bila kuweka utambulisho wao. Hatutaweka jina lako au taarifa yoyote ya utambulisho kwenye kumbukumbu za taarifa utakazotupa.

Madhara

Hautaulizwa maswali ambayo yataingiliana na utu wako,tafadhali kuwa mkweli katika majibu yako.

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 mda wowote hata kama ulisharidhia kushiriki. Kukataa kushiriki au kujitoa katika utafiti hakutaambatana na adhabu yoyote au upotevu wa faida yoyote unayotakiwa kupata.

Faida

Taarifa utakayotupatia itasaidia kuongeza uelewa wetu kuhusu sababu zinazohusishwa na matumizi ya kinga ya malaria kwa wajawazito. Kutambua sababu za msingi ni hatua muhimu katika kuanzisha mipango madhubuti ya kujikinga na malaria kwa wajawazito.

Watu wa kuwasiliana nao

Kama una maswaIi katika utafiti huu unaweza kuwasiliana na **mratibu mkuu wa utafiti huu, Josephine Nyonyi,** Chuo Kikuu cha Muhimbili, S.L. P 65001, Dar es Salaam (Simu. no. 0713 484 351)

Sahihi
Unakubali?
Mshiriki amekubali [__]
Mshiriki amekataa [__]

Sahihi ya mshiriki_____

Sahihi ya shahidi (kama hawezi kusoma na kuandika)_____

Sahihi ya mtafiti muandamizi_____

Tarehe ya makubaliano_____